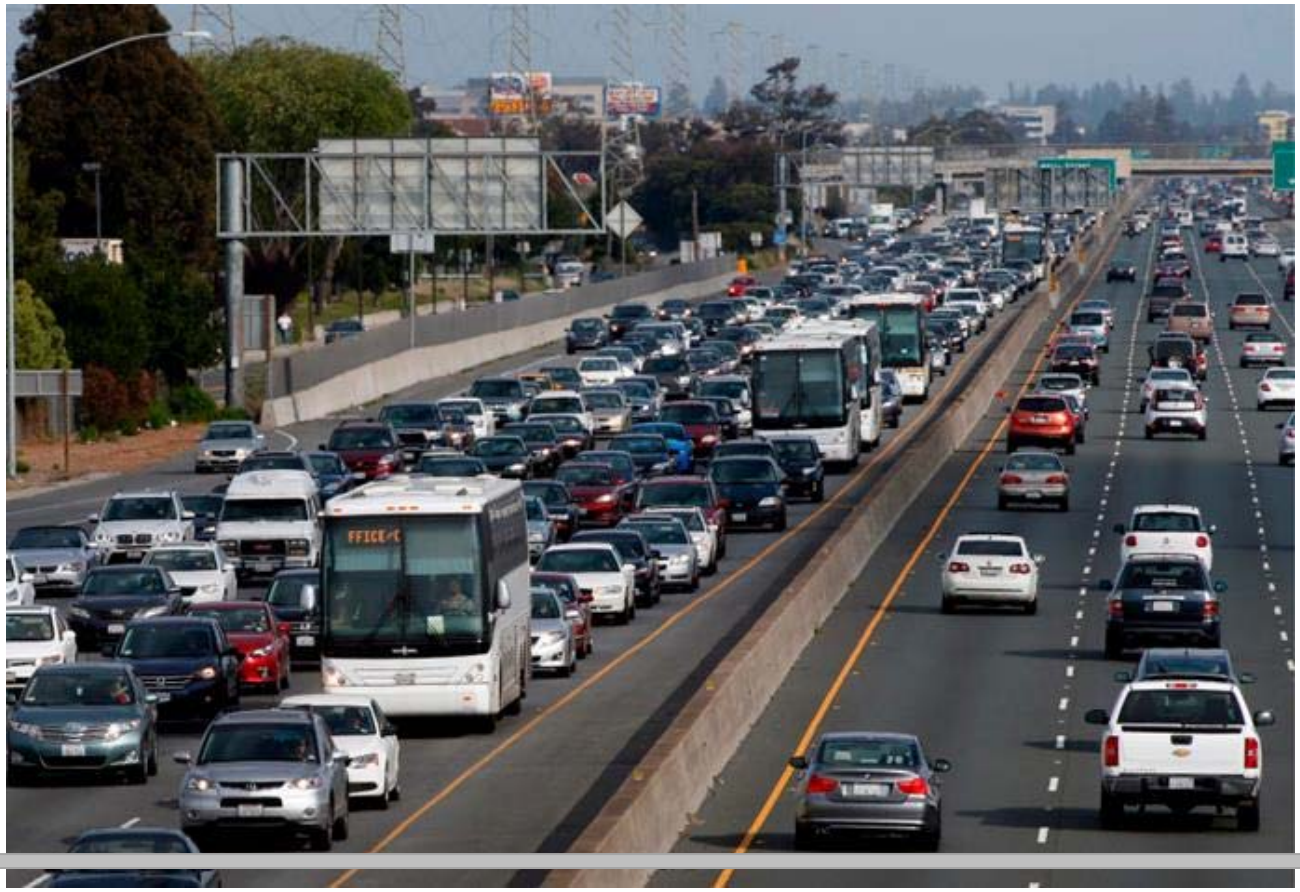

Draft

San Mateo County
Congestion Management Program 2019

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

November 6, 2019

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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.

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)

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. This creates inconsistency when different metrics are 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. In order to resolve this inconsistency, existing CMP legislation must be amended to align with these recent regulations.

Until new CMP legislation is adopted, C/CAG will not produce a major update to the CMP. Instead, C/CAG made concentrated changes during this 2019 update to report on the work performed by C/CAG and progress made to execute the major CMP elements (Roadway System, Traffic LOS Standards, Performance Element, Trip Reduction and Travel Demand Element, Land Use Impact Analysis Program, and Seven-Year Capital Improvement Program) since the last update in 2017.

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).

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 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.)

[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.

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).

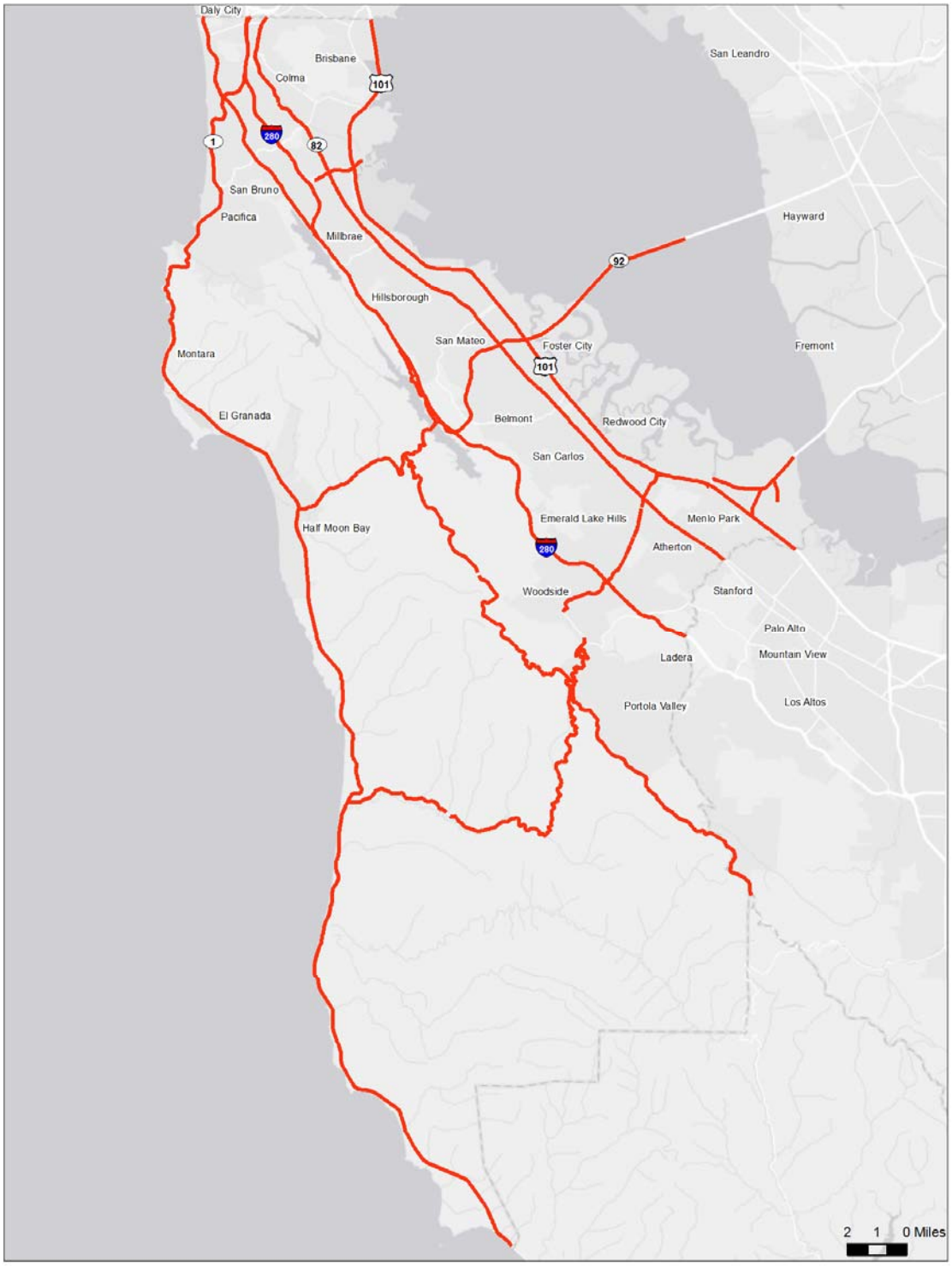
The following intersections were added to the CMP Roadway System adopted in 1993 to have their levels of service monitored.

- 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

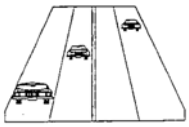
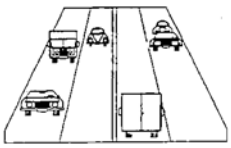
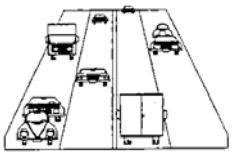
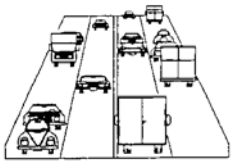
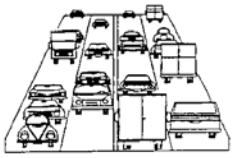
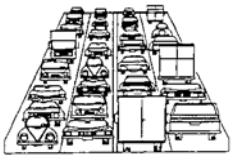
Level of service (LOS) is a qualitative term used to describe a roadway's operating condition. The level of service of a road or street is designated by a letter grade ranging from A to F, with LOS A representing free-flow conditions with little or no delay and LOS F representing forced flow with excessive 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.

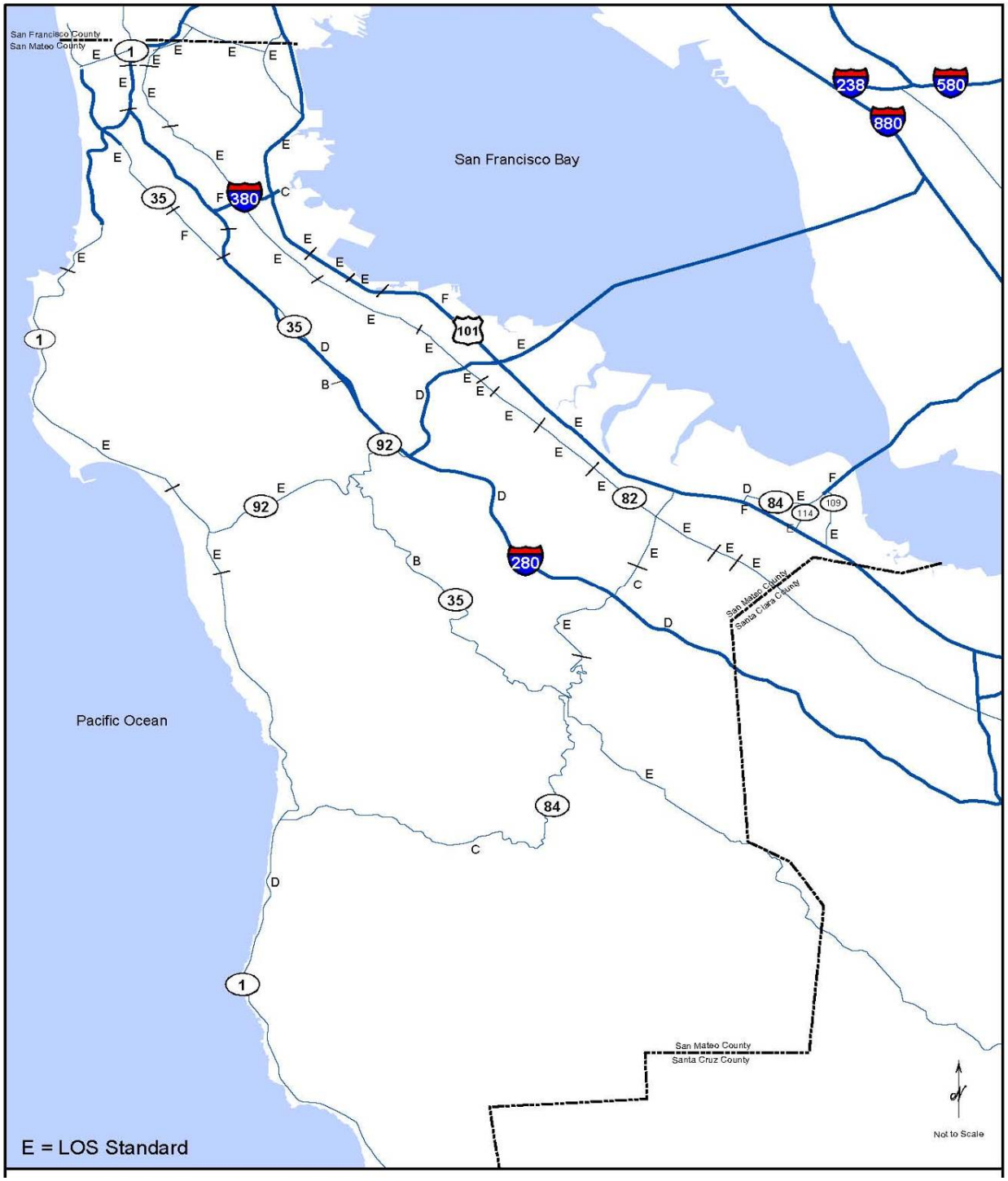
Table II: Level of Service Standards for CMP Roadway Segments

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.

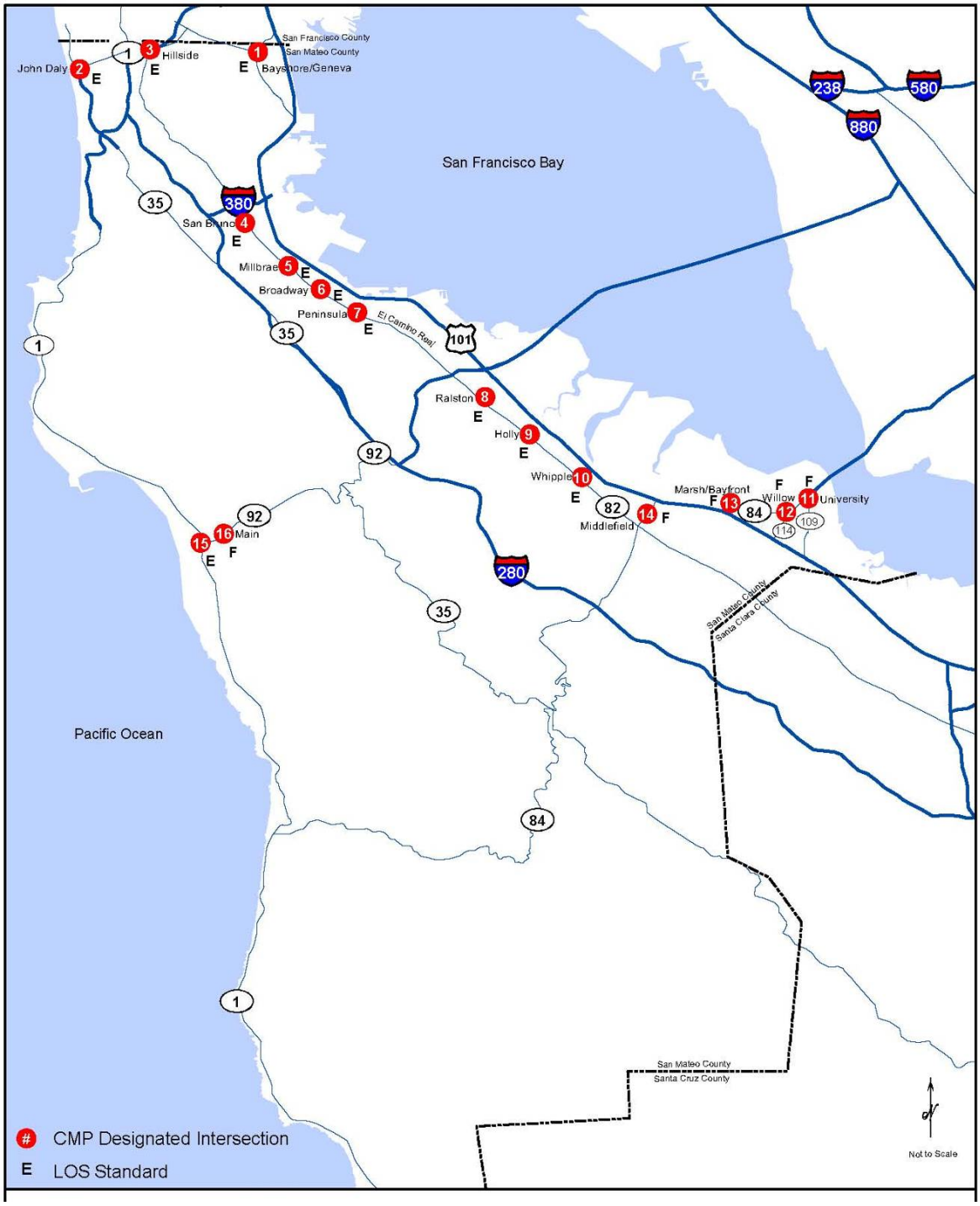
The following process was used to develop the level of service standards for intersections:

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 were 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 as a whole.

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.

Until there are any legislative efforts to amend the CMP legislation, C/CAG will not do any major updates to the CMP and only made focused changes during this update to report on the work performed and progress made in implementing the CMP elements since the last update in 2017.

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 census 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	69%	274,829	67%
Carpool	43,399	11%	39,855	11%	44,651	11%
Public Transportation**	38,807	10%	41,533	10%	46,772	11%
Walked	9,646	3%	10,775	3%	11,565	3%
Motorcycle	8,024	2%	10,556	2%	12,763	3%
Bicycle						
Other Means						
Work at Home	15,900	4%	21,575	4%	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.

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Most county employed residents are driving alone to work. In 2015, solo automobile drivers accounted for 70 percent of the county employed residents commute trips, compared to 69 percent in 2013. In 2015, 9 percent traveled to work by transit and 11 percent by carpool compared to 10 percent and 11 percent in 2013 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 located 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 of the jobs in San Mateo County are filled by San Mateo County residents. As shown in Table VI, 60 percent of the jobs in San Mateo County are filled by San Mateo County residents in year 2013. The remaining jobs are filled by employees who reside in the neighboring counties in relatively equal parts. Similarly, approximately 60 percent of the employed residents work within San Mateo County. Other residents work in San Francisco County, Santa Clara County, and Alameda County in descending order. ABAG has projected that by Year 2020, San Mateo County jobs

filled by employees residing in San Mateo County will to grow to 63 percent, while 61 percent of the employed residents are expected to work within San Mateo County.

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

	San Mateo County Jobs Filled by Employees Residing in Each County		San Mateo County Employed Resident Who Commute to Each County	
	2013	2020	2013	2020
San Mateo	211,700	252,555	211,700	252,555
San Francisco	45,216	50,071	78,720	83,367
Santa Clara	43,128	53,313	52,988	61,887
Alameda	34,448	47,134	12,677	16,489
Rest of Region	17,219	N/A	3,177	N/A
TOTAL	**351,711**	**403,073**	**359,262**	**414,298**

Source: U.S. Census Bureau, 2009-2013 American Community Survey.

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 in San Mateo County, has a TSM/TDM program that includes all tenants with 20 or more onsite employees.

Commute.org Overview

Commute.org is San Mateo County's Transportation Demand Management (TDM) agency focusing on improving the commute to, from, and through San Mateo 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, the Bay Area Air Quality Management District and Metropolitan Transportation Commission.

Specific programs offered through Commute.org include the following:

<u>Shuttle Program</u>
Commute.org operates shuttle services that connects commuters to transit stations throughout San Mateo County. These shuttles provide critical "last mile" transportation that makes commuting via public transit a viable alternative in 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, Caltrain stations, and the South San Francisco ferry terminal.

Our experienced staff meets with employers to review several key topics:

- Joining an existing shuttle consortium
- Establishing a new shuttle
- Funding options
- Shuttle marketing and promotion

Commuter Benefits Consulting
Commute.org's experienced staff works with employers to address commute-related issues, including local and regional Transportation Demand Management (TDM) regulations and commuter pre-tax benefit programs.

Transportation Surveys
Commute.org can assist employers with conducting a transportation survey to obtain data necessary to design an effective transportation program.

Employee Consulting During On-Site Events
Commute.org welcomes the opportunity to participate in health and benefits fairs, open enrollment events, and special programs, assisting your employees one-on-one at your worksite.

Commuter Platform
STAR (Support, Track and Reward) is Commute.org's commuter platform and is available to commuters and employers to encourage commuters to use an alternative to driving alone to work. STAR is accessed online at my.commute.org.

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.

STAR employers can request a network for their employees to encourage carpooling, load specific incentives or challenges for their employees and run commute impact reports for their network.

Guaranteed Ride Home (GRH) Program
The GRH program reimburses commuters who chose to carpool, vanpool, take transit/ferry, 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 – Cash Rewards
Employees who agree to drive a new vanpool for six consecutive months can earn a $500 incentive. Other employees 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 – Gift Card Reward
Employees, residents, and college students who commit to carpooling at least two days per week for eight consecutive weeks can receive a gift card up to $50 in value. Finding carpool partners is easy with the STAR platform at my.commute.org.

Try Transit Program - Free Transit Tickets
Employees and residents who have not taken public transit to or from work can try transit for free. Commute.org facilitates the distribution of tickets provided by public transit agencies such as Caltrain, SamTrans, BART, and San Francisco Bay Ferry, to encourage people to try transit as an alternative to driving alone.
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).

Bicycle Safety Program - Safety Courses & Guide
In partnership with employers, property managers and municipalities, Commute.org sponsors and coordinates bicycle safety 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

Employer luncheon
Commute.org hosts an annual luncheon for San Mateo County Employers to “lunch and learn” from TDM industry professionals.

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.

Bike to Work Day
Bike to Work Day promotes bicycles as a convenient way to commute to work. Commute.org is the county-wide coordinator, serving thousands of cyclists at dozens of Energizer Stations across San Mateo County.

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 bus routes, 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 bus routes carried 47,708 passengers in 2016. The popularity of the Marsh shuttle led to a second shuttle bus being added in July 2017. 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. Prior to March 2017, this two-bus service was known as the Midday shuttle and it carried 13,539 passengers in 2016. In March 2017, the Midday shuttle evolved into the one-bus Menlo Midday shuttle and the two-bus Belle Haven shuttle. The Menlo Midday shuttle now 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 now provides all-day service between the Belle Haven neighborhood and downtown Menlo Park. 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 2016, the Shoppers' Shuttle carried 1,021 passengers. The Shoppers' shuttle is funded by City of Menlo Park and its partner, the San Mateo County Transportation Authority.

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 Airport employees in October 2010. The Airport is working closely with tenants, BART, the San Francisco Department of the Environment, and the Peninsula Traffic Congestion Relief Alliance to monitor and enhance participation of tenants in the mandated SFO Commuter Benefits Program offering employers a choice of paying employees' transit or vanpool costs, or offering employees a pretax savings through payroll deduction. The Airport will be looking closely at new social media initiatives that may allow employees to share rides on an impromptu basis.

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

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

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 Rideamigos 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

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.

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

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

(D) An action plan, consistent with the provision of Chapter 5 (commencing with Section 66000) of Division 1 of Title 7,[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:

[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.

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

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

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

Discussion

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 Pulkas – 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

Route	Roadway Segment	LOS Standard	2019 LOS AM Without Exemption	2019 LOS PM Without Exemption	2019 LOS AM With Exemption	2019 LOS 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
- San Francisco International Airport MOU 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.

Appendix A: Detailed Inventory of CMP Roadways and Intersections

Appendix A

Detailed Inventory of CMP Roadways and Intersections

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

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

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

SR 1

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

SR 35

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

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

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

SR 82 (El Camino Real/Mission Street)

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

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

Westlake Avenue to John Daly Boulevard	Four lanes

SR 84

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

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

SR 92

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

U.S. 101

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

- U.S. 101 is an eight-lane freeway from the Santa Clara County line to the Whipple Avenue interchange comprising six mixed-flow lanes and two High Occupancy Vehicle (HOV) lanes.

- U.S. 101 is an eight-lane freeway from the Whipple Avenue interchange to the San Francisco County line, with the following two exceptions:

1. Between Marsh Road and Hillsdale Blvd, an auxiliary lane has been added in each direction.

2. Northbound U.S. 101 is six lanes wide between the SR 92 and Kehoe Avenue off-ramps, and five lanes wide between the Kehoe Avenue and Third Avenue off-ramps. Southbound U.S. 101 remains four lanes wide.

3. U.S. 101 is a ten-lane freeway from north of the Millbrae Avenue interchange ramps to south of the I-380 interchange ramps.

SR 109

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

SR 114

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

I-280

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

* I-280 is an eight-lane freeway from the Santa Clara County line north to the I-280/SR 1 interchange in Daly City, with the following exceptions:

    1. Between Edgewood Road and the interchange with SR 92, I-280 contains five northbound and five southbound lanes. Each five-lane segment is approximately two miles long and signed: "Slow Vehicles Keep Right".

    2. Through the I-380 interchange, northbound I-280 has only three lanes, while southbound I-280 widens to include a fifth, auxiliary lane.

* I-280 is a 12-lane freeway, north of the SR 1 interchange (south) to the SR 1 interchange (north).

* I-280 is a six-lane freeway, north of its northern junction with SR 1 to the San Francisco County line, where the freeway widens to eight lanes.

I-380

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

Other CMP Roadways

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

- Mission Street is a four-lane arterial that extends from SR 82 (San Jose Avenue) to the northeast, across the San Francisco County line.

- Bayshore Boulevard is an arterial that extends southward from its junction with U.S. 101 in San Francisco County through Brisbane, where it becomes Airport Boulevard. The CMP network only includes the segment of Bayshore Boulevard between the San Francisco County line and Geneva Avenue. This segment is three lanes wide in the northbound direction and two lanes wide in the southbound direction.

- Geneva Avenue is a four-lane arterial that extends to the northwest from Bayshore Boulevard across the San Francisco County line to Mission Street.

CMP Intersections

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

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

Appendix B: Traffic Level of Service Calculation Methods

Appendix B

Traffic Level of Service Calculation Methods

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

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

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

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

Level of Service Calculation Methods

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

Freeways

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

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

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

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

Multilane Highways

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

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

Two-Lane Highways

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

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

Table B-1

1994 HCM Level of Service Criteria for Basic Freeway Sections

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

[a] Density in passenger cars per mile per lane.
[b] Average travel speed in miles per hour.
[c] Maximum volume-to-capacity ratio.
[d] Maximum service flow rate under ideal conditions in passenger cars per hour per lane.

≤ less than or equal to
≥ greater than or equal to

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

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

Table B-2

Level of Service Criteria for Multilane Highways

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

[a] Density in passenger cars per mile per lane.
[b] Average travel speed in miles per hour.
[c] Maximum volume-to-capacity ratio.
[d] Maximum service flow rate under ideal conditions in passenger cars per hour per lane.
[e] Highly variable, unstable.

≤ less than or equal to
≥ greater than or equal to

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

Table B-3

Level of Service Criteria for General Two-Lane Highway Segments

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

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

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

≤ less than or equal to
≥ greater than or equal to

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

Arterials

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

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

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

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

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

Table B-4
Level of Service Criteria for Arterials

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

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

mph miles per hour
≤ less than or equal to
≥ greater than or equal to

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

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

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

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

[b] Volume-to-capacity ratio.

•• greater than or equal to.
< less than.

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

Signalized Intersections

The TRB *Circular 212* Planning method is the selected level of service calculation method for the designated intersections in the San Mateo County's CMP Roadway System. A signalized intersection's level of service, according to the method described in TRB *Circular 212,* is based on dividing the sum of the critical volumes by the intersection's capacity. This calculation yields the volume-to-capacity ratio (V/C). The critical movements are the combinations of through movements plus right-turn movements if there is no exclusive right-turn lane, and opposing left-turn movements that represent the highest per-lane volumes. Descriptions of levels of service for signalized intersections, together with their corresponding V/Cs, are presented in Table B-6.

Table B-6
Intersection Level of Service Definitions

Level of Service	Interpretation	V/C Ratio
A	Uncongested operations; all queues clear in a single signal cycle.	Less Than 0.60
B	Very light congestion; an occasional approach phase is fully utilized.	0.60 to 0.69
C	Light congestion; occasional backups on critical approaches.	0.70 to 0.79
D	Significant congestion on critical approaches, but intersection functional. Cars required to wait through more than one cycle during short peaks. No long-standing queues formed.	0.80 to 0.89
E	Severe congestion with some long-standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersections(s) upstream of critical approach(es).	0.90 to 0.99
F	Total breakdown, stop-and-go operation.	1.00 and Greater

In the TRB *Circular 212* method, the capacity of an intersection is based on an average saturation flow rate and percent lost time. The saturation flow rate is the maximum number of vehicles per lane that can pass a fixed point in one hour with 100 percent green time. The

average saturation flow rate measured in San Mateo County is 1,980 vehicles per hour of green per lane (vphpgpl). The lost time is the time when vehicles are not entering the intersection due to changes in signal indications. Percent lost time is the lost time divided by the cycle length. The average percent lost time measured in San Mateo County for intersections with four or more phases is 12 percent. The intersection capacities, based on San Mateo County data, for signalized intersections with two, three, and four or more signal phases are presented in Table B-7. These capacities are used with the *Circular 212* Planning method to evaluate the levels of service for San Mateo County's CMP intersections.

Table B-7
Intersection Capacities

Number of Signal Phases	Capacity (in vph)
2	1,850
3	1,760
4 or more	1,700

Appendix C: Bay Area Quality Management District (BAAQMD)'s Deficiency List

Final

DEFICIENCY LIST:

PROGRAMS, ACTIONS AND IMPROVEMENTS

FOR INCLUSION IN CONGESTION MANAGEMENT PROGRAM

"DEFICIENCY PLANS"

Bay Area Air Quality Management District

Planning Division

939 Ellis Street

San Francisco, CA 94109

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

Adopted by the District Board of Directors

November 4, 1992

BEFORE THE BOARD OF DIRECTORS
OF THE
BAY AREA AIR QUALITY MANAGEMENT DISTRICT

In the Matter of Adopting a Deficiency List for Use in Conjunction with County Congestion Management Programs)

RESOLUTION NO. 2119

WHEREAS, Section 65089 of the Government Code requires that a Congestion Management Program be developed and adopted for every county that includes an urbanized area;

WHEREAS, Deficiency Plans are a part of the Congestion Management Program process;

WHEREAS, Deficiency Plans must include a list of improvements, programs, or actions, and estimates of costs, that will measurably improve the level of service of the system and contribute to significant improvements in air quality;

WHEREAS, Section 65089.3 of the Government Code requires this District to establish and periodically revise a list of approved improvements, programs and actions which meet requirements included in the Section;

WHEREAS, District staff has prepared a proposed Deficiency List which comprises a list of programs, actions and improvements to be used by cities and counties in preparing Deficiency Plans, and a statement of policy the District will follow in updating the list and in considering items not included in the list but proposed for consideration in a Deficiency Plan;

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

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

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

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

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

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

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

NOES: Hancock.

ABSENT: Achtenberg, Bruno, Cooper, Davis, Diridon, Eshoo, Fogarty.

M. Patricia Hilligoss

M. PATRICIA HILLIGOSS
Vice-Chairperson of the Board of Directors

ATTEST:

Paul Battisti

PAUL BATTISTI
Secretary of the Board of Directors

BAY AREA AIR QUALITY MANAGEMENT DISTRICT · STATE OF CALIFORNIA ·

Certified as a True Copy

Clerk of the Boards

INTRODUCTION

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

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

The CMP statutes direct the Bay Area Air Quality Management District, as the air district for most of the nine-county Bay Area[2], to establish and periodically update a list of improvements, programs and actions which can be used by local governments in developing element C of the Deficiency Plans. The list should include items that " ... (i) measurably improve the level of service of the system ..., and (ii) contribute to significant improvements in air quality, such as improved public transit service and facilities, other rideshare programs and promotions, improved non-motorized transportation facilities, high occupancy vehicle facilities, and transportation control items." The statutes also state that "[i]f an improvement, program, or action is not on the approved list, it shall not be implemented unless approved by the local air quality management district."

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SECTION I

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

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

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

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

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

A. BICYCLE AND PEDESTRIAN MEASURES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

San Benito Rideshare, Santa Clara County's Commuter Network, Santa Cruz Share-a-Ride, Solano Commuter Information[1] and the BAAQMD for enhancements to existing programs or implementation of new programs. Promotional activities should be directed at *all* trips, including those for shopping, recreation, commuting and school. This measure can be implemented both locally and on a system-wide basis.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

D. HIGH OCCUPANCY VEHICLE (HOV) FACILITIES

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

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

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

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

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

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

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

E. OTHER TCMS, RELATED MEASURES.

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

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

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

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

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

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

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

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

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

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

E7. Parking "Cash-Out" Program/Travel Allowance. AB 2109 (Katz, Ch. 92-0554) requires employers of 50 persons or more who provide a parking subsidy[5] to employees to offer a parking cash-out program. Under a parking cash-out program, the employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the

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

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

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

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

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

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

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

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

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

- phase development to occur near current transit service (i.e., infill)
- mixed land uses where residences, work places and services are located close enough together to minimize the need for private motorized transportation between them[9]
- pedestrian oriented design, such as sidewalks, adequate crosswalks on major streets, building entries near sidewalks rather than behind parking lots, and convenient transit stops
- affordable housing near major employment sites
- incentives for infill development
- higher densities at transit stops and along major transit lines
- sites for alternative fuel vehicle fueling facilities

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

F. TRAFFIC FLOW IMPROVEMENTS.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SECTION II

BAAQMD ADMINISTRATION OF DEFICIENCY LIST

DISTRICT REVIEW OF MEASURES NOT ON THE APPROVED LIST

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

(1) The District's Air Pollution Control Officer (APCO) and the appropriate Congestion Management Agency should be notified concurrently at the earliest practicable date of any local government's intent to seek District approval of an unlisted measure.

(2) A complete description of the proposed measure(s) should be submitted to the District and the appropriate CMA concurrently. We recommend that the submittal include all documentation demonstrating the effectiveness of the proposed measure in reducing VMT on the CMP system. The District will inform the local government in writing within thirty days if additional information is needed. Review of the measure(s) will not commence until all needed information has been received by the District.

(3) Once all relevant information has been received regarding the measure(s), the District Board of Directors, upon receiving a recommendation from the APCO, will either approve or disapprove the measure(s) within ninety (90) days. The APCO will notify the local government and the applicable Congestion Management Agency concurrently in writing of the reasons for the determination.

BIENNIAL UPDATE OF LIST

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

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

Attachment 1

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

65089.3

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

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

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

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

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

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

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

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

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

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

APPENDIX A

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

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

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

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

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

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

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

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

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

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

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

0.13 x 7 x 4,039 = 3,675 VMT

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

STEP 3 - Identify Items that Offset the VMT Deficiency

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

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

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

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

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

Examples of Option 1

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

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

1999 VMT (Daily) = 110,856,000
Effectiveness of TCM at reducing VMT = 3.2% (from Table 1)

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

354,739 VMT x 2.033% = 7,212 VMT reduced during the peak hour as a result of implementing the Deficiency Plan Item

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

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

1999 VMT (Daily) = 110,856,000
Effectiveness of TCM at reducing VMT = 0.18% (from Table 1)

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

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

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

The TCM was assumed to implement new bus service costing $140 Million/yr.
12.88/140 = .092 (9.2%)

1999 VMT (Daily) = 110,856,000
Effectiveness of TCM at reducing VMT = 0.4% (from Table 1)

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

44,342 VMT x 9.2% = 4,079 VMT reduced during the peak hour as a result of implementing the Deficiency Plan Item.

Summary of Examples

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

Content of Deficiency Plans

Each Deficiency Plan should show the amount of VMT[5] to be offset, the data it was derived from, and how each item selected from the BAAQMD's list contributes to the offsetting of the VMT increment. All calculations done should be clearly presented.

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

Table 1

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

Deficiency Measure	Related CAP TCM	Description	Quantity	Percentage Region Wide Daily VMT Reduced	Amount Region Wide Daily VMT Reduced
A1	9	Bicycle Plan Impl Ph I	$3 M/yr. TDA Article 3	0.01	11,890
	9	Bicycle Plan Impl Ph II	$5 M/yr. developer mit/TRO	0.02	23,781
A2	5, 9	Transit/Bicycle Integration		No information available	
A3	9	Bike Lockers/Racks @ PNR Lots		No information available	
A4	9, 16	Bike Facilities/Showers		No information available	
A5	16	Impr Pedestrian Facilities		No information available	
A6	16	Pedestrian Signals		No information available	
A7	16	Lighting for Ped Safety		No information available	
B1	3	Bus Service Exp Ph I	$1 M/yr.	0.17	202,135
	3	Rail Service Exp Ph II	$100 M/yr.	0.60	713,418
	3	Bus Service Exp Ph II	$140 M/yr.	0.40	475,612
	4	Rail Ext Ph II/MTC Reso 1876	$140 M/yr.	0.70	832,322
	5	Rail Access Impr Ph II	$50 M/yr.	0.30	356,709
B2	6	Intercity Rail Ph II	$10 M/yr.	0.04	47,561
B3	7	Reg Ferry Plan Impl	$10 M/yr.	0.03	35,671
B4	8, 12, 16	Pref Treatment Bus/LRT		No information available	
B5	5, 13	Transit Info/Promotion		No information available	
B6	13	Bus-Rail Xfer Subsidy	$5 M/yr.	0.05	59,452
	13	Reduced Transit Fares	$10 M/yr.	0.10	118,903
B7	13	Employer Transit Subsidy		No information available	

Deficiency Measure	Related CAP TCM	Description	Quantity	Percentage Region Wide Daily VMT Reduced	Amount Region W Daily VM Reduc
B8	13	Transit Ticket Distrib	50% employer subsidy for 10% workers	0.06	71,342
	13	Transit Stores	$3 M/yr.	0.02	23,781
B9	13	Improved Timed Xfers		No information available	
B10	13	Fare Coordination	Impr inter-dist wait times 10%	0.05	59,452
B11	12	Transit Signal Preempt	$2 M/yr.	0.02	23,781
B12	12, 16	Bus Stop Bulbs		No information available	
B13	10	School Bus Services	$5 M/yr.	0.03	35,671
	10	50% Student Fare Subsidy	$5 M/yr.	0.02	23,781
C1	15	Ridesharing Toll Elimin	$20 M/yr.	0.30	356,709
C2	1	Employer Audits	$750,000/yr.	0.18	214,026
D1	8	Pref Treatment for HOVs		No information available	
D2	12	HOV Lanes on Arterials		No information available	
D3	8	HOV Sys Exp Ph II	$50 M/yr.	0.45	535,064
D4	8	HOV to HOV Facilities		No information available	
D5	8	Direct HOV Entr Ramps		No information available	
E1	2	TRO Stricter than BAAQMD Rule:			
	2	Employees at sites < 100 empls	1,200,000	0.50	594,515
	2	$3.00 Worksite Parking Charge	2,880,000	1.90	2,259,158
E2	1	ETC Training Materials	$15,000/yr.	0.02	23,781
E3	16, 18	Childcare Facilities		No information available	
E4	16, 18	Retail Services		No information available	
E5	20	Telecommuting		No information available	

Deficiency Measure	Related CAP TCM	Description	Quantity	Percentage Region Wide Daily VMT Reduced	Amount Region Wide Daily VMT Reduced
E6	22	Non-work Parking Charges	Min. $0.80 hr./Empl. 100% transit subsidy	4.20	4,983,929
E7	15, 22	Work Parking Charges/Cash Out		No information available	
E8	16	Indirect Source Ctrl	$12 M/yr. Design mod. new/exist	0.80	951,225
	18	Incr Density nr Transit	200 DUs @ Rail sta./rezoning	0.05	59,452
F1	8, 12, 16	Pref Treatment Bus/LRT		No information available	
F2	11, 12	Ramp metering		No information available	
F3	8 (as support)	Freeway Auxiliary Lanes		No information available	
F4	12	Signal Timing Ph I		Thought to increase VMT	
	12	Signal Timing Ph II		Thought to increase VMT	
F5	11	CCTV/Incident Mgt		Thought to increase VMT	
	11	Traffic Advisory Sys		Thought to increase VMT	
F6	12 (as support)	Turn Lanes @ Intersections		No information available	
F7	12 (as support)	Turn Restr @ Intersections		No information available	
F8	12 (as support)	Reversible Lanes		No information available	
F9	12 (as support)	One Way Streets		No information available	
F10	12 (as support)	Targeted Traffic Enforcement		No information available	
F11	12 (as support)	Delivery/Parking Restrictions		No information available	

Table 1 Assumptions and Notes

(1) Percentage VMT reductions taken from Transportation Control Measures for the S Francisco Bay Area: Analyses of Effectiveness and Costs, Deakin, Harvey, Skabardonis Inc., July 1991 (revised October 1991). Data adjusted by BAAQMD staff for Deficiency List measures B13 and E1 based on additional information known about project/rule implementation as of October 1992.

(2) Daily VMT in 1997 for Nine County Bay Area = 118,903,077
Source: Transportation Improvement Program for the Nine County San Francisco Bay Area, Volume III. Metropolitan Transportation Commission, September 23, 1992, Table A.1, p. III-B-74.

(3) Use peak hour factor of roadway segment to calculate peak hour VMT reduction associated with each measure. If unknown, assume 10% for arterials and 8% for freeways/expressways.

(4) Quantities involving a dollar expenditure per year are assumed to have a five year lifespan. For example, if City A wants to spend $500,000 over 5 years toward the lease of space and staff to operate a transit store as a deficiency plan measure, City A would take credit for implementation of $500,000/$15,000,000 (or 3.3%) of that measure. Daily VMT would be reduced 23,781 x 0.033, or 785 VMT; peak hour VMT would be reduc 2,378 x 0.033, or 79 VMT. Deficiency plans that include measures involving ongoin operating costs would need to make a guarantee of continued funding as part of plan.

Appendix D: Guidelines for Deficiency Plan

Appendix D

Deficiency Plan Guidelines

Process

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

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

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

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

Figure 7-1

DEFICIENCY PLAN GENERAL PROCESS

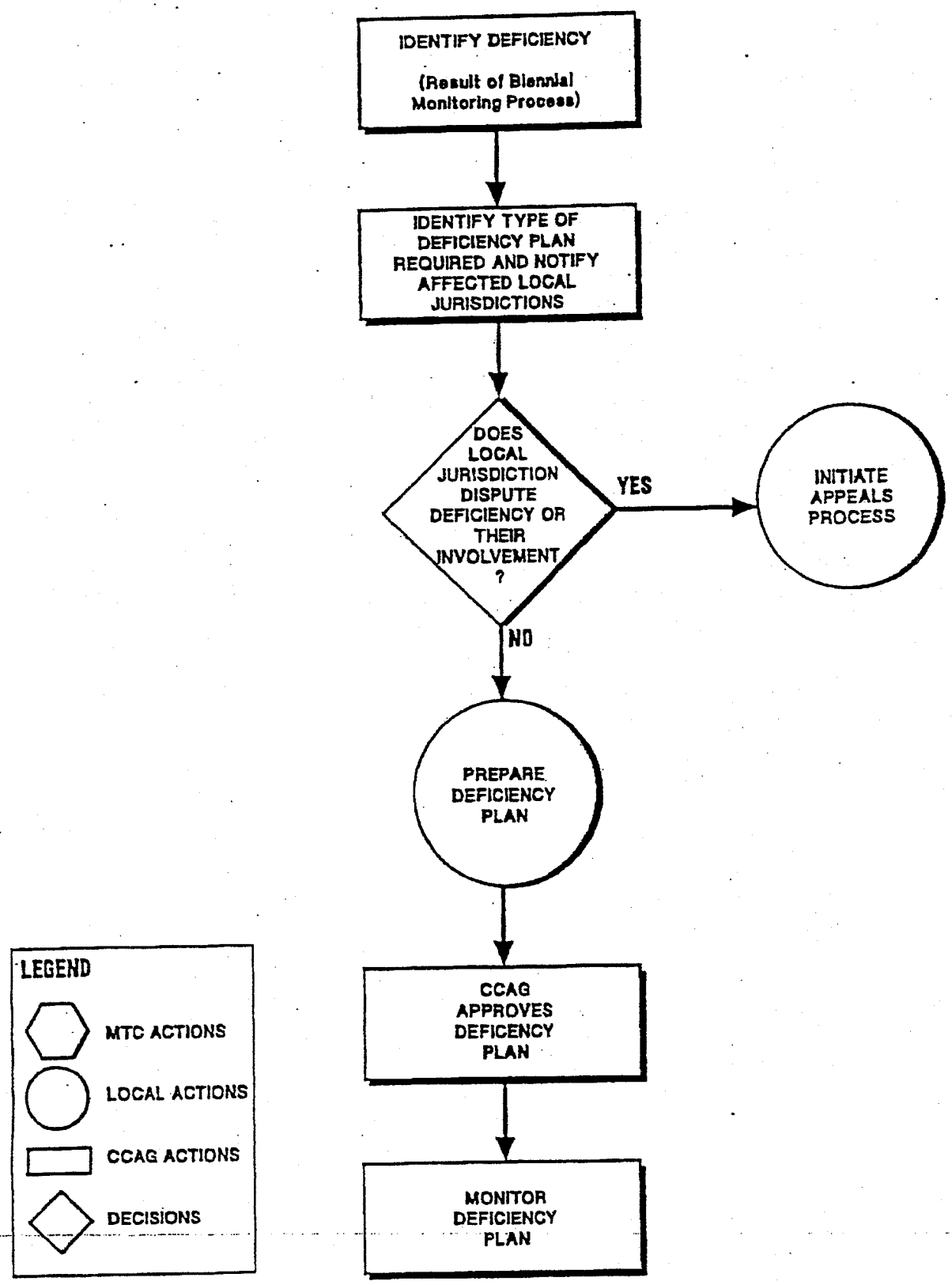


Figure 7-2

IDENTIFICATION OF DEFICIENCY AND TYPE OF DEFICIENCY PLAN

(BIENNIAL MONITORING PROCESS)

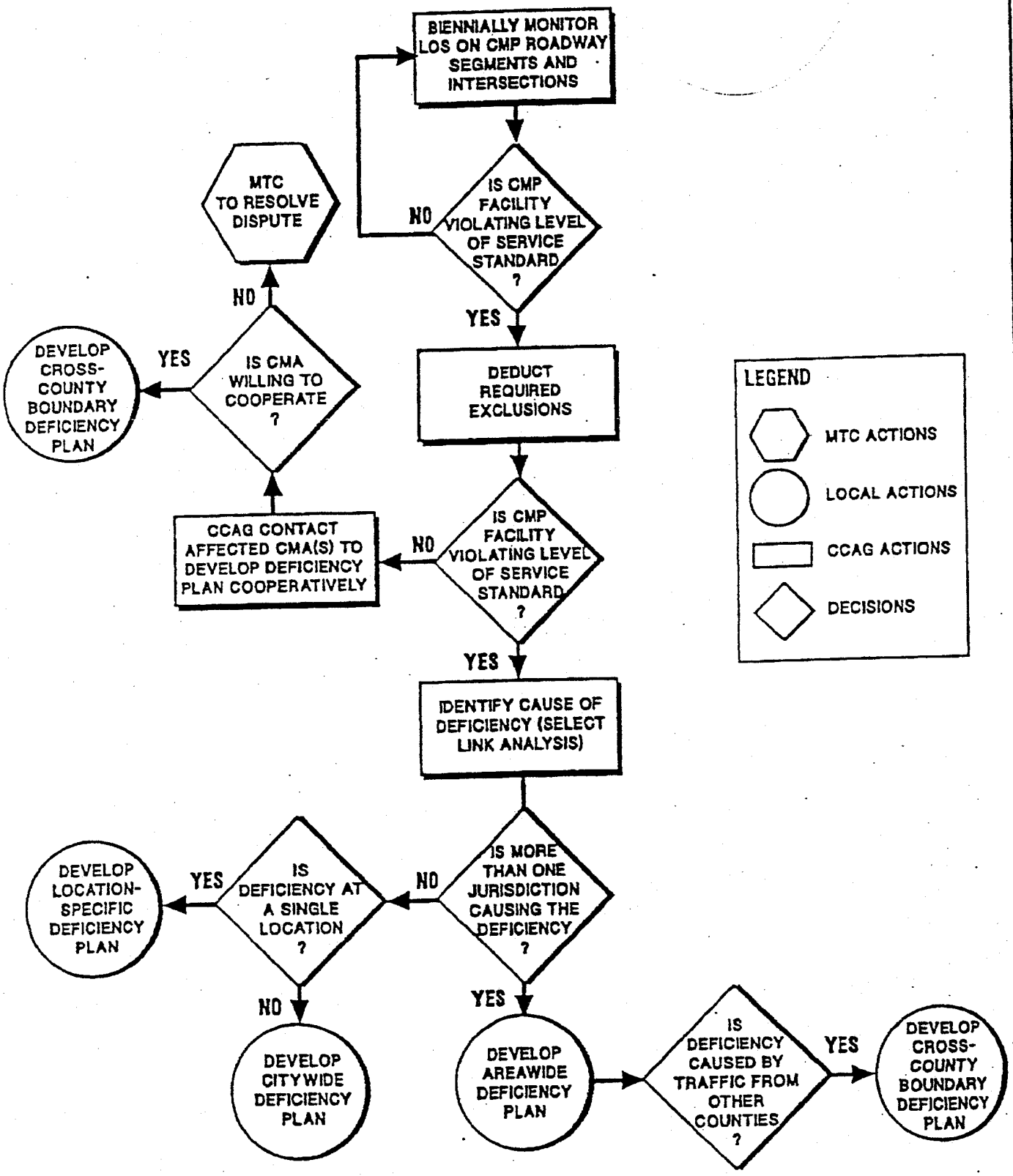


Figure 7-3

DEVELOPMENT OF LOCATION-SPECIFIC OR CITYWIDE DEFICIENCY PLAN

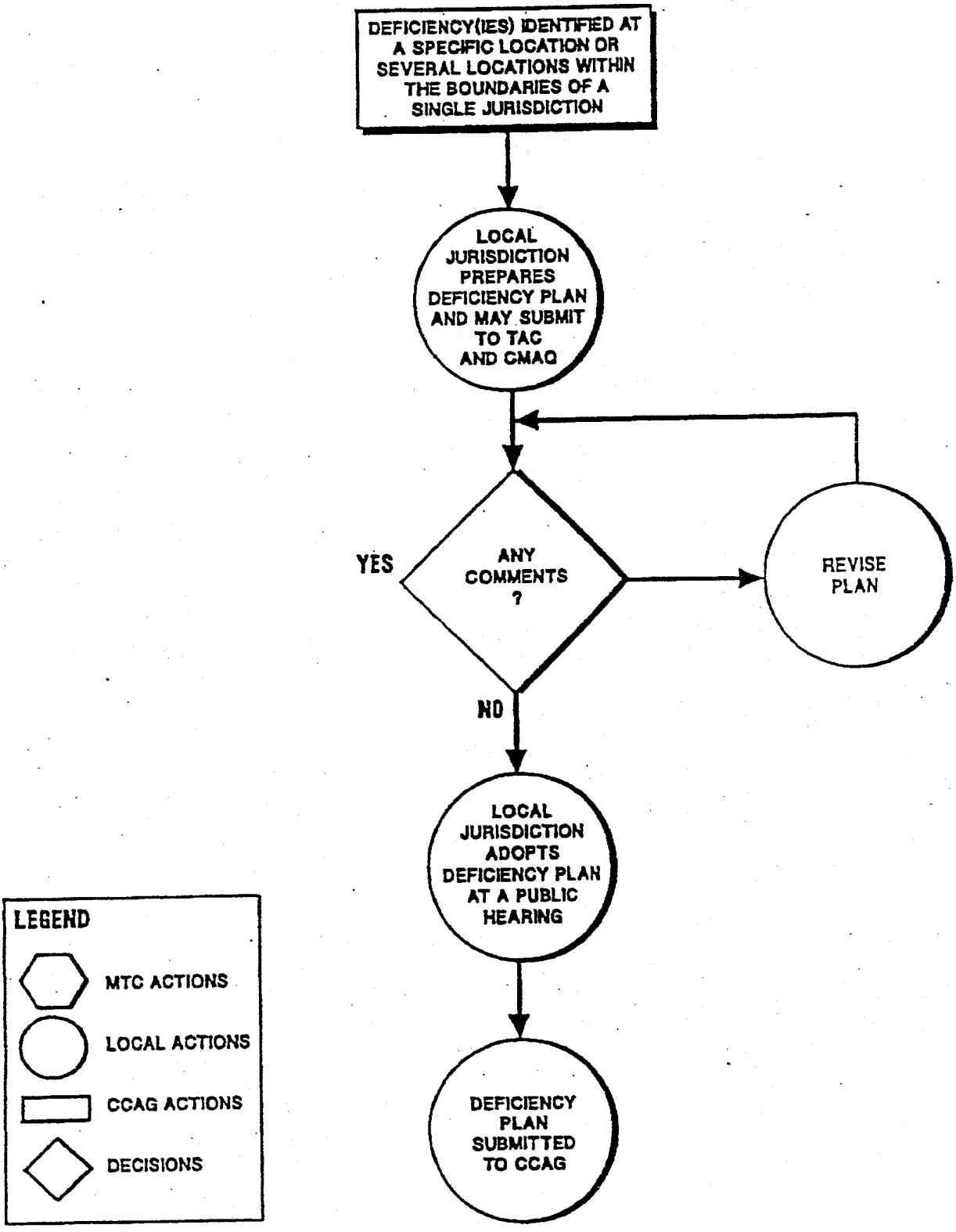


Figure 7-4

DEVELOPMENT OF AREAWIDE DEFICIENCY PLAN

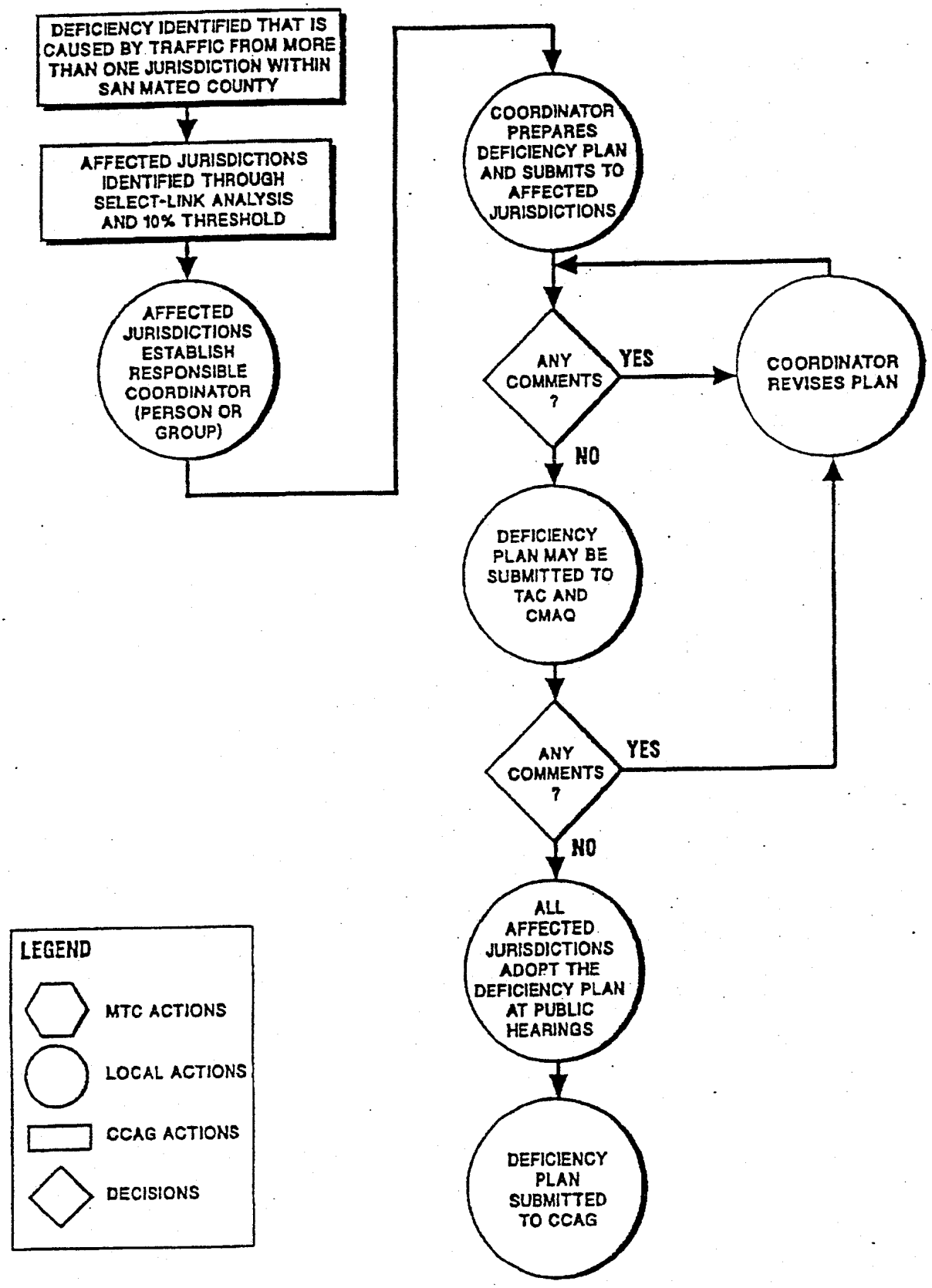


Figure 7-5

DEVELOPMENT OF CROSS COUNTY BOUNDARY DEFICIENCY PLAN

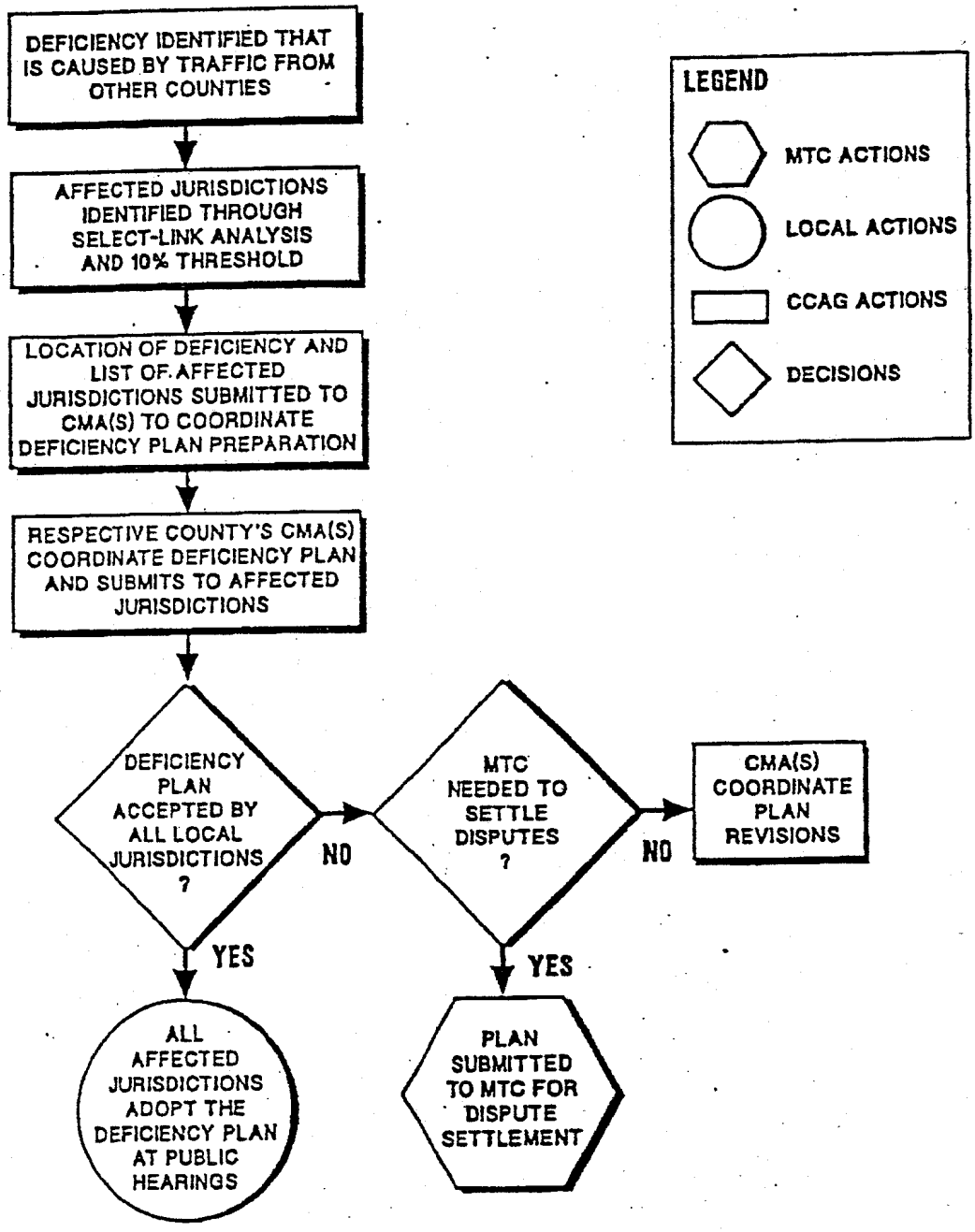


Figure 7-6 shows the process to be followed for C/CAG's approval of deficiency plans. Figure 7-7 presents the process for a local jurisdiction to appeal their involvement in a deficiency plan to C/CAG. Figure 7-8 illustrates the process for monitoring deficiency plans.

Deficiency Identification

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

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

Development of Deficiency Plans

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

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

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

Figure 7-6

DEFICIENCY PLAN APPROVAL PROCESS

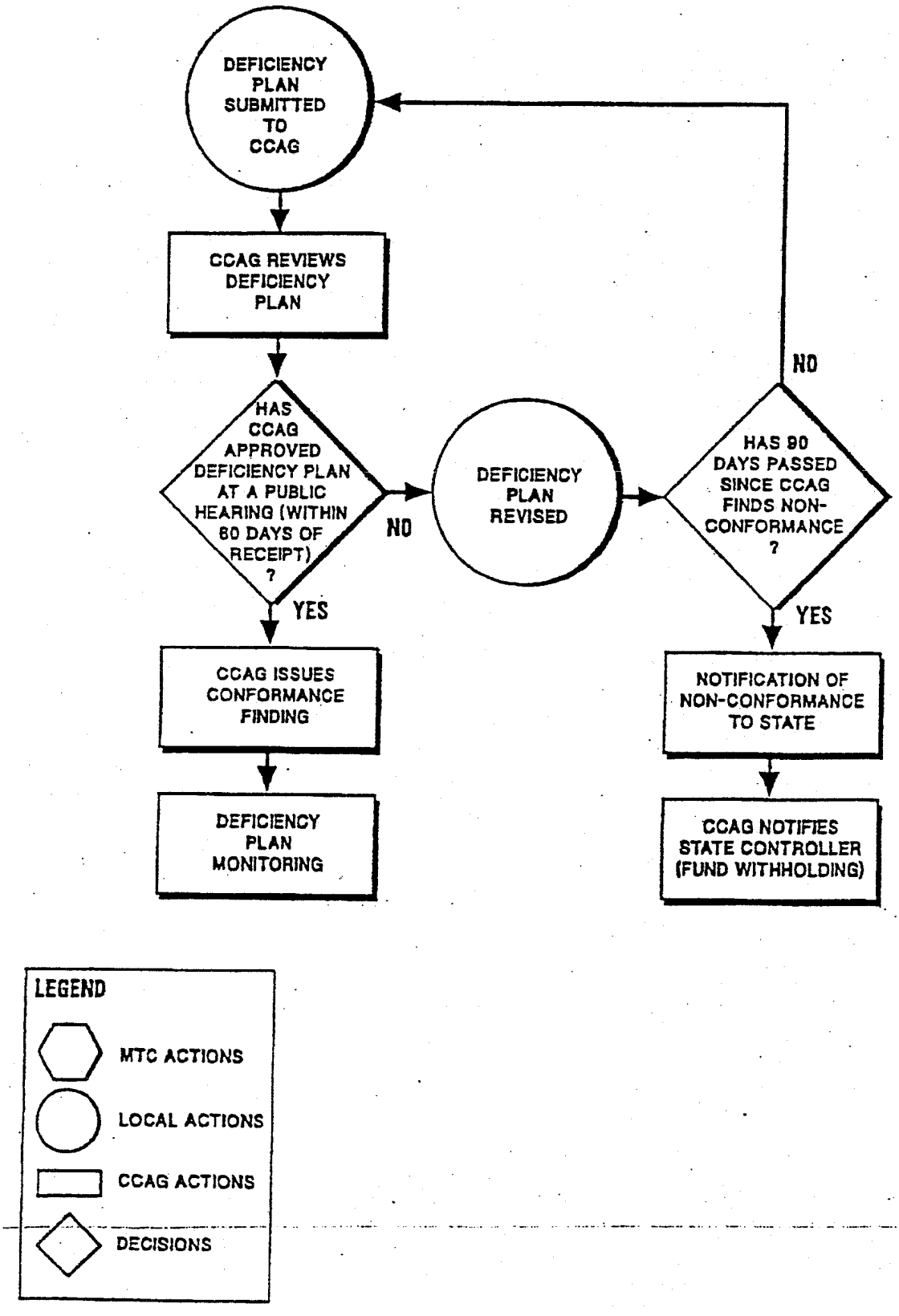


Figure 7-7

DEFICIENCY PLAN APPEALS PROCESS

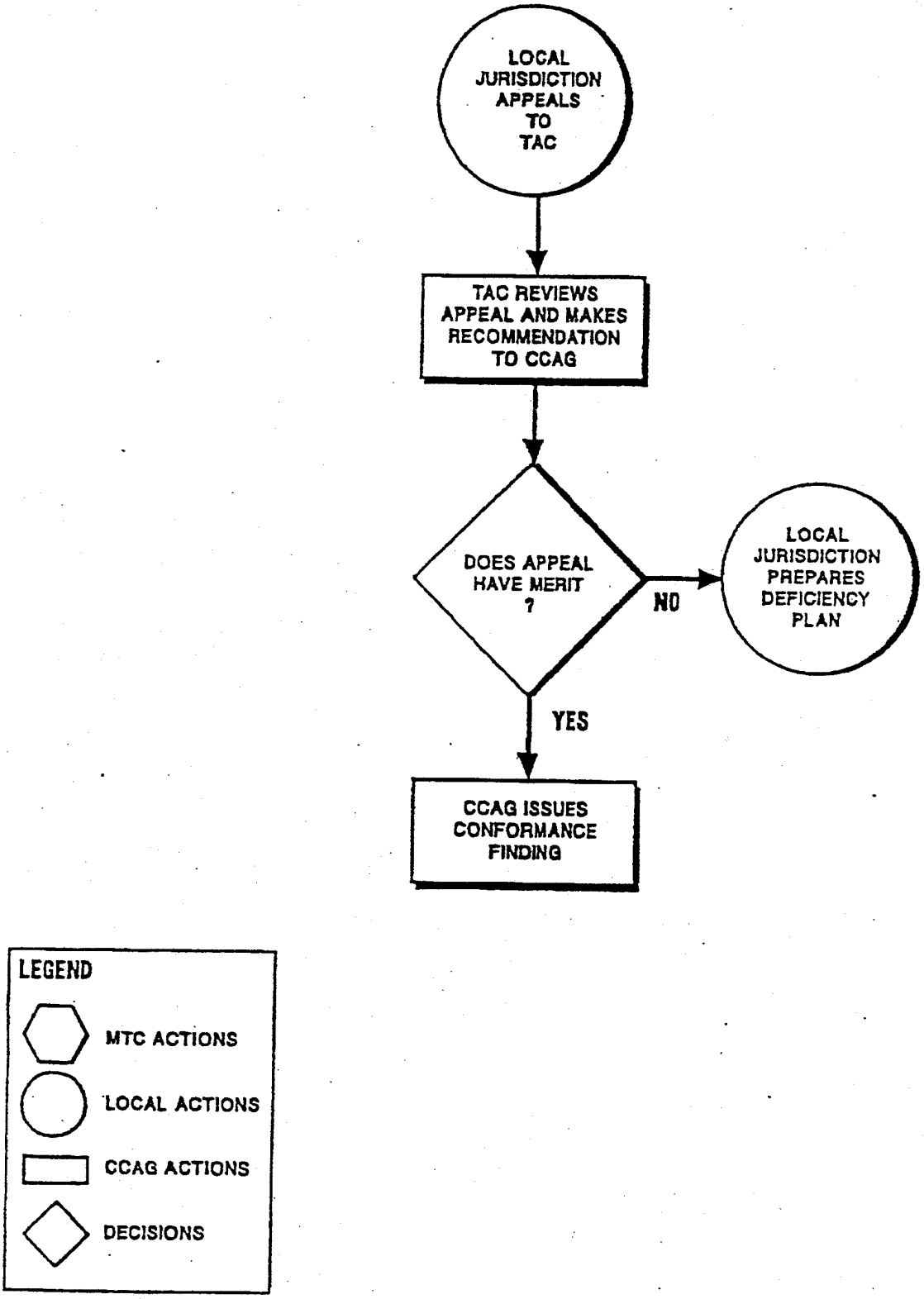
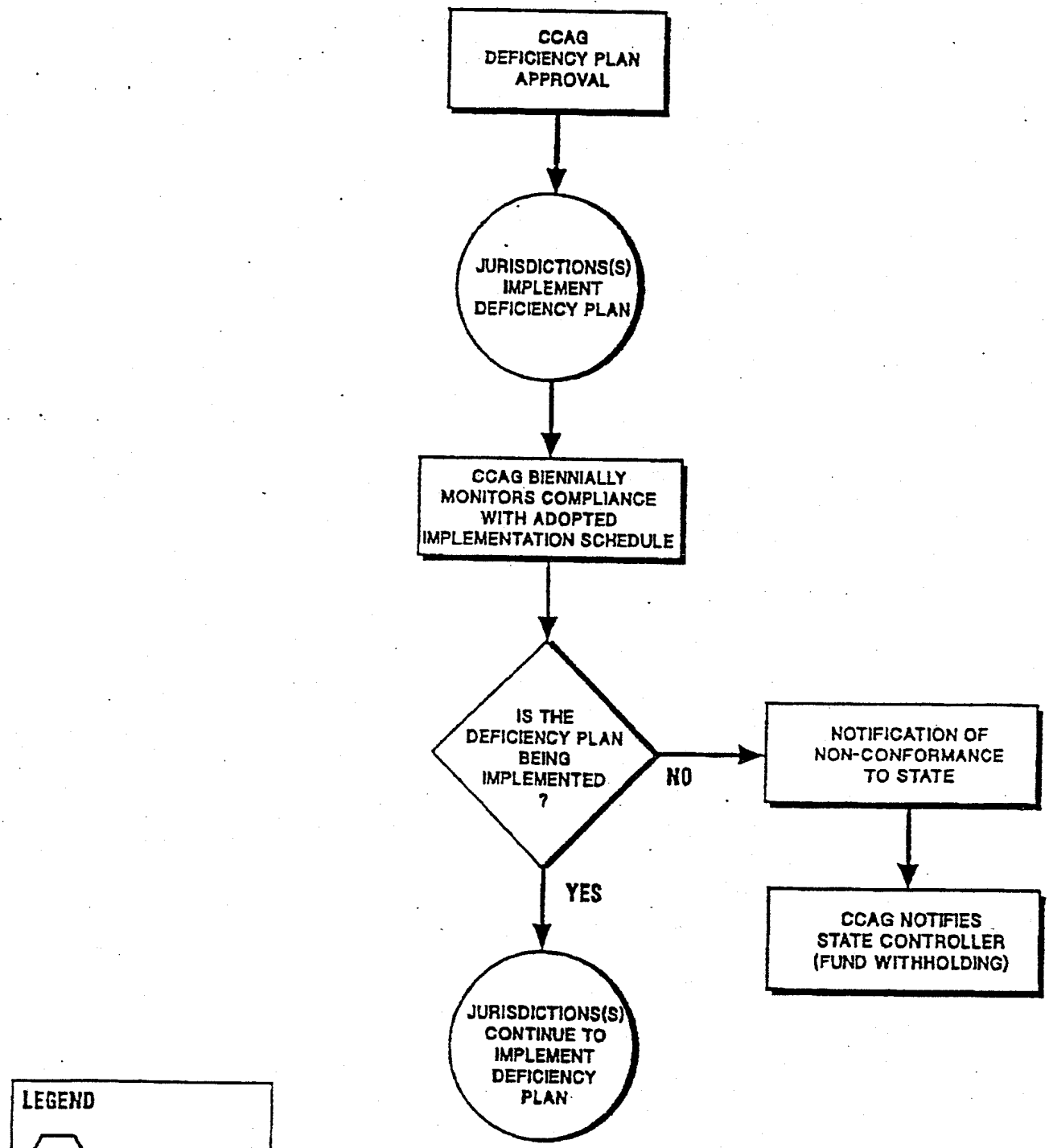


Figure 7-8

DEFICIENCY PLAN MONITORING



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

- A detailed action plan should be developed, including descriptions of the selected actions, anticipated costs and related funding sources, and a corresponding implementation schedule.

Deficiency Plan Approval

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

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

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

Deficiency Plan Appeals Process

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

Deficiency Plan Monitoring

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

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

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

Methodology

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

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

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

Deficiency plans should contain the following sections:

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

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

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

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

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

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

Appendix E: Descriptions of Transportation Control Measures (TCMs)

appendix three

transportation control measures

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

Federal TCMs in the State Implementation Plan

TCM Number	Federal Transportation Control Measure
Original TCMs from 1982 Bay Area Air Quality Plan	
TCM 1	Reaffirm commitment to 28 percent transit ridership increase between 1978 and 1983
TCM 2	Support post-1983 improvements in the operators' five-year plans and, after consultation with the operators, adopt ridership increase target for the period 1983 through 1987
TCM 3	Seek to expand and improve public transit beyond committed levels
TCM 4	High-occupancy-vehicle (HOV) lanes and ramp metering
TCM 5	Support RIDES efforts
TCM 6*	Continue efforts to obtain funding to support long-range transit improvements
TCM 7	Preferential parking
TCM 8	Shared-use park-and-ride lots
TCM 9	Expand commute alternatives program
TCM 10	Information program for local governments
TCM 11**	Gasoline Conservation Awareness Program (GasCAP)
TCM 12**	Santa Clara County commuter transportation program
Contingency Plan TCMs Adopted by MTC in February 1990 (MTC Resolution 2131)	
TCM 13	Increase bridge tolls to $1.00 on all bridges
TCM 14	Bay Bridge surcharge of $1.00
TCM 15	Increase state gas tax by 9 cents
TCM 16*	Implement MTC Resolution 1876, Revised — New Rail Starts
TCM 17	Continue post-earthquake transit services
TCM 18	Sacramento-Bay Area Amtrak service
TCM 19	Upgrade Caltrain service
TCM 20	Regional HOV System Plan
TCM 21	Regional transit coordination

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* Deleted by EPA action from 1999 Ozone Attainment Plan

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

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transportation control measures

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

New TCMs in 2001 Ozone Attainment Plan (Being Implemented)

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

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

State TCMs Proposed in the Draft 2005 Bay Area Ozone Strategy

TCM Number	State Transportation Control Measure	Implementation Steps
TCM 1	Support voluntary employer-based trip reduction programs	• Provide core support for employer programs, based on an assessment of employer needs and the level of employer interest. Potential support includes assistance in developing or enhancing employer programs, information and referrals, employer networks, and programs to recognize outstanding employer programs. • Support legislation to maintain and expand incentives for employer programs, such as tax deductions and/or tax credits for employer efforts to promote ridesharing, transit, and other commute alternatives • Seek legislation to create stronger voluntary programs for all employers or to require certain minimum elements for public employers
TCM 2	Adopt employer-based trip reduction rule	*TCM deleted* — Health and Safety Code Section 40929 does not permit air districts to require mandatory employer-based trip reduction programs.
TCM 3	Improve local and areawide bus service	• Replace worn-out transit buses with clean-fuel buses and retrofit existing diesel buses with diesel emission control technology • Sustain the existing Regional Express Bus Program • Assist further planning work on enhanced bus and Bus Rapid Transit concepts • Sustain transit service to airports • Restore local bus routes that were eliminated due to economic recession • Implement new Enhanced Bus and Bus Rapid Transit services and additional Lifeline Transit services, and expand of Regional Express Bus Programs as funds become available
TCM 4	Upgrade and expand local and regional rail service	• Upgrade and expand local and regional rail service • Implement MUNI Metro Third Street Light Rail initial operating segment from Downtown SF to Hunter's Point • Implement Caltrain Express/Rapid Rail Phase 1 ("Baby Bullet") to San Francisco • Extend Tasman East and Vasona light-rail transit (LRT) in Santa Clara County • Extend BART to Warm Springs, eBART to Eastern Contra Costa County, tBART to Livermore/Amador Valley and implement Silicon Valley Rapid Transit Corridor and an Oakland International Airport connector • Implement MUNI Metro Central Subway in San Francisco • Implement Caltrain Downtown Extension/rebuild TransBay Terminal • Implement Downtown East Valley LRT in Santa Clara County • Implement new Marin/Sonoma Commuter Rail Service between Cloverdale and a San Francisco-bound ferry service • Implement an additional Capitol Corridor peak-period commuter service between Vacaville and Oakland • Implement Dumbarton Rail Service connecting BART and Caltrain over a rebuilt Dumbarton rail bridge
TCM 5	Improve access to rail and ferries	• Develop demonstration program for station car and bike station concepts at select regional transit centers • Determine long-term funding needs for existing shuttles and examine funding options • Implement Safe Routes to Transit to improve bicycle and pedestrian access • Complete Regional Transit Connectivity Plan • Develop a master plan for innovative secure bicycle storage strategies at key transit hubs

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appendix three
transportation control measures

TCM Number	State Transportation Control Measure	Implementation Steps
TCM 6	Improve interregional rail service	• Implement additional interregional rail service in Capitol (Auburn–Sacramento–Oakland–San Jose) Corridor and track enhancements • Implement additional Altamont Corridor Express rail service and track enhancements • Implement high-speed rail service between Los Angeles and the Bay Area
TCM 7	Improve ferry service	• Conduct initial planning for new ferry service • Implement new high-speed low emission ferry to service Vallejo to San Francisco route • Expand existing ferry service between: Oakland/Alameda and San Francisco, and Larkspur and San Francisco • Implement new ferry service between Berkeley/Albany and San Francisco, and South San Francisco and San Francisco • Implement new intermodal transit hub at Vallejo Ferry Terminal • Expand berthing capacity at the San Francisco Ferry Terminal • Implement hydrogen fuel cell ferry demonstration project from Treasure Island to San Francisco • Assist ferry operators in converting vessel engines to lower emission engines • Study and potentially implement new service between Richmond, Hercules/Rodeo, Martinez, Redwood City and San Francisco; Port Sonoma and San Francisco; and Oakland and San Francisco airports
TCM 8	Construct carpool/express bus lanes on freeways	• Expand existing HOV network, based on 2003 Transportation Improvement Program, where beneficial to air quality. Special attention should be paid to express bus operations to maximize benefits for transit. Monitor and adjust occupancy requirements and hours of operation to maximize air quality and mobility benefits. • Implement HOV support facilities such as park & ride lots at various locations • Implement additional HOV lanes and support infrastructure identified in the Regional Transportation Plan, where beneficial to air quality
TCM 9	Improve bicycle access and facilities	• Fund Regional Bicycle Plan and Safe Routes to Transit improvements • Continue Transportation Development Act (TDA) Article 3, Transportation for Livable Communities (TLC) and Transportation Fund for Clean Air (TFCA) funding for bike improvements • Develop on-line bicycle mapping tool as part of the regional 511 traveler information number • Promote Bike to Work Week/Day • Encourage local jurisdictions to develop safe and convenient bicycle lane and route networks, provide secure bike racks and storage, and require bicycle access and amenities as conditions of approval of development projects • Encourage public education about bicycle safety for both bicyclists and motorists
TCM 10	Youth transportation	• Encourage walking and bicycling to school through the Safe Routes to Schools Program • Establish special carpool formation services for parents, students and staff at Bay Area elementary and secondary schools • Replace school buses with clean-fuel vehicles • Offer transit ride discounts to youth and students
TCM 11	Install freeway traffic management systems	• Integrate traffic management features into new freeway construction projects • Maintain current level of Freeway Service Patrol (FSP) • Maintain 511 transit information service and improve and customer convenience • Extend ramp metering in major freeway corridors • Seek funding for full deployment of Caltrans' Traffic Operation System/Traffic Management Center project • Expand FSP to other routes and times of the day
TCM 12	Arterial management measures	• Maintain current technical assistance program for local jurisdictions that seek to retime signals, including the evaluation of bus priority treatments • Continue TFCA program to fund arterial management projects where air quality benefits can be demonstrated • Coordinate the timing of an additional 1,200 signals and continue updating timing plans • Work with bus operators to provide priority treatment along major bus routes

TCM Number	State Transportation Control Measure	Implementation Steps
TCM 13	Transit use incentives	• Implement Translink® (universal fare card) on transit systems throughout the region • Implement improvements to the 511 transit information service • Encourage employers, transit operators, local governments and others to promote and expand employer-based transit subsidy programs like the Commuter Check and EcoPass programs • Improve signage at transit transfer hubs • Deploy real-time transit arrival information • Increase passenger amenities at transit hubs and stops • Complete Alameda and Contra Costa County transit centers identified in AC Transit's Comprehensive Service Plan
TCM 14	Carpool and vanpool services and incentives	• Maintain current programs of the Regional Ridesharing Program and increase efficiency in delivering services • Explore innovative concepts such as real-time ridematching and more formal pick-up/drop-off locations for casual carpoolers • Explore options for expanding medium-distance (15–30 miles) vanpools
TCM 15	Local land-use planning and development strategies	MTC will: • Implement its 5-point transportation and land-use platform including a new planning grant program to fund station area plans around major transit facilities • Maintain funding for expanded TLC planning and capital grant programs and HIP program • Continue providing Transportation Planning and Land-Use Solutions (T-PLUS) funding to congestion management agencies to promote community revitalization projects • Utilize a Caltrans grant to examine opportunities for transit-oriented development along major transit corridors • Develop incentives and conditions to promote supportive land use policies around major new transit investments BAAQMD will: • Continue to fund bicycle projects, traffic-calming, shuttles, low emission vehicles, trip reduction programs and other clean air projects through the TFCA program • Continue to provide technical assistance to local jurisdictions on air quality analyses in the environmental review process • Continue to encourage cities and counties to reduce emissions from sources other than motor vehicles including lawn and garden equipment, wood stoves and fireplaces, and residential and commercial uses ABAG will: • Periodically monitor and update its Smart Growth demographic projections • Promote multi-jurisdiction planning along select transit corridors to encourage transit-oriented development MTC, ABAG and the BAAQMD will: • Develop financial and other incentives and technical assistance to encourage innovative parking strategies such as reduced parking, parking fees, parking cash-out, shared parking and other parking programs • Pursue legislative changes to remove barriers and provide incentives for smart growth • Promote carsharing as a way to reduce parking requirements • Monitor indirect source mitigation programs in other regions for Bay Area feasibility • Provide technical assistance to local government agencies • Publicize noteworthy examples of local clean air plans, policies and programs, as well as endorse noteworthy development projects • Study opportunities to promote location efficient mortgages (LEMs) to encourage home purchases near transit

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transportation control measures

TCM Number	State Transportation Control Measure	Implementation Steps
TCM 16	Public education/ intermittent control measures	• Continue Spare the Air (STA) notices to media, employers, public agencies and individuals, with an emphasis on reactive organic gases (ROG) reductions, obeying freeway speed limits in electronic freeway signs and other outreach efforts • Expand STA notices to add emphasis on ROG reductions, obeying freeway speed limits, and discouraging use of pleasure craft • Expand the Clean Air consortium to include cities and counties, as well as other public agencies • Target major commercial airports and their tenants for greater participation in the STA program • Increase coordination between the Bay Area's STA program with the San Joaquin Valley's STA program • Continue public education program on the proper maintenance and operation of motor vehicles to reduce air pollution • Study effectiveness and costs of free transit on Spare the Air days • Explore possible legislative approaches to formalize and strengthen episodic approaches
TCM 17	Conduct demonstration projects	• Promote demonstration projects to develop new strategies to reduce motor vehicle emissions. Potential projects include: – Low and zero emission vehicles (LEV) and refueling infrastructure – Parts replacement program for middle-aged cars – Heavy duty diesel vehicle idling – Carsharing • Monitor Phase 1 projects and expand depending on effectiveness and resources available
TCM 18	Implement transportation pricing reform	• Advocate for legislative authority to develop and promote revenue measures for: – Congestion pricing on bridges – High-occupancy/toll lanes – Regional and state gas tax increases of up to $.50 per gallon – Regional vehicle miles traveled (VMT) fees – Taxes on diesel fuel – Emissions-based vehicle registration fees
TCM 19	Improve pedestrian access and facilities	• Review and comment on general/specific plan policies to promote development patterns that encourage walking and circulation policies. Emphasize pedestrian travel and encourage amending zoning ordinances to include pedestrian-friendly design standards. • MTC will continue to fund local pedestrian improvement projects through the TLC program, and support the Pedestrian Safety Task Force and associated pedestrian safety programs. • TFCA program will continue to fund pedestrian improvement projects to reduce motor vehicle trips and emissions. • Continue to identify and fund planning projects that enhance pedestrian movement in neighborhoods, downtowns and near transit stops • Continue funding specific improvements through a variety of funding sources • Support Safe Routes to Schools
TCM 20	Promote traffic-calming measures	• Promote traffic-calming measures • Fund traffic-calming projects such as pedestrian-exclusive streets, residential and neighborhood traffic calming measures, and arterial and major route traffic-calming measures • Include traffic-calming strategies in the transportation and land use elements of general and specific plans • Encourage area-wide traffic-calming plans and programs • Include traffic-calming strategies in capital improvements programs

Appendix F: 2019 CMP Monitoring Report

Submitted to:

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

Level of Service and Performance Measure Monitoring Report - 2019

October 2019

Submitted by:
CoPLAN – *The Planning Collaborative*
5508 Sandalwood
McKinney, TX 75070

October 10, 2019

City/County Association of Governments of San Mateo County
County Office Building
555 County Center
Fifth Floor
Redwood City, California 94063
Attention: Jeffrey Lacap, Transportation Programs Specialist

Re: Level of Service and Performance Measure Monitoring Report - 2019

Dear Mr. Lacap:

CoPLAN, LLC. (CoPLAN) is pleased to submit the report for the 2019 Level of Service (LOS) and Performance Measure Monitoring to support of the 2019 Congestion Management Program for the City/County Association of Governments of San Mateo County (C/CAG).

CoPLAN conducted the 2019 study for C/CAG utilizing the latest technology for performing CMP studies. Our extensive and unique experience provides a cost-effective and cutting edge process to obtain and analyze traffic data. CoPLAN has developed a methodology including GPS and GIS over the past 15 years with exciting results. The addition of GIS linear reference systems has added a component that is unique to CoPLAN for network analyses. Over the last 4 update cycles, CoPLAN staff have developed a comprehensive database for C/CAG that now is integrated in GIS for easy access and historic comparisons.

C/CAG has taken a major step forward in having the ability to take the GIS data, in addition to the historic tables, and integrate the digital data with your travel demand model. The speeds, roadway attributes, etc. can be conflated with the model to produce a very robust and comprehensive system. This was not available in the past because the methodology used with tables and charts did not produce the value-added products of this 2019 study. CoPLAN will continue to support C/CAG to produce the best value that not only meets the intended LOS monitoring requirements to allow historic comparisons of this project, but produces the results in a form that can be used by many other areas within the county and by its members.

Sincerely,
CoPLAN, LLC

Steve Taylor
Project Manager

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A. EXECUTIVE SUMMARY

The City/County Association of Governments of San Mateo County (C/CAG) has an established Congestion Management Program (CMP) to monitor the transportation network within the county. All roadways included in the CMP network are evaluated for conformity at least every two years.

The goal of the monitoring program is to improve the performance of the transportation system by identifying congested areas and related transportation deficiencies. This information is then used to help prioritize transportation funding decisions based on system performance, land use factors, multimodal characteristics, and other considerations.

This year's monitoring study was conducted in the spring 2019 with data collection between April and May including INRIX data on approximately 163.3 directional miles of freeways and arterials, 72-hour counts on 21 segments representing 301.4 centerline miles of arterials, and 16 intersection turning movement counts.

This is the third monitoring cycle during which the C/CAG has used commercially available travel speed data from INRIX integrated in a geographic information system (GIS) to monitor Level of Service (LOS) on the CMP network. The primary tasks completed as part of this study include:

- Conflation of travel time data to LOS Monitoring network
- LOS Analysis

With the 2019 monitoring cycle, C/CAG is calculating LOS based on two methodologies—Highway Capacity Manual (HCM) 1994 and HCM 2010. This dual reporting facilitates historical comparisons while also reporting LOS based on the more current methodology. For freeways, only HCM 1994 LOS is reported, as the HCM 2000 methodology requires traffic volume information for all unique freeway segments and ramps. The HCM 2010 criteria was used only for the intersection LOS using the collected peak period turning movement counts analyzed in Synchro. Collection of comprehensive freeway traffic volumes is beyond the scope of the CMP monitoring effort.

B. INTRODUCTION

History of the Congestion Management Program

C/CAG has an established Congestion Management Program (CMP) to monitor the transportation network within the county. All roadways included in the CMP network are evaluated for conformity at least every two years by the agency, which is the designated Congestion Management Agency (CMA) for San Mateo County. The goal of the monitoring program is to improve the performance of the transportation system by identifying congested areas and related transportation deficiencies. This information is then used to help prioritize transportation funding decisions in light of system performance, land use factors, multimodal characteristics, and other considerations.

This year's study was conducted in the spring of 2019 with travel time data from INRIX being used between April and May. The most recent assessment prior to this study was performed in April - May 2017. The primary tasks completed as part of this study include:

- Conflation of travel time data to LOS Monitoring network
- Level of Service Analysis

Study Background

This year's monitoring study was conducted in the spring 2019 with data sourced between April and May on approximately 163.3 directional miles of freeways and arterials, 72-hour counts on 21 segments representing 301.4 centerline miles of arterials, and 16 intersection turning movement counts. CMP legislation requires that state highways (including freeways) and principal arterials be included in the CMP network. The network must be useful to track the transportation impacts of land development decisions, as well as to help assess the congestion management implications of proposed transportation projects. C/CAG's network therefore includes numerous local thoroughfares since most urban traffic occurs on city arterials (rather than on the freeways). **Figure 1** shows the routes that were monitored.

All of the study roadways were evaluated during the AM and PM peak period between the hours of 7 AM - 9 AM and 4 PM - 7 PM. As in previous studies, both time periods are considered when determining the LOS to be reported. The directionality of the segment is not reported in many of the summary tables, but the worst LOS found for either direction for either AM or PM peak period is shown as the official result. In most cases, the PM period is the focus of the CMP since consistently, the PM period results in higher volumes, slower speeds, and more congestion. The methodology used included using INRIX travel time data, 72-hour traffic counts, and intersection turning movement counts.

The total directional miles and number of route segments for each roadway type are shown in **Table 1**.

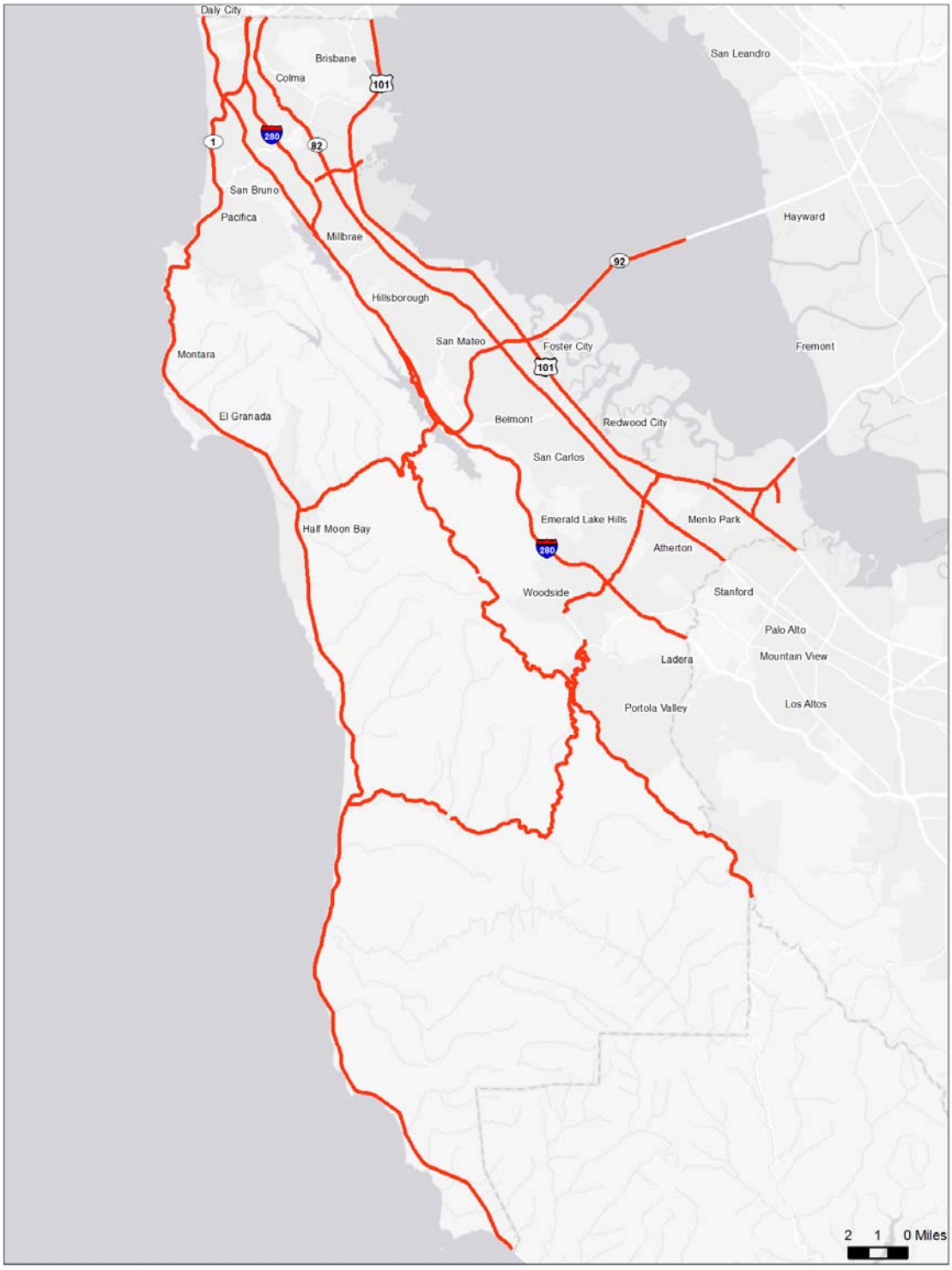

Figure 1 – Spring 2019 CMP Monitored Routes

Table 1 – Total Study Miles Summary

Roadway Type	Total Directional Miles
Arterial / State Routes	301.4
Freeway	163.3
Total	464.7

This monitoring report focused on the five performance measures established in the San Mateo County Congestion Management Program. These performance measures are:

1. Roadway Level of Service
   a: Travel Time – Average Speed
   b. 72-hour traffic counts – V/C for rural arterials
2. Intersection LOS
3. Travel Time for various modes (single occupant, carpools, and transit)
4. Pedestrian and Bicycle Improvements
5. Ridership / Person Throughput for Transit

As noted, the "Roadway Level of Service and Intersection LOS" are the primary CMP performance measures; therefore, a mitigation plan is required if the resulting LOS is below the established minimum standard.

The following sections focus on each of the above performance measures with emphasis on the Roadway and Intersection LOS. The other items are included to provide some alternative views to help explain the changes in performance and the opportunities for improvement.

C. METHODOLOGY

Mapping of CMP Network

Global Positioning System (GPS)

Historically, CMP travel time runs were done manually. CoPLAN staff introduced the use of GPS and GIS to C/CAG in 2011.

All the roadways in the network were mapped using GPS technology in 2011 and 2013. With the introduction of INRIX datasets in 2015, the network attributes were carried over from those past cycles.

As first introduced in 2015, the travel speed data collection process was made more efficient by using data from INRIX in place of a small sample size of GPS travel time runs.

Travel Time Data

Travel time data was assembled from INRIX and conflated to the LOS Monitoring network.

Travel time data was conflated for the morning and afternoon peak periods on all applicable roadway segments; data were only used on Tuesdays, Wednesdays, or Thursdays, and school district spring break periods were avoided.

D. EVALUATION

LOS Analysis – HCM 1994

The tables in the Appendix highlight the 2019 CMP route segments that had LOS lower than the established standard during the AM or PM Peak by HCM 1994 standards directly from the travel time data or 72-hour counts. The CMP legislation allows for the reduction in volume for those interregional trips for those segments that have a LOS lower than the established standard; i.e. those trips that originate from outside the county and either pass through the county or have a destination within San Mateo County.

Other Performance Measures Results

Apart from average speeds aggregated to the CMP route segments level, intersection segment level average speeds were also calculated in 2019 for all routes. These results are available in the GIS tables provided to C/CAG.

With the use of INRIX data once again in this year's freeway travel time analyses, we have the opportunity to include various new performance measures for the region. In prior years, a small sample of travel time runs were made during a small window of time in the AM and PM peak period. One interesting new performance measure that can be evaluated is the **Duration of Congestion**, or amount of time below a certain speed / LOS within a segment. For example, **Figure 2** illustrates the 5-minute average speed for a 24-hour period between April and May of 2017 and 2019. The red line depicts the average speed, while the vertical lines represent the minimum and maximum speeds for each respective time interval (showing the variability of speed for each time slice). Further, on the horizontal axis, the shaded regions depict the corresponding LOS for the average speed for the freeway section. Therefore, one can see that the average speed in the southbound US 101 segment between SR 92 and Whipple falls into the LOS F range in the morning period around 6:30 AM both years, but remains at that LOS in 2019 for a longer period until around 11:00 AM vs. 9:00 in 2017. For the afternoon period, the average speed remains better than LOS F all afternoon, while at times over the 2 months.

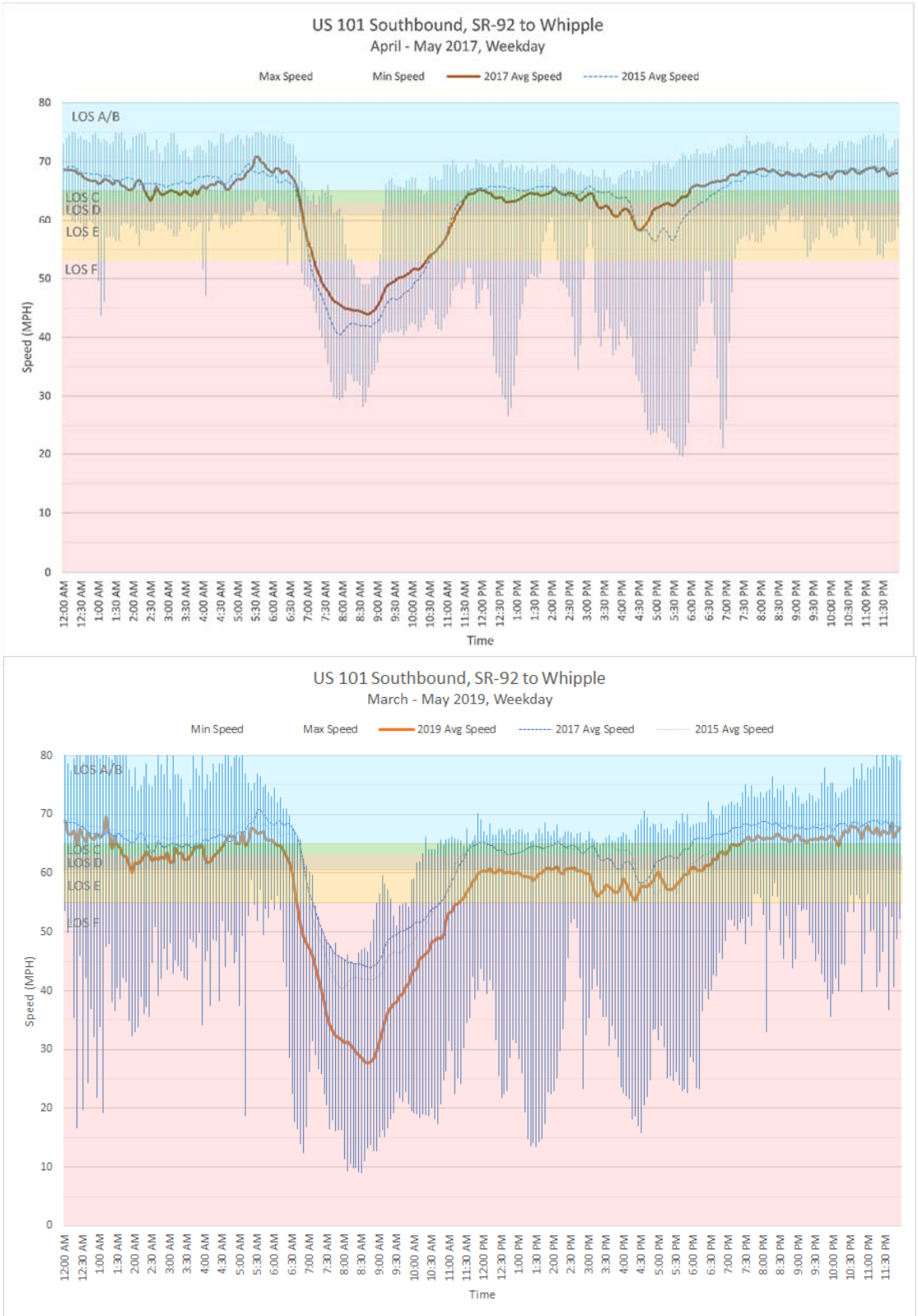

Figure 2 – Spring 2017 vs Spring 2019 Duration of Congestion

E. ROADWAY LEVEL OF SERVICE (LOS)

Traffic Flow

The Highway Capacity Manual (HCM) defines capacity as "…the maximum hourly rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions."

The vehicle capacity and operational characteristics of a roadway are a function of a number of elements including: the number of lanes and lane widths, shoulder widths, roadway alignment, access, traffic signals, grades, and vehicle mix. Generally, roadways with wider travel lanes, fewer traffic control devices, straight alignments, etc. allow faster travel speeds and therefore greater vehicle flow per unit time.

Level of Service

The HCM defines level of service (LOS) as "…a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience."

"Six LOS are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions."

In accordance with CMP legislation, the county and city governments are required to show that all CMP route segments within their jurisdiction are operating at or above the CMP traffic LOS standard. Section 65089(b)(1)(B) of the California Government Code states that "In no case shall the LOS standards established be below the LOS E or the current level, whichever is farthest from LOS A. When the level of service on a segment or at an intersection fails to attain the established level of service standard, a deficiency plan shall be adopted pursuant to section 65089.4."

All freeway segments in the network, as included in **Figure 3**, were monitored using the INRIX travel time data, which allows for determination of LOS on the basis of average operating speed. C/CAG primarily uses the 1994 and 2000 HCM methodology to monitor LOS on the CMP network, as this methodology was utilized in the baseline monitoring cycle and is necessary to maintain historical comparisons, identify exempt segments, and monitor potential network deficiencies. The specific methodologies used for monitoring freeway and arterial segments are listed below per HCM definitions:

- **Freeway Segments (HCM 1994 - Chapter 3)** – All freeway segments were evaluated using the "basic freeway sections" methodology of HCM 1994 where the LOS for each freeway segment was determined using its average travel speed.

Freeway LOS was not calculated based on HCM 2000 methodology. In order to evaluate all freeway segments using the HCM 2000 methodology, the volumes on all freeway sections (mainline) with distinct characteristics (e.g., quantity of lanes), as well as on entrances and exits would be required. Changes to the methodology will be considered along with the next update cycle when the HCM 2010 may be incorporated. Until then, the methodology of previous updates was followed to maintain the historical context for comparisons of the results.

The routes that fall into this classification include:

- SR-92 from I-280 to Alameda County Line
- US-101
- I-280
- I-380 from SR-92 to US-101

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

  Multilane and Two-Lane highways were evaluated primarily based on the current volumes as measured through 72-hour traffic counts at 21 locations throughout the county. These counts and resulting V/C were then compared to the applicable criteria in the HCM 1994 to determine the respective LOS.

  Many arterial segments used by C/CAG for CMP purposes (called "CMP Segments") span several blocks and include multiple signals and/or stop controlled intersections. If an Intersection Segment is defined as a segment from one controlled intersection to the next, the CMP segments are a collection of consecutive Intersection Segments. INRIX segmentation, known as TMC segments, are many times longer or shorter than the desired limits for the CMP Segments. CoPLAN methodology of travel time estimation can calculate average speeds at the Intersection Segment level and these data can be aggregated to calculate the average speeds at the CMP segment level. The average speed on each CMP segment is computed as the ratio of total length of the segment to the sum of average travel time on each individual intersection segment within the CMP segment. The average travel time on each intersection segment is computed as the arithmetic mean of travel times of accumulated data within the TMC segment. The average speed thus accounts for time in motion and time spent at the signals or stop signs.

  The routes that fall into this classification include:

  - SR-1
  - SR-35
  - SR-82
  - SR-84

- SR-92 from SR-1 to I-280
- SR-109
- SR-114
- I-380 from US-101 to Airport Access Road
- Mission Street
- Geneva Avenue
- Bayshore Boulevard

Table 2 shows the relationship between average travel speed and level of service for basic freeways according to HCM 1994. There are four (4) freeway categories based on the free-flow speed of the facility (ranging from 55-70 mph).

Figure 3 –2019 Routes and LOS Methodologies

Table 2 – Example LOS from Freeway with Free-Flow Speed of 65 mph (HCM 1994)

Roadway Type	Basic Freeway
Free Flow Speed (mph) Range	**65**
A	≥ 65
B	≥ 65
C	≥ 64.5
D	≥ 61
E	≥ 56/53
F	< 56

Roadway Segment LOS Analysis Results

Table 3 summarizes the current year roadway segment LOS. Additionally, **Figures 4, 5, 6, and 7** illustrate the results graphically. As highlighted in **Table 3**, there are 19 segments found to be below the established minimum in each of the AM and PM peak periods. The 19 segments include:

- 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

Table 3 includes a summary of the historic results since 1999. All results included in this update have consistently used the HCM 1994 for all roadway types and the HCM 2000 for the intersections. Variations in the LOS results may be explained through capital improvements, construction, or use of transit and other modes. The values included in

Table 3 reflects the lowest LOS for either direction; the worst-case LOS for the link in either direction during the respective peak periods.

Table 3 – CMP Roadway Segment Monitoring Results (Lowest LOS)

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								
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.

Table 3 ('cont) – CMP Roadway Segment Monitoring Results (Lowest LOS)

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.

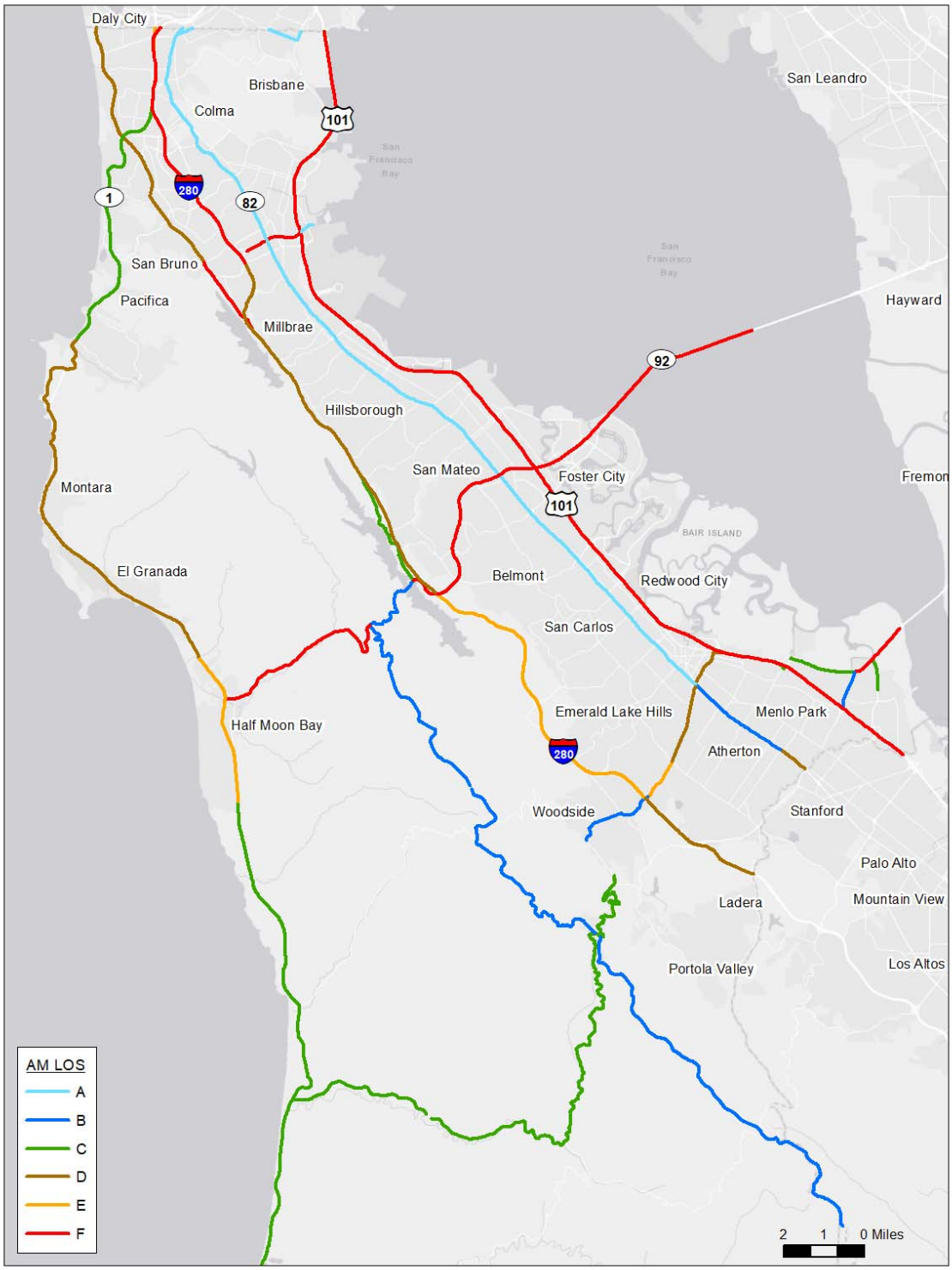

Figure 4 – AM LOS Results (before Exemptions)

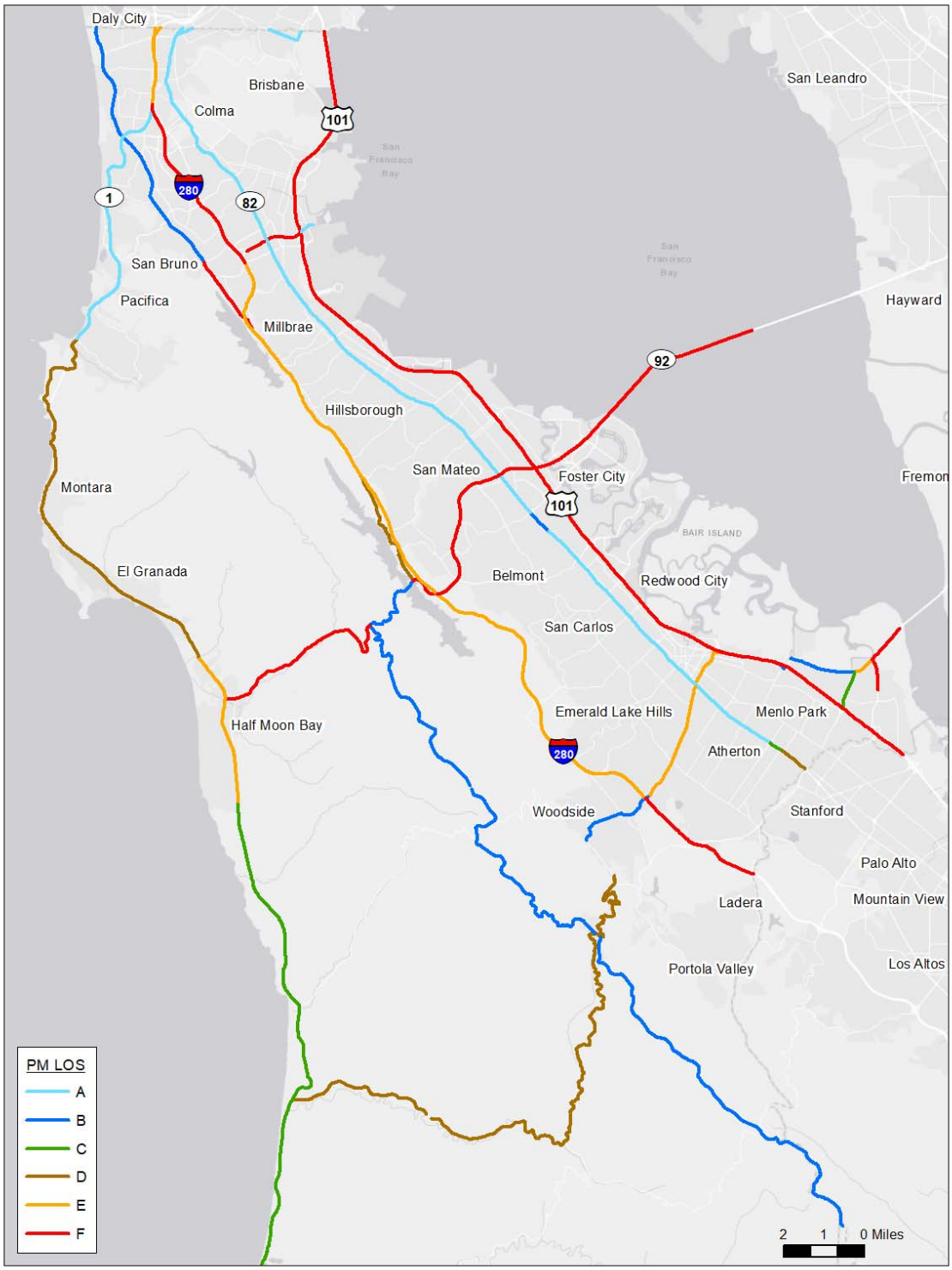

Figure 5 – PM LOS Results (before Exemptions)

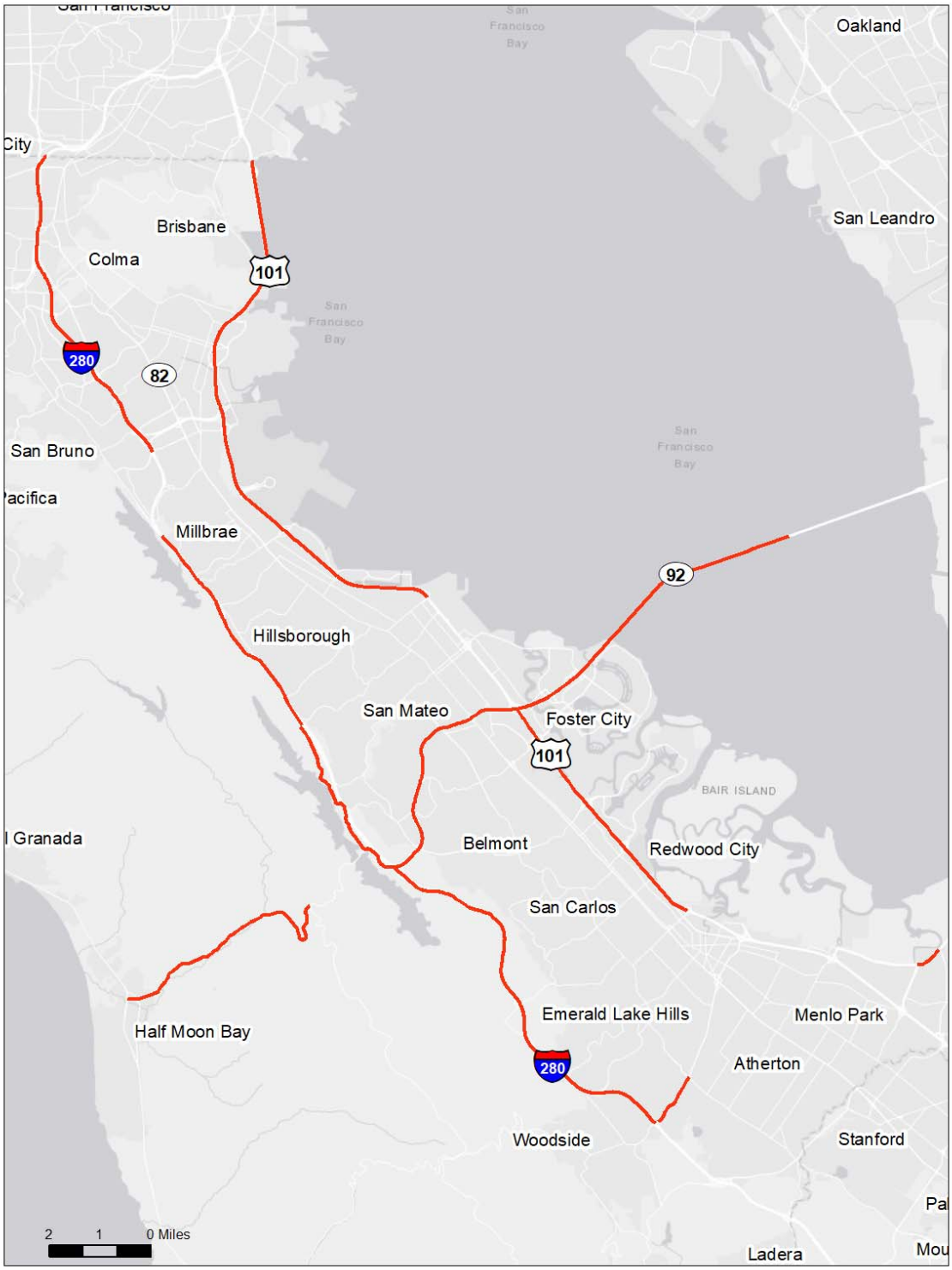

Figure 6 – AM CMP Segments with LOS Lower than Standard (before Exemptions)

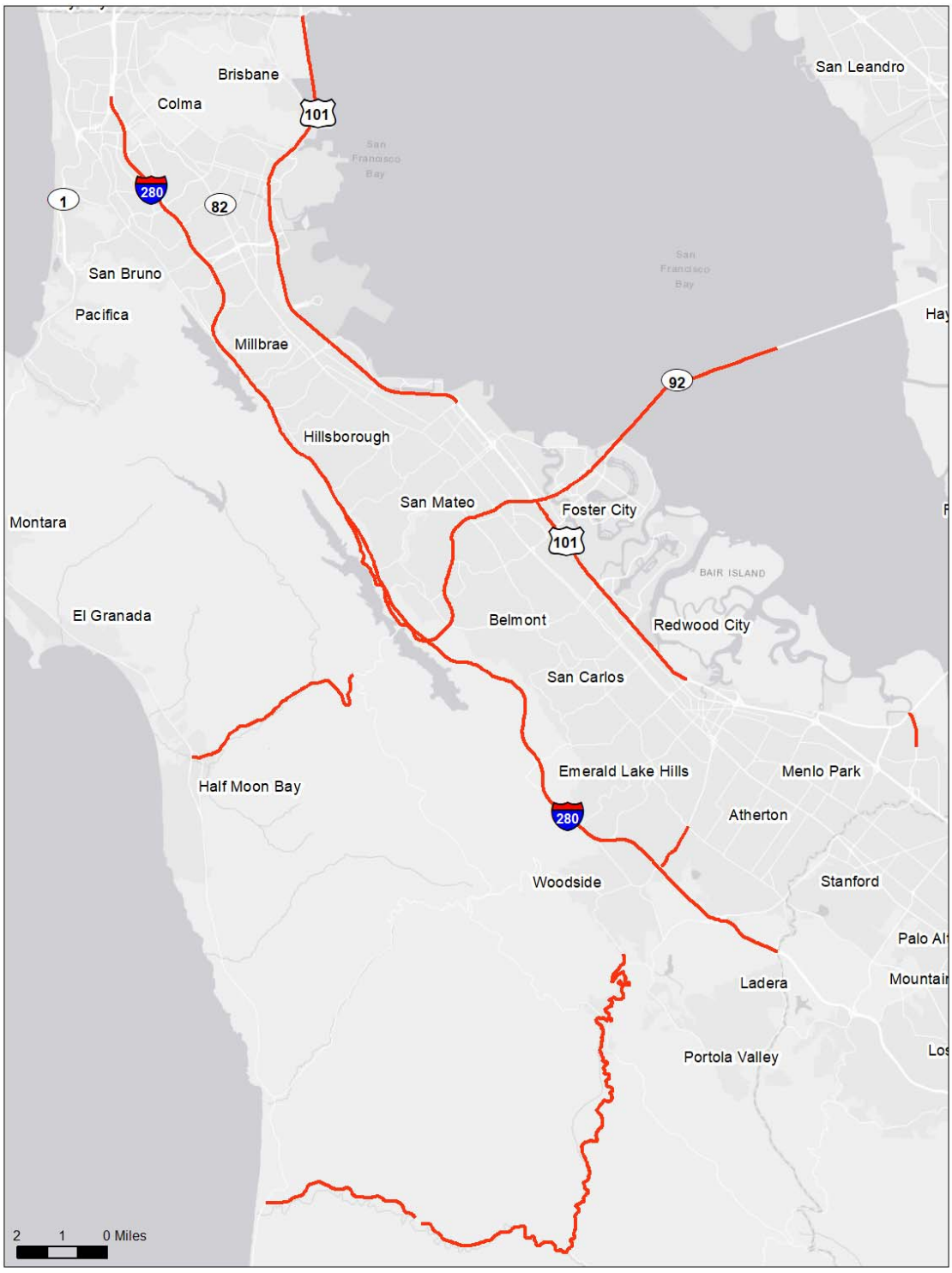

Figure 7 – PM CMP Segments with LOS Lower than Standard (before Exemptions)

F. REDUCTION IN VOLUMES DUE TO INTERREGIONAL TRIPS

The CMP legislation allows for the reduction in volume for those trips that are interregional. In this case, "interregional" are those trips that originate from outside the county. That is those that either traverse the county or have a destination within the county. For those CMP segments found with a LOS below the standard, the county travel demand model is used to determine the proportion of the volume estimated to be from interregional travel. As shown in **Table 3**, there were 19 segments that had at least one direction in either the AM or PM peak period that had a lower LOS than the established standard. **Table 4** includes the resulting percentage of traffic from the travel demand model that is estimated to be interregional by segment.

Table 4 – Interregional Trips for Segments with LOS Lower than Standard

Link	Segment	Time Period	AM Peak		PM Peak	
		Direction	NB / WB	SB / EB	NB / WB	SB / EB
SR 35	I-280 to SR 92	AM NB/SB, PM NB/SB	6.5%	41.2%	36.5%	17.8%
SR 84	SR 1 to Portola Rd	PM EB/WB			0.0%	0.0%
SR 84	I-280 to Alameda de Las Pulgas	AM WB, PM EB/WB	1.4%		1.2%	62.4%
SR 84	Willow to University Av	AM WB	96.3%			
SR 92	SR 1 to I-280	AM EB/WB, PM EB/WB	25.7%	0.1%	28.1%	0.3%
SR 92	I-280 to US 101	AM EB/WB & PM EB/WB	15.8%	29.0%	14.3%	26.6%
SR 92	US 101 to Alameda Co Line	AM WB, PM EB	75.0%			7.6%
US 101	SF Co Line to I-380	AM NB/SB & PM NB/SB	21.6%	98.3%	18.7%	95.4%
US 101	I-380 to Millbrae Av	AM NB, PM NB/SB	26.4%		28.5%	60.4%
US 101	Millbrae Av to Broadway	AM NB, PM NB/SB	29.8%		31.4%	47.5%
US 101	Broadway to Peninsula Av	AM NB/SB, PM NB/SB	32.5%	54.1%	35.3%	38.5%
US 101	SR 92 to Whipple Av	AM NB/SB, PM NB	50.5%	42.6%	46.4%	
SR 109	Kavanaugh Dr to SR 84	PM NB			78.4%	
I-280	SF Co Line to SR 1 (north)	AM NB	13.7%			
I-280	SR 1 (north) to SR 1 (south)	AM NB	16.1%			
I-280	SR 1 (south) to San Bruno Av	AM SB, PM NB		83.1%	43.6%	
I-280	San Bruno Av to SR 92	PM NB			57.4%	
I-280	SR 92 to SR 84	AM SB, PM NB		59.2%	80.7%	
I-280	SR 84 to SC Co Line	PM NB			94.5%	

When applying reductions, they can be deducted directly for those where V/C is the performance measure used, but for those segments that use INRIX travel speed, a few extra steps are required to reflect the exemption. As mentioned earlier, freeway LOS is primarily determined based on density, but historically, the LOS Monitoring Study has made use of the LOS tables as included in the HCM 1994 that include reference speeds for given free-flow speeds and LOS. In order to reflect the reduction, the V/C must first be estimated from the same tables. This adds a level of error given that density is the preferred performance measure and the methodology is to use a secondary measure to estimate another secondary measure, take the reduction, and then reverse the calculation using the V/C and determine the adjusted LOS with the exemption.

G. DEFICIENT CMP SEGMENTS

After incorporating the reduction in volume for those segments found to have a LOS lower than the standard, while the AM peak period has 5 segments deficient, the PM peak period was found to have the same 4 segments deficient, as shown in **Figures 8 and 9**. Those include the following:

- PM – Northbound and Southbound SR-35 between I-280 and SR-92
- PM – Eastbound and Westbound SR-84 between SR-1 and Portola
- 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

While the worst LOS of either peak period has historically been presented in the summary table, the individual peak periods have been separated for improved analysis in the body of the report this year and not just in the appendix as in the past. The segments deficient in the PM period are also highlighted in Table 3.

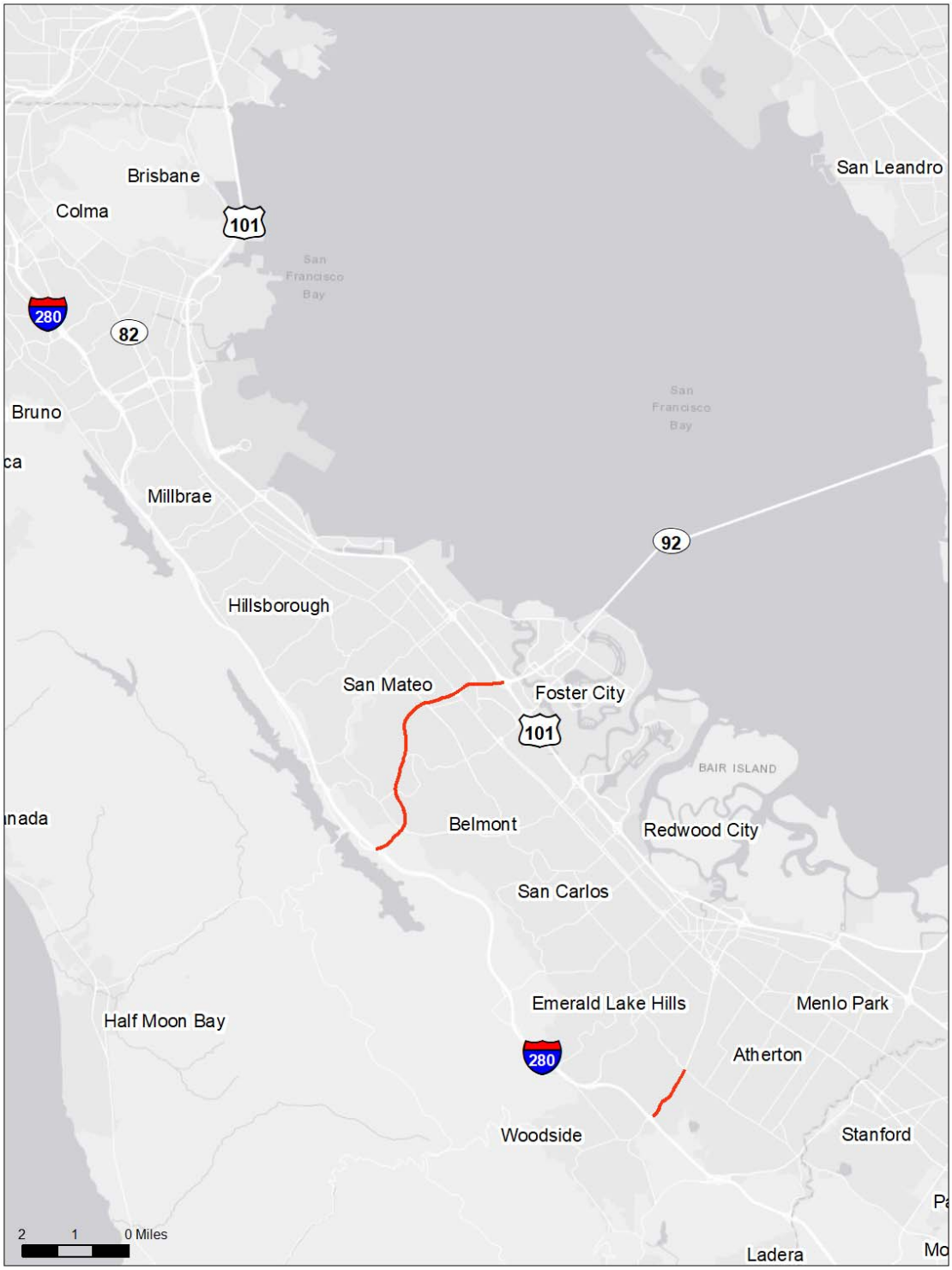

Figure 8 – AM Deficient Segments after Exemption

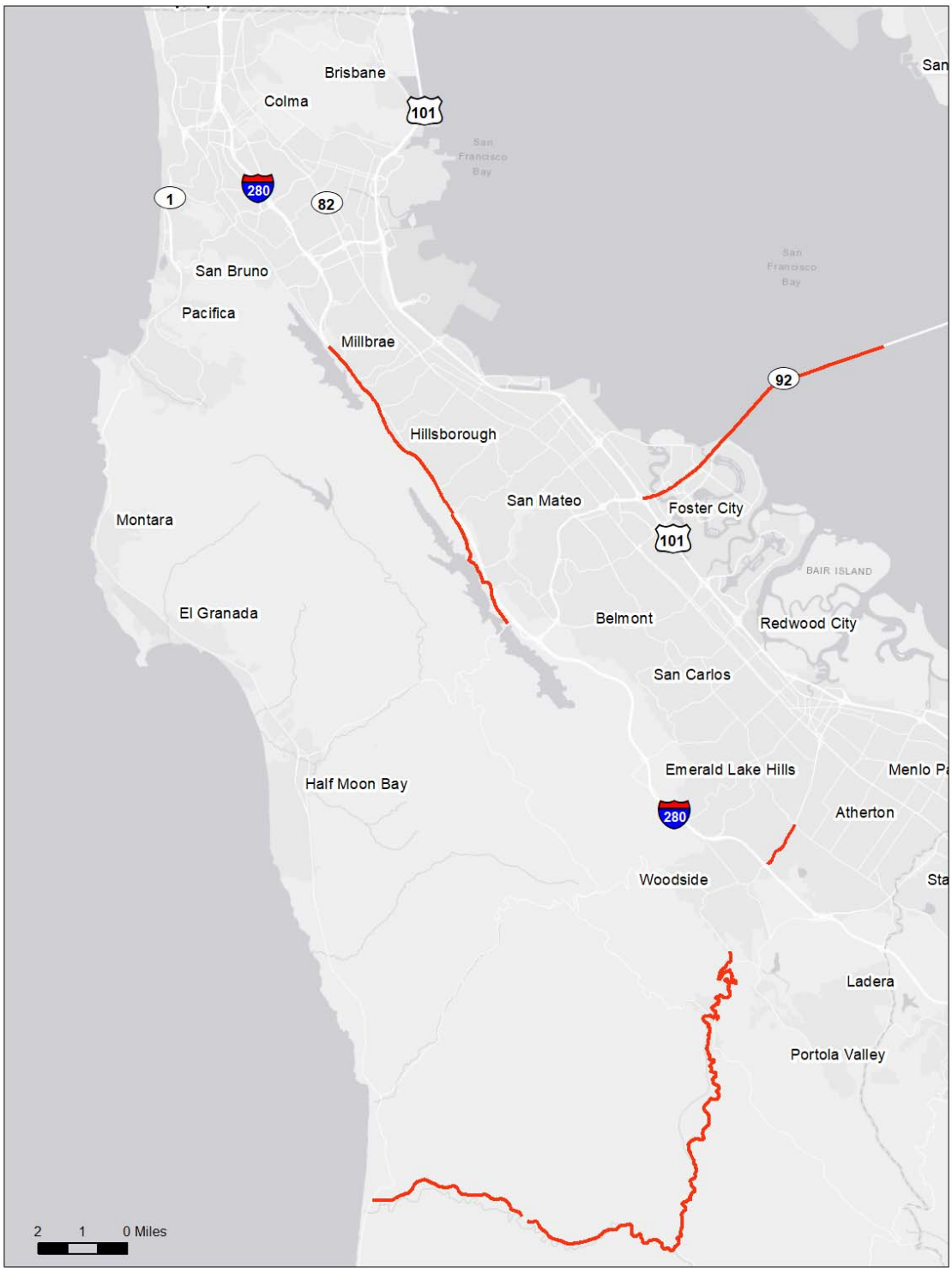

Figure 9 – PM Deficient Segment after Exemption

H. INTERSECTIONS

Sixteen intersections were analyzed as part of the 2019 LOS Monitoring. These intersections have been included in previous studies since 1999 and are included in **Table 5** for reference. The performance measure for intersections is LOS, but different from freeways and highways, the HCM 2000 was used to determine the LOS. Turning movement counts were collected for each intersection during the AM and PM peak periods and modeled in Synchro. In addition to turning movement counts, pedestrian and bike counts were collected for the first time in 2019. The intersections were analyzed as if they were isolated (not coordinated or part of a signal system) and optimized given the current geometry. The modeled results provide an estimate of the optimized LOS and may not represent the actual conditions if the intersection is either using less than optimal phasing, splits or cycle length.

Table 5 includes the results for the 2019 study as well as those back to 2005 using the HCM 2000 methods. As highlighted in the table, all intersections are operating (under optimized signal timing) within established LOS standards. 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.

Table 5 – Intersection 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

Figures 10 and **11** illustrate the finding for the intersection LOS. Each intersection is represented with two shapes. The larger one is the base and is the LOS Standard. The smaller shape in the middle is the resulting peak period LOS for the respective time period.

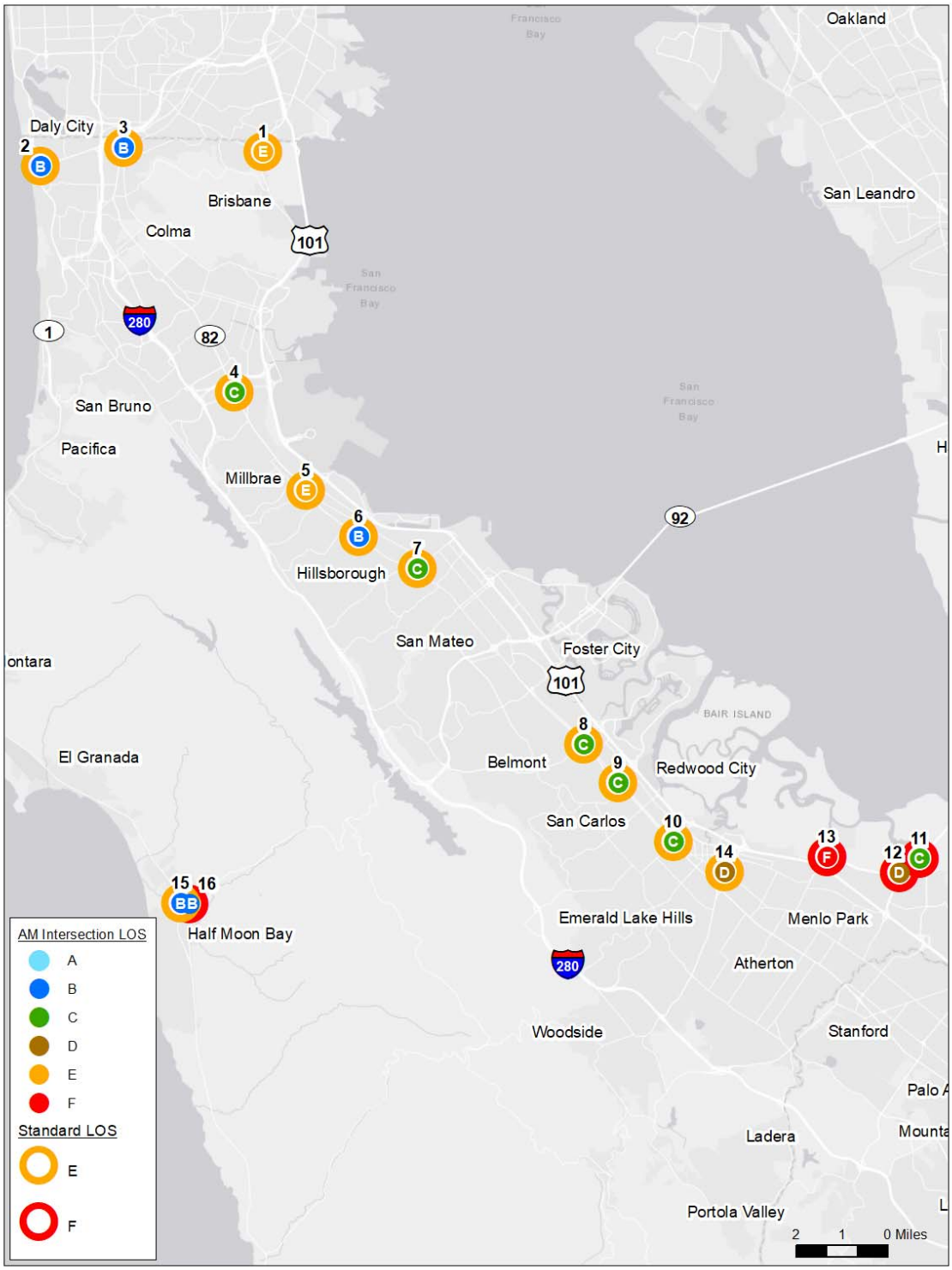

Figure 10 – AM Intersection LOS (Underlying Color is LOS Standard)

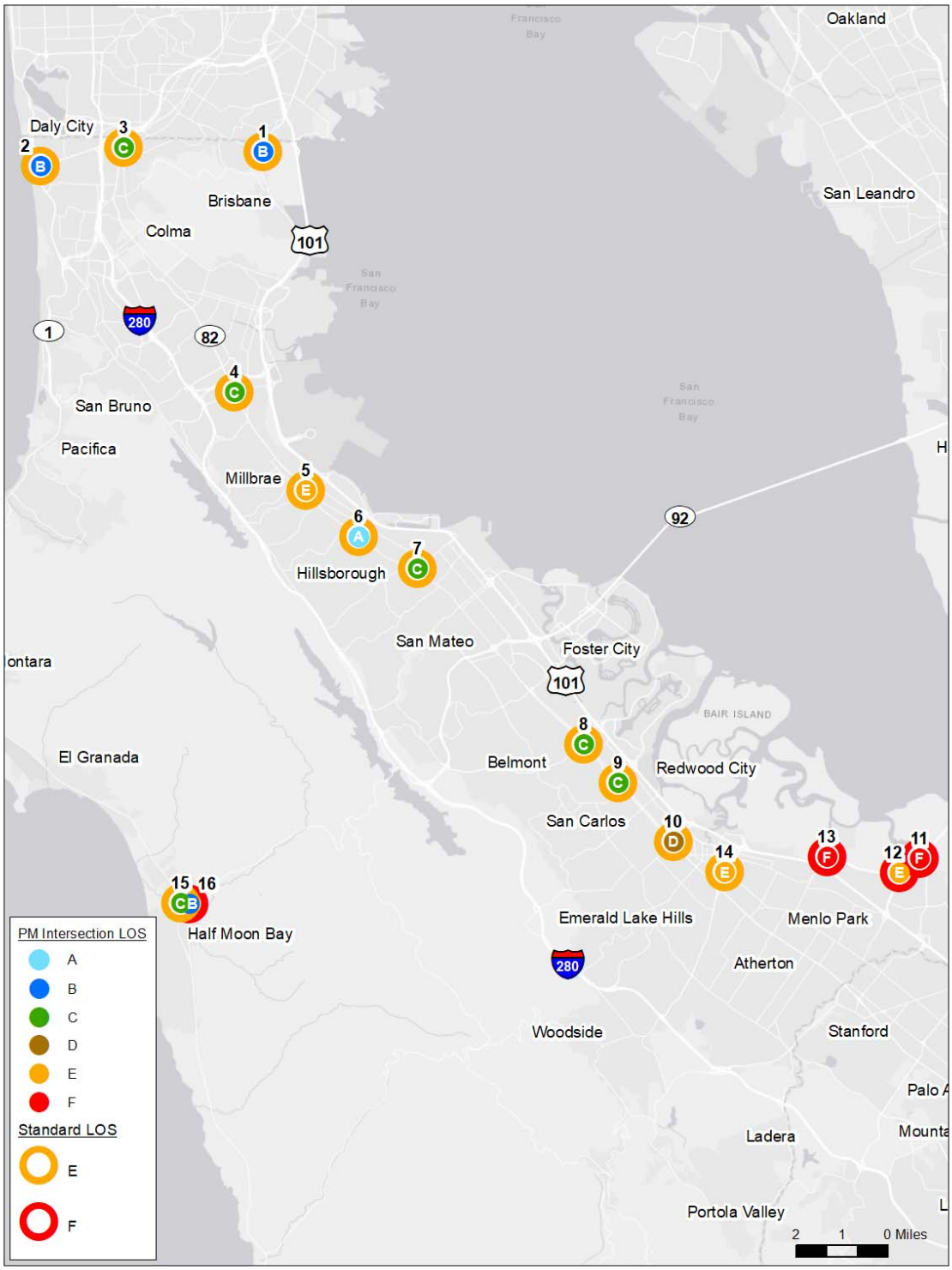

Figure 11 – PM Intersection LOS (Underlying Color is LOS Standard)

I. 2017 MULTI-MODAL PERFORMANCE MEASURE MONITORING PROGRAM

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

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

This section presents the 2019 measurements of these performance measures and includes the historic results for context.

Level of Service

The levels of service of the CMP corridors and segments are included in the previous sections of this monitoring report. The results show that two roadway segments exceeded the respective LOS standard following reflection of the interregional trips. For the 16 intersections included in the CMP network, all intersections were found to operated at or better than the established standard after incorporating exemptions.

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

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

The general-purpose travel times previously presented early in this report were the result of a 2-month average between April and May. Those included in Table 6 for the single occupant vehicle represent the calculated INRIX travel time using the average speed over each TMC segment for each 5-minute interval during each respective AM and PM peak period. The HOV travel times are based on 5 runs in the field for the limits of the HOV between the county line and Whipple summed with the INRIX results for the balance of the route to the San Francisco county line on the north. Therefore, the HOV portion represents a far smaller sample size than an average for the peak period over 2 months.

The current limits of the carpool lane in San Mateo County are from the Santa Clara County line to Whipple Avenue. For those that are able to use this lane during the peak hours, the remainder of the run will take place in the general purpose lane.

Travel times for those using transit include the option to access SamTrans route 398 along the US 101 corridor or Caltrain. The travel times for the transit options are represented based on the published

schedules. Actual data collection for these routes was not performed but is shown consistent with methods used in previous LOS monitoring studies.

The travel times for the various mode options are included in **Table 6** below. The table includes the respective travel times, listed by direction and peak periods, for the current reporting period as well as previous years back to 2009.

Table 6 – Average Travel Time in US 101 Corridor (in minutes)
Between San Francisco and Santa Clara County Lines

Average Travel Time in US 101 Corridor (in minutes) *(Between San Francisco and Santa Clara County Lines)*																								
	AM - Morning Commute Peak Period												PM - Evening Commute Peak Period											
	Northbound						Southbound						Northbound						Southbound					
Mode	2019	2017	2015	2013	2011	2009	2019	2017	2015	2013	2011	2009	2019	2017	2015	2013	2011	2009	2019	2017	2015	2013	2011	2009
Auto - Single Occ. [1]	28	32	32	28	29	30	40	35	36	41	34	28	40	36	39	30	32	33	32	32	32	33	40	29
Carpool - HOV Lane [2]	26	32	32	32	28	30	38	34	35	37	30	26	40	36	42	37	30	32	31	32	32	32	35	27
Caltrain (Baby Bullet b/n Palo Alto and Menlo and Approximate north county line near Bayshore Station - but not stop on Baby Bullet) [3]		40	39	23	35	35		44	43	27	31	31		40	38	24	34	34		36	38	23	35	35
SamTrans Route KX (b/n Palo Alto Station and SFO then transfer to BART at SFO to County Line) [4]		80	80	68	76	79		-	-	73	81	85		-	-	72	81	83		91	91	74	78	89
1 - 2015, 2017, and 2019 Results based on Inrix avg speeds over each TMC for the full 3 month (March-May)																								
2 - 2015, 2017, and 2019 HOV results are based on HOV field runs south of Whipple + Inrix avg speed for TMC north to SF county line																								
3 - Baby Bullet b/n Palo Alto and Menlo and Approximate north county line near Bayshore Station - but not stop on Baby Bullet.																								
4 - Route KX b/n RWC and SF(AM NB Only, PM SB Only) & 398 (b/n Palo Alto and Redwood City).																								

The AM and PM auto travel times in the general-purpose lanes have fluctuated slightly since 2009, while mixed results with some improving while others getting longer for 2019 as compared to 2017.

The carpool travel times also show mixed results as compared to 2017 from Whipple to the county line.

Caltrain has made minor changes to its schedules since 2009 on the Baby Bullet express that was introduced in 2005, thus the travel times have not changed too much since 2013 between the express stops of Palo Alto just south of the county line to the SF stop north of the county line since the last stop in San Mateo County is Millbrae.

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

Pedestrian and Bicycle Improvements

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

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

Ridership / Person Throughput for Transit

The purpose of this performance measure is to document the number of patrons using the available transit options. Within San Mateo County, there are three options including SamTrans, Caltrain, and BART. BART has six stations within San Mateo County: Daly City, Colma, South San Francisco, San Francisco International Airport, San Bruno, and Millbrae.

The 2019 transit ridership data for SamTrans, Caltrain, and BART (Bay Area Rapid Transit) is included in **Table 7**. As shown in Table 7 below, the 2019 transit ridership data indicates annual total ridership for SamTrans has decreased by 10% and Caltrain ridership decreased by 2% when compared to the CMP update 2017. Annual total ridership for BART decreased by 5% at the stations within San Mateo County. Overall annual total transit ridership decreased about 5% when compared with the previous 2017 CMP Update

Table 7 – Transit Ridership

Transit Agency	Annual Total			Average Weekday		
	FY 2019	FY 2017	FY 2015	FY 2019	FY 2017	FY 2015
SamTrans[1]	10,670,850	11,816,760	13,158,703	35,150	38,700	42,981
Caltrain[2]	18,486,509	18,743,189	18,156,173	63.597	64,114	58,245
BART (Colma, Daly City, South Francisco, San Bruno)[3]	7,741,549	7,818,023	8,155,340	26,483	25,269	28,050
BART (SFO & Millbrae)[3]	11,261,768	12,102,872	12,614,731	37,687	39,989	40,741
Combined Transit	**48,160,676**	**50,480,844**	**52,084,947**	**162,917**	**163,090**	**170,201**

[1] Source: SamTrans End-of-Year Performance Report FY2019
[2] Source: Caltrain Website
[3] Source: BART Staff

J. TRENDS AND NEXT STEPS

Overall between 2017 and 2019 there was just one area that showed improvements while there were a larger number of segments in other areas that worsened especially in the AM Peak Period. A few specifics to highlight that either improved a letter grade in LOS or over 10 mph faster travel time include the following:

- SR 84 between Portola and I-280

Similarly, for those that worsened a letter grade in LOS or slower by more than 10 mph include:

- SR 92 between SR-1 and I-280
- SR-109 between Kavanaugh Drive to SR 84 (Bayfront Expwy.)
- I-280 between SR 1 (north) to SR 1 (south)
- I-280 between San Bruno Avenue to SR 92

The LOS and Performance Measure Monitoring Report for many years has continued to use the 1994 Highway Capacity Manual as the basis for determining LOS for freeways, arterials and intersections. There have been a couple substantial updates to this manual over the years that not only changed the thresholds for determining LOS but also the methodology to be used over the last 15 years. With these changes have come new data sources that allow additional performance measures to be evaluated included travel time reliability and duration of congestion. Nationally, these performance measures are many times of more interest not only to planners and engineers but to drivers. A driver, many times is more concerned with the consistency or reliability with their travel time than they are with the actual conditions. That allows the driver to better plan their trip, departure time, and arrival time with some level of reliability.

It is recommended for the next update cycle, C/CAG transition to the current 2010 HCM.

APPENDIX A

AM and PM Roadway LOS Tabular Results

APPENDIX B

TECHNICAL APPENDIX

- The technical details, database and support documents are included in a separate geographic information system (GIS) deliverable

Appendix G: Status of Capital Improvement Projects

STATUS OF CAPITAL IMPROVEMENT PROJECTS - DRAFT

Program Year	Program	Type	Jursidiction	Project Description	Amount	Funding Obligation Pending	Funding Fully Obligated	Under Construction	Completed
2011/12	CMAQ		Burlingame	Burlingame Ave. and Broadway Distric	$ 301,000				X
2011/12	STIP	Highway	Caltrans	Aux lane landscaping #700B - 2-yr plant establishmen	$ 33,000				X
2011/12	TDA Art 3	Bike Ped	County of San Mateo	Crystal Springs Regional Trail South of Highway 92	$ 194,549				X
2011/12	CMAQ		Daly City	Citywide Accessibility	$ 420,000				X
2011/12	TDA Art 3	Bike Ped	Half Moon Bay	Highway 1 Trail Extension - Seymour to Wavecrest Road	$ 250,000				X
2011/12	CMAQ		Half Moon Bay	Hwy 1 Bicycle Pedestrian Trail	$ 420,000				X
2011/12	TDA Art 3	Bike Ped	Menlo Park	Alpine Road Bike Lane Improvement	$ 78,000				X
2011/12	STP	LSR	Menlo Park	2010/11 Resurfacing	$ 385,000				X
2011/12	CMAQ	Bicycle	Redwood City	Skyway/Shoreline Bike Route (PE	$ 38,000				X
2011/12	TDA Art 3	Bike Ped	Redwood City	Brewster Avenue Bicycle Improvement	$ 107,640				X
2011/12	CMAQ	Bicycle	Redwood City	Skyway/Shoreline Bike Route	$ 218,000				X
2011/12	CMAQ		Redwood City	Bair Island Bay Trail Improvemen	$ 337,000				X
2011/12	CMAQ		San Bruno	Transit Corridor Pedestriar	$ 265,000				X
2011/12	CMAQ		San Bruno	Street Median and Grand	$ 654,000				X
2011/12	STP	LSR	San Carlos	Pavement Rehab Program	$ 319,000				X
2011/12	CMAQ		San Carlos	East Side Community Transi	$ 1,795,304				X
2011/12	TDA Art 3	Bike Ped	San Mateo	Downtown Bicycle Parking	$ 98,783				X
2011/12	CMAQ		San Mateo	El Camino Real Phase 1 Improvemen	$ 203,000				X
2011/12	TDA Art 3	Bike Ped	San Mateo	Bay to Transit Trail - Phase 1	$ 312,000				X
2011/12	CMAQ	Bicycle	San Mateo	Delaware Street Bike Lane	$ 545,000				X
2011/12	CMAQ		San Mateo County	CSRT South of Dam Conversion	$ 300,000				X
2011/12	STP		San Mateo County	Resurfacing of Pescadero Creek Roac	$ 985,011				X
2011/12	STIP	Highway	SMCTA	US 101/Willow Interchange Reconstruction	$ 4,500,000				X
2011/12	STIP	Highway	SMCTA/Pacifica	Hwy 1 San Pedro Creek Bridge Replacemen	$ 3,000,000				X
2011/12	TDA Art 3	Bike Ped	South San Francisco	Pedestrian Crossing Improvements at El Camino H.S	$ 98,000				X
2011/12	CMAQ		South San Francisco	Regional Gap	$ 261,000				X
2012/13	STIP	Highway	C/CAG	San Mateo County Smart Corridor - Segment 2	$ 1,977,000				X
2012/13	TDA Art 3	Bike Ped	Redwood City	Bike Route Sign/Detectors/Racks	$ 42,792				✕
2013/14	TDA Art 3	Bike Ped	Burlingame	Ped/Bike Bridge Connection	$ 136,000				✕
2013/14	CMAQ	Bike Ped	Caltrans	Reconstruct U.S. 101/Broadway interchange - Bike/ Ped components	$ 3,613,000				✕
2013/14	Regional SR2S	SR2S	C/CAG	San Mateo County Safe Routes to School Prograr	$ 1,905,000				X
2013/14	CMAQ	Bike Ped	Pacifica	Replace San Pedro Creek Bridge over Route 1 - Bike/ Ped components	$ 1,141,000				X
2013/14	CMAQ	TLC	San Carlos	San Carlos PDA Connectivity Project	$ 125,000				✕
2013/14	CMAQ	TLC	San Carlos	El Camino Real Lighting and Landscaping (G rand Boulevard Inititive)	$ 182,000				✕
2013/14	STIP	Highway	SMCTA	US 101/ Broadway Interchange	$ 23,218,000				X
2014/15	STP	LSR	Atherton	Atherton/Fair Oaks/Middlefield Maintenance project	$ 285,000				✕
2014/15	STP	LSR	Belmont	2014/15 Belmont Pavement Reconstruction Project	$ 534,000				✕
2014/15	TDA Art 3	Bike Ped	Belmont	Comprehensive Bicycle and Pedestrian Plan	$ 37,500				X
2014/15	CMAQ	Bike Ped	Burlingame	Carolan Avenue Complete Streets Improvement Project	$ 986,000				✕
2014/15	TDA Art 3	Bike Ped	City of San Mateo	Pedestrian and Bicycle Infrastructure Upgrade	$ 200,000				X
2014/15	CMAQ	Bike Ped	County of San Mateo	Semicircular Road Pedestrian and Bicycle Access Improvement Project, North Fair Oaks Area	$ 320,000				✕
2014/15	STP	LSR	Daly City	Callan Boulevard and King Drive Resurfacing	$ 560,000				✕
2014/15	TDA Art 3	Bike Ped	Daly City	Geneva Ave. Bike and Ped Improvement	$ 375,000				X
2014/15	TDA Art 3	Bike Ped	East Palo Alto	Bike/Ped Access to Services	$ 108,820				X
2014/15	STP	LSR	Menlo Park	2014-2015 Resurfacing of Federal Aid Routes	$ 427,000				✕
2014/15	CMAQ	Bike Ped	Menlo Park	El Camino Real, Valaparaiso Avenue, Glenwood Avenue, and Middlefield Road Bike/Ped Safety	$ 797,000				✕
2014/15	TDA Art 3	Bike Ped	Menlo Park	Citywide Bicycle and Pedestrian Enhancement	$ 347,860				X
2014/15	STP	LSR	Millbrae	2014 Millbrae Street Repair Project	$ 445,000				✕
2014/15	TDA Art 3	Bike Ped	Millbrae	Bicycle and Pedestrian Transportation Plan	$ 62,500				X
2014/15	STP	LSR	Pacifica	FY 2014-15 Linda Mar Boulevard Pavement Rehabilitation	$ 431,000				✕
2014/15	CMAQ	TLC	Pacifica	Palmetto Avenue Streetscape	$ 1,000,000				✕
2014/15	TDA Art 3	Bike Ped	Pacifica	Warning Lights Crosswalk	$ 140,000				X
2014/15	STP	LSR	Portola Valley	2014/2015 Town of Portola Valley Resurfacing Project	$ 224,000				✕
2014/15	STP	LSR	Redwood City	2014/2015 Town of Portola Valley Resurfacing Project	$ 548,000				✕
2014/15	CMAQ	Bike Ped	Redwood City	Middlefield Road Streetscape Project	$ 1,752,000				✕
2014/15	TDA Art 3	Bike Ped	Redwood City	Safe Routes to School Improvement	$ 46,220				X
2014/15	CMAQ	TLC	San Bruno	Transit Corridor Pedestrian Connectivity Improvement - Huntington Landscaping Imprvoement	$ 735,000				✕
2014/15	TDA Art 3	Bike Ped	San Bruno	Bicycle and Pedestrian Master Plar	$ 100,000				X

STATUS OF CAPITAL IMPROVEMENT PROJECTS - DRAFT

Program Year	Program	Type	Jursidiction	Project Description	Amount	Funding Obligation Pending	Funding Fully Obligated	Under Construction	Completed
2014/15	STP	LSR	San Carlos	Crestview Drive Pavement Rehabilitation-Phase 2	$ 412,000				✕
2014/15	CMAQ	TLC	San Carlos	San Carlos PDA Connectivity Project	$ 725,000				✕
2014/15	TDA Art 3	Bike Ped	San Carlos	N-S Bikeway Sign and Detectors	$ 83,500				X
2014/15	STP	LSR	San Mateo	Street Rehabilitation in Priority Development Areas (PDA's)	$ 270,000				✕
2014/15	CMAQ	TLC	San Mateo	North Central Pedestrian Infrastructure Improvements	$ 1,000,000				✕
2014/15	TDA Art 3	Bike Ped	San Mateo	Bay to Transit Trail - Phase I	$ 312,000				X
2014/15	CMAQ	TLC	South San Francisco	South San Francisco Grand Boulevard Project	$ 150,000				✕
2014/15	TDA Art 3	Bike Ped	South San Francisco	Pedestrian Crossing Improvemen	$ 98,000				X
2015/16	CMAQ	TLC	Belmont	Ralston Avenue Pedestrian Route Improvements	$ 250,000				✕
2015/16	CMAQ	Bike Ped	Belmont	Old County Road Bike and Pedestrian Improvement Project	$ 270,000				✕
2015/16	CMAQ	TLC	Daly City	John Daly Boulevard Streetscape Improvement	$ 1,000,000				X
2015/16	CMAQ	TLC	East Palo Alto	Bay Rd. Improvement Phase II and III	$ 1,000,000				✕
2015/16	CMAQ	TLC	San Mateo	Citywide Crosswalk Improvement Project	$ 368,000				✕
2015/16	CMAQ	Bike Ped	South San Francisco	SSF Citywide Sidewalk Gap Closure Project	$ 357,000				✕
2015/16	CMAQ	TLC	South San Francisco	South San Francisco Grand Boulevard Project	$ 850,000				✕
2016/17	TDA Art 3	Bike Ped	Atherton	Middlefield and Oak Grove Complete Street Improvemen	$ 124,200				X
2016/17	STIP	Highway	C/CAG	Phase 2 (ENV) at SR 92/US 101 Interchange Vicinity	$ 5,000,000				✕
2016/17	STIP	Highway	C/CAG	US 101 High Occupancy/Express Lane Project	$ 9,399,000				✕
2016/17	TDA Art 3	Bike Ped	Daly City	Westmoof Ave to Guadalupe Parkway Bike and Ped Improvements	$ 154,750				X
2016/17	TDA Art 3	Bike Ped	San Carlos	Hwy 101 Ped/Bike Overcrossing	$ 400,000				X
2016/17	STIP	Highway	San Mateo	Phase 1 - SR 92 Improvement at SR 92/US El Camino Real Interchange	$ 5,000,000				✕
2016/17	TDA Art 3	Bike Ped	San Mateo	San Mateo Dr. Ped and Bike Improvement	$ 400,000				X
2016/17	TDA Art 3	Bike Ped	San Mateo County	Bicycle Routes and Rules	$ 21,050				X
2016/17	STIP	Highway	SMCTA	US 101/Willow Interchange Reconstruction	$ 19,552,000				✕
2016/17	TDA Art 3	Bike Ped	South San Francisco	Linden Ave Complete Streets Safety Projec	$ 400,000				X
2017/18	STIP	Highway	C/CAG	Countywide ITS Project	$ 4,298,000				✕

Appendix H: Measure A Program Strategic Plan

SAN MATEO COUNTY
Transportation Authority

Strategic Plan 2014-2019

Board of Directors

Karyl Matsumoto, Chair
Representing SamTrans Board
South San Francisco Mayor

David Canepa, Vice Chair
Representing North County Cities
Daly City Mayor

Rosanne Foust
Representing South County Cities
Redwood City Vice Mayor

Carole Groom
Representing San Mateo County
Board of Supervisors

Don Horsley
Representing San Mateo County
Board of Supervisors

Terry Nagel
Representing Central County Cities
Burlingame Vice Mayor

Naomi Patridge
Representing Cities-at-Large
Half Moon Bay Council Member

Executive Staff

Executive Director
Michael J. Scanlon

Deputy CEO
Gigi Harrington

Deputy CEO
Chuck Harvey

Executive Officer, Planning and Development
April Chan

Executive Officer, Customer Service and Marketing
Rita Haskin

Executive Officer, Caltrain Modernization
Marian Lee

Executive Officer, Public Affairs
Mark Simon

Authority Secretary
Martha Martinez

General Counsel
Hanson Bridgett

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From the Executive Director

This report, as is the case with any activity of the San Mateo County Transportation Authority (TA), is a testament to the farsightedness and civic-mindedness of the people of San Mateo County. Since 1988, this community has been willing to pay for transit and transportation programs – everything from freeway lanes to bicycle paths – that will maintain and improve the quality of life we hold so dear.

The TA and its supporting legislation have enjoyed overwhelming support at the ballot in 1988 and again in 2004. This support is, in reality, a remarkable show of understanding that as we all contribute, we all benefit. If the TA helps to fund metering lights or auxiliary lanes on US 101, it helps traffic on the freeway and on side streets, and improving traffic on a major roadway helps drivers everywhere. If the TA funds alternative projects, such as bicycle and pedestrian paths or ferries, it takes cars off the road and reduces pollution, to the benefit of someone who may never ride a bicycle, take a hike or ride a ferry.

The eagerness with which the public has supported the TA is reflected in the enthusiasm of the cities and the county in their pursuit of funding from the Measure A programs. If the projects and programs are the outcome of the TA's activities, the competition for funding for those projects and programs is the centerpiece of the TA's activities. And it is, to a significant degree, at the heart of this Strategic Plan, intended to direct the TA through 2019. We have gone through a detailed and critical analysis of how the TA delivers to our community – reaching out in an unprecedented manner to stakeholders, cities, transportation agencies, would-be sponsors and our ultimate constituency, the public we serve.

The result is the meticulously thoughtful raising of issues facing the TA and its delivery of the funds with which it is charged as steward. In an equally detailed and thoughtful manner, the Strategic Plan offers a series of recommendations to improve the interaction between the agency and those seeking funds for projects and programs.

We hope you find this Strategic Plan helpful in understanding the TA and its role in our community, and a useful guide to how best to make the fullest use of the resources available from the Measure A revenues.

Michael J. Scanlon
Executive Director

Section 1: Introduction and Background

Section 1: Introduction and Background

In 1988, San Mateo County voters approved Measure A, a 20 year half-cent sales tax to fund and leverage additional funding for transportation projects and programs in San Mateo County. The approval of Measure A created the San Mateo County Transportation Authority (TA) to manage and administer the sales tax revenues generated. The TA is governed by a seven-member Board of Directors on the administration of the Transportation Expenditure Plan (TEP). The Board of Directors sets the overall policy direction for the TA and is comprised of: two Board members appointed by the Board of Supervisors; four Board members representing the North County, Central County, South County and cities at-large, as appointed by the Cities Selection Committee; and one Board member appointed by the San Mateo County Transit District. The 15-member Citizens Advisory Committee, appointed by the Board, serves as a liaison between the public and the Board of Directors.

San Mateo County is one of 20 "self-help" counties in California that chose to tax itself in order to help address the county's transportation needs. As a self-help county, the TA has been able to accelerate the completion of major projects by bridging funding gaps, leveraging other fund sources, and providing 100 percent of project funding, where necessary. The 1988 Sales Tax Measure expired on December 31, 2008.

In 2004, 75.3 percent of San Mateo County voters reauthorized the Measure A half-cent sales tax and a new TEP for an additional 25 years (2009 – 2033). The TEP describes programs and projects, as identified by the cities, local agencies and citizens of San Mateo County, and includes funding for multiple modes to help meet the county's transportation needs.

The TEP requires the TA to develop a Strategic Plan and to update the Strategic Plan every five years. This current plan is developed for 2014-2019.

The purpose of this planning update is to review and modify the policy framework, where appropriate, to help guide programming and allocation decisions for Measure A funds. This update provides:

- Funding prioritization and evaluation criteria for the selection of candidate projects; and
- Procedures for sponsors to initiate and implement projects

It is essential to emphasize that this plan is a living document that will continue to evolve as the TA implements the Measure A program.

Section 2: Measure A Program 2009-2033

Section 2: Measure A Program 2009-2033

The 2009 – 2033 Measure A Program began on January 1, 2009, continuing to generate sales tax revenues in San Mateo County for transportation facilities, services and programs. The voter-approved TEP sets the program categories and percentage split of the sales tax revenues to each of the program categories described below.

Funding is identified for six primary program categories: Transit, Highways, Local Streets/ Transportation, Grade Separations, Pedestrian and Bicycle, and Alternative Congestion Relief Programs. Each category is designated for a percentage share of the total projected revenues, as illustrated in **Figure 1** below.

2.1 2004 Expenditure Plan Goals

The goals of the 2004 Expenditure Plan are to:

- Reduce commute corridor congestion
- Make regional connections
- Enhance safety
- Meet local mobility needs

2.2 Program Category Details

A description and purpose of each program category is described in **Table 1** on the next page. The Measure A program is estimated to generate $1.5 billion (in 2004 dollars) over the life of the program.

Figure 1: 2004 Measure A Expenditure Plan

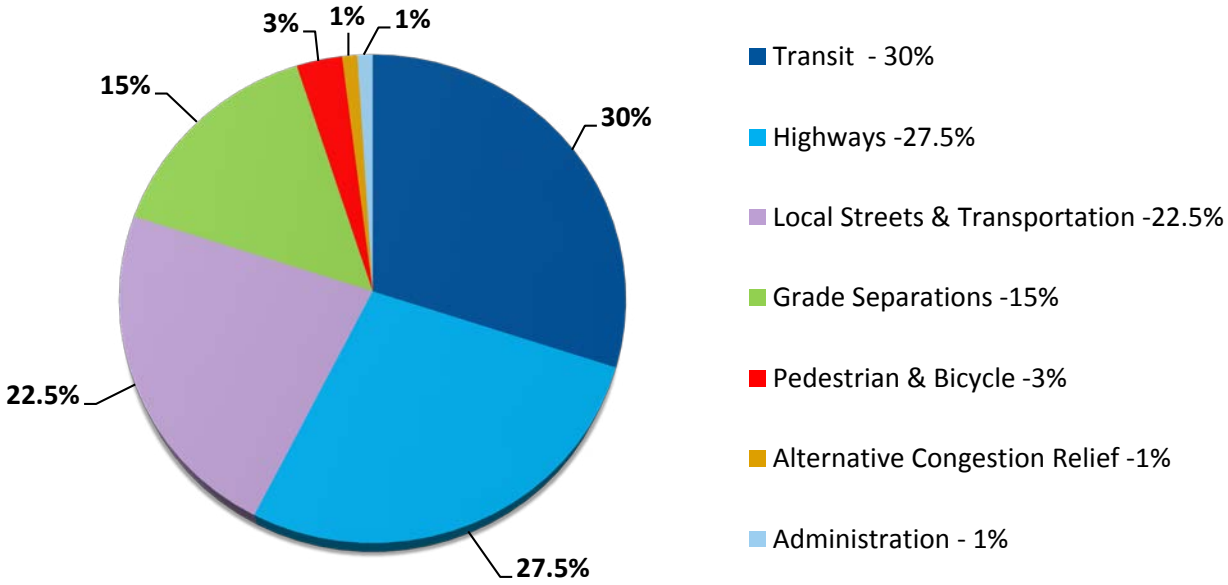


Table 1: Program Category Details

Program Category	Description	Purpose	Estimated Sales Tax (in 2004 dollars)
Transit			
Caltrain (16%)	Existing commuter rail system providing train service in San Francisco, San Mateo and Santa Clara counties	Upgrade and expand Caltrain systemwide services/San Mateo County specific improvements; up to one-half of funds may be used to support operations	$240.0 million
Local Shuttles (4%)	Transit services provided with vehicles that are typically larger than vans and smaller than buses	Meet local mobility needs and provide access to regional transit	$60.0 million
Accessible Services (4%)	Targeted transportation services for people that have special mobility needs	Provide paratransit and other transportation services to eligible seniors and people with disabilities	$60.0 million
Ferry (2%)	Transit service provided by vessels on waterways	Establish ferry services in San Mateo County	$30.0 million
Dumbarton Corridor (2%)	A key corridor connecting the East Bay with the Peninsula identified for future commuter rail service	Construct stations and rail enhancements in East Palo Alto, Menlo Park and Redwood City	$30.0 million
BART (2%)	Existing heavy rail system providing train services in San Francisco, San Mateo, Alameda and Contra Costa counties	Maintain and operate BART extension in San Mateo County	$30.0 million
Highways			
Key Congested Areas (17.3%)	Highways in San Mateo County	Reduce congestion and improve safety on highways	$260.0 million
Supplemental Roadways (10.2%)	Local, collector, arterial, state route roadways in San Mateo County	Reduce congestion and improve safety on roadways	$153.0 million
Local Streets / Transportation (22.5%)	Transportation services, roadways owned and maintained by the cities and County of San Mateo	Improve and maintain local transportation facilities and services	$337.5 million
Grade Separations (15%)	Eliminate at-grade railroad crossings/ upgrade existing grade separation	Improve safety and relieve local traffic congestion	$225.0 million
Pedestrian and Bicycle (3%)	Pedestrians and bicycle facilities	Encourage walking and bicycling	$45.0 million
Alternative Congestion Relief Programs (1%)	Commute alternatives and Intelligent Transportation Systems	Efficient use of transportation network and reduce reliance on automobiles	$15.0 million

Note: Up to 1% of funds used for administration

The TEP outlines restrictions in the use of Measure A funds to target funding to transportation projects in San Mateo County and maximize the leveraging of other funding. The restrictions include:

- Measure A funds may not be used to supplant existing funds and resources on projects
- Measure A funds may be used only for transportation programs and projects as allowed in the TEP
- Measure A funds may be used only for projects within San Mateo County, with exception to system-wide Caltrain improvements, and other projects that minimally extend into adjacent counties

The TEP further provides that "listed" projects are to be included in each Strategic Plan. A listed project is a capital project that the TA has programmed Measure A funding from the Call for Projects selection approach or from a Special Circumstance request. The TA can de-program funding for a project, and thus remove a listed project from the Strategic Plan, if requested by the project sponsor or if a sponsor fails to meet its obligations under the terms and conditions of the funding agreement for the project.

An inventory of listed projects is contained in **Appendix B**. Note, the inventory of listed projects is not intended to be a comprehensive list of projects selected for funding from all of the Measure A programs, nor an inventory of all projects eligible for Measure A funds in the future. Going forward, the list in **Appendix B** will be updated as needed, and included in each subsequent Strategic Plan.

2.3 Accomplishments for Past Five Years

Over the past five years of the Measure A program, a number of accomplishments were achieved, as described below.

New Processes and Plans

The TA established the Call for Projects processes for selecting projects and allocating Measure A funds for the highway, grade separation, pedestrian/bicycle and shuttle programs. The TA also completed the New Measure A Program Short-range Highway Plan (2011-2021), the Shuttle Business Practices Guidebook, and helped fund the San Mateo County Comprehensive Bicycle and Pedestrian Plan.

Key Projects Funded

Measure A has funded a number of key projects throughout the county to meet the goals of the 2004 Expenditure Plan including:

- *Transit*
  - Caltrain upgrades and improvements, such as:
    - Caltrain Modernization Program (CalMod) program with Electrification, Positive Train Control (PTC)
    - Ongoing Caltrain State of Good Repair projects
  - Shuttles: The TA helps fund a robust shuttle system to provide critical first-and last-mile access to regional transit and meet local mobility needs
  - Ferry: South San Francisco Ferry Terminal construction
- *Highway*
  - Reconstruction of Broadway Interchange at U.S. 101 (Burlingame)
  - State Route 1 San Pedro Creek Bridge Replacement Project (Pacifica)
  - U.S. 101 Auxiliary Lane Project, from Marsh Road to Embarcadero Road (Menlo Park to Palo Alto)
- *Grade Separation* - San Bruno Grade Separation Project
- *Pedestrian/Bicycle*- Ralston Avenue/U.S. 101 pedestrian and bicycle bridge (Belmont)

- *Alternative Congestion Relief (ACR)*
  - Peninsula Traffic Congestion Relief Alliance's countywide transportation demand management (TDM) work programs
  - *Connect Redwood City* TDM effort focused in Redwood City

2.4 A Financial Look Ahead (2014-2019)

Although the Strategic Plan covers 2014- 2019 calendar years, financial projections are made by fiscal year. A review of the Measure A financial outlook for Fiscal Year (FY) 2014 through 2019 was performed as part of the development of the Strategic Plan. The following section details the forecasted annual revenues through FY 2019.

Forecasted Measure A Revenues

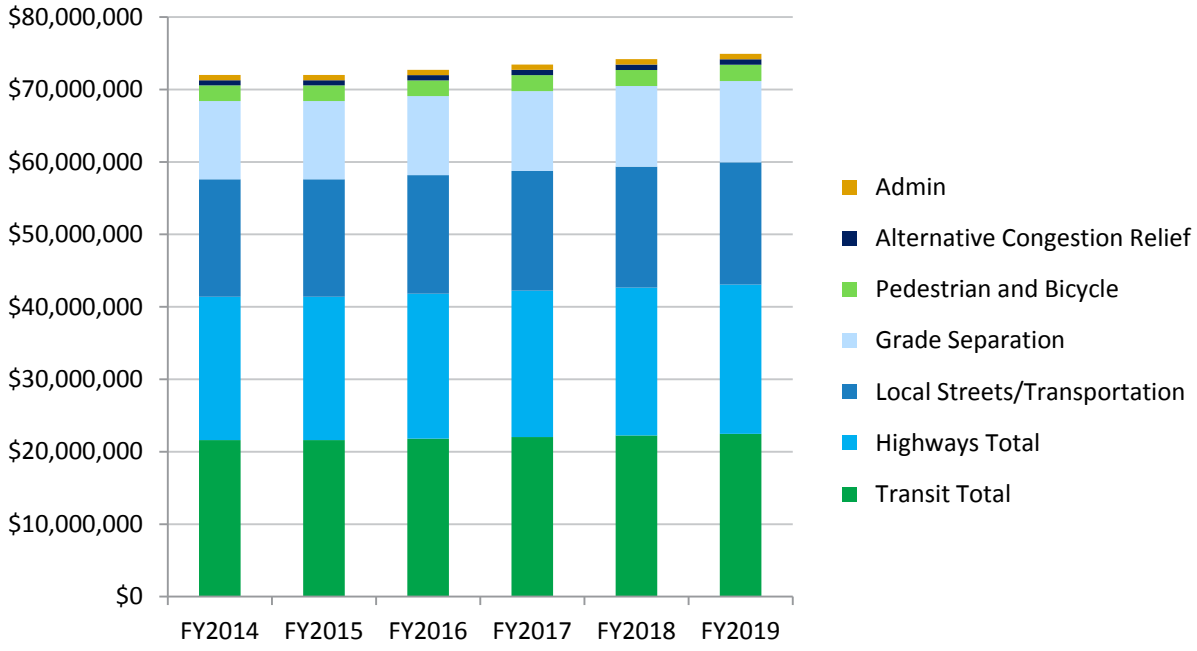
The budgeted FY 2015 sales tax revenue receipts are estimated to be $72 million; each subsequent fiscal year estimate assumes a conservative 1.0 percent growth rate. **Table 2** below provides the estimated total revenues each year, and **Figure 2** provides the percentage breakdown for each category.

Table 2: Annual Measure A Revenues (FY2014-2019)

	FY2014*	FY2015	FY2016	FY2017	FY2018	FY2019
Projected Measure A Revenues ($M)	$72.0	$72.0	$72.7	$73.4	$74.2	$75.0

Note: Fiscal Year (FY) 2014 adopted budget is $72 million. In addition, the currently available unprogrammed new Measure A balance is $63 million.

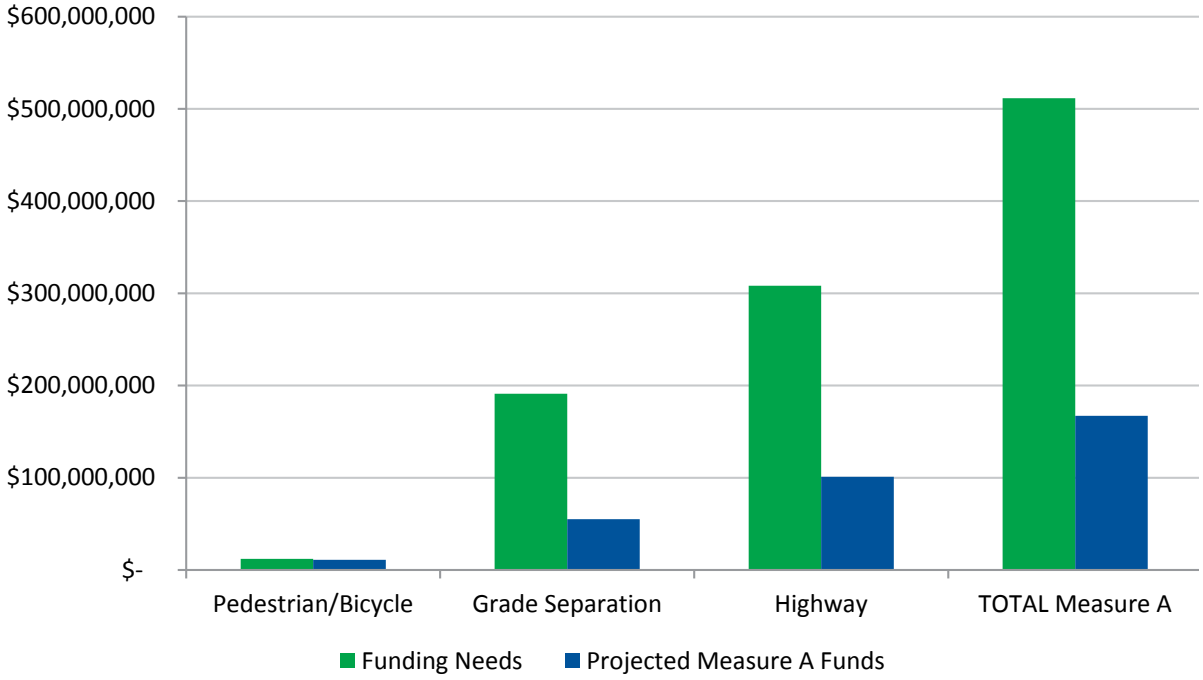
Figure 2: Annual Measure A Revenues



Measure A Financial Outlook

The forecasted need for pipeline projects in the grade separation, highway, and pedestrian and bicycle categories, not including funding requests for new projects that may be proposed, could exceed $500 million over the next five years, as shown in **Figure 3** below. Pipeline projects reflect those capital projects in these three categories previously programmed and allocated Measure A funds, and whose sponsors are expected to request additional funding for project completion. The estimated Measure A receipts for these categories, estimated at $167 million through Fiscal Year 2019, will be insufficient to deliver these projects through completion.

Figure 3: Potential Funding Needs and Allocations for Pipeline Pedestrian/Bicycle, Grade Separation, and Highway Programs for 2014-2019



Section 3: Plan Development Process

This section describes the efforts that were undertaken to develop the Measure A Strategic Plan 2014-2019. These efforts included review of existing project selection and project implementation processes, demographics and travel data trend analysis, and stakeholder outreach.

3.1 Review of Existing Project Selection and Implementation Processes

A review of the existing project selection process, including an assessment of the evaluation criteria used to prioritize projects and an examination of the project initiation and implementation processes, were conducted to determine where improvements are needed.

3.2 Demographics and Travel Data

An analysis of the demographic data was conducted to better understand current and future population and employment growth patterns and travel trends, including current and future mode share and trip growth, as projected changes could influence program policies.

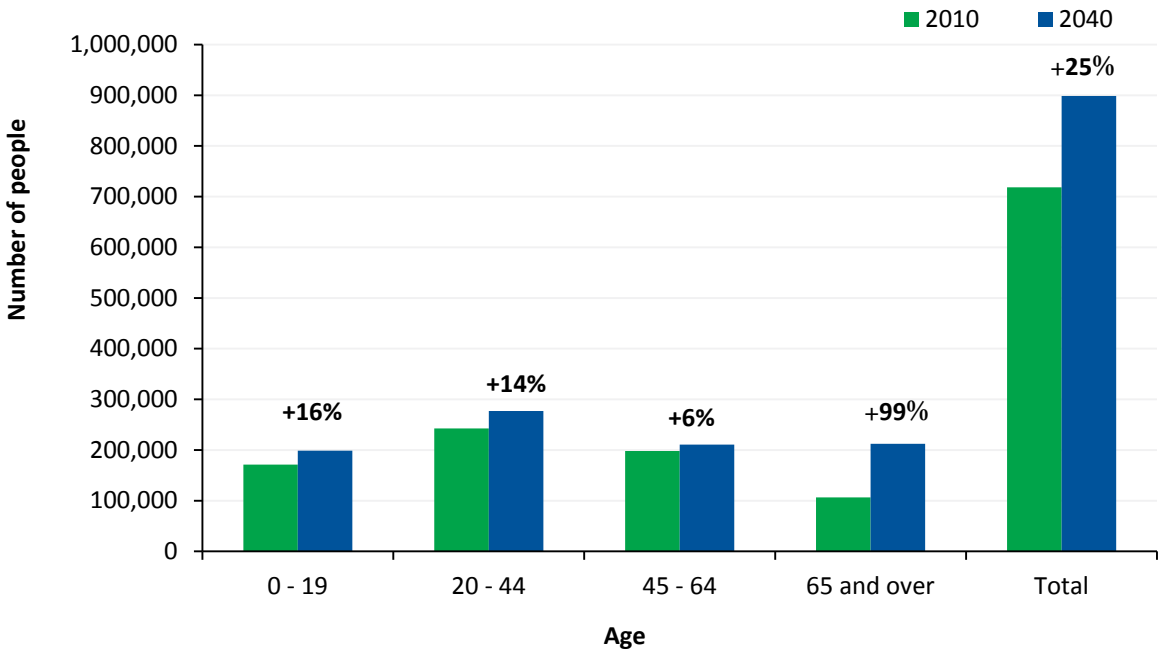
Demographic Trends

In 2010, San Mateo County had 718,454 residents and 331,931 jobs. Between 2010 and 2040, San Mateo County is projected to increase in population by 25 percent and employment to increase by 34 percent.

Population by Age

From 2010 to 2040, the senior population (65 and older) is expected to almost double, an increase of more than 100,000 residents in that age group. This indicates that there will be growing pressure on transit and accessible services to meet the needs to the senior population in the next 25 years. **Figure 4** shows the total number of people by age group, as well as the percent increase from 2010 to 2040.

Figure 4: San Mateo County Population Change within Age Groups, 2010-2040



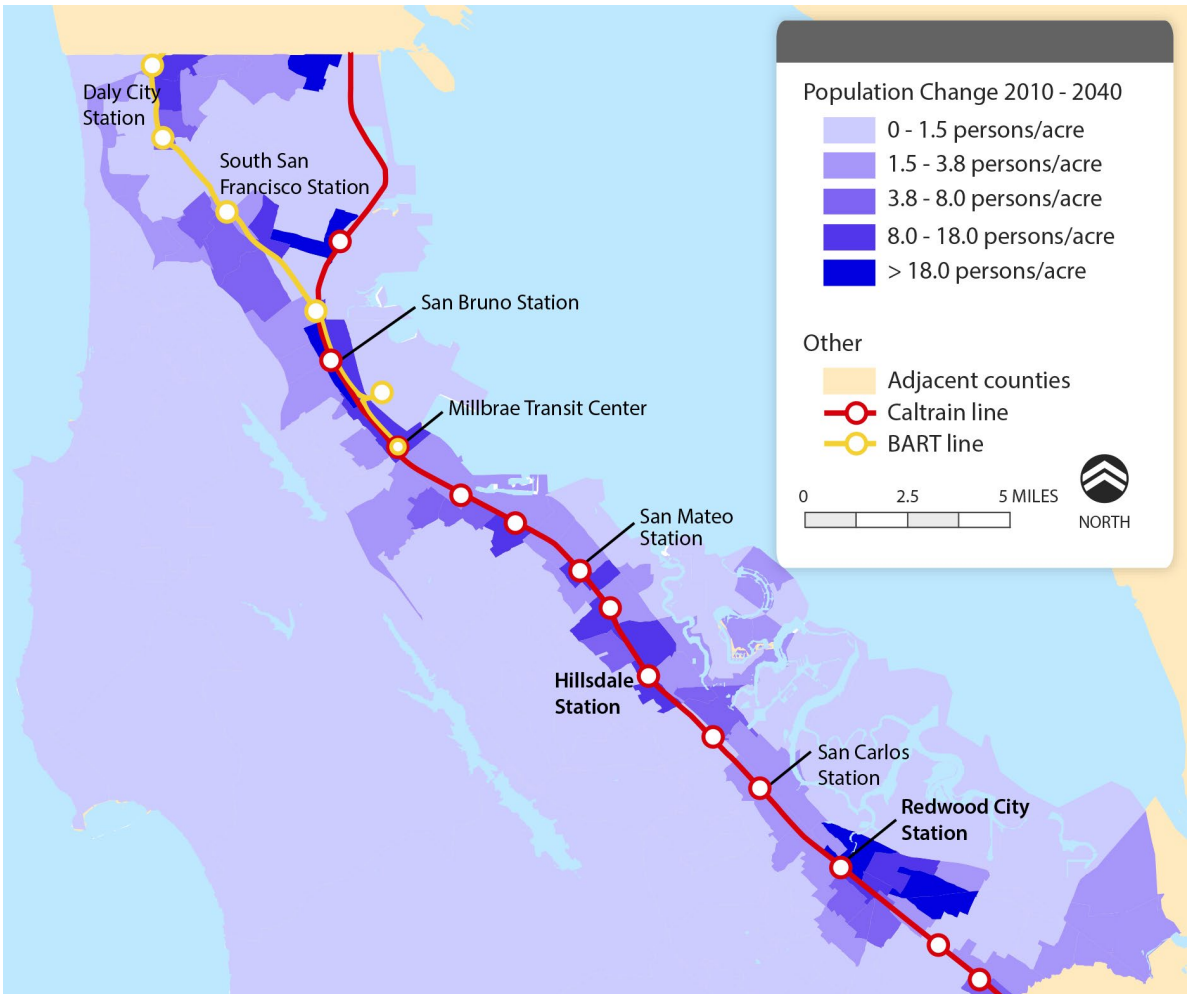
Note: Data based on Association of Bay Area Governments (ABAG) Projections 2013

Population by Geography

Population growth is largely concentrated along the BART and Caltrain corridors as illustrated in **Figure 5** below. Most of the population growth in the county occurs after 2020: population increases by 52,754 residents (7 percent) from 2010 to 2020 and by 127,496 residents (17 percent) from 2020 to 2040.

Figure 6 illustrates the total change in employment growth from 2010 to 2040 by Travel Analysis Zones (TAZs). Areas with high employment growth are in close proximity to BART and Caltrain stations. A comparison of **Figure 5** (population change by geography) and **Figure 6** (employment change by geography) shows that several areas are expected to increase significantly in both employment and population.

Figure 5: Total Change in Population from 2010 to 2040 for San Mateo County by Traffic Analysis Zone (TAZ)



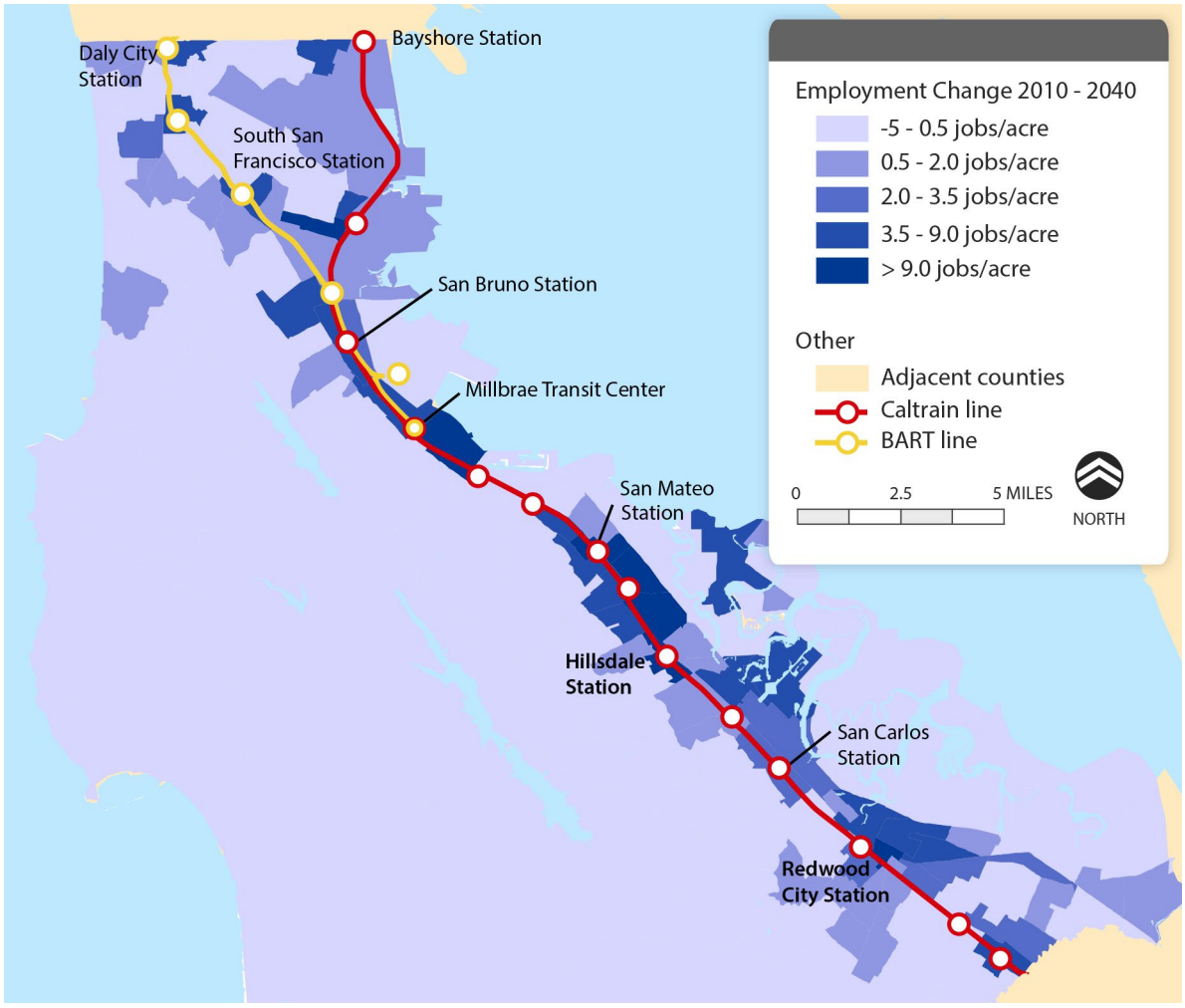
Note: Data based on Association of Bay Area Governments (ABAG) Projections 2013

Population and employment growth along transit corridors is based on the Association of Bay Area Governments (ABAG) projection of growth in Planned Development Areas (PDAs) near station areas and anticipated transit-oriented development (TOD). These projected population growth patterns support continued investment in transit access to Caltrain and BART.

Travel Trends

A comparison of 2013 mode share data and 2040 projections during peak periods shows that transit mode share will increase from 8.0 percent in 2013 to 10.6 percent in 2040. Bicycling and walking mode shares are projected to increase from 12.4 percent in 2013 to 13.7 percent in 2040. These three non-automobile modes currently account for 20.4 percent of the total mode share in San Mateo County. **Table 3** summarizes 2013 and 2040 mode share data during peak periods (morning and evening peaks combined) for San Mateo County.

Figure 6: Change in Employment from 2010 to 2040 for San Mateo County by Traffic Analysis Zone (TAZ)



Note: Data based on Association of Bay Area Governments (ABAG) Projections 2013

Trip Origins and Destinations

The number of trips that occur within San Mateo County is projected to increase by 19 percent between 2013 and 2040. However, the total number of trips that have an origin or destination in San Mateo County is projected to increase by 28 percent. The number of trips to and from San Francisco and Santa Clara Counties will increase by 45 percent from 2013 to 2040. Overall the total number of trips is growing at a faster rate than trips within the county. This may indicate a future trend with longer average trips and travel times.

Traffic Volumes on Major Highway Segments in San Mateo County

Selected highway segments from SR 92, SR 82, I-280, SR 84, and US 101 were evaluated from a countywide travel demand model to develop a snapshot of anticipated growth in traffic volumes on major San Mateo County roadways from 2013 to 2040. On average, traffic volumes on these segments are estimated to increase by 28 percent from 2013 to 2040.

Summary of Findings

The review of demographic and travel trends indicate the following:

- High growth in the number of seniors age 65 and older will put increased pressure on the provision of transit and accessible services in the upcoming years.
- The majority of the population and employment growth in the county will occur along the already congested north/south Highway 101 and Caltrain corridors. Providing multimodal solutions with focus on sustainable practices will be critical.
- The use of transit and pedestrian/bicycle modes will increase in the future, but travel by automobile will continue to be the primary mode of transportation. This suggests a balanced approach to transportation investment will be needed.
- The highway volume analysis indicates continued traffic volume growth on San Mateo County's key congested corridors and highlights that they will continue to be areas of concern in the next 25 years.

Table 3: Current and Projected Mode Share Trends for San Mateo County (Peak)*

	Current (2013)	2020	2040	Difference (2013-2040)
Drive-alone	49.7%	50.4%	48.2%	-1.5%
Carpool	29.9%	28.3%	27.5%	-2.4%
Transit**	8.0%	8.9%	10.6%	+2.6%
Bicycle	2.0%	2.0%	2.3%	+0.3%
Walk	10.4%	10.4%	11.4%	+1.0%

Data from Santa Clara Valley Transportation Authority (VTA) travel model 2013, based on ABAG Projections 2011 that is in the process of being updated to incorporate inputs from the Plan Bay Area Regional Transportation Plan.
*Includes all peak-period trips (a combination of morning and evening peaks) starting or ending in San Mateo County
**Park-and-ride and kiss-and-ride trips are categorized as transit

3.3 Stakeholder/Public Outreach

The Strategic Plan update involved several methods of civic engagement: public stakeholder meetings, an online survey, and a series of public meetings held throughout the county following the release of a draft Strategic Plan update. A key aspect of the outreach program for the Strategic Plan update was to solicit stakeholder input focusing on key issues and how the process could be improved. Engaging stakeholders and the public included the following channels:

- TA website: dedicated page, www.smcta.com/strategicplan, and public meeting announcement on home page
- News releases and follow-up reminders to numerous entities including local media, neighborhood associations, community based organizations, chambers of commerce, mayors, city managers, public works directors, stakeholder outreach contacts, interested parties from prior Call for Projects processes and other TA outreach efforts

Public meeting notices for the Strategic Plan Update were also posted on the following media sites:

- Sustainable San Mateo County website
- San Mateo County Economic Development Association (SAMCEDA) Twitter
- TransForm website
- San Francisco Examiner news article
- Belmont City Manager's weekly update
- San Bruno Patch
- City of Pacifica City Focus
- Fix Pacifica blog
- City of South San Francisco news alerts

Stakeholder Meetings and Questionnaire

A series of stakeholder meetings were held to receive input regarding the existing project selection and implementation procedures for Measure A funds, and how they can be improved. TA staff met with the following stakeholder groups, which represented a wide range of perspectives and interests:

- City/County Association of Governments (C/CAG) Congestion Management Program Technical Advisory Committee (TAC)
- C/CAG Bicycle and Pedestrian Advisory Committee (BPAC)
- Caltrain Citizens Advisory Committee
- SamTrans Accessibility Advisory Committees
- SamTrans Citizens Advisory Committee
- SAMCEDA
- San Mateo County Paratransit Coordinating Council
- TA Citizens Advisory Committee

The following groups were unable to convene during this time period, but were invited to participate in the stakeholder questionnaire:

- Peninsula Traffic Congestion Relief Alliance
- Committee for Green Foothills
- Menlo Park Transportation Management Program
- C/CAG Congestion Management and Environmental Quality Committee (CMEQ)

Summary of Stakeholder Feedback

Stakeholder Meetings

Stakeholders were generally supportive of the current processes for project selection and initiation. Key comments received from stakeholders emphasized the importance and need for flexibility; input on project delivery with respect to sponsor implementation;

concerns regarding limited available funding to deliver large capital projects, and the ability to leverage external revenue sources; the integration of new concepts in light of regional and statewide initiatives; and the establishment of metrics to better determine how projects are meeting Measure A goals.

Stakeholder Questionnaire

The stakeholder questionnaire was distributed to the groups listed above. The stakeholders were asked about their assessment of the TA's performance, alignment of the TEP goals with the county's transportation needs, and preferences for focus on goals and performance measures. While stakeholders clearly indicated that the TEP goals were aligned with the county's needs, the key feedback from this survey included a preference for evaluation criteria to focus on project effectiveness, project need, and to give more consideration to Complete Streets and multimodal access, and finally to explore performance measures such as ridership, cost per traveler, safety, travel time savings, and emissions reduction.

Summary of Public Feedback

The Draft Strategic Plan was released on October 10th for a 30 day public comment period. During this time, four public meetings were held at different locations throughout the county, including Menlo Park (South County), Pacifica (Coastside), San Carlos (Central County) and South San Francisco (North County). The TA also presented the Draft Strategic Plan to the Menlo Park Chamber of Commerce, per request.

Public feedback can be summarized as follows:

- Ensure sufficient coordination with external stakeholders as part of a collaborative approach to solving transportation concerns/issues.
- Greater emphasis should be placed on Complete Streets in the TA's project selection criteria.
- Heightened importance of the pedestrian/bicycle and alternative congestion relief programs in addressing congestion relief and the desire for additional funding.
- The TA also received concerns regarding the Calera Parkway highway project in Pacifica; however, they are beyond the purview of the TA Strategic Plan. Project specific concerns will be addressed separately with the project sponsor.

A summary of stakeholder and public outreach comments and the TA's responses are provided in **Appendix C**.

Section 4: Recommendations

Section 4: Recommendations

Through the plan development and stakeholder outreach process, it was determined that the TA's current processes for project selection and project initiation and implementation generally work well. Project sponsors appreciated the flexibility of the program's project delivery. Some challenges and opportunities do exist, and they are either program-wide or category specific. These are discussed in more detail in the following sections.

4.1 Program-wide Challenges and Opportunities

The Strategic Plan development process identified four main program-wide challenges, which included the following:

Challenge/Opportunity #1 – Project Delivery: Project delivery and coordination may be impacted by sponsor resources, expertise and funding.

Recommendation: At the onset of a project the sponsor shall coordinate with TA staff to determine the entity that is best suited to implement the project or program. This decision should be based on the size and complexity of the project/program, as well as available sponsor resources and expertise.

Challenge/Opportunity #2A – Integrate Sustainability into Strategic Planning Process: Sustainability supports programs that build and maintain livable communities and transportation networks, foster social equity by expanding mobility options and providing transportation for residents with mobility impairments, and reduce greenhouse gas emissions and environmental impacts by promoting alternative and active transportation options. Sustainability also can be attained through stronger focus on sustainable design, as well as construction methods.

The TA has an opportunity and obligation as stewards of the county to incorporate sustainability into the decision-making process while appropriately balancing other critical considerations.

Recommendation: Sustainability is already a component of the evaluation criteria in each Call for Projects, and the TA should work to refine the specific sustainability criteria that will be used to award projects, as appropriate.

Challenge/Opportunity #2B – Integrate Complete Streets into Strategic Planning Process: Complete Streets is defined as "a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit riders, and motorists appropriate to the function and context of the facility." Complete Streets is also a key selection criterion in federal, state and local regional transportation funding programs. It is important to align the Measure A project selection criteria with these non-Measure A programs in order to maximize the leveraging of external funding sources.

Recommendation: For the highway and grade separation categories, project selection should consider Complete Streets, where contextually appropriate, to benefit all applicable travel modes to the extent feasible.

Challenge/Opportunity #3 – Call for Projects Alignment: The current Call for Projects process may not align well with anticipated external grant opportunities, with respect to timing and selection criteria.

Recommendation: The Call for Projects processes should be reviewed periodically to make sure they coincide with the timing of external funding programs to better position sponsors to procure additional funds for their projects.

Challenge/Opportunity #4 – Metrics: There is a need to better establish metrics to ensure funded projects are meeting the goals of Measure A and to inform future investment decisions.

Recommendation: The TA should explore and develop improved metrics to determine if funded projects are meeting Measure A program goals. These metrics should be developed in a manner that allows a quantitative approach to evaluate project and program effectiveness. Where quantitative measures are difficult to obtain, qualitative measures should be considered.

4.2 Category Specific Issues and Recommendations

Challenge/Opportunity #1 – Highway and Grade Separation Programs: There is insufficient funding projected to be available through 2019 to deliver highway and grade separation projects that are already in the pipeline. There is a need to balance the delivery of pipeline projects with new projects to be selected for funding.

Recommendation: A Capital Improvement Program (CIP) should be developed for both the Highway and Grade Separation programs to assist in long-term financial planning.

Challenge/Opportunity #2 – Pedestrian/ Bicycle Program: A number of stakeholders voiced concerns that 3 percent of Measure A funds is insufficient to meet the pedestrian and bicycle needs for the county. There is insufficient funding available to deliver projects that are already in the pipeline and ensure that funds are available to deliver a future mix of projects throughout the county. The 3 percent share was set by the TEP approved by the voters. Additionally, opportunities to fund pedestrian and bicycle projects are not limited to this program: Complete Streets improvements may be funded from other Measure A programs where appropriate, and external funding sources are also available for pedestrian and bicycle facilities.

Recommendation:

- A CIP should be developed to assist in long-term planning needs for large and complex capital projects.
- The Call for Projects cycle should be adjusted to coincide with regional and state funding programs for pedestrian/ bicycle projects. This should better position sponsors to procure additional funds for their projects.

Challenge/Opportunity #3 – Shuttle Program: SamTrans recently embarked on development of a Mobility Management Plan (MMP) to provide planning guidance for shuttles and other non-fixed-route mobility options. The TA has an opportunity to leverage this planning effort to improve shuttle service and productivity. To take full advantage of this opportunity it is essential to determine who is best suited to plan and administer the shuttle services, as there is a concern that some shuttle services are not as efficient as they should be. Existing performance benchmarks need to be evaluated and updated.

Recommendation: The TA is a funding partner of the SamTrans MMP, and will participate in and leverage this planning effort, including the update and revision of performance benchmarks to evaluate proposed and existing shuttle services. A minimum performance standard should be considered to determine if an existing or a proposed shuttle should be funded by the Measure A program. The TA should work with existing shuttle sponsors to provide guidance/recommendations to improve the productivity of under-performing shuttles. Failure to continuously meet minimum standards over a sustained period of time could result in a recommendation to discontinue funding in future funding cycles.

Challenge/Opportunity #4 – Alternative Congestion Relief: The relatively small amount of money available to this program (1 percent) to fund commute alternatives and the planning and design of Intelligent Transportation Systems requires that funds be employed in a very efficient manner; this indicates that a coordinated plan of action to govern this program may be needed.

Recommendation: A countywide alternative congestion relief plan will be developed in conjunction with key external stakeholders. The countywide congestion relief plan will form the basis for initiating and selecting projects to be implemented under this program.

Section 5: Programming and Allocation Guidelines

5.0 Programming and Allocation Guidelines

Based on the steps taken to develop the Strategic Plan outlined in section 3.0 and the recommendations in section 4.0, the following guidelines provide a policy framework to inform the programming and funding allocation process for each of the programs or categories over the strategic plan horizon. This section discusses five basic elements of the process:

1. The participants and their respective responsibilities
2. The project selection approach for each program
3. Guidelines for agreement-based programs
4. Guidelines for plan-based programs
5. Guidelines for Call for Projects-based programs

5.1 Program Participants

The designated participants in the Measure A program are the project Initiator, the project sponsors, the project manager/operator and the Transportation Authority. **Table 4** defines the eligibility and the roles/responsibilities of each of the participants. Any party or entity may recommend or initiate a project by submitting it to an eligible sponsor. The expenditure plan identifies the eligible project sponsors as shown in **Table 5**. The sponsors have the ability to designate a project manager/operator. The TA is the agency created by the Measure A Expenditure Plan to administer the sales tax funds, and it has the overall responsibility for the Measure A Program.

Table 4: Participants and Responsibilities

Participant	Eligibility	Roles and Responsibilities
Project Initiator	Any person or entity	• Recommend Project to Project Sponsor
Project Sponsor	Identified in expenditure plan for each program category	• Submit Funding Request to the TA • Solidify Funding Plan • Coordinate with the TA to Identify Appropriate Implementing Agency • Submit Monitoring Reports • Sign Funding Agreements
Project Manager/Operator	As identified by the Project Sponsor in coordination with TA	• Plan Project • Engineer Project • Construct Project • Operate Services • Sign Funding Agreements when Applicable
Transportation Authority	Identified in the expenditure plan as the manager/ administrator of the Measure A program	• Evaluate and Prioritize Projects • Coordinate with Sponsor to Determine Implementation Lead • Program and Allocate Funds • Monitor Projects / Programs • Sign Funding Agreements

Table 5: Project Sponsors

Program Category	Project Sponsors
Transit	
Caltrain	SamTrans, Peninsula Corridor Joint Powers Board
Local Shuttles	SamTrans
Accessible Services	SamTrans
Ferry	South San Francisco, Redwood City
Dumbarton Corridor	SamTrans
BART	SamTrans
Highways	Caltrans, Cities, San Mateo County, C/CAG
Local Streets/Transportation	Cities, San Mateo County
Grade Separations	SamTrans, Cities, San Mateo County, Peninsula Corridor Joint Powers Board
Pedestrian and Bicycle	Cities, San Mateo County

5.2 Project Selection Approach

As part of the Strategic Plan 2009-2013 development, the TA approved a framework to select and fund projects for each funding category. **Table 6** shows the specific approach used for each program category or sub-category. The programs where project initiators or sponsors submit projects for consideration are governed by a Call for Projects. The TA will issue a formal Call for Projects request and then the project sponsors can elect to submit projects which are then reviewed and evaluated against specific selection criteria. Other program categories are governed by plans which are specifically prepared to identify and prioritize projects on a regional or countywide basis, or by agreements which are specified in the TEP or developed by the TA consistent with the provisions of the expenditure plan.

Table 6: Project Selection Approach

Agreement Based
Accessible Services BART Dumbarton Rail Corridor Ferry Local Streets & Transportation
Plan Based
Alternative Congestion Relief Caltrain
Call for Projects
Grade Separations Highway Pedestrian/Bicycle Shuttles

5.3 Agreement-based

These programs and projects are not subject to a competitive project selection process governed by the TA. They include the following program categories or sub-categories:

- Transit: Accessible Services
- Transit: BART within San Mateo County
- Transit: Dumbarton Rail Corridor
- Transit: Ferry
- Local Streets and Transportation

Transit: Accessible Services

For the Transit: Accessible Services program, funding is committed to the continuation and expansion of paratransit services operated by SamTrans as Redi-Wheels and RediCoast. The TEP allows for other supplemental services to be funded within this program. To date, these services have not yet been identified by SamTrans. If such services are identified in the future, they will be considered for funding in this category.

Transit: BART

For the Transit: BART within San Mateo County program, as outlined in an agreement with BART, SamTrans and the TA, 2 percent of Measure A sales tax revenues will be allocated to BART on an annual basis.

Local Streets and Transportation Program

For the Local Streets and Transportation program, the TA is committed to providing 22.5 percent of Measure A funding to the cities and the County of San Mateo for local transportation facility maintenance and improvement. The specific amount for each entity is determined based on the following formula: 50 percent by population and 50 percent by road mileage within each jurisdiction. Annually, the TA will update the road miles and population figures based on California Department of Transportation and Department of Finance data.

Transit: Ferry

South San Francisco and Redwood City are the designated sponsors for ferry services. There is an agreement in place for the South San Francisco Ferry Terminal construction, which was completed in 2012. Operating performance standards were established as part of this agreement using MTC's requirements for the use of Regional Measure 2 (RM2) funds. The current service is being monitored in accordance with these requirements.

Transit: Dumbarton Rail Corridor

SamTrans is designated as sponsor for the Dumbarton Rail Corridor project. Completion of the environmental document for this project is on hold pending the identification of a funding plan.

Programming and Allocations Process

The programming and allocations process for the non-competitive programs and projects with committed funding are as follows:

1. Staff Recommendation- Prior to the beginning of each fiscal year (July 1 – June 30), the TA will estimate the amount of projected revenues available for the programs and projects. Based on these estimates, the TA staff will make a programming and allocation recommendation to the Board.
2. TA Board Consideration- The Board will consider the recommendations as part of the annual TA budgeting process. Board approval will allow staff to allocate the money and complete the annual funding commitment.
3. Funding Agreements- Entities in receipt of funds from the agreement-based programs receive funding based on the conditions in their respective funding agreements. The funding agreement outlines the understanding between the funding recipient and the TA regarding the amount of funding, purpose of the funds, payment terms, any applicable reporting requirements, and

other obligations connected to the receipt of funding. BART and recipients of Local Streets and Transportation Program funds receive funding directly from the County Controller.

5.4 Plan-based

The plan-based approach requires the development of a plan for the particular category, which would include a comprehensive list of capital and/or operating projects that need to be implemented to meet the goals of the particular category. The TA and the project sponsor would use the plan to aggressively leverage external funding to implement the entire program.

Alternative Congestion Relief Programs

The TA, in conjunction with its external stakeholders, will be preparing an Alternative Congestion Relief Plan that will serve as a basis for project evaluation and the selection process.

Transit: Caltrain

Caltrain is designated as the sole recipient in this category. At least 50 percent of the annual funding allocation from Measure A can be designated for capital projects and no more than 50 percent can be used for operations. The allocation of project funding will be based on the Caltrain Short Range Transit Plan (SRTP), which the Peninsula Corridor Joint Powers Board (JPB) is required to prepare in order to receive federal and state funding. The SRTP and the annual Caltrain budgeting process will provide the basis for determining funding allocations needed for Caltrain.

Programming and Allocations Process

The programming and allocations processes for plan-based programs and projects are as follows:

1. Staff Recommendation- Prior to the beginning of each fiscal year (July 1 – June 30), the eligible project sponsors within these categories will submit funding requests to the TA, and the TA will consider such requests within the projected revenues available for these programs. TA staff will make a programming and allocation recommendation to the Board.
2. TA Board Consideration- The Board will consider the recommendations as part of the annual TA budgeting process. Board approval will allow staff to allocate the money and complete the funding commitment.
3. Funding Agreements- Prior to receiving any disbursements of funds, the receiving entity will need to execute a funding agreement with the TA. The standard funding agreement outlines the understanding between the funding recipient and the TA regarding the amount of funding, purpose of the funds, payment terms, any applicable reporting requirements, and other obligations connected to the receipt of funding.
4. Progress Report Submittals- Project Sponsors will be required to provide annual progress reports to monitor and document appropriate use of funds.

5.5 Call for Projects

Competitive programs are those in which new projects proposed within each program category will compete for Measure A funding. The competitive programs include:

- Transit - Shuttles
- Highways
- Grade Separations
- Pedestrian and Bicycle Facilities

Transit: Shuttles

The upcoming MMP to be prepared by SamTrans will serve as a basis to refine the project evaluation and selection process.

Highways

The Highway program consists of two components:

1. Key Congested Areas (KCA) – Specific projects that are defined in the Measure A TEP.
2. Supplemental Roadway Projects (SR) – A partial list of candidate projects that are defined in the Measure A TEP and sponsors may put forward other projects through the Call for Projects process.

The TA Short Range Highway Plan (2011-2021) evaluated the status of candidate KCA and SR highway projects and assessed projected costs and funding availability to help strategize the implementation of the projects. This plan should be periodically updated and used as a guide to develop the highway program CIP.

Grade Separations

Candidate grade separation projects are identified in the TEP.

Pedestrian and Bicycle Facilities

A partial list of candidate projects is identified in the TEP.

Funding Process

The process for receiving funding for new projects is:

1. Call for Projects- The TA will issue a Call for Projects by program requesting Project Sponsor(s) to submit projects for Measure A funding consideration. The frequency of the Call for Projects will differ by program over the 25-year duration of Measure A. The specific funding cycles for the programs are to be determined based on funding availability, program need and program readiness. When scheduling a Call for Projects funding cycle, the TA shall consider the timing of the request in relationship to the timing of other federal, state, and regional funding programs in order to maximize the opportunities for obtaining funds from these sources.
2. Project Evaluation and Prioritization- The TA assembles Project Review committees to evaluate project applications and proposals. The review is based on criteria outlined in the Call for Projects. There are six general categories of criteria that are considered for project evaluation and selection: Need, Policy Consistency, Readiness, Effectiveness, Sustainability, Funding Leverage as shown listed in **Table 7**. A more detailed listing of example criteria for the competitive funding categories is contained in **Appendix D**. The criteria for each of the competitive funding programs may be modified, subject to Board approval, to retain flexibility and account for new policy directives, initiatives and legislation that further promote TEP goals.

   As a first step, the ***Need*** for a project must be established to be considered for funding. With that basis, the project will be reviewed for Policy Consistency. Is the project consistent with the goals of the TEP and the Countywide Transportation Plan? Does it support the policies of the sponsoring city's General Plan and Specific Plans? How does this project contribute to a larger public goal?

   Readiness measures the level of public and stakeholder support and viability of the project to be funded and implemented. Key indicators include the quality of the planning process that occurred to define the project, stakeholder and public support, schedule and project status, and availability of resources to implement the project. Did the sponsor coordinate with the TA to identify the entity best suited to carry out project implementation?

Effectiveness criteria will be used to evaluate the performance merits of the project. If the TA invests in a major highway improvement, how much congestion will be relieved? If it invests in a grade separation, how much does it improve safety and reduce local traffic congestion? If the TA invests in a pedestrian/bicycle bridge, how many pedestrians and bicyclists are going to use it? If it invests in a new shuttle service, how many new riders are going to use it? Effectiveness criteria will help measure benefits against the cost for building and implementing these projects.

Sustainability assesses the impact a project may have on promoting practices that maintain and/or improve the environment on a long-term basis. What is the project's impact on the immediate ecosystem as well as the greater environment? Can the impacts be mitigated? Does the project support transit-oriented development? Are land use and transportation decisions linked together to achieve efficient transportation options? To what extent does the project support economic development? Sustainability principles and practices should be considered in the planning, implementation and operation of projects. The 2004 Expenditure Plan specifies that projects which support transit-oriented development will be given priority.

Funding Leverage measures the level of financial commitment to a project and includes consideration for the amount of private sector contribution. Has the sponsor committed matching funds to the project, and if so how much? Does the match include any contribution from the private sector?

While *Geographic and Social Equity* are not criteria for evaluating the merit of individual projects, the Measure A program is a countywide effort that should take into consideration a relative equitable distribution of investments.

Table 7: Project Selection and Prioritization Criteria

Need	Policy Consistency	Readiness	Effectiveness	Sustainability	Funding Leverage
Project Justification	2004 Expenditure Plan Countywide Transportation Plan Regional and Local Plans	Planning Process Stakeholder Support Funding Commitment	Congestion Relief System Connectivity Ridership Safety Value Reliability	Environmental Impact Support Transit-Oriented Development Economic Development Complete Streets	Matching Funds Private Subsidy

3. Staff Recommendation- Based on review by the Project Review Committee, staff develops project funding recommendations for Board consideration. The recommendations are clearly anchored to the program-specific project evaluation and prioritization criteria.
4. TA Board Approval- The TA Board takes action on the programming of Measure A funding. This ensures commitment to the project. Either concurrent with the programming or in a separate action, the Board will allocate funding as part of the TA's annual budget approval process. This action ensures timely availability of funds.
5. Funding Agreements- Prior to receiving any disbursements of funds, the recipient is required to execute a funding agreement with the TA. The standard funding agreement outlines the understanding between the funding recipient and the TA regarding the amount of funding, purpose of the funds, payment terms, reporting requirements and other obligations connected to the receipt of funding.
6. Monitoring Report Submittals- In order to track progress and ensure appropriate and efficient use of Measure A funds, Project Sponsors are required to submit monitoring reports.
    a. Capital Projects- For capital projects, Project Sponsors will be required to submit monitoring reports during design development and construction. The content of the reports will be focused on project scope, schedule and budget. Post-construction, the TA will monitor the use and effectiveness of the projects as part of performance metrics that will be used to confirm that plan goals are being met. This information will also be used to inform future investment decisions.
    b. Operating Projects- For operating projects, Project Sponsors will be required to submit performance reports. Sample performance measures include service effectiveness, service quality and customer satisfaction. This monitoring program will assist the TA in justifying the continued funding for approved operating projects. If performance measures indicate less than acceptable performance, the TA will work with the Project Sponsor to set up a mitigation program and achieve improvements as a condition of continued funding from the Measure A Program.

Section 6: Fund Management

Section 6: Fund Management

In addition to defining the process for programming and funding allocation, the TA is charged with responsibly managing the Measure A transportation sales tax revenues and is actively involved with leveraging funds in order to achieve the goals of the 2004 Measure A Expenditure Plan. The TA will focus on programming and allocating funds to projects as money becomes available as well as maximizing matching funds to increase the total investment in San Mateo County transportation infrastructure and services. The TA will treat requests for the advancement of funds as exceptions to the rule. The advancement of funds must be justified with compelling reasons that offset the impact of financing fees and/or timing of funds to other projects.

6.1 Measure A CIP and Funding Cycles

The TA will develop a CIP to manage the influx of revenues and availability of matching funds with anticipated project expenditures for the competitive capital categories that are funded through the Call for Projects process. The CIP will serve as a basis for determining the specific Call for Projects cycle for each program category. The Call for Projects cycle may differ for each program category over the 25-year duration of Measure A. With the identification of prioritized projects and continued monitoring of local and countywide short- and long-term needs and program readiness, the CIP will be fine-tuned on an on-going basis.

6.2 Matching Funds

Navigating through the network of external funding and securing matching funds is complicated. While existing federal, state and local funding programs are subject to change, a representative summary of these sources that can be leveraged with Measure A funding is contained in **Appendices E1 - E3**. Regional funds are considered as local funds.

Federal

On July 6, 2012 President Obama signed into law a new two-year transportation authorization, entitled Moving Ahead for Progress in the 21st Century (MAP-21) that replaced the former Transportation Equity Act for the 21st Century (TEA-21). MAP-21 furthers several important goals, including safety, state of good repair, performance, and program efficiency. In an effort to streamline and simplify, it consolidated many funding programs.

MAP-21 was set to expire on September 1, 2014; however, an interim extension was granted to provide a short term funding solution. A long-term solution will require the passage of a new transportation act.

Highlighted in **Appendix E1** are numerous federal sources of funding available under MAP-21 for transportation projects. The majority of the sources are allocated following a competitive process. **Appendix E1** also identifies the purpose and administrator for each funding source.

State

Appendix E2 highlights key state sources of funding for transportation projects, and planning studies. Funding under the State Highway Operation and Protection Program, the Transportation Development Act, and State Transit Assistance Funds are allocated by formula. Other State funding programs are competitive either statewide or within the Bay Area region. Notable on this list is the State's Cap and Trade program. As part of its implementation of AB 32 (the Global Warming Solutions Act of 2006), the California Air Resources Board has adopted regulations to establish a new cap-and-trade program to cap the emission of greenhouse gas emissions (GHG) statewide. The State Legislature adopted an FY 2014-15 state budget that included $872 million in appropriations from cap-and-trade revenue in the budget year as well as percentage-based, continuously appropriated categorical programs

for future year revenues. Roughly 60 percent of future year revenues would be allocated in program areas of concern to the California Transportation Commission (CTC), including 15 percent for public transit capital and operating purposes, 20 percent for affordable housing and sustainable communities, and 25 percent for the proposed high-speed rail network.

Appendix E2 identifies the purpose and administrator for each State funding source.

Local

Appendix E3 highlights key local/regional sources of funding: County Transportation Sales Tax revenues, Gasoline Tax Subventions, Regional Bridge Tolls, Vehicle License Fees, and Developer Impact Fees, and Transportation Fund for Clean Air. **Appendix E3** also identifies the purpose and administrator for each funding source.

Potential New Sources

With escalating project costs and limited availability of transportation funding, project sponsors are encouraged to explore and identify non-traditional sources of funding, which is not without significant challenges. This is essential to meeting the transportation needs of the future and the growing need for transportation investments.

Non-traditional sources of funding include innovative financing, establishing new funding sources and developing public-private partnerships.

- Traditional and Innovative financing: Mechanisms to creatively finance major infrastructure projects by bonding or borrowing against future anticipated revenue streams. This may include Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA, a federal credit program), lease-financing of transit vehicles, and finding ways to use future funding sources as collateral.
- New funding sources: To increase the overall funding pool, it is necessary to generate additional dollars. Support for new sources and legislation such as high-occupancy toll lanes, additional bridge tolls, indexing of the state gas tax, tax assessment districts, and pursuit of a regional gas tax are some of the potential new sources and may require legislative action.
- Public-Private Partnerships (PPPs): PPPs are being suggested as potential solutions to funding shortfalls for the completion of projects. Generally, it is a partnership between a governmental entity and a private business venture in which the cost of a project may be partially funded by the PPP in exchange for a financial return to the private investors from a portion of the revenues generated by the project. Many types of PPPs exist and most approaches are tailored to specific projects.

6.3 TA Consideration of Financing Backed by Sales Tax Revenues

Per the TEP, the TA is authorized to bond for the purpose of advancing the commencement of or expediting the delivery of transportation programs and projects. The bonding capacity will be backed by future Measure A receipts. Consideration shall be given to weighing the benefits of timely implementation of programs and projects and avoiding escalating construction costs against the costs of bonding.

6.4 Special Circumstances for Advancing Funds

There will be special circumstances when Project Sponsors need to request Measure A funding outside the established funding processes discussed in Section 5 of this Plan. For justified special circumstances, the TA has the authority to make funds available earlier than the

collection of revenues. The overriding criteria to be used in the TA's deliberation of advancing funds include:

- Urgency
    - A project that calls for immediate construction to address a public safety need
    - A project that can realize significant cost savings if it can be constructed in an earlier timeframe
    - Loss of funding sources if the project is not constructed within a certain time frame
    - Expected escalation of project development and construction costs outpace the rate of growth of Measure A revenues
- Impact to the Measure A Program
    - Potential of the funding advance delaying other projects
    - Financial fees associated with advancing funds (the potential offsetting saving in implementation costs should be considered)

When a special circumstance arises, the TA Board will consider the request based on criteria identified above. If a decision is made to advance funds, specifics about exactly how the funds will be advanced will be determined at that time. In addition the TA should use the CIPs for each of the competitive programs to determine if advancing funds by either borrowing from other programs or using financing would be an economically and fiscally prudent means of delivering high priority projects at a lower cost (adjusted for inflation), as compared to waiting and implementing projects strictly on a pay as you go approach.

Section 7: Next Steps

Section 7: Next Steps

Based on the recommendations that were developed during the preparation of the strategic plan, implementation of the plan will include the key elements summarized in **Table 8** below:

Table 8: Next Steps

Key Elements of the Strategic Plan Implementation
1. Continue with the Call for Projects processes for shuttles, highway projects, grade separations and pedestrian/bicycle projects
2. Review the Call for Projects timing to better coincide with other regional, state and federal funding programs for each category
3. Develop CIPs for the highway, grade separation and pedestrian/bicycle programs to help better manage funding needs with projected revenues and to: • Better plan Measure A funding cycles and align with other external funding calls • Serve as an advocacy planning tool to better leverage external funding
4. Coordinate with key stakeholders responsible for the development of countywide and regional planning efforts to better assist with Measure A project selection processes
5. Refine the project selection criteria and evaluation process categories to place greater emphasis on Complete Streets and sustainability features
6. Require sponsor coordination with the TA to determine the entity best suited to implement submitted projects and programs as part of the funding application process in order to improve project delivery
7. Explore and consider debt financing as a vehicle to advance needed projects • Funding advances would be backed by future Measure A receipts • Need to consider financing costs versus future construction cost increases
8. Explore and develop performance metrics to better determine if funded programs and projects meet Measure A goals, taking into consideration both quantitative and qualitative methodologies

Appendices

Appendix A
Glossary of Acronyms

Appendix A. Glossary of Acronyms

AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACR	Alternative Congestion Relief
ADA	American with Disabilities Act
ATP	Active Transportation Program
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
CTC	California Transportation Commission
CalMod	Caltrain Modernization Program
Caltrans	California Department of Transportation
C/CAG	City/County Association of Governments of San Mateo County
C/CAG BPAC	City/County Association of Governments of San Mateo County Bicycle and Pedestrian Advisory Committee
C/CAG CMEQ	City/County Association of Governments of San Mateo County Congestion Management and Environmental Quality Committee
C/CAG TAC	City/County Association of Governments of San Mateo County Congestion Management Program Technical Advisory Committee
CEQA	California Environmental Quality Act
CFP	Call for Projects
CIP	Capital Improvement Program
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CTP	Countywide Transportation Plan
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FY	Fiscal Year
GHG	Greenhouse Gas Emissions
HSIP	Highway Safety Improvement Program
HOV	High Occupancy Vehicle
HSR	High Speed Rail
ITS	Intelligent Transportation Systems
JPB	Peninsula Corridor Joint Powers Board
KCA	Key Congested Areas
MAP-21	Moving Ahead for Progress in the 21st Century

Appendix A. Glossary of Acronyms (Continued)

MMP	Mobility Management Plan
MTC	Metropolitan Transportation Commission
OBAG	One Bay Area Grant
OTS	Office of Traffic Safety
OPR	State Office of Planning and Research
PBID	Property-based Business Improvement District
PDA	Planned Development Area
PPPs	Public-Private Partnerships
PTC	Positive Train Control
RM2	Regional Measure 2
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
SAMCEDA	San Mateo County Economic Development Association
SHOPP	State Highway Operation and Protection Program
SOV	Single Occupant Vehicle
SR	State Route
SR	Supplemental Roadways
SRTP	Short Range Transit Plan
STA	State Transit Assistance
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
TA	San Mateo County Transportation Authority
TAP	Transportation Alternatives Program
TAZ	Traffic Analysis Zone
TDA	Transportation Development Act
TDM	Transportation Demand Management
TEA-21	Transportation Equity Act for the 21st Century
TEP	Measure A Transportation Expenditure Plan
TFCA	Transportation Fund for Clean Air
TIFIA	Transportation Infrastructure Finance and Innovation Act of 1998
TIGER	Transportation Investment Generating Economic Recovery Discretionary Grant Program
TOD	Transit Oriented Development
US	United States Route
USDOT	United States Department of Transportation
VMT	Vehicle Miles Traveled
VTA	Santa Clara Valley Transportation Authority

Appendix B
Listed Projects

Appendix B. Measure A Listed Projects

Highway Program	Grade Separation Program	Pedestrian and Bicycle Program
Holly Street/US 101 Interchange Modifications (San Carlos)	25th Avenue (San Mateo)	Alpine Road at Arastradero Road and Portola Road at Farm Hill Road Shoulder Widening (Portola Valley)
I-380 Congestion Improvements (San Bruno and South San Francisco)	Broadway (Burlingame)	Alpine Road Bicycle Safety Improvement Project (County of San Mateo)
Sand Hill Road Signal Coordination and Interconnection (I-280 to Santa Cruz Avenue - Menlo Park)	Ravenswood Avenue (Menlo Park)	Brewster Avenue Pedestrian Improvements (Redwood City)
Skyline Boulevard (SR 35) Widening (I-280 to Sneath Lane - San Bruno)	South Linden Avenue (South San Francisco) and Scott Street (San Bruno)	Burlingame Avenue Downtown Pedestrian and Bicycle Project (Burlingame)
SR 1 Congestion, Throughput and Safety Improvements (Gray Whale Cove to Miramar - unincorporated San Mateo County)		Burlingame East Side Bicycle Route Improvements
SR 1 Fassler Avenue to Westport Drive (Calera Parkway - Pacifica)		Burlingame West Side Bicycle Route Improvements
SR 1 Safety and Operational Improvements (Main Street to Kehoe Avenue - Half Moon Bay)		California Drive/Bellevue Avenue Bicycle-Pedestrian Roundabout (Burlingame)
SR 1 Safety and Operational Improvements (Poplar Street to Wavecrest Road - Half Moon Bay)		East Palo Alto US 101 Pedestrian and Bicycle Overcrossing
SR 1 San Pedro Creek Bridge Replacement (Pacifica)		El Camino Real/Angus Avenue Intersection Improvements (San Bruno)
SR 92 Safety/Operational Improvements (SR 1 to Pilarcitos Creek - Half Moon Bay)		Half Moon Bay Main Street Bridge Bicycle Lanes
SR 92/El Camino Real (SR 82) Ramp Modifications (San Mateo)		Haven Avenue Streetscape (Menlo Park)
SR 92/South Delaware Street Feasibility Study (San Mateo)		Highway 1 Trail Extension - Ruisseau Francais Avenue to Roosevelt Blvd (Half Moon Bay)
Triton Drive Widening - Foster City Boulevard to Pilgrim Drive (Foster City)		Hillsdale Boulevard/US 101 Pedestrian/ Bicycle Bridge (San Mateo)
University Avenue/ US 101 Interchange Improvements (East Palo Alto)		Hillside Boulevard Improvements Phase I (Colma)
US 101 Auxiliary Lane Project (Oyster Point Boulevard - South San Francisco to San Francisco County line)		Hudson Street Bicycle and Pedestrian Improvements (Redwood City)
US 101 Broadway Interchange (Burlingame)		John Daly Boulevard Streetscape Improvements (Daly City)
US 101 Candlestick Point Interchange (Brisbane)		Lake Merced Boulevard In-pavement Crosswalk (Daly City)
US 101 HOV Lane project (Whipple Avenue - Redwood City to San Bruno Avenue - San Bruno)		Menlo Park-East Palo Alto Connectivity Project
US 101 Woodside Road (SR 84) Interchange (Redwood City)		Midcoast Multi-Modal Trail (County of San Mateo)

Appendix B. Listed Projects (Continued)

Highway Program	Grade Separation Program	Pedestrian and Bicycle Program
US 101/Peninsula Avenue/Poplar Avenue Interchange Area Safety Improvements (San Mateo)		Notre Dame Avenue Street Improvement Project (Belmont)
US 101/Produce Avenue Interchange (South San Francisco)		Pedro Point Headlands Trail (Pacifica)
US 101/SR 92 Interchange Area Improvements (San Mateo)		Pilot Bike-Sharing Program (Redwood City)
US 101/Willow Road Interchange Improvements (Menlo Park and East Palo Alto)		Redwood City Safe Routes to Schools
		San Bruno Transit Corridor Pedestrian Connection
		San Mateo Citywide Bicycle Striping and Signage
		South San Francisco Sharrows and Striping Program
		US 101 Ralston Avenue Bicycle/Pedestrian Overcrossing (Belmont)
		US 101/Holly Street Grade Separated Path (San Carlos)
		Woodside School Safety Improvement Project

Appendix C

Stakeholder/Public Comments and TA Responses

Focused Interest Area: How is the TA doing in meeting the Transportation Expenditure Plan (TEP) goals?

Topics	Detailed Comments	Response
Goal 1: Reduce Commute Corridor Congestion	Better integration of transportation and land use is needed.	The TEP addresses smart growth principles by stating that project selection criteria include priority for transportation projects that support TOD.
	Developers and apartment managers are seeing a distinct demand for TOD, and alternative transportation improvements are a desired amenity for both millennials and "empty-nesters" to reduce congestion.	
	The goal should be reduced congestion at all times (not just at peak) and purposes (not just home-to-work) (e.g. schools, Coastside tourist traffic).	The goals of the TEP were approved by the San Mateo County voters. Any changes would require voter approval. While the reduction of commute corridor congestion is a TEP goal, the reduction of congestion during the off-peak and for non-home to work based trips is a consideration in the project selection criteria for the competitive Measure A funding programs.
	Focus on transportation demand management (TDM) and utilize communications technology to address congestion.	The Alternative Congestion Relief Program exclusively focuses on TDM and intelligent transportation systems (ITS). The accommodation of Complete Streets elements in other Measure A programs can also provide more focus on these areas.
	More money should go to alternative transportation programs (pedestrian/ bicycle, transit, alternative congestion relief and shuttles).	The share of sales tax revenues applied to each program category is established by the TEP. Any changes to the shares would require approval of the San Mateo County voters.
Goal 2: Make Regional Connections	BART and Caltrain are good for north-south connections but better east-west connections are needed: Coastside to Bay, and Peninsula to East Bay (especially for transit).	Many of the Measure A program categories can support transportation improvements that improve east-west connections
Goal 3: Enhance Safety	Complete pedestrian/bicycle networks are needed, not just segments; gaps are a safety issue.	Regional significance and completion of gaps are components of the effectiveness criteria for the Pedestrian and Bicycle Program

Topics	Detailed Comments	Response
Goal 3: Enhance Safety	In regard to the safety objective of improving and maintaining local streets, roads and other transportation facilities: add "for all users" (Complete Streets).	While the TEP goals and objectives were set by the San Mateo County voters, language addressing Complete Streets is included in this Strategic Plan Update
Goal 4: Local Mobility Needs	There is a desire to see the TA broaden its vision of "meeting local mobility needs": include walking and biking; include partnerships with non-profit organizations; address the Coastside's unique transportation challenges.	In addition to the pedestrian and bicycle program, pedestrian and bicycle facilities can be funded as part of Complete Streets, where appropriate, from many other Measure A programs. Project sponsors are encouraged to partner with other entities, including non-profits, where applicable but the TEP specifically lists eligible program applicants. Project selection and prioritization criteria that include stakeholder support in the project readiness criteria and policy consistency account for community concerns.
What's missing in the goals?	Sustainability: Adaptability to Change, Environmental Sensitivity, and Energy Efficiency	Sustainability is a project selection and prioritization criteria for the competitive Measure A programs. While the TEP goals were approved by the San Mateo County voters, the project prioritization criteria can be modified as needed to reflect changing conditions with each subsequent CFP.

Focused Interest Area: Call for Projects Process

Topics	Detailed Comments	Response
Project Selection Criteria	The general criteria seem to be working; we don't need to put a particular emphasis on one or the other. Weighting of the criteria should occur at the Call for Projects (CFP) stage and can vary program to program.	The project selection and prioritization criteria for the competitive Measure A programs can be modified as needed to account for new requirements and contemporary concepts that promote the TEP goals. Multimodal connectivity and public support are currently included in the project selection and prioritization criteria.
	Need to adapt to new requirements/ contemporary concepts, but it is difficult to pin down what changes are appropriate for the TA to make.	
	Consideration should be given to projects that connect to other modes and demonstrate public support.	
	Weighting is paramount in project evaluation: a "big ticket" project had better have a very large benefit.	Project effectiveness is part of the project selection and prioritization criteria. The consideration of costs and benefits are factors in the determination of project effectiveness
	Impact per dollar should be used to evaluate projects.	

Topics	Detailed Comments	Response
Project Selection Criteria	There is inherent unfairness in the TOD criterion – some communities don't have TODs; this presents a geographic equity issue.	The TEP project selection criteria include priority for transportation projects that support TOD; however, the Measure A program is a countywide effort that takes into consideration investments throughout the County as part of geographic equity
	Plan Bay Area ties everything to TODs and PDAs – the Coastside is not as competitive for MTC funding opportunities, yet still has needs, and the region is vital to the county. There need to be other considerations to balance out the strong focus on PDAs/TOD.	
	TA funding decisions need to take into account which cities are proactively linking transportation and land use.	
	We need to better define geographic equity – we need to spend the money where it is most needed (by congestion, by road mileage, communities of concern).	Measure A addresses geographic equity on a program-wide basis. The project selection and prioritization criteria address concerns such as congestion and disadvantaged populations under the categories of project need and effectiveness
	Regarding geographic equity, we shouldn't just automatically allocate everything equally – areas with little to no congestion should receive lower priority.	
	Given the doubling of the 65+ population, consideration needs to be given to improving safety and access to seniors and the disabled in the pedestrian and bicycle program.	This will be added as a consideration in the project effectiveness category for the project selection and prioritization criteria
	When evaluating transportation projects all alternatives should be considered, including solutions that consist of other transportation modes.	We concur that all viable alternatives should be considered as part of a sponsor due diligence when submitting a project for funding consideration. The TA will work with the project sponsor toward this effort.

Focused Interest Area: Call for Projects Process

Topics	Detailed Comments	Response
Leveraging other federal state and regional funding sources	TA funding priorities need to align with MTC/Fed/State funding priorities (e.g. OBAG language) to become more competitive for discretionary funds.	Sufficient flexibility exists to modify the project selection and prioritization criteria with each Call for Projects process to better align with external funding agency policies and changing paradigms. Consideration of external funding calls, when sufficient advance notice is known, will be taken into account with the timing of future Measure A funding calls.
	Allow sufficient flexibility in TA policies so that they can align with changing paradigms such as Complete Streets.	
	Joint calls with C/CAG provide the ability to leverage other funding sources (e.g. San Mateo Shuttle Program with C/CAG.	
	Getting projects shovel-ready will make them more competitive for one-time funding opportunities.	
	Hold CFPs timed to allow jurisdictions to secure local funds that can then be leveraged to secure fed/state/regional funds. (time far enough in advance of major external calls).	
Sponsor Implementation	There is flexibility in the current process, and it is working fine – locals are responsible for garnering local support, while TA involvement is needed for larger multi-regional projects.	The TA will be taking a more active role coordinating project delivery decisions with project sponsors based on staffing resources, expertise and available funding.
	All project stakeholders need to agree based on what makes the most sense in terms of resources, expertise, and funding.	
	Cities should remain at the forefront of project delivery – they need to feel they have ownership of the project (especially public outreach).	
	Cities do not always have the skill set to deliver certain projects (grade separations, shuttles).	
	The right entity to deliver a project depends on the type of project and the dollar amount (i.e. a city is the best to deliver a $100k pedestrian/bicycle project, but Caltrans may be the appropriate implementer for a multi-million dollar highway project).	
	The TA should take a more active role in advancing projects of regional priority/significance (i.e. a regional corridor).	
	The TA needs to look at the big picture to ensure that city-led projects are producing countywide benefits.	

Topics	Detailed Comments	Response
Other program/ project delivery related comments	The role of the TA needs to be better-defined: is it just as the banker?	The TA administers the Measure A programs, including setting the policy framework to guide fund programming and allocation processes and decisions.
	A greater emphasis on pedestrian/bicycle funding is needed; "we need to go back to the voters to increase the share of funding available for pedestrians and bicyclists." Bicycling as a mode share has gone up; we need to re-align funding with current trends.	"The needs of the Measure A transportation programs far outweigh available revenues. An increase in the share of revenues for one program without an overall increase in the sales tax would result in the reduction of revenue available for one or more other Measure A programs. While funding for the pedestrian/bicycle program is capped at three percent, pedestrian and bicycle elements can be included in projects funded from other programs as part of Complete Streets. Sponsors are also encouraged to apply to other grant programs to help leverage Measure A funds for pedestrian and bicycle facilities. The Local Streets and Transportation Program is the only program that explicitly allows for maintenance. Enhancement projects currently are allowed under other Measure A programs. "
	The projected mode share growth for bicyclists in relation to all transportation modes through 2040 in the Plan is very low (less than 2%) and the amount of funding for the pedestrian/bicycling program is limited, which can become a self-fulfilling prophecy. Other places such as San Francisco and Portland have a higher bicycling mode share today and there is no reason why San Mateo County can't have bicycle usage on par with other progressive localities.	
	If we are not able to increase the amount of funding in the Local Streets and Transportation Program for road maintenance, can we change the definition of a project in other related programs so that a rehabilitation or enhancement project could qualify as a new project?	
	Don't make decisions in a silo. All stakeholders should be consulted as part of a collaborative approach to solving transportation issues.	The TA proactively works with external stakeholders on programmatic transportation issues of regional significance including the following upcoming work efforts: 1) Participation with SamTrans in the development of the Mobility Management Plan (MMP), which will help determine the entities best positioned to provide cost effective shuttle service and update existing shuttle performance benchmarks; and 2) Partnering with C/CAG in its efforts to develop a capital improvement program (CIP) and performance measures for transportation projects as part of the update to the existing Countywide Transportation Plan (CTP).

Focused Interest Area: Performance Measures

Topics	Detailed Comments	Response
How best to measure the performance of the Measure A programs?	There needs to be better measurement to make sure we're delivering on the goals: how do we know if a project is actually reducing congestion? How do we know if investment in transit vs. highway is the best use of funds?	The TA will be exploring and developing programwide performance measures. Project level performance for the competitive Measure A programs will also be assessed against sponsor application responses to effectiveness criteria.
	There needs to be a plan to measure the baseline case vs after the project completion to determine effectiveness.	
	Collision data should be used to measure effectiveness of safety-related projects.	
	Metrics used to determine effectiveness of one mode may actually be detrimental to other modes (e.g. improved automobile throughput is considered positive for a highway project, but could be negative for pedestrian/bicycle safety).	
	If funding an alternative transportation mode, there's a need to know how much mode shift actually occurred as a result of the project; similarly, a highway project should demonstrate actual congestion reduction.	
	Look at congestion on a per capita basis – on the Coastside, the actual volume of cars is lower, but the per-lane congestion is similar.	
	Provide guidance to improve shuttles if they are not performing; pull funding in second year if no signs of improvement.	
	Measure travel time, increase in safety, mode shift after project delivery – were the projections met or not?	
	When developing performance measures for large capital projects, consider impacts to the local community during construction in addition to assessing conditions before and after project implementation.	
	Suggested performance measure to evaluate program success should include vehicle miles traveled (VMT), bicycle and pedestrian counts, participation in employer commute programs, reductions in collisions, reductions in emissions, ridership and user surveys.	

Focused Interest Area: Contemporary Concepts

Topics	Detailed Comments	Response
Complete Streets/ Sustainability	Should be encouraged when it can be accommodated. Not all projects can include Complete Streets elements; in that case, it should not affect scoring of the project.	The Strategic Plan Update incorporates language addressing the contemporary concepts of Complete Streets and Sustainability. Both of these concepts are currently included as considerations in the CFP project selection and prioritization criteria. In order to allow for flexibility, a strict cap for Complete Streets elements has not been set but the project sponsor is responsible for demonstrating the need and effectiveness for the respective program with its funding application.
	An unfunded state mandate per the Complete Streets Act. Need to include Complete Streets considerations due to regulatory requirements imposed on projects.	
	Complete Streets doesn't mean every street. If appropriate, then maybe something should be included.	
	We don't know what the flavor of the month regulatory agency requirement will be down the road; we need to remain flexible to changing requirements.	
	A cap should be set for how much of a highway project funding can go toward Complete Streets elements. If the Complete Streets portion exceeds the cap, funds need to come from the other relevant category (i.e. pedestrian/ bicycle program funds to fund the Complete Streets portion of highway project which exceeded the cap).	
	For the majority of projects, Complete Streets elements are not a major cost (e.g. striping a bicycle lane); keep it flexible.	
	There is a limited amount of funding; we need to make sure we are addressing project needs	
	Pedestrian/bicycle projects that are within a highway corridor should be eligible for highway funding. Highway funds should not be exclusively devoted to projects which primarily benefit motorists.	
	Just as highway widening is used to address congestion, alternative transportation modes are also a way to address congestion.	
	Sustainability is a regulatory requirement speaking to green features such as water quality, energy efficiency, and lighting.	
	The Strategic Plan should include stronger language regarding Complete Streets so it's not "business as usual" at the expense of non-motorized transportation modes. Highway, Grade Separation and Local Streets and Transportation Program funds should also be used for bicycle and pedestrian projects.	

Topics	Detailed Comments	Response
Complete Streets/ Sustainability	We support the Plan recommendation to integrate Complete Streets in the evaluation criteria for the highway and grade separation programs. Incorporation of Complete Streets should also be incorporated into the Local Streets and Transportation Program as contingent upon cities for receiving funds.	Local Streets and Transportation Program funds are allocated directly to the cities and county by the State Board of Equalization for the improvement and maintenance of local transportation, including streets and roads. The cities and county determine the projects that are funded, which can include complete streets elements. Federal ADA law requires the provision of accessibility improvements with the rehabilitation/resurfacing of streets.
	The Alternative Congestion Relief (ACR) Program should include funds for active transportation encouragement.	Active transportation is an eligible use of ACR funds. ACR funds currently help fund Bike to Work day, bicycle education and bicycle parking programs.

Focused Interest Area: Other Comments

Topics	Detailed Comments	Response
Regional Governance	It would be desirable to identify a responsible agency to look at all transportation modes and consider gaps and opportunities to shift mode share for the major transportation corridors on the San Francisco Peninsula (e.g. 101, 280, El Camino and the Caltrain Corridor).	Comment noted. The C/CAG CTP sets policy to address all transportation modes as part of one system within San Mateo County and the Metropolitan Transportation Commission (MTC) sets transportation policies covering the entire San Francisco Bay Area as part of the Regional Transportation Plan (RTP) Plan Bay Area.
Transportation Mode Share Shift	We encourage the TA to proactively set goals for mode share to contribute to a shift from single occupancy vehicle (SOV) trips to active transportation and transit trips. We recommend a goal of at least a 10% bicycle mode share for all trips by 2040.	The TA encourages project sponsors to work with their constituents to submit projects that can have the greatest impact on reducing SOV trips. The update of the C/CAG CTP may be a more appropriate venue to discuss the potential inclusion of countywide mode share goals
SB 743, Proposed revisions on CEQA guidelines for analyzing transportation impacts	There is an opportunity to assess impacts for roadway and highway projects based on revised CEQA guidelines that focus on vehicle miles traveled (VMT). If the impacts are unfavorable, such projects may benefit from reconsideration.	Comment noted. The State Office of Planning and Research (OPR) released draft guidelines for determining the significance of transportation impacts, alternatives and mitigation measures that were out for public comment at the time this Plan was prepared.
San Mateo County VMT trends	Nationwide, VMT per capita has been on a downward trend. Transportation models continue to predict increasing vehicle travel. The TA should examine the assumptions in models used to predict travel demand in light of long term trends.	San Mateo County is projected to experience substantial population and employment growth out through the year 2040. It is possible to have a reduction in VMT per capita while experiencing an overall increase in VMT. The majority of all trips currently are and will continue to be made by automobiles as noted in the Demographic and Travel Data section of this Plan.
Proposed Calera Parkway Highway Project in Pacifica	Residents at the public outreach meeting in Pacifica and through separate e-mail correspondence have expressed concerns regarding the Calera Parkway project.	The purpose of the TA Strategic Plan is to set the policy framework that guides programming and allocation criteria, including funding prioritization and evaluation criteria for the selection of projects and procedures for sponsors to initiate projects. Project specific concerns should be directed to the project sponsor, which can choose to withdraw a project, and are beyond the venue of the Strategic Plan.
Listed Projects	Concern expressed that a listed project in the Strategic Plan will automatically continue to receive funding through project completion.	Listed projects do not receive funding priority for subsequent phases of work that have yet to be programmed or allocated. Applications to fund subsequent phases of a listed project are evaluated based on how well the respective project meets the program evaluation criteria.

Appendix D

Detailed Project Selection Criteria

Appendix D. Detailed Project Selection Criteria

Project Selection and Prioritization Criteria LOCAL SHUTTLES
Requirements
1. Sponsor is SamTrans 2. Project is located in San Mateo County 3. Project is a shuttle service that meets local mobility needs or provides access to regional transit 4. Funding is for operations 5. Funding request does not supplant existing funds 6. Does not duplicate fixed-route bus service or other public shuttle service
Example Project Prioritization Criteria
Need • Provides congestion relief in San Mateo County • Provides service to an area underserved by other public transit • Provides service to special populations (.e.g. low income/transit dependent, seniors, disabled, other) • Demonstrates stakeholder support
Policy Consistency • TA 2004 Expenditure Plan • Countywide Transportation Plan • Community Based Transportation and Lifeline Plans • City General Plan, Specific Plan, other local plans • Grand Boulevard Initiative Guiding Principles • MTC Regional Priority Development Area (PDA) • Americans with Disabilities Act
Readiness • Solid service plan in place describing how the shuttle service will be delivered, including a marketing and oversight plan • Solid funding plan in place • Results from a public planning process
Effectiveness • Ridership • Operating cost per passenger • Passengers per service hour • Reduces single occupant vehicle (SOV) trips and vehicle miles traveled (VMT) • Improves access to major transit hubs and transit services
Sustainability • Supports jobs and housing growth with an emphasis on transit oriented development/ economic development • Use of clean fuel vehicles for service • Shuttles accommodate bicycles • Demonstrated cost savings through sharing of resources
Funding Leverage • Percent of matching fund contribution • Private sector contribution

Project Selection and Prioritization Criteria BICYCLE AND PEDESTRIAN
Requirements
1. Sponsor is San Mateo County or a city in San Mateo County 2. Project is located in San Mateo County 3. Project encourages walking and/or bicycling 4. Funding is for project development and/or construction of facilities 5. Funding request does not supplant existing funds
Example Project Prioritization Criteria
Need • Meets commuter and/or recreational purpose • Fulfills an identified pedestrian and/or bicycle need • Safety improvement/enhancement
Policy Consistency • TA 2004 Expenditure Plan • Countywide Transportation Plan • San Mateo County Comprehensive Bicycle and Pedestrian Plan • City Bicycle or Pedestrian Plan • City General Plan, Specific Plan, other local plans • Grand Boulevard Initiative Guiding Principles • MTC Regional Priority Development Area (PDA) • Americans with Disabilities Act
Readiness • Results from a public planning process • Demonstrates stakeholder support • Has a solid funding plan • Project status
Effectiveness • Provides connectivity to pedestrian and bicycle system • Closes gap in countywide pedestrian and bicycle network • Enhances connectivity to schools, transit stations, and other activity centers • Value: Benefit relative to the amount of funding requested (high impact, low cost projects – "bang for the buck" • Accommodates multiple transportation modes (pedestrian and bicycle) • Serves a low income/transit dependent or other special needs population
Sustainability • Reduces emissions and improves air quality • Includes low environmental impact/green development • Improves links for pedestrian and/or bicycle access between TOD, transit and other high use activity centers • Supports livable, walkable and healthy communities • Integral transportation component that can support existing economic activity and help spur new economic development in the immediate vicinity
Funding Leverage • Percent of matching fund contribution • Private sector contribution

Project Selection and Prioritization Criteria GRADE SEPARATIONS
Requirements
1. Sponsor is SamTrans, San Mateo County, city in San Mateo County or the Peninsula Corridor Joint Powers Board 2. Project is located in San Mateo County 3. Project is one of 46 candidate grade separation projects listed in the 2004 Expenditure Plan 4. Funding is for project development and/or construction of facilities 5. Funding request does not supplant existing funds 6. Project must be consistent with the Caltrain/High Speed Rail (HSR) blended system
Example Project Prioritization Criteria
Need • Quantitative assessment based on the California Public Utilities Commission Grade Separation Priority List Index Formula • Description of need with respect to Caltrain and the local jurisdiction • Identified safety issue • Identified traffic issue
Policy Consistency • Project recognized in state and/or regional planning documents • Project is referenced in county planning documents • Project is referenced in local planning documents
Readiness • Project status and schedule • Ease and speed of implementation • Results from a public planning process • Demonstrates stakeholder support • Has a solid funding plan
Effectiveness • Safety and traffic benefit • Regional benefit to the Caltrain system • Cost effectiveness • Impact of alignment with neighboring crossings, where applicable
Sustainability • Project accommodates multiple transportation modes (Complete Streets), where contextually appropriate and to the extent feasible • Project supports transit oriented development • Supports economic activity and spurs new economic development in the vicinity • Includes green construction practices and design elements
Funding Leverage • Percent of matching fund contribution • Private sector contribution

Appendix D. Detailed Project Selection Criteria (Continued)

Project Selection and Prioritization Criteria HIGHWAY
Requirements
1. Sponsor is Caltrans, C/CAG, San Mateo County or a city in San Mateo County 2. Project is located in San Mateo County 3. Project is one of 11 specific projects within the 5 identified Key Congestion Areas listed in the 2004 Expenditure Plan or a Supplemental Roadway project, which is intended to reduce congestion and improve throughput along critical congested corridors. 4. Funding is for project development and/or construction of facilities 5. Funding request does not supplant existing funds
Example Project Prioritization Criteria
Need • Current congestion • Projected congestion • Located in a Countywide Transportation Plan Priority Corridor (high or very high) • Identified safety issue
Policy Consistency • Project recognized in regional planning documents • Project is referenced in county planning documents • Project is referenced in local planning documents
Readiness • Project status and schedule • Ease and speed of implementation • Results from a public planning process • Demonstrates stakeholder support • Has a solid funding plan
Effectiveness • Ability to relieve congestion • Performance improvement • Ability to address safety issue • Regional significance • Demonstrates coordination with adjacent projects/integration of inter-related projects • Cost effectiveness
Sustainability • Project is primarily an operational improvement rather than infrastructure expansion • Project accommodates multiple transportation modes (Complete Streets), where contextually appropriate and to the extent feasible • Project supports transit oriented development • Supports economic activity and spurs new economic development in the vicinity • Includes green construction practices and design elements
Funding Leverage • Percent of matching fund contribution • Private sector contribution

Appendix E

Funding Sources

Appendix E1. Federal Funding Sources

Funding Source*	Purpose	Administrator
FTA Section 5307 Urbanized Area Formula Program	Purchase of buses, trains, ferries, vans, and other capital improvement, and Americans with Disabilities Act (ADA) required paratransit service. Distributed through the regional Transit Capital Priorities process.	FTA/MTC
FTA Section 5337 State of Good Repair	Under MAP-21, replaces the fixed guideway modernization program (Section 5309). Funding is limited to fixed guideway systems (including rail, bus rapid transit, and passenger ferries) and buses operating in high occupancy vehicle (HOV) lanes. Projects are limited to capital projects required to maintain systems in a state of good repair.	FTA/MTC
FTA Section 5339 Bus and Bus Facilities Program	Provides capital assistance for new and replacement buses, related equipment, and facilities. Part of the Transit Capital Priorities process.	FTA/MTC
FHWA – STP	To preserve and improve conditions and performance on any Federal-aid highway, bridge and tunnel projects on any public road, pedestrian and bicycle infrastructure, and transit capital projects, including intercity bus terminals. Portion of funds included in OneBayArea Grant program.	FHWA/ MTC
FHWA – CMAQ	Transportation projects that improve air quality and relieve congestion. Portion of funds included in OneBayArea Grant program.	FHWA / Caltrans / MTC
FTA Section 5309 Fixed Guideway Capital Investment Grants (New Starts, Small Starts and Core Capacity)	Capital support for light rail, rapid rail, commuter rail, automated fixed guideway systems, or a busway/high occupancy vehicle (HOV) facility, or an extension of any of these. Under MAP-21, includes “core capacity” projects on existing rail lines to improve capacity of the corridor.	FTA
Transportation Alternatives Program (TAP)	Eligible activities consist of Transportation Alternatives, Recreational Trails, Safe Routes to School, Planning/Design/ Construction of roadway in right of way of former highways. Set aside of the apportionment of several fund programs.	Caltrans
Highway-Rail Grade Crossings Program/ HSIP	Develop and implement safety improvement projects to reduce the number and severity of accidents at public highway-rail grade crossings, including signing and pavement markings at crossings, active warning devices, crossing surface improvements, sight distance improvements, grade separations, and the closing and consolidation of crossings.	FHWA / Caltrans

Appendix E1. Funding Sources (Continued)

Funding Source*	Purpose	Administrator
Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant Program	The TIGER Discretionary Grant program provides a unique opportunity for the DOT to invest in road, rail, transit and port projects that promise to achieve critical national objectives.	USDOT
Highway Safety Improvement Program (HSIP)	California's Local HSIP focuses on infrastructure projects with nationally recognized crash reduction factors (CRFs).	Caltrans
FTA Section 5312 Research, Development, Demonstration, and Deployment	To support research activities that improve the safety, reliability, efficiency, and sustainability of public transportation by investing in the development, testing, and deployment of innovative technologies, materials, and processes.	FTA
FTA Section 5312 Low or No Emission Vehicle Deployment Program	The main purpose of the LoNo Program is to deploy the cleanest and most energy efficient U.S.-made transit buses that have been largely proven in testing and demonstrations but are not yet widely deployed in transit fleets. The LoNo Program provides funding for transit agencies for capital acquisitions and leases of zero emission and low-emission transit buses, including acquisition, construction, and leasing of required supporting facilities such as recharging, refueling, and maintenance facilities.	FTA
Transit-oriented Development (TOD) Planning Pilot	Provides funding to advance planning efforts that support transit-oriented development (TOD) associated with new fixed-guideway and core capacity improvement projects that focuses growth around transit stations.	FTA

*Note: Funding sources presented in no particular order

Appendix E2. State Funding Sources

Funding Source*	Purpose	Administrator
State Highway Operation and Protection Program (SHOPP)	State highway rehabilitation projects	Caltrans
Transportation Development Act (TDA)	Transit capital and operating expenses	MTC
State Transit Assistance Funds (STA)	Transit capital and operating expenses	MTC
State Transportation Improvement Program (STIP) / Regional Transportation Improvement Program (RTIP)	Roadway and transit capital improvement projects, road rehabilitation, interregional improvements	Caltrans/ MTC
Office of Traffic Safety (OTS)	Safety projects, with pedestrian/bicycle safety a priority.	Caltrans OTS
Active Transportation Program (ATP)	Consolidation of previous bicycle and pedestrian funding programs and is designed to promote active modes of transportation, such as walking and biking, and to ensure disadvantaged communities share fully in the program.	California
California Sustainable Transportation Planning Grant Program	Funds a wide range of transportation planning studies that promote a balanced comprehensive multimodal transportation system. Consists of Strategic Partnerships and Sustainable Communities grants. Replaces former environmental justice, community based and transit planning grant activities, which are eligible under the new program.	Caltrans
Cap and Trade Program	Reduction of the region's transportation-related emissions by: Support Communities of Concern (25% of revenues); Supports Transit Core Capacity Challenge Grant Program, Transit Operating and Efficiency Program, OneBayArea Grant program; Climate Initiatives Program, including Safe Routes to Schools, and goods movement projects.	Various State Agencies
Proposition 1B	General obligation bonds for various programs: transportation corridor improvements, trade infrastructure and port security projects, school bus retrofit and replacement, state transportation improvement program, transit and passenger rail improvements, state-local partnership transportation projects, transit security projects, local bridge seismic retrofit projects, highway-railroad grade separation and crossing improvement projects, state highway safety and rehabilitation projects, and local street and road improvement, congestion relief, and traffic safety.	California
Section 190 Program	Provides funding to projects that either alter or reconstruct existing grade separations, construct new grade separations to eliminate existing at-grade crossings or relocate roadways to eliminate at-grade crossings, thereby improving safety and expediting the moment of vehicles. Eligible projects must first be nominated to the California Public Utilities Commission's Grade Separation Priority List.	Caltrans

*Note: Funding sources presented in no particular order

Appendix E3. Local/Regional Funding Sources

Funding Source*	Purpose	Administrator
OneBayArea Grant Program	Integrates the region's federal transportation program with California's climate law and Sustainable Communities Strategy; provides funding investments in surface transportation for a wide variety of programs including mass transit, highway, local road and bicycle and pedestrian projects.	MTC
Transportation Fund for Clean Air (TFCA)	Funds regional competitive and county funding categories. Implementation of the most cost-effective projects in the Bay Area which will decrease motor vehicle emissions and improve air quality.	Bay Area Air Quality Management District (BAAQMD)
Other County Sales Tax Revenues	Transportation improvements per the guidance from sales tax statutes	Counties
Gasoline Tax Subventions	Local streets and road maintenance and rehabilitation	Cities and Counties
Regional Bridge Tolls	Projects that mitigate and relieve traffic congestion on the bridges (AB 664, 2%-5%, Regional Measure 2)	MTC
Measure M Vehicle Registration Fee	$10 per year vehicle registration fee in San Mateo County funds local streets and roads, transit operations, senior transportation, ITS/Smart Corridors, Safe Routes to Schools, and National Pollutant Discharge Elimination System / Municipal Regional Permits	C/CAG
Developer Impact Fees	Cost to local government of a new development, including roads, sidewalks, sewers, and utilities	Local Governments
Property-based Business Improvement District (PBID) / Other Assessments	Generally downtown improvements and services associated with businesses.	Local Governments

*Note: Funding sources presented in no particular order

Acknowledgements

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Appendix I: Land Use Guidelines and Compliance Monitoring

GUIDELINES FOR IMPLEMENTING THE LAND USE COMPONENT OF THE CONGESTION MANAGEMENT PROGRAM

All land use changes or new developments that require a negative declaration or an Environmental Impact Report (EIR) and that are projected to generate a net (subtracting existing uses that are currently active) 100 or more trips per hour at any time during the a.m. or p.m. peak hour period, must be reported to C/CAG 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. **Peak hour is defined as the hour when heaviest daily traffic volume occurs and generally occurs during morning and afternoon commute times. Traffic counts are obtained during AM and PM peak periods and the volume from the heaviest hour of AM or PM traffic is used to define peak hour for those time periods. The highest number of net trips resulting from AM or PM peak hour will be used. Net trips are calculated by subtracting trips for existing uses from those generated by the new project.** Although projects that generate less than 100 peak hour trips are not subject to these guidelines, local jurisdictions are strongly encouraged to apply them to all projects, particularly where the jurisdiction has determined that the impacts of the project will have an adverse effect on traffic in that jurisdiction.

These guidelines are not intended to establish a Countywide **threshold** of significance of 100 peak hour trips for CEQA purposes. The determination of what level of traffic results in a significant impact is left in the first instance to the local jurisdiction. These guidelines do contemplate, however, that all trips resulting from projects that are reviewed by C/CAG and fall under these guidelines will be mitigated, whether or not it rises to a level of significance under CEQA.

Local jurisdictions must ensure that the developer and/or tenants will reduce the demand for all new peak hour trips (including the first 100 trips) projected to be generated by the development. The local jurisdiction can select one or more of the options that follow or may propose other methods for mitigating the trips. It is up to the local jurisdiction working together with the project sponsor to choose the method(s) that will be compatible with the intended purpose of the project and the community that it will serve. The options identified in these guidelines are not intended to limit choices. Local jurisdictions are encouraged to be creative in developing options that meet local needs while accomplishing the goal of mitigating new peak hour trips. The additional measures that are not specifically included in these guidelines should be offered for review by C/CAG staff in advance of approving the project. Appeals to the decisions by C/CAG staff will be taken to the full C/CAG Board for consideration.

The Congestion Management Program roadway network includes all state highways and selected principal arterials. When considering land use projects, local jurisdictions may either require that mitigation for impacts to the Congestion Management Program roadway network be finally determined and imposed as a condition of approval of the project, or may conditionally approve such project, conditioned on compliance with the requirements to mitigate the impacts to the Congestion Management Program roadway network. In those instances where conditional approval is given, a building permit may not be issued for the project until the required mitigation is determined and subsequently imposed on the project.

Some of the choices for local jurisdictions include:

1. Reduce the scope of the project so that it will generate less than 100 net peak hour trips.
2. 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.
3. If a local jurisdiction currently collects traffic mitigation fees, any portion of the fees that are used to mitigate the impacts of the project's traffic on the Congestion Management Program roadway network will count as a credit toward the reduction in the demand for trips required under the Congestion Management Program. The developer may also contribute a one-time only payment of $20,000 per peak hour trip (including the first 100 trips) to a special fund for the implementation of appropriate transportation demand management system measures at that development. These funds will be used to implement transportation demand management programs that serve the development making the contribution.
4. Require the developer and all subsequent tenants to implement Transportation Demand Management programs that have the capacity to fully reduce the demand for new peak hour trips. The developer/tenants will not be held responsible for the extent to which these programs are actually used. **The developer shall pay for a monitoring program for the first three years of the development. The purpose of the monitoring program is to assess the compliance of the project with the final TDM plan**. The following is a list of acceptable programs and the equivalent number of trips that will be credited as reduced. 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. For example, a developer may elect to contract with the Alliance or another provider of TDM services to meet this requirement. These situations can also be submitted to C/CAG in advance for consideration. It is up to each local jurisdiction to use its best judgment to determine the extent to which certain measures are "reasonable and effective." For example, there will be a point where additional showers will not result in more people riding bicycles or walking to work.
5. Adopt Congestion Management Program guidelines for projects within its jurisdiction and submit those guidelines for approval by C/CAG. The local jurisdiction would then apply these guidelines to the appropriate level of project and provide an annual report describing affected projects and guidelines applied. C/CAG would review the jurisdiction's efforts on an annual basis and could require amendments to the jurisdiction's guidelines if the jurisdiction's guidelines were not meeting Congestion Management Program goals.

6. Adopt the C/CAG guidelines for application to the appropriate level of project in the jurisdiction, and submit an annual report describing affected projects and guidelines applied. C/CAG would review the jurisdiction's efforts on an annual basis and could require amendments to the jurisdiction's guidelines if the jurisdiction's guidelines were not meeting Congestion Management Program goals.
7. Negotiate with C/CAG staff for other acceptable ways to mitigate the trips for specific developments on a case-by-case basis.
8. **C/CAG recognizes that for retail or special uses appropriate TDM measures may be difficult to implement. Please contact C/CAG to develop appropriate measures for these types of projects.**

Transportation Demand Management Measure	**Number of Trips Credited**	**Rationale**
Secure bicycle storage	One peak hour trip will be credited for every 3 new bike lockers/racks installed and maintained. **Lockers/racks must be installed within 100 feet of the building.**	Experience has shown that bicycle commuters will average using this mode one-third of the time, especially during warmer summer months.
Showers and changing rooms.	**Ten** peak hour trips will be credited for each new combination shower and changing room installed. **An additional 5 peak hour trips will be credited when installed in combination with at least 5 bike lockers**	**10 to 1 ratio based on cost to build and the likelihood that bicycle utilization will increase.**
Operation of a dedicated shuttle service during the peak period to a rail station or an urban residential area. **Alternatively the development could buy into a shuttle consortium.**	One peak hour trip will be credited for each peak-hour round trip seat on the shuttle. Increases to two trips if a Guaranteed Ride Home Program is also in place. Five additional trips will be credited if the shuttle stops at a child-care facility enroute to/from the worksite.	Yields a one-to-one ratio (one seat in a shuttle equals one auto trip reduced); utilization increases when a guaranteed ride home program is also made available.

Charging employees for parking.	**Two** peak hour trips will be credited for each parking spot charged out at $20 per month for one year. **Money shall be used for TDM measures such as shuttles or subsidized transit tickets.**	Yields a **two**-to-one ratio
Subsidizing transit tickets for employees.	One peak hour trip will be credited for each transit pass that is subsidized at least $20 per month for one year. One additional trip will be credited if the subsidy is increased to $75 for parents using transit to take a child to childcare enroute to work.	Yields a one-to-one ratio (one transit pass equals one auto trip reduced).
Subsidizing pedestrians/bicyclists who commute to work.	One peak hour trip will be credited for each employee that is subsidized at least $20 per month for one year.	Yields a one-to-one ratio (One pedestrian/bicyclist equals one auto trip reduced.
Creation of preferential parking for carpoolers.	Two peak hour trips will be credited for each parking spot reserved.	Yields a two-to-one ratio (one reserved parking spot equals a minimum of two auto trips reduced).
Creation of preferential parking for vanpoolers.	Seven peak hour trips will be credited for each parking spot reserved.	Yields a seven-to-one ratio (one reserved parking spot equals a minimum of seven auto trips reduced).
Implementation of a vanpool program.	Seven peak hour trips will be credited for each vanpool arranged by a specific program operated at the site of the development. Increases to ten trips if a Guaranteed Ride Home Program is also in place.	The average van capacity is seven.

Operation of a commute assistance center, offering on site, one stop shopping for transit and commute alternatives information, preferably staffed with a live person to assist building tenants with trip planning.	One peak hour trip will be credited for each feature added to the information center; and an additional one peak hour trip will be credited for each hour the center is staffed with a live person, up to 20 trips per each 200 tenants. Possible features may include: Transit information brochure rack Computer kiosk connected to Internet Telephone (with commute and transit information numbers) Desk and chairs (for personalized trip planning) On-site transit ticket sales Implementation of flexible work hour schedules that allow transit riders to be 15-30 minutes late or early (due to problems with transit or vanpool). Quarterly educational programs to support commute alternatives	This is based on staff's best estimate. Short of there being major disincentives to driving, having an on site TDM program offering commute assistance is fundamental to an effective TDM program.
Survey Employees to examine use and best practices.	**Three peak hour trips will be credited for a survey developed to be administered twice yearly**	**This is based on staff's best estimate with the goal of finding best practices to achieve the mode shift goal.**
Implementation of a parking cash out program.	One peak hour trip will be credited for each parking spot where the employee is offered a cash payment in return for not using parking at the employment site.	Yields a one-to-one ratio (one cashed out parking spot equals one auto trip reduced.

Implementation of ramp metering.	Three hundred peak hour trips will be credited if the local jurisdiction in cooperation with CalTrans, installs and turns on ramp metering lights during the peak hours at the highway entrance ramp closest to the development.	This is a very difficult and costly measure to implement and the reward must be significant.
Installation of high bandwidth connections in employees' homes to the Internet to facilitate home telecommuting	**One peak hour trip will be credited for every three connections installed. This measure is not available as credit for a residential development.**	Yields a one-to-**three** ratio.
Installation of video conferencing centers that are available for use by the tenants of the facility.	**Five** peak hour trips will be credited for a center installed at the facility.	**This is based on staff's best estimate.**
Implementation of a compressed workweek program.	One peak hour trip will be credited for every 5 employees that are offered the opportunity to work four compressed days per week.	The workweek will be compressed into 4 days; therefore the individual will not be commuting on the 5^{th} day.
Flextime: Implementation of an alternate hours workweek program.	**One peak hour trip will be credited for each employee that is offered the opportunity to work staggered work hours. Those hours can be a set shift set by the employer or can be individually determined by the employee.**	**This is based on staff's best estimate.**
Provision of assistance to employees so they can live close to work.	If an employer develops and offers a program to help employees find acceptable residences within five miles of the employment site, a credit of one trip will be given for each slot in the program.	This assumes that a five-mile trip will generally not involve travel on the freeways.

Implementation of a program that gives preference to hiring local residents at the new development site.	One peak hour trip will be credited for each employment opportunity reserved for employees recruited and hired from within five miles of the employment site.	This assumes that a five-mile trip will generally not involve travel on the freeways.
Provision of on-site amenities/accommodations that encourage people to stay on site during the workday, making it easier for workers to leave their automobiles at home.	**Five** peak hour trips will be credited for each feature added to the job site. Possible features may include: banking grocery shopping clothes cleaning exercise facilities child care center	This is based on staff's best estimate.
Provide use of motor vehicles to employees who use alternate commute methods so they can have access to vehicles during breaks for personal use.	**Five** peak hour trips will be credited for each vehicle provided.	This is based on staff's best estimate.
Provide use of bicycles to employees who use alternate commute methods so they can have access to bicycles during breaks for personal use.	One peak hour trip will be credited for every four bicycles provided.	This is based on staff's best estimate.
Provision of child care services as a part of the development	One trip will be credited for every two child care slots at the job site. This amount increases to one trip for each slot if the child care service accepts multiple age groups (infants=0-2yrs, preschool=3&4 yrs, school-age=5 to 13 yrs).	**This is based on staff's best estimate.**

Developer/property owner may join an employer group to expand available child care within 5 miles of the job site or may provide this service independently	One trip will be credited for each new child care center slot created either directly by an employer group, by the developer/property owner, or by an outside provider if an agreement has been developed with the developer/property owner that makes the child care accessible to the workers at the development.	**This is based on staff's best estimate.**
Join the Alliance's guaranteed ride home program.	**Two** peak hour trips will be credited for every 2 slots purchased in the program.	Experience shows that when a Guaranteed Ride Home Program is added to a TDM program, average ridership increases by about 50%.
Combine any ten of these elements and receive an additional credit for five peak hour trips.	Five peak hour trips will be credited.	Experience has shown that offering multiple and complementary TDM components can magnify the impact of the overall program.
Work with the Alliance to develop/ implement a Transportation Action Plan.	**Ten** peak hour trips will be credited.	This is based on staff's best estimate.
The developer can provide a cash legacy after the development is complete and designate an entity to implement any (or more than one) of the previous measures before day one of occupancy.	Peak hour trip reduction credits will accrue as if the developer was directly implementing the items.	Credits accrue depending on what the funds are used for.
Encourage infill development.	Two percent of all peak hour trips will be credited for each infill development.	Generally acceptable TDM practices (based on research of TDM practices around the nation and reported on the Internet).

Encourage shared parking.	Five peak hour trips will be credited for an agreement with an existing development to share existing parking.	Generally acceptable TDM practices (based on research of TDM practices around the nation and reported on the Internet).
Participate in/create/sponsor a Transportation Management Association.	Five peak hour trips will be credited.	Generally acceptable TDM practices (based on research of TDM practices around the nation and reported on the Internet).
Coordinate Transportation Demand Management programs with existing developments/ employers.	Five peak hour trips will be credited.	This is based on staff's best estimate.
For employers with multiple job sites, institute a proximate commuting program that allows employees at one location to transfer/trade with employees in another location that is closer to their home.	One peak hour trip will be credited for each opportunity created.	Yields a one-to-one ratio.
Pay for parking at park and ride lots or transit stations.	One peak hour trip will be credited for each spot purchased.	Yields a one-to-one ratio.

Additional Measures for Residential Developments

Develop schools, convenience shopping, recreation facilities, and child care centers in new subdivisions.	Five peak hour trips will be credited for each facility included.	This is based on staff's best estimate.
Provision of child care services at the residential development and/or at a nearby transit center	One trip will be credited for every two child care slots at the development/transit center. This amount increases to one trip for each slot if the child care service accepts multiple age groups (infants, preschool, school-age).	**This is based on staff's best estimate.**
Make roads and streets more pedestrian and bicycle friendly.	Five peak hour trips will be credited for each facility included.	This is based on staff's best estimate.
Revise zoning to limit undesirable impacts (noise, smells, and traffic) instead of limiting broad categories of activities.	Five peak hour trips will be credited.	This is based on staff's best estimate.
Create connections for non-motorized travel, such as trails that link dead-end streets.	Five peak hour trips will be credited for each connection make.	This is based on staff's best estimate.
Create alternative transportation modes for travel within the development and to downtown areas - bicycles, scooters, electric carts, wagons, shuttles, etc.	One peak hour trip will be credited for each on-going opportunity created (i.e. five bicycles/ scooters/wagons = five trips, two-seat carts = two trips, seven passenger shuttle = seven trips).	This is based on staff's best estimate.
Design streets/roads that encourage pedestrian and bicycle access and discourage automobile access.	Five trips will be credited for each design element.	This is based on staff's best estimate.
Install and maintain	Five trips will be credited for each	This is based on staff's best

alternative transportation kiosks.	kiosk.	estimate.
Install/maintain safety and security systems for pedestrians and bicyclists.	Five trips will be credited for each measure implemented.	This is based on staff's best estimate.
Implement jitneys/ vanpools from residential areas to downtowns and transit centers.	One trip will be credited for each seat created.	Yields a one-to-one ratio.
Locate residential development within one-third mile of a fixed rail passenger station.	All trips from a residential development within one-third mile of a fixed rail passenger station will be considered credited due to the location of the development.	This is based on staff's best estimate.

The local jurisdiction must also agree to maintain data available for monitoring by C/CAG, that supports the on-going compliance with the agreed to trip reduction measures.

City County Association of Governments Congestion Mangement Program 2019 Update			
Land Use Impact Analysis Program Compliance			
Jurisdiction	**Project**	**Measures Taken**	**C/CAG Compliance**
City of East Palo Alto	EPACenter Arts at 1950 Bay Road	Acknowledges C/CAG CMP policies; lists C/CAG as a responsible agency	None - Project does not generate 100+ trips in the am or pm peak hours
San Mateo County Manager's Office, Project Development Unit	County Government Center Campus Development Project	Acknowledges C/CAG CMP policies; lists C/CAG as a responsible agency	TDM Plan to be reviewed by C/CAG
City of Redwood City	Design Tech High School	Acknowledges C/CAG CMP policies; lists C/CAG as a responsible agency	TDM Plan approved by C/CAG
City of Redwood City	1180 Main St	Acknowledges C/CAG CMP policies; lists C/CAG as a responsible agency	TDM Plan approved by C/CAG
City of Brisbane	Sangamo Therapeutics	Acknowledges C/CAG CMP policies; lists C/CAG as a responsible agency	TDM Plan approved by C/CAG
City of Brisbane	Sierra Point	Acknowledges C/CAG CMP policies; lists C/CAG as a responsible agency	TDM Plan approved by C/CAG
City of Redwood City	40 Middlefield	Acknowledges C/CAG CMP policies; lists C/CAG as a responsible agency	TDM Plan approved by C/CAG
City of Menlo Park	Trio Projects	Acknowledges C/CAG CMP policies; lists C/CAG as a responsible agency	TDM Plan approved by C/CAG
City of San Carlos	993 Laurel Street	Acknowledges C/CAG CMP policies; lists C/CAG as a responsible agency	TDM Plan approved by C/CAG

Appendix J: Regional Transportation Plan Projects

San Mateo County Projects included in Plan Bay Area 2040

Source: http://projects.planbayarea.org/

rtpId	title	agency	system	mode	What would this project/program do?	By when is this project anticipated to be open?	How much does this project/program cost?	How much of the project/program cost was included in previous plans?	How much of the project/program is covered in the plan period?
17-06-0015	Construct auxiliary lanes (one in each direction) on U.S. 101 from Marsh Road to Embarcadero Road	Caltrans	Street/Highway Facility	Auto	Add northbound and southbound auxiliary lanes.	2015	79	79	0
17-06-0001	Bicycle and Pedestrian Program		Bicycle/Pedestrian Facility	BikePed	Projects in this category are new bicycle (on-street and off-street) and pedestrian facilities, and facilities that connect existing network gaps, including but not limited to new multi-purpose pedestrian/bicycle bridges over US 101 and sidewalk gap closures	On-going through 2040	247	21	226
17-06-0027	Implement supporting infrastructure and Automated Transit Signal Priority to support SamTrans express rapid bus service along El Camino Real	San Mateo County Transit District (SamTrans)	Bicycle/Pedestrian Facility	BikePed	This project will institute necessary infrastructure and Automated Transit Signal Priority necessary to accommodate express rapid bus service along the length of El Camino Real from Palo Alto to Daly City.	2040	1	0	1
17-06-0016	Improve access to and from the west side of Dumbarton Bridge on Route 84 connecting to U.S. 101 per Gateway 2020 Study - Phased	San Mateo City/County Association of Governments (CCAG)	Street/Highway Facility	Auto	Improve access to /from the west side of Dumbarton Bridge (Route 84 connecting to U.S. 101) per Gateway 2020 Study (Phased implementation of short term projects. Environmental phase only for long term projects).	2040	39	3	36
17-06-0009	Improve operations at U.S. 101 near Route 92 - Phased	San Mateo City/County Association of Governments (CCAG)	Street/Highway Facility	Auto	US 101 operational improvements near Route 92. Project may have phased construction.	2025	258	2	256
17-06-0010	Improve U.S. 101/Woodside Road interchange	Redwood City	Street/Highway Facility	Auto	Modifies the Woodside Road Interchange at US 101.	2023	171	7	164
17-06-0008	Add northbound and southbound modified auxiliary lanes and/ or implementation of managed lanes on U.S. 101 from I-380 to San Francisco County line	San Mateo City/County Association of Governments (CCAG)	Street/Highway Facility	Auto	Add northbound and southbound modified auxiliary lanesÂ and/or implementation ofÂ managedÂ lanesÂ on U.S. 101 from I-380Â to San Francisco County line.	2024	222	5	217
17-06-0019	State Route 92-82 (El Camino) Interchange Improvement	San Mateo (City)	Street/Highway Facility	Auto	Widen the existing ramps and reconfigure the existing interchange from a full cloverleaf to a partial cloverleaf. Pedestrian and bicycle improvements would be included as part of the project.	2018	30	25	5
17-06-0012	U.S. 101 Interchange at Peninsula Avenue	San Mateo (City)	Street/Highway Facility	Auto	Construct southbound on and off ramps to US 101 at Peninsula Ave to add on and off ramps from southbound 101.	2023	89	9	80
17-06-0011	US 101 Produce Avenue Interchange	South San Francisco	Street/Highway Facility	Auto	Construct a new interchange on US 101 at Produce Avenue, connecting Utah Avenue on the east side of US 101 to San Mateo Avenue on the west side of US 101. This will allow for reconfiguration of the existing southbound ramps at Produce Ave and Airport Blvd, as well incorporation of the northbound off- and on- ramps at S. Airport Blvd into the interchange design.	2024	146	10	136
17-06-0025	US 101/University Ave. Interchange Improvements	East Palo Alto	Street/Highway Facility	Auto	On University Avenue across US-101, between Woodland Avenue and Donohoe Street; Add bike lanes and sidewalk and modify the NB and SB off-ramps to eliminate pedestrian/bicycle conflicts and improve traffic operations.	2019	11	0	11
17-06-0007	Modify existing lanes on U.S. 101 to accommodate a managed lane	San Mateo City/County Association of Governments (CCAG)	Street/Highway Facility	Auto	Modify existing lanes to accommodate an HOV lane from Whipple to San Francisco County Line and/ or an Express Lane from approximately 2 miles south of the Santa Clara County Line to San Francisco County Line. Work may include shoulder modification, ramp modifications, and interchange modifications to accommodate an extra lane. Work will be phased.	2020	365	15	350
17-06-0034	Construct Route 1 (Calera Parkway) northbound and southbound lanes from Fassler Avenue to Westport Drive in Pacifica	Pacifica	Street/Highway Facility	Auto	The Calera Parkway project will widen Highway 1 from four lanes to six lanes, from approximately 1,500 feet south of Fassler Avenue to approximately 2,300 feet north of Reina Del Mar Avenue, a distance of 1.3 miles, and will add a 16â¸-â¸¢ wide landscaped median between concrete barriers from San Marlo Way to Reina Del Mar Avenue	2021	58	9	49
17-06-0013	Reconstruct U.S. 101/Broadway interchange		Street/Highway Facility	Auto	Reconstructs the US 101/Broadway interchange.	2017	83	83	0
17-06-0024	Reconstruct U.S. 101/Sierra Point Parkway interchange (includes extension of Lagoon Way to U.S. 101)	Brisbane	Street/Highway Facility	Auto	Reconstruct a partial interchange and provide improved access to Brisbane, Bayshore Blvd and proposed Brisbane Baylands project. Lagoon Way extension connects to the reconstructed interchange and provides improved access to Brisbane, Daly City, and the pending 600-acre Brisbane Baylands development.	2030	17	8	9
17-06-0014	Reconstruct U.S. 101/Willow Road interchange	Menlo Park	Street/Highway Facility	Auto	The project proposes to reconstruct the existing US 101/Willow Road (Route 114) Interchange within the existing alignment to a partial cloverleaf interchange. Project includes class I bike paths and class II bike lanes.	2018	80	60	20
17-06-0020	Hwy 1 operational & safety improvements in County Midcoast (acceleration/deceleration lanes; turn lanes; bike lanes; pedestrian crossings; and trails)	San Mateo County	Street/Highway Facility	Auto	Operational and safety improvements for vehicles, bicycles, and pedestrians, along the Highway 1 corridor between Half Moon Bay and Pacifica. This could include acceleration lanes, deceleration lanes, turn lanes, bike lanes, enhanced crossings, and trail network improvements.	2020	29	4	25
17-06-0035	I-280 improvements near D Street exit	Daly City	Street/Highway Facility	Auto	Improve the on and off-ramps and approaches for I-280 near the D Street exit in Daly City	2025	1	0	1
17-06-0023	Route 1 Improvements in Half Moon Bay	Half Moon Bay	Street/Highway Facility	Auto	In Half Moon Bay, On Route 1: Improve safety and reduce congestion by providing protected left and right turn lanes, warranted traffic signals, two through lanes only at signalized intersections, bike lanes, pathways, bus stops, traffic signal interconnects, safety lighting, median and channelization improvements.	2019	19	10	9
17-06-0032	Route 1 San Pedro Creek Bridge Replacement and Creek Widening Project	Pacifica	Street/Highway Facility	Auto	Replace San Pedro Creek Bridge on CA 1 with a longer bridge and widen the creek channel for 100 year storm flow capacity. Provide for a class 1 multi-purpose trail on the eastern side.	2015	14	14	0
17-06-0017	Route 101/Holly St Interchange Access Improvements	San Carlos	Street/Highway Facility	Auto	The proposed project would convert the existing full cloverleaf configuration to a partial cloverleaf design by eliminating two of the existing loop off-ramps of the interchange, and realign the diagonal on- and off-ramps into signalized T-intersections with local streets. A new pedestrian and bicycle over crossing will be constructed in the south side of Holly Street Interchange.	2019	34	1	33

17-06-0037	Widen Millbrae Avenue between Rollins Road and U.S. 101 soutbound on-ramp and resurface intersection of Millbrae Avenue and Rollins Road	Millbrae	Street/Highway Facility	Auto	Widen Millbrae Avenue between Rollins Road and US101 Southbound On Ramp and resurface the intersection of Millbrae Avenue and Rollins Road.	2019	11	0	11
17-06-0033	Widen Route 92 between SR 1 and Pilarcitos Creek alignment, includes widening of travel lanes and shoulders	Half Moon Bay	Street/Highway Facility	Auto	Widens shoulders and travel lanes to standard widths. Straighten curves at few locations.	2025	8	0	8
17-06-0036	Widen Skyline Boulevard (Route 35) to 4-lane roadway from I-280 to Sneath Lane - Phased	San Bruno	Street/Highway Facility	Auto	Widens Skyline Blvd. (SR 35) between I-280 and Sneath Lane. It is currently the last portion of what is otherwise a four lane roadway along Skyline Blvd. The project widens approximately 1.3 miles of the roadway into four lanes.	2021	25	0	25
17-06-0038	Construct a 6-lane arterial from Geneva Avenue/Bayshore Boulevard intersection to U.S. 101/Candlestick Point interchange - Environmental phase	Brisbane	Street/Highway Facility	Auto	Planning and environmental analysis of a 6-lane arterial from the Geneva Avenue at Bayshore Boulevard to 101/Candlestick Interchange. Grade separation at the Caltrain and Tunnel Ave, Class II bike lanes, on-street parking (travel lanes during peak periods), and sidewalks. Sections will be reserved for an exclusive lane BRT facility that connects to the Bayshore Multimodal Station and provides through service to BART Balboa Station.	N/A	17	1	16
17-06-0002	County Safety, Security and Other		Other	Program	Projects in this category address safety and security needs of San Mateo County including county-wide implementation of Safe Routes to School Program	On-going through 2040	41	1	40
17-06-0006	County-wide Intelligent Transportation System (ITS) and Traffic Operation System Improvements	San Mateo City/County Association of Governments (CCAG)	Street/Highway Facility	Auto	Installation of transportation system management improvements such as Intelligent Transportation System (ITS) elements and TOS equipment throughout San Mateo County.	On-going through 2040	93	0	93
17-06-0030	Environmental Clearance and Design of the Redwood City Ferry Terminal and Service	Water Emergency Transportation Authority (WETA)	Public Transit Facility	Transit	Planning and environmental analysis of the construction of a new ferry terminal, purchase of 3 new high-speed ferry vessels, and operation of new ferry service between Redwood City and San Francisco.	N/A	8	0	8
17-06-0021	Environmental Studies for 101/Candlestick Interchange	Brisbane	Street/Highway Facility	Auto	Planning and environmental analysis of the reconstruction of 101/Candlestick Interchange to full all-directional interchange with a single point cross street connection. Project would provide all-direction ramp movements controlled by new signalized intersections at the cross street connections. Interchange would join an improved Harney Way to the east, and would join the Geneva Avenue Extension to the west. Accommodate E/W crossing of planned BRT facility.	N/A	25	5	20
17-06-0039	Grade Separations		Other	Program	This project includes grade separations of the Caltrain right of way at approximately 2 to 3 high priority locations in San Mateo County, including 25th Avenue. This project is based on San Mateo Countyâ€™s Measure A grade separation category.	On-going through 2040	265	5	260
17-06-0004	Minor Roadway Expansions		Street/Highway Facility	Auto	This category includes roadway capacity increasing projects (new roadways, widening or extensions of existing roadways) on minor roads such as Blomquist Street, California Drive, Railroad Avenue, Manor Drive, and Alameda de las Pulgas	On-going through 2040	58	1	57
17-06-0026	Implement incentive programs to support transit-oriented development	San Mateo City/County Association of Governments (CCAG)	Bicycle/Pedestrian Facility	BikePed	Implement an incentive programs to support transit-oriented developments in San Mateo County.	On-going through 2040	106	0	106
17-06-0031	Implement Redwood City Street Car - Planning Phase	Redwood City	Public Transit Facility	Transit	Planning and environmental analysis of Redwood City Street Car Construction and Implementation	N/A	1	0	1
17-06-0018	Improve local access at I-280/I-380 from Sneath Lane to San Bruno Avenue to I-380 - Environmental only	San Bruno	Street/Highway Facility	Auto	Environmental assessment of local access improvements at the existing I-280 / I-380 interchange located in the City of San Bruno. The project would provide access to I-380 from the two main east-west secondary roads of Sneath Lane and San Bruno Avenue.	N/A	32	0	32
17-06-0028	Make incremental increase in SamTrans paratransit service - Phase	San Mateo County Transit District (SamTrans)	Public Transit Facility	Transit	Expansion of curb-to-curb paratransit fleet and service for eligible users, compliant with ADA requirements, based on projected future demand.	On-going through 2040	377	0	377
17-06-0003	Multimodal Streetscape		Bicycle/Pedestrian Facility	BikePed	Projects in this category implement multimodal or complete streets elements, including but not limited to projects along facilities such as El Camino Real, Bay Road, Ralston Avenue, University Avenue, Middlefield Road, Palmetto Avenue, Mission Street, Geneva Avenue, and Carolan Avenue	On-going through 2040	289	14	275
17-06-0005	Roadway Operations		Street/Highway Facility	Auto	County-wide Implementation of non-capacity Increasing local road Intersection modifications and channelization countywide County-wide implementation of local circulation improvements and traffic management programs countywide	On-going through 2040	64	0	64
17-06-0022	Westbound slow vehicle lane on Route 92 between Route 35 and I-280 - Environmental Phase	San Mateo County	Street/Highway Facility	Auto	Planning and environmental analysis of a westbound slow vehicle lane on Route 92 between Route 35 and I-280	N/A	25	0	25
17-06-0029	Add new rolling stock and infrastructure to support SamTrans bus rapid transit along El Camino Real- Phase	San Mateo County Transit District (SamTrans)	Public Transit Facility	Transit	This project will institute new rolling stock and infrastructure necessary to accommodate BRT along El Camino Real	2040	228	0	228
17-06-0040	Extend Blomquist Street over Redwood Creek to East Bayshore and Bair Island Road		Street/Highway Facility	Auto	Redwood City Blomquist Street Extension and Blomquist Bridge over Redwood Creek	2020	28	19	9

Appendix K: Checklist for Modeling Consistency

MTC Checklist for Modeling Consistency for CMPs

2011 Submittal

Prepared for City/County Association of Governments of San Mateo County

In cooperation with the Santa Clara Valley Transportation Authority

October 24, 2011

Introduction

The purpose of this document is to provide the checklist of deliverables requested by the Metropolitan Transportation Commission (MTC) to establish that the City/County Association of Governments of San Mateo County (C/CAG) travel demand models apply a regionally consistent model set for the development of travel demand forecasts. The specific checklist of product deliverables was defined by MTC in the *2011 County Congestion Management Plans: Updated MTC Guidance and Review Process Resolution No. 3000, Revised*, Attachment B. The required checklist products are provided in the following sections.

Product 1

Description of the C/CAG Model

The current C/CAG model had its origin in the corridor model developed for the Grand Boulevard Initiative (GBI) Multi-model Corridor Study by the Santa Clara VTA in 2009. The GBI study evaluated the impacts of enhanced transit service (bus rapid transit) and enhanced developed strategies in the El Camino Real corridor to transform an existing auto-oriented commercial transportation corridor into a more transit-oriented, mixed-use transportation corridor. The GBI model was essentially the VTA Countywide model with added zone and network detail to improve upon what was network and zone detail based on the MTC regional models for San Mateo County. The basis for the network and zone refinements applied within San Mateo County was the C/CAG Countywide models originally developed in the mid-1990s.

For the updated C/CAG model development, the GBI model was revised to produce an updated base year 2005 calibration and validation with selected model enhancements. These enhancements included calibration of the auto ownership models to American Community Survey (ACS) 2005 county-level data, addition of bicycle network infrastructure (bike lanes and paths) in the networks, travel time skims, mode choice and bicycle assignments and development of a toll modeling procedure to estimate

express lane vehicle volumes. The model was validated to year 2005 screenline volumes for the AM and PM peak periods and to year 2005 observed transit boardings.

Consistency with MTC Model

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

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

Highway Network and Transit Network — The roadway network used by the C/CAG model includes additional detail in both San Mateo and Santa Clara Counties. The current CMP model also includes detailed stop, station and route detail in the transit network for San Mateo and Santa Clara Counties, and maintains the MTC roadway and transit networks in the remaining Bay Area counties. The Association of Monterey Bay Area Governments (AMBAG) provided the basis for roadway networks in Monterey, San Benito, and Santa Cruz counties and the San Joaquin County COG provided roadways for San Joaquin County, however, the detailed networks was simplified to match the coarser zone structure in each of those four added counties. Express lane facilities, representing the MTC 'Backbone' express lanes system for 2035, were also coded in the network with a toll facility indicator based on the highway corridor segment and the direction of travel. Differential toll facility codes were required in order to apply specific toll rates to optimize utilization of the express lanes to preserve level-of-service for free carpool users. The C/CAGmodel also includes a representation of the bicycle network infrastructure in the base year and 2035 forecast year for San Mateo, Santa Clara, San Francisco and southern Alameda Counties, explicitly representing existing and future bike lanes and bike paths in travel time development, mode choice and bicycle assignments.

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

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

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

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

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

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

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

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

Auto Ownership — The current C/CAG model applies BAYCAST-90 for auto ownership models to estimate the number of households with 0, 1, and 2+ autos by four income groups in each traffic analysis zone. Walk to transit accessibility measures were incorporated in the auto ownership models consistent with MTC BAYCAST-90 to more logically associate low auto ownership households with transit services. The auto ownership models were recently calibrated to the 2005-2009 American Community Survey to match workers per household and auto ownership by county.

Mode Choice — The mode choice models for BAYCAST-90 include the use of nested structures for most trip purposes, however, explicit estimation of nested structures to consider transit submodes were not included in the model specification.[1] The C/CAG model adds a nesting structure for transit submodes of local bus, express bus, Bus Rapid Transit (BRT), light rail, heavy rail and commuter rail underneath the MTC BAYCAST-90 nested structures. Consistent with the BAYCAST-90, mode choice coefficients are preserved by constraining the model to the BAYCAST-90 parameters, except those in transit submode structure.[2] The C/CAG model includes a transit submode nest for Bus Rapid Transit (BRT), which is an emerging transit technology in the region. Submode constants for BRT were developed from a market analysis and state preference survey that compared the relative tradeoffs between bus, light rail and hypothetical BRT service. The resulting BRT constants were between the calibrated submode constants applied to local bus service and light rail service, implying that BRT service is perceived as more attractive than local bus service, but not as attractive as light rail service.

Peak Hour and Peak Periods for Highway Assignments —The highway assignments produce AM and PM peak hour volumes, AM and PM peak period volumes (5 AM to 9 AM and 3 PM to 7 PM, respectively – each coincident with the time periods of operation for carpool lanes), midday volumes (9 AM to 3 PM) and evening volumes (7 PM to 5 AM). The four time period volumes are then added together to develop daily vehicle volumes.

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

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

[1] A nested structure partitions the alternatives into groups (nests) of similarity. The groups can be further generalized into subgroups (subnests) and so on, which has the form of an inversed tree.

would be allowed to travel in the carpool lanes for free. This was assumed for all carpool facilities in the C/CAG model region.

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

Model Validation with 2005 Traffic and Transit Volumes — The current C/CAG model is validated to year 2005 traffic volumes for county-level screenlines and specific major transportation facilities. Two time periods are validated for county screenlines: AM peak period (5 AM to 9 AM) and PM peak period (3 PM to 7 PM). Peak hour validation was performed for US 101 and SR 82 (El Camino Real) using traffic counts provided by Caltrans. Daily transit boardings were validated for the year 2005 at the system level for major regional transit operators (Caltrain, BART, MUNI, VTA and AC Transit) and at the route level for SamTrans express and local routes.

Product 2

Description of Demographic Forecasts

The C/CAG model uses the Association of Bay Area Governments (ABAG) Projections 2009 data series for the base year 2005 and the ABAG Current Regional Plans scenario as the basis for the 2035 long-range forecasts for San Mateo County, as provided by MTC at the MTC 1454 zone level. The MTC zone level allocations were sub-allocated to the smaller C/CAG zones (including finer zones for both San Mateo and Santa Clara Counties) based on local development information and parcel level data. As such, the C/CAG socioeconomic data inputs are consistent at both the MTC zone level and the ABAG census tract level, however, slight differences do exist in San Mateo and Santa Clara Counties due to rounding errors resulting from the allocation process. Key ABAG land use variables used in the San Mateo C/CAG models do not differ by more than one percent at the county level for any of the 9 MTC region counties. No differences exist at the census tract level outside of San Mateo and Santa Clara Counties for any of the remaining MTC counties.

Product 3

ABAG County-Level Estimates for Population, Households, Jobs, and Employed Residents Year 2005, Current Regional Plans (v 0.1)

ABAG Projections 2009

County	Population	Households	Jobs	Employed Residents
San Francisco	795,792	338,923	553,073	388,097
San Mateo	721,890	260,066	337,344	318,599
Santa Clara	1,762,986	595,720	872,820	733,989
Alameda	1,505,308	543,776	730,264	705,906
Contra Costa	1,023,390	368,323	379,021	459,606
Solano	421,600	142,039	150,513	194,903
Napa	133,695	49,256	70,690	64,102
Sonoma	479,203	181,786	220,442	237,700
Marin	252,605	103,188	135,473	122,204
Bay Area	7,096,469	2,583,077	3,449,640	3,225,106

San Mateo C/CAG Trip-based Models

County	Population	Households	Jobs	Employed Residents
San Francisco	795,792	338,923	553,073	388,097
San Mateo	721,900	260,072	337,313	319,235
Santa Clara	1,762,957	595,716	872,248	733,965
Alameda	1,505,308	543,776	730,264	705,906
Contra Costa	1,023,390	368,323	379,021	459,606
Solano	421,600	142,039	150,514	194,903
Napa	133,695	49,256	70,690	64,102
Sonoma	479,203	181,786	220,442	237,700
Marin	252,605	103,188	135,473	122,204
Bay Area	7,096,450	2,583,079	3,449,038	3,225,718

Percent Difference

County	Population	Households	Jobs	Employed Residents
San Francisco	0.00%	0.00%	0.00%	0.00%
San Mateo	0.00%	0.00%	-0.01%	0.20%
Santa Clara	0.00%	0.00%	-0.07%	0.00%
Alameda	0.00%	0.00%	0.00%	0.00%
Contra Costa	0.00%	0.00%	0.00%	0.00%
Solano	0.00%	0.00%	0.00%	0.00%
Napa	0.00%	0.00%	0.00%	0.00%
Sonoma	0.00%	0.00%	0.00%	0.00%
Marin	0.00%	0.00%	0.00%	0.00%
Bay Area	0.00%	0.00%	-0.02%	0.02%

Product 3, continued

ABAG County-Level Estimates for Population, Households, Jobs, and Employed Residents Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

County	Population	Households	Jobs	Employed Residents
San Francisco	980,071	417,997	698,793	472,195
San Mateo	893,067	322,624	442,850	392,101
Santa Clara	2,433,531	827,254	1,212,948	1,054,001
Alameda	1,958,248	705,343	906,300	963,499
Contra Costa	1,323,390	480,474	469,462	603,803
Solano	504,331	171,284	173,057	220,100
Napa	148,517	54,642	86,961	71,000
Sonoma	572,443	212,784	262,078	258,396
Marin	269,179	110,673	147,872	102,999
Bay Area	9,082,777	3,303,075	4,400,321	4,138,094

San Mateo C/CAG Trip-based Models

County	Population	Households	Jobs	Employed Residents
San Francisco	980,071	417,997	698,793	472,195
San Mateo	893,066	322,620	442,858	392,097
Santa Clara	2,433,551	827,261	1,212,959	1,054,016
Alameda	1,958,248	705,343	906,300	963,499
Contra Costa	1,323,390	480,474	469,462	603,803
Solano	504,331	171,284	173,057	220,100
Napa	148,517	54,642	86,961	71,000
Sonoma	572,443	212,784	262,078	258,396
Marin	269,179	110,673	147,872	102,999
Bay Area	9,082,796	3,303,078	4,400,340	4,138,105

Percent Difference

County	Population	Households	Jobs	Employed Residents
San Francisco	0.00%	0.00%	0.00%	0.00%
San Mateo	0.00%	0.00%	0.00%	0.00%
Santa Clara	0.00%	0.00%	0.00%	0.00%
Alameda	0.00%	0.00%	0.00%	0.00%
Contra Costa	0.00%	0.00%	0.00%	0.00%
Solano	0.00%	0.00%	0.00%	0.00%
Napa	0.00%	0.00%	0.00%	0.00%
Sonoma	0.00%	0.00%	0.00%	0.00%
Marin	0.00%	0.00%	0.00%	0.00%
Bay Area	0.00%	0.00%	0.00%	0.00%

Product 4

Identification of Differences between CMA and ABAG Census Tract Level

C/CAG socioeconomic data inputs are consistent at both the MTC zone level and the ABAG census tract level for the Current Regional Plans scenario for the year 2035. The MTC zone level data was provided by MTC subsequent to a meeting of the Regional Model Working Group [3]. Data at the MTC zone level in San Mateo and Santa Clara Counties was allocated to the smaller San Mateo C/CAG model zones using local land use development patterns, however, MTC zone level, and by default ABAG census-tract level, control totals were preserved in the allocation process.

[3] Provided by email from MTC to the Regional Model Working Group members on March 25, 2011.

Product 5

Region-Level Auto Operating Cost, Key Transit Fares and Bridge Tolls Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Pricing Assumption	2035 Value in 2000 dollars	2035 Value in 2010 dollars
Auto Operating Cost per Mile	$0.222	$0.280
Bridge Tolls	Toll schedule starting July 1, 2012	Toll schedule starting July 1, 2012
Transit Fares	---	---
Muni Local Bus	$1.606	$2.000
AC Transit Local Bus	$1.606	$2.000
VTA Local Bus	$1.606	$2.000
SamTrans Local Bus	$1.606	$2.000

San Mateo C/CAG Trip-based Models

Pricing Assumption	2035 Value in 2000 dollars[4]	2035 Value in 2010 dollars[5]
Auto Operating Cost per Mile [6]	$0.24	$0.30
Bridge Tolls	Toll schedule starting July 1, 2010	Toll schedule starting July 1, 2010
Transit Fares	---	---
Muni Local Bus	$1.55	$1.97
AC Transit Local Bus	$1.55	$1.97
VTA Local Bus	$1.55	$1.97
SamTrans Local Bus	$1.55	$1.97

[4] Source for Inflation Rates : http://www.bls.gov/data/inflation_calculator.htm

[5] Source for Inflation Rates : http://www.bls.gov/data/inflation_calculator.htm

[6] Source: *Plan/Bay Area: Technical Summary of Predicted Traveler Responses to First Round Scenarios, Technical Report*, Metropolitan Transportation Commission, March 22, 2011, p.14.

Product 6

Highway Network and Transit Network — The roadway network used by the San Mateo C/CAG model includes additional detail in both San Mateo and Santa Clara Counties. The current CMP model also includes detailed stop, station and route detail in the transit network for San Mateo and Santa Clara Counties, and maintains the MTC roadway and transit networks in the remaining Bay Area counties. The Association of Monterey Bay Area Governments (AMBAG) provided the basis for roadway networks in Monterey, San Benito, and Santa Cruz counties and the San Joaquin County COG provided roadways for San Joaquin County, however, the detailed networks was simplified to match the coarser zone structure in each of those four added counties. Express lane facilities, representing the MTC 'Backbone' express lanes system for 2035, were also coded in the network with a toll facility indicator based on the highway corridor segment and the direction of travel. Differential toll facility codes were required in order to apply specific toll rates to optimize utilization of the express lanes to preserve level-of-service for free carpool users.

For model consistency reporting purposes, the San Mateo C/CAG models assume committed project as defined in the MTC 2035 Regional Transportation Plan in San Mateo County and all other counties, with the exception that HOV lanes are assumed on US 101 from Whipple Road north the San Mateo/San Francisco County line by conversion of the auxiliary lanes. The 2035 forecasts produced by the San Mateo C/CAG models also assumes that only 3+ person carpools are allowed to travel in the carpool lanes without a charge for the entire model region. The C/CAG model includes a representation of the bicycle network infrastructure in the base year and 2035 forecast year for San Mateo, Santa Clara, San Francisco and southern Alameda Counties, explicitly representing existing and future bike lanes and bike paths in travel time development, mode choice and bicycle assignments.

Product 7
Households by Number of Automobiles, by County
Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

County	Zero	One	Two +	Total	Zero	One	Two +	Total
San Francisco	132,684	192,192	116,364	441,240	30.1%	43.6%	26.4%	100.0%
San Mateo	18,812	116,608	198,216	333,636	5.6%	35.0%	59.4%	100.0%
Santa Clara	62,264	268,396	528,788	859,448	7.2%	31.2%	61.5%	100.0%
Alameda	86,828	235,696	415,844	738,368	11.8%	31.9%	56.3%	100.0%
Contra Costa	19,860	153,448	317,904	491,212	4.0%	31.2%	64.7%	100.0%
Solano	10,868	50,216	121,300	182,384	6.0%	27.5%	66.5%	100.0%
Napa	4,044	19,240	37,200	60,484	6.7%	31.8%	61.5%	100.0%
Sonoma	14,996	68,860	146,316	230,172	6.5%	29.9%	63.6%	100.0%
Marin	6,992	43,332	72,116	122,440	5.7%	35.4%	58.9%	100.0%
ALL	357,348	1,147,988	1,954,048	3,459,384	10.3%	33.2%	56.5%	100.0%

San Mateo C/CAG Trip-based Models

County	Zero	One	Two +	Total	Zero	One	Two +	Total
San Francisco	130,076	170,563	117,323	417,962	31.1%	40.8%	28.1%	100.0%
San Mateo	25,297	113,422	183,777	322,496	7.8%	35.2%	57.0%	100.0%
Santa Clara	73,775	250,650	501,913	826,338	8.9%	30.3%	60.7%	100.0%
Alameda	116,722	257,910	330,664	705,296	16.5%	36.6%	46.9%	100.0%
Contra Costa	33,991	159,328	287,157	480,476	7.1%	33.2%	59.8%	100.0%
Solano	8,270	49,035	113,991	171,296	4.8%	28.6%	66.5%	100.0%
Napa	2,771	17,703	34,167	54,641	5.1%	32.4%	62.5%	100.0%
Sonoma	13,600	75,388	123,801	212,789	6.4%	35.4%	58.2%	100.0%
Marin	5,004	41,293	64,354	110,651	4.5%	37.3%	58.2%	100.0%
ALL	409,506	1,135,292	1,757,147	3,301,945	12.4%	34.4%	53.2%	100.0%

Product 8
Number of Trips by Tour Purpose
Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Purpose	Tour-based	Share
Work	9,095,396	30.2%
University	674,228	2.2%
School	3,182,584	10.6%
At-Work	2,146,148	7.1%
Eat Out	1,269,852	4.2%
Escort	2,878,708	9.6%
Shopping	4,323,304	14.3%
Social	921,024	3.1%
Other	5,650,824	18.7%
ALL	30,142,068	100.0%

San Mateo C/CAG Trip-based Models

Purpose	Trip-based	Share
Home-based Work	6,257,144	23.3%
Home-based Shopping/Other	7,481,587	27.9%
Home-based Social-Recreational	3,211,923	12.0%
Non-home-based	7,417,766	27.7%
Home-based College	576,940	2.2%
Home-based High School	558,042	2.1%
Home-based Elementary School	1,316,026	4.9%
ALL	26,819,428	100.0%

Product 9
Average Trip Distance by Tour Purpose
Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Tour Purpose	Average Trip Distance, Miles
Work	10.40
University	6.84
School	3.96
At-Work	3.35
Eat Out	5.42
Escort	4.34
Shopping	4.20
Social	4.87
Other	5.00
All	6.25

San Mateo C/CAG Trip-based Models

Trip Purpose	Average Trip Distance, Miles
Home-based Work	12.80
Home-based Shopping/Other	6.91
Home-based Social-Recreational	7.45
Non-home-based	6.75
Home-based College	10.52
Home-based High School	4.85
Home-based Elementary School	4.06
ALL	8.20

Product 10
Journey to Work, County-to-County Usual Workplace
Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Origin County	San Francisco	San Mateo	Santa Clara	Alameda	Contra Costa	Solano	Napa	Sonoma	Marin	All
San Francisco	358,844	55,696	5,884	31,312	7,080	708	312	1,112	12,428	473,376
San Mateo	82,972	206,644	63,104	29,564	4,416	324	156	516	5,152	392,848
Santa Clara	12,508	57,712	915,460	71,272	4,960	196	80	72	780	1,063,040
Alameda	119,536	70,684	130,732	558,332	68,668	3,272	1,240	1,068	12,576	966,108
Contra Costa	64,288	16,448	17,164	139,560	315,164	18,848	5,512	2,596	19,012	598,592
Solano	11,408	2,212	1,108	15,512	31,900	126,024	17,728	5,572	8,060	219,524
Napa	2,020	484	176	2,556	4,408	7,428	44,116	7,844	3,104	72,136
Sonoma	4,948	1,204	212	1,844	1,988	2,196	8,172	215,416	20,828	256,808
Marin	20,756	3,992	512	6,240	4,676	1,052	872	6,544	58,796	103,440
Bay Area	677,280	415,076	1,134,352	856,192	443,260	160,048	78,188	240,740	140,736	4,145,872

San Mateo C/CAG Trip-based Models

Origin County	San Francisco	San Mateo	Santa Clara	Alameda	Contra Costa	Solano	Napa	Sonoma	Marin	All
San Francisco	352,045	48,851	17,360	22,807	6,088	716	578	2,434	11,508	462,387
San Mateo	86,314	229,097	52,114	21,146	2,910	721	194	1,824	2,254	396,574
Santa Clara	18,879	61,803	934,384	58,247	6,404	2,571	580	4,993	2,925	1,090,785
Alameda	124,842	60,321	93,259	605,272	60,016	6,869	1,618	6,525	14,239	972,960
Contra Costa	63,679	9,479	14,024	110,362	354,358	16,113	4,175	3,790	20,254	596,234
Solano	10,779	2,117	1,626	11,086	24,916	134,855	13,836	5,871	7,383	212,470
Napa	1,202	333	249	929	1,827	5,091	55,957	4,167	1,279	71,035
Sonoma	5,443	738	745	1,210	1,368	1,676	2,897	220,959	20,267	255,302
Marin	20,699	1,661	552	2,765	2,208	587	389	4,570	68,789	102,220
Bay Area	683,882	414,400	1,114,313	833,823	460,095	169,199	80,225	255,133	148,897	4,159,967

Product 11
Region-Level Mode Share by Tour Purpose
Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

Tour Purpose	Automobile	Walk	Bicycle	Transit	All Modes
Work	81.8%	5.3%	1.5%	11.3%	100.0%
University	63.7%	13.8%	1.3%	21.2%	100.0%
School	69.6%	20.7%	1.6%	8.1%	100.0%
At-Work	69.4%	29.3%	0.7%	0.6%	100.0%
Eat Out	81.1%	15.4%	1.3%	2.3%	100.0%
Escort	93.8%	5.7%	0.3%	0.2%	100.0%
Shopping	87.0%	10.0%	1.1%	2.0%	100.0%
Social	78.7%	15.8%	1.7%	3.8%	100.0%
Other	85.6%	10.2%	1.5%	2.7%	100.0%
All Purposes	81.7%	11.2%	1.3%	5.8%	100.0%

San Mateo C/CAG Trip-based Models

Trip Purpose	Automobile	Walk	Bicycle	Transit	All Modes
Home-based Work	83.5%	3.4%	1.3%	11.8%	100.0%
Home-based Shopping/Other	84.1%	9.9%	0.7%	5.3%	100.0%
Home-based Social-Recreational	81.2%	10.7%	3.6%	4.5%	100.0%
Non-home-based	82.5%	12.9%	0.9%	3.7%	100.0%
Home-based College	66.6%	9.3%	5.3%	18.8%	100.0%
Home-based High School	55.5%	21.4%	4.4%	18.7%	100.0%
Home-based Grade School	52.9%	31.2%	6.3%	9.6%	100.0%
All Purposes	80.7%	12.5%	1.7%	5.1%	100.0%

Product 12
Region-Level VMT and VHT by Facility Type and Time Period
Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

VMT

	Facility Type					
Time Period	Freeways	Expressways	Major Arterials	Collectors	Other	All Facilities
Early AM (3 a.m. - 6 a.m.)	5,504,092	544,464	1,158,156	381,730	354,247	7,942,689
AM Peak (6 a.m. - 10 a.m.)	26,675,579	2,918,973	9,919,154	3,048,868	3,437,135	45,999,709
Midday (10 a.m. - 3 p.m.)	26,067,097	3,063,934	10,925,935	3,047,571	4,407,032	47,511,570
PM Peak (3 p.m. - 7 p.m.)	28,630,722	3,380,237	12,261,677	3,558,105	4,461,626	52,292,367
Evening (7 p.m. - 3 a.m.)	17,572,988	1,820,157	5,900,622	1,744,592	2,237,126	29,275,485
Daily	104,450,478	11,727,765	40,165,545	11,780,866	14,897,167	183,021,820

VHT

	Facility Type					
Time Period	Freeways	Expressways	Major Arterials	Collectors	Other	All Facilities
Early AM (3 a.m. - 6 a.m.)	90,089	11,137	34,596	13,125	22,837	171,784
AM Peak (6 a.m. - 10 a.m.)	565,113	69,017	331,877	119,925	208,660	1,294,591
Midday (10 a.m. - 3 p.m.)	461,465	65,853	357,347	118,317	254,178	1,257,160
PM Peak (3 p.m. - 7 p.m.)	600,243	80,725	419,721	147,321	256,638	1,504,646
Evening (7 p.m. - 3 a.m.)	294,320	37,677	183,263	61,581	129,425	706,267
Daily	2,011,229	264,408	1,326,803	460,269	871,738	4,934,448

San Mateo C/CAG Trip-based Models

VMT

	Facility Type					
Time Period	Freeways	Expressways	Major Arterials	Collectors	Other	All Facilities
AM Peak (5 a.m. - 9 a.m.)	23,254,078	2,296,635	7,889,177	1,803,260	4,748,694	39,991,844
Midday (9 a.m. - 3 p.m.)	33,882,129	2,808,072	9,945,821	2,488,415	7,186,680	56,311,117
PM Peak (3 p.m. - 7 p.m.)	28,035,161	3,460,308	12,253,081	3,003,551	6,555,756	53,307,857
Evening (7 p.m. - 5 a.m.)	21,284,834	1,507,476	4,050,705	1,024,120	1,024,120	28,891,255
Daily	106,456,202	10,072,491	34,138,784	8,319,346	19,515,250	178,502,073

VHT

	Facility Type					
Time Period	Freeways	Expressways	Major Arterials	Collectors	Other	All Facilities
AM Peak (5 a.m. - 9 a.m.)	557,271	77,891	294,386	100,785	195,611	1,225,944
Midday (9 a.m. - 3 p.m.)	655,232	86,735	369,138	141,306	292,117	1,544,528
PM Peak (3 p.m. - 7 p.m.)	812,268	127,094	524,676	199,404	284,232	1,947,674
Evening (7 p.m. - 5 a.m.)	345,015	41,581	139,328	44,753	129,816	700,493
Daily	2,369,786	333,301	1,327,528	486,248	901,776	5,418,639

Product 13
Region-Level Average Speed (VMT/VHT) by Facility Type and Time Period
Year 2035, Current Regional Plans (v 0.1)

MTC Tour-based Models

	Facility Type		
Time Period	Freeways	All Other Facilities	All Facilities
Early AM (3 a.m. - 6 a.m.)	61.1	29.9	46.2
AM Peak (6 a.m. - 10 a.m.)	47.2	26.5	35.5
Midday (10 a.m. - 3 p.m.)	56.5	27.0	37.8
PM Peak (3 p.m. - 7 p.m.)	47.7	26.2	34.8
Evening (7 p.m. - 3 a.m.)	59.7	28.4	41.5
Daily	51.9	26.9	37.1

San Mateo C/CAG Trip-based Models

	Facility Type		
Time Period	Freeways	All Other Facilities	All Facilities
AM Peak (5 a.m. - 9 a.m.)	41.7	25.0	32.6
Midday (9 a.m. - 3 p.m.)	51.7	25.2	36.5
PM Peak (3 p.m. - 7 p.m.)	34.5	22.3	27.4
Evening (7 p.m. - 5 a.m.)	61.7	21.4	41.2
Daily	44.9	23.6	32.9

Appendix L: Traffic Impact Analysis Policy

C/CAG

CITY/COUNTY ASSOCIATION OF GOVERNMENTS
OF SAN MATEO COUNTY

Atherton • Belmont • Brisbane • Burlingame • Colma • Daly City • East Palo Alto • Foster City • Half Moon Bay • Hillsborough • Menlo Park
Millbrae • Pacifica • Portola Valley • Redwood City • San Bruno • San Carlos • San Mateo • San Mateo County • South San Francisco • Woodside

Policy on Traffic Impact Analysis (TIA) To Determine Traffic Impacts on the Congestion Management Program (CMP) Roadway Network Resulting From Roadway Changes, General Plan Updates, and Land Use Development Projects

August 10, 2006

Section I
INTRODUCTION

As the Congestion Management Agency for San Mateo County, C/CAG is responsible for maintaining the performance and standards of the Congestion Management Program (CMP) roadway network. The CMP roadway network is of countywide significance, and their performance must be preserved.

Traffic Impact Analysis (TIA) is the term used in the study of the expected effects of projects and land use decisions on transportation facilities. The study's purpose is to determine whether the transportation system can accommodate the traffic generated by the projects or land use decisions. And to help decision makers to make improvements needed to the roadways, bike routes, sidewalks, and transit services affected by the project. This helps decision makers determine whether to approve the project and what conditions to impose on the project.

This document includes the following sections:

- Section I: Introduction
- Section II: Definition & Purpose
- Section III: Policy
    1. Roadway Modification Projects
    2. General Plan and Specific Plans
    3. Land Use Development Projects
- Section IV: Scope and Parameters of Traffic Impact Analysis
- Section V: Definition of CMP Impact

Section II
DEFINITION & PURPOSE

Definition

This document states policy and establishes procedures to determine cumulative capacity impacts on the CMP roadway network (impacts on the quality of traffic services) from the following three types of projects:

1. **Roadway modification projects**:
   a. Projects that change the traffic capacity of CMP roadway.
   b. Projects near the CMP roadway and impact the CMP roadway network.
2. **General Plan and Specific Plans**.
   a. New General Plan or General Plan updates which include land use changes that would cause an impact on the CMP roadway network.
   b. Specific Plans, Specific Area Plans, Precise Plans, which include land use changes that would cause an impact on the CMP roadway network.
3. **Land use development project**.

Purpose

The purpose of this policy is to ensure uniform procedures for performing Traffic Impact Analysis to evaluate impacts on the CMP roadway resulting from land use and project decisions in San Mateo County.

The intent of this policy is to preserve acceptable performance on the CMP roadway network, and to establish community standards for consistent system-wide transportation review. Preservation of CMP roadway and intersection performance will require an evaluation of the near and long term impacts of General Plan updates**,** land use development proposals, as well as proposed roadway modifications that will either reduce the capacity of the CMP network, or cause additional traffic on the CMP network.

It is not intended that the Traffic Impact Analysis guided by this document will provide all information required for California Environmental Quality Act (CEQA) purposes. Traffic impact analysis to determine traffic impacts on the CMP network may be conducted as part of the CEQA process.

This policy will be reviewed and integrated into the 2007 Congestion Management Program for San Mateo County. It will be reviewed subsequently in two years.

Section III
POLICY

This policy provides an avenue to assess the cumulative traffic impacts on the Congestion Management (CMP) roadway network, of General Plan decisions made by local jurisdictions. It provides direction to local jurisdictions on how to analyze CMP traffic impacts resulting from roadway changes or land use decisions, determine feasible and appropriate mitigations.

Land use development proposals and proposed roadway modifications must be consistent with the jurisdiction's adopted General Plan, unless the proposal is to be amended into the General Plan before final approval by the jurisdiction. Local jurisdictions must evaluate traffic impacts of proposed revisions to their jurisdiction-wide General Plans and Specific Area Plans on the CMP network.

1. Roadway Modification Projects

Project sponsor, in consultation with C/CAG staff, shall determine if a roadway modification project on or near a CMP roadway will have potential near-term and long-term traffic impacts on the CMP roadway network. Section 4, *Scope and Parameters of Traffic Impact Analysis*, and more specifically the definition of impacts in Section 5, *Definition of CMP Impacts* should be used in developing initial thresholds (e.g. change in intersection or lane volumes) to determine significant traffic impacts on a CMP roadway.

If initial assessment indicates that significant traffic impact on the CMP network may result from the proposed project, its sponsor must conduct traffic impact analysis consistent with this policy to determine traffic impacts on the CMP roadway system. Moreover, a travel demand forecasting model must be used to determine long-term traffic impacts if the project is to modify the CMP roadway. See "Travel Demand Forecasting" requirements below. For near term analysis, if the travel demand forecasting model does not provide the level of detail desired, then the use of manual assignment models, micro-simulation models or other tools to provide a more detailed and informative analysis of a roadway project is acceptable.

Mitigation:

Proposed roadway changes to the CMP roadway that are determined to have a CMP traffic impacts for current or future years cannot be considered in conformity with the Congestion Management Program unless mitigated to no CMP impact. This mandatory mitigation requirement applies only to roadway projects on the CMP network. More latitude is provided for mitigating impacts to the CMP network that result from local land use decisions as described in sections 2 and 3 of this policy.

CMP traffic impacts could be mitigated through modifications of the proposed project. The level of service analysis or simulation can often be used to identify elements of the project that, if modified, will reduce the project impacts.

Mitigation measures may also include roadway improvements, operational changes, or a provision for alternate routes. For example, adding a turn lane at the intersection, modifying or eliminating on street parking may improve travel times. All mitigation measures shall first be discussed with and reviewed by C/CAG staff.

This policy does not prohibit a local jurisdiction from mitigating impacts on local streets that result from congestion on a CMP roadway.

2. General Plan and Specific Plans

Project sponsor, in consultation with C/CAG staff, shall determine if a General Plan change or a Specific Plan will have potential traffic impacts on the Congestion Management Program (CMP) roadway network. Jurisdictions must conduct travel demand forecasting and traffic impact analysis to determine long term cumulative traffic impacts on the CMP roadway system. See "Travel Demand Forecasting" requirements below. For scope and parameters of traffic impact analysis, see Section 4. For definition of traffic impacts on the CMP system, see Section 5. If a jurisdiction makes small and incremental amendments to its General Plan to include land use changes, and that each individual land use change would not have CMP traffic impact, then flexibility is provided that the travel demand forecasting model needs to be run every two years to account for the cumulative list of projects and site specific General Plan changes.

Mitigation:
General Plan updates or Specific Plans that are determined to have CMP traffic impacts must consult C/CAG staff to identify feasible mitigations.

Cumulative development traffic impacts identified in the evaluation of a jurisdiction may be mitigated in a variety of ways. Clearly, revising the allowable land use intensities is the most direct way to mitigate traffic impacts to the CMP network. However, it is recognized that this may not be consistent with the jurisdiction's economic development plans. As alternatives, the jurisdiction may adopt a trip reduction policy that requires new development to make measurable reductions in their trip generation. These trip reduction requirements should be incorporated in the standard Conditions of Approval. The local jurisdiction should also implement a plan to monitor or sample actual trip generation to ensure that the trip reduction conditions are being met following project occupancy. Alternatively, jurisdictions may elect to provide capital improvements to reduce the traffic impact of cumulative development. To be viable, this type of mitigation must include a reliable funding mechanism such as a traffic mitigation fee program that includes, at a minimum, partial funding for the impacted CMP roadways. Where the impact is on the freeway system it will usually not be feasible to fully fund a needed improvement through a local fee. However, the fee program should provide a minimum of funding that would meet likely local share requirements, if approved by the jurisdiction.

All mitigation measures shall first be discussed with and reviewed by C/CAG staff before they are included in the report.

3. Land Use Development Projects

Project sponsor shall comply with the "Land Use Impact Analysis Program" guidelines in the latest Congestion Management Program (CMP) for San Mateo County. Project sponsors shall consult C/CAG staff regarding land use development projects that are determined to have traffic impacts on the CMP roadway network.

Mitigations:

Adopted General Plan trip reduction requirements should ultimately be implemented at the project level through Conditions of Approval. As with the General Plan mitigations, the trip reduction program should include a plan for monitoring trip generation and procedures to determine if established targets are met or exceeded. The option to reduce the intensity of a project to eliminate significant impacts to the CMP network should also be considered. If physical mitigation is desired, the jurisdiction should determine whether the project can and should be required to construct the mitigation project or whether funding the project's pro rata share is appropriate, and paid to the jurisdiction.

Travel Demand Forecasting Requirements

It is the intent of this policy that the cumulative traffic impacts to the CMP roadway system be evaluated consistently throughout the County. Toward this end, the C/CAG Countywide Travel Demand Forecasting Model must be used to forecast traffic demand for the analysis of the long-term cumulative traffic impacts of CMP roadway modification projects, General Plan updates, and Specific Area Plans.

Long Term Cumulative Analysis

The long-term cumulative analysis must be based on C/CAG or C/CAG derivative model forecasts. C/CAG will periodically update the model to provide travel demand forecasts under a 15 to 20 year planning horizon. This does not, necessarily require individual cumulative model runs for each land use development project. For example, a project that is consistent with the City's existing General Plan may not require a new model run. Previous General Plan consistent model results can be used. The alternative methods used for near term analysis or individual development projects as described in the next section may be used to modify the existing model results to illustrate conditions with and without the proposed project. If alternative methods are used to modify cumulative model forecasts, comparison must be made with long-range C/CAG model forecasts to ensure consistency. This type of minor adjustments to the C/CAG model results is permitted for individual land use development projects or minor changes to an existing General Plan. However new C/CAG model runs are required at least every two years[1], for

1 The biennial update of the C/CAG model runs can be postponed until they are needed for the analysis of a

Specific Plans and for major General Plan updates. Updating the C/CAG model runs is necessary to ensure that the cumulative impacts both within each jurisdiction as well as from neighboring jurisdictions are represented in the model results.

A C/CAG derivative model that is consistent with the C/CAG model may also be used; however, it must be reviewed and approved by C/CAG staff in advance. Derivative models must be updated periodically to maintain a 15 to 20 year planning horizon. Approval of a C/CAG derivative model includes the demonstration to C/CAG staff that the model yields similar output as the C/CAG model given the same input assumptions. In addition, the land use assumptions and transportation network assumptions incorporated in a C/CAG derivative model must be consistent with the most recent C/CAG model in order to be eligible for consideration. The C/CAG Countywide Travel Demand Forecasting Model runs must be reviewed by C/CAG. C/CAG may hire its travel demand model consultant to conduct the review, and costs incurred will be borne by the project sponsor.

Near Term Analysis

The use of C/CAG Countywide Travel Forecasting Model or a C/CAG derivative model is not mandatory for near term analysis of projects. The use of methodologies that are widely accepted by the traffic engineering profession such as applying established growth factors to existing traffic volumes, manual assignment models (e.g. TRAFFIX) are also allowable for these analysis scenarios. However, alternative methods for near term impact or individual development project analysis do not replace the requirement for a long-term cumulative impact analysis consistent with this Traffic Impact Analysis Policy.

C/CAG Review for Conformance

For roadway modification projects, C/CAG staff shall review for consistency with this Traffic Impact Analysis (TIA) policy and determine conformity with the Congestion Management Program (CMP).

For General Plan updates, Specific Plans, and land use development projects, C/CAG staff shall review TIA reports for consistency with this TIA policy. This review shall not constitute approval or disapproval of the project that is the subject of the report. C/CAG does not have the authority to approve or reject projects. That decision rests with the lead agency. However, the CMP establishes community standards and guidelines for consistent system-wide transportation review and provides comments to the lead agency on the TIA report based on staff review. Compliance with the Congestion Management Program may be enforced through the withholding of apportionments under Section 2105 of the Streets & Highways Code as well as declaring a local agency ineligible for future transportation funds.

development, planning or CMP roadway project. Therefore, in communities with limited development activity, the two-year-old model runs need only be updated when there is a land use or roadway project to be analyzed.

Section IV
SCOPE AND PARAMETERS FOR TRAFFIC IMPACT ANALYSIS (TIA)

Project sponsors must initiate consultation between the lead agency, C/CAG, Caltrans (if applicable), and those preparing the Traffic Impact Analysis (TIA) before commencing work on the study to establish the appropriate traffic impact analysis scope. At a minimum, the TIA should include the following:

A. Boundaries of the TIA

The boundaries of a TIA must not only include the immediate project area but also areas outside of the project area that may be impacted by the project. For example, the boundaries of an arterial segment, for analysis purposes, may be defined as at least one signalized intersection beyond the project limits on either end. If modification to a segment between intersections will affect the up-stream or down-stream intersection, then average travel time or average travel speed for a segment covering the up- and down-stream intersections must be analyzed.

Boundaries of a TIA must be agreed upon by the lead agency and C/CAG before commencing work on the analysis. Consultation with Caltrans is recommended, if applicable. However, if the project proposes to change a State owned facility, then the boundaries of analysis must be agreed upon by Caltrans as well.

B. Traffic Analysis Scenarios

Consultation between the lead agency, C/CAG, Caltrans (if applicable), and those preparing the TIA is recommended to determine the appropriate scenarios for the analysis. The following scenarios should be addressed as a minimum:

- Existing background condition (includes already approved developments and roadway network changes)
- Existing condition plus Project
- Future (15^2 to 20 year horizon) background without Project (no-build)
- Future (20 year horizon) background condition plus project

C. Analysis Period

Consultation between the lead agency, C/CAG, Caltrans (if applicable), and those preparing the TIA is recommended to determine the appropriate analysis periods. The TIA shall include, at a minimum, an analysis of transportation conditions in the AM and PM peak hours.

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2 20-year Model forecasts are assumed to be updated every 5 years so forecast horizon may be as short as 15 years.

D. Facilities To Be Included In the Analysis

1. A CMP intersection shall be included in a TIA if it is expected to be impacted by the proposed project.
2. A non-CMP intersection that is along a CMP segment shall be included in a TIA if it is expected to be impacted by the proposed project.
3. A freeway segment shall be included in a TIA if it is expected to be impacted by the proposed project.
4. A CMP arterial segment shall be included in a TIA if it is expected to be impacted by the proposed project.

E. Report Format

Traffic Impact Analysis reports must present findings for the various analysis scenarios and analysis periods as described above in the following units of measurement:

Intersections:	LOS and delay time
Freeway segments:	LOS and volume-to-capacity ratio
Arterial segments:	LOS and average travel speed

Section V
DEFINITION OF CMP IMPACT

A project is considered to have a CMP impact if it causes one or more of the following:

1. **CMP Intersection currently in compliance with the adopted LOS standard**:

   A. A project will be considered to have a CMP impact if the project will cause the CMP intersection to operate at a level of service that violates the standard adopted in the current Congestion Management Program (CMP).

   B. A project will be considered to have a CMP impact if the cumulative analysis indicates that the combination of the proposed project and future cumulative traffic demand will result in the CMP intersection to operate at a level of service that violates the standard adopted in the current Congestion Management Program (CMP) and the proposed project increases average control delay at the intersection by four (4) seconds or more.

2. **CMP Intersection currently not in compliance with the adopted LOS standard**:

   A project is considered to have a CMP impact if the project will add any additional traffic to the CMP intersection that is currently not in compliance with its adopted level of service standard as established in the CMP.

3. Freeway segments [3] currently in compliance with the adopted LOS standard:

   A. A project is considered to have a CMP impact if the project will cause the freeway segment to operate at a level of service that violates the standard adopted in the current Congestion Management Program (CMP).

   B. A project will be considered to have a CMP impact if the cumulative analysis indicates that the combination of the proposed project and future cumulative traffic demand will result in the freeway segment to operate at a level of service that violates the standard adopted in the current Congestion Management Program (CMP) and the proposed project increases traffic demand on the freeway segment by an amount equal to one (1) percent or more of the segment capacity, or causes the freeway segment volume-to-capacity (v/c) ratio to increase by one (1) percent.

4 Freeway segments currently not in compliance with the adopted LOS standard:

   A project is considered to have a CMP impact if the project will add traffic demand equal to one (1) percent or more of the segment capacity or causes the freeway segment volume-to-capacity (v/c) ratio to increase by one (1) percent, if the freeway segment is

3 Freeway segments are as defined in the Congestion Management Program Monitoring Program and are directional.

currently not in compliance with the adopted LOS standard.

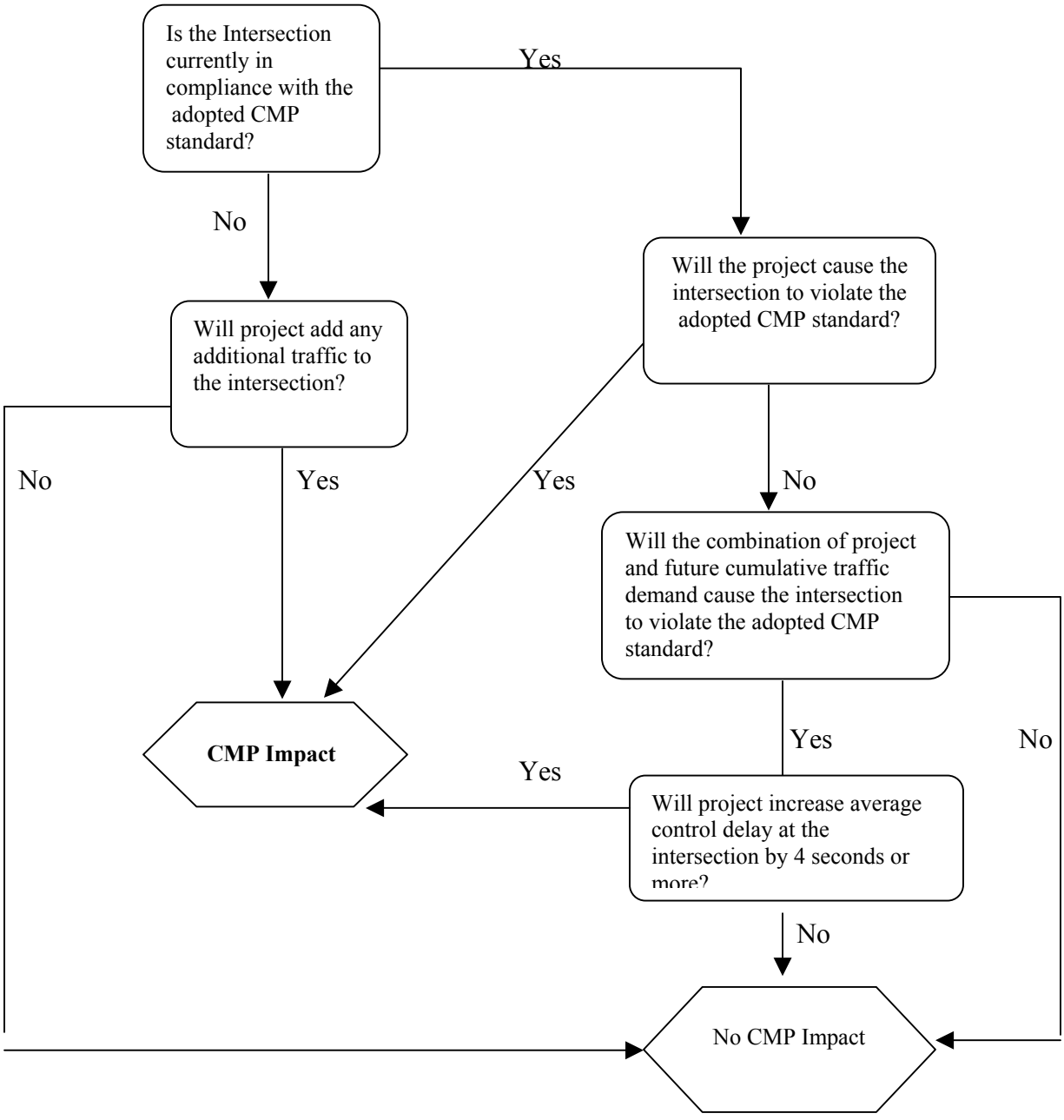
5 CMP Arterial Segments:

The analysis of arterial segments is only required when a jurisdiction proposes to reduce the capacity of a CMP designated arterial through reduction in the number of lanes, adding or modifying on-street parking, or other actions that will affect arterial segment performance.

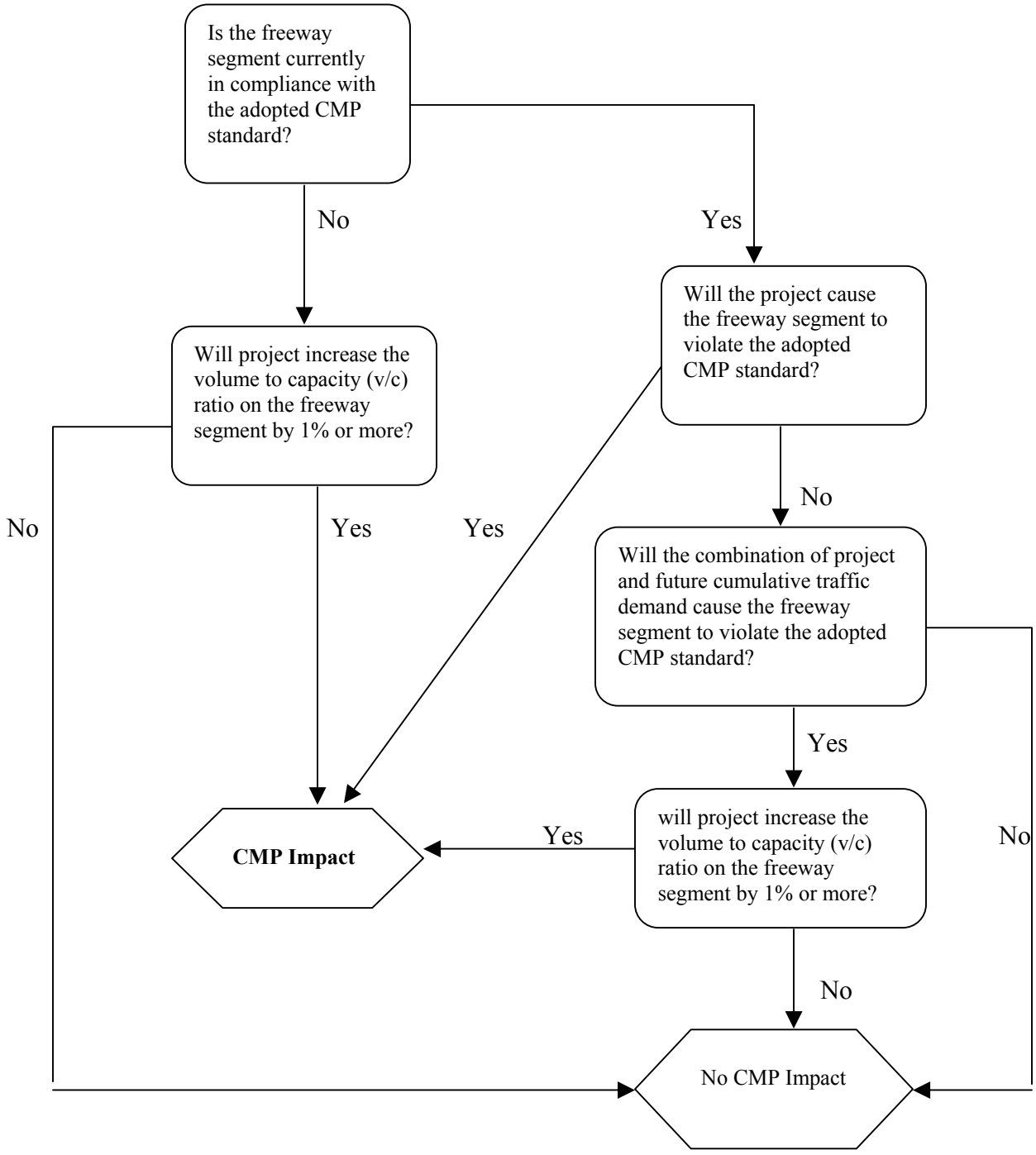
A project is considered to have a CMP impact if it causes mid-block queuing, parking maneuver resulting in delays or other impacts that result in any segment intersection to operate at a level of service that violates the adopted LOS standard set for the nearest CMP intersection.

Analysis of the segment using a calibrated micro-simulation model may be required by C/CAG staff to evaluate non-intersection impacts of the proposed project. CMP impact is determined if, based on the micro-simulation model, the average travel speed for the arterial segment is reduced by 4 miles per hour (mph) or more. Segments with average speeds that indicate LOS E or worse (based on Exhibit 15-2, HCM2000) cannot be modified by local jurisdictions if the proposed modifications would further reduce travel speeds on the segment.

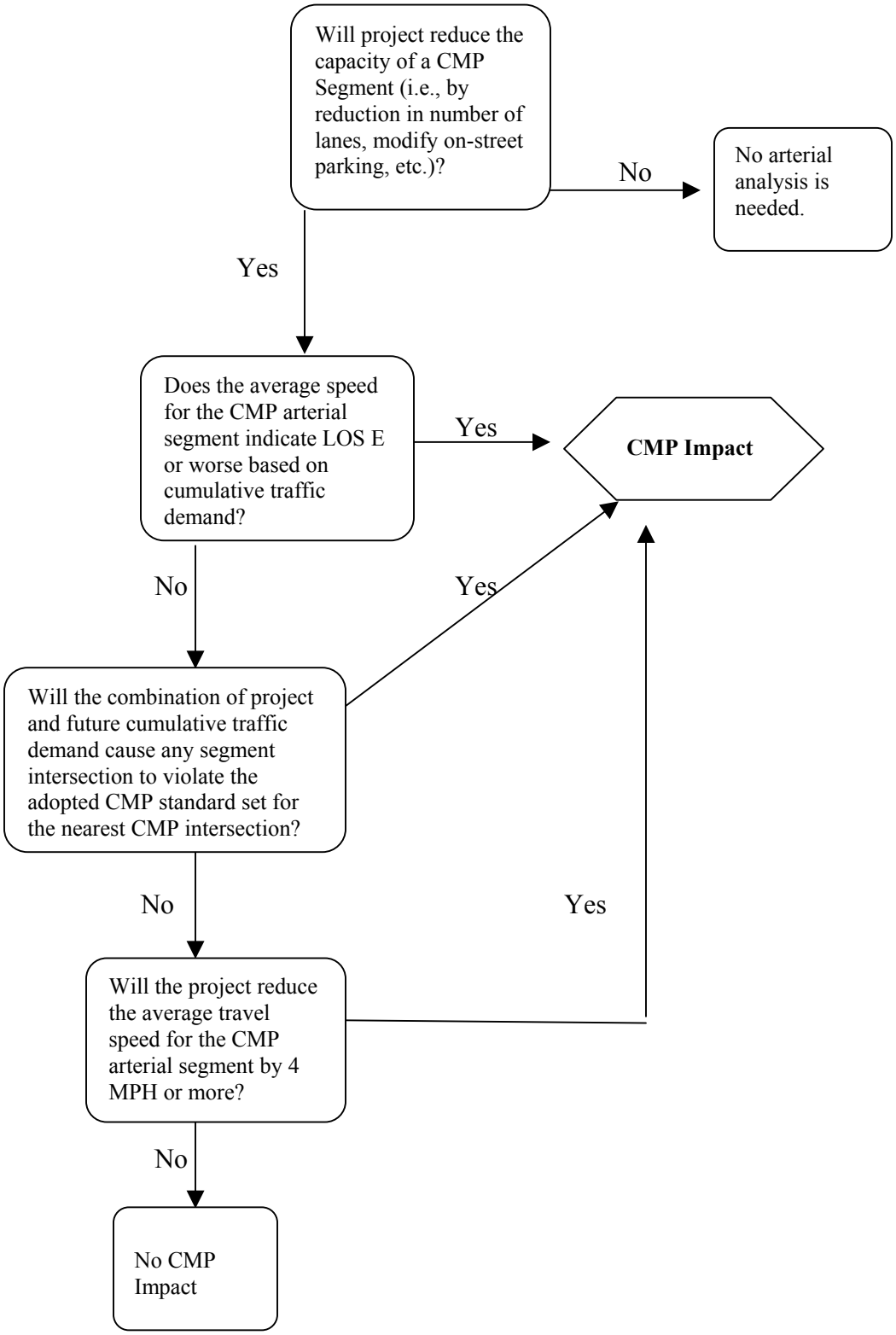
To determine CMP impact on a CMP Intersection



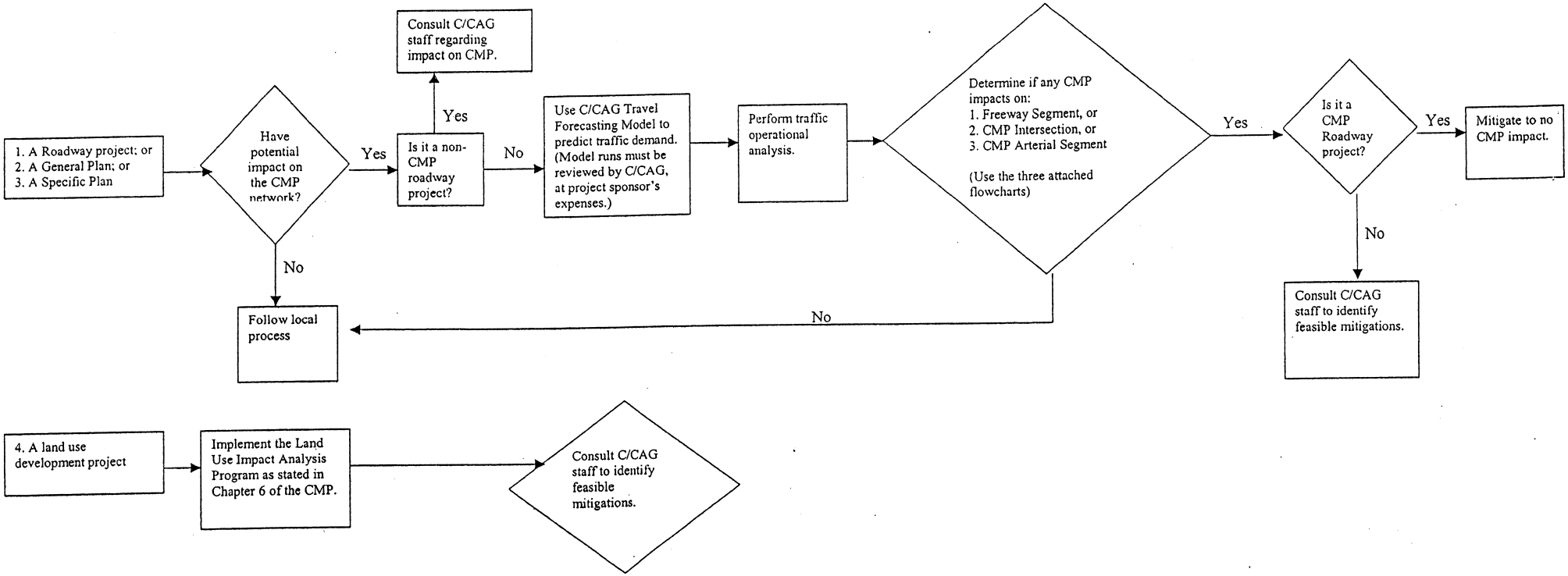
To determine CMP impact on a Freeway Segment



To determine CMP impact on Arterial Segment



Flow chart for traffic impacts on the congestion management program (CMP) roadway network



Appendix M: Measure M Implementation Plan

Measure M Implementation Plan

FY 2017-2021

Adopted by the C/CAG Board
May 12, 2016

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

PURPOSE OF THE IMPLEMENTATION PLAN

The Measure M Implementation Plan describes the various programs identified in the Expenditure Plan in more detail and established percentages of funds allocated to each of the Countywide Transportation Programs. The Implementation Plan also identifies specific projects and programs under each category that would be eligible to receive funds along with identifying the targeted performance measures for each activity. The Implementation Plan, which requires adoption by the C/CAG Board, is developed at the onset of the 25-Year Measure M Program and is updated every 5 years. This Implementation Plan covers the period from FY 2017 to FY 2021.

COLLECTION OF THE FEE

The $10 Vehicle Registration Fee (VRF) will be collected for a period of 25 years, beginning on May 2, 2011 and ending on May 1, 2036. Beginning approximately July 2011 and every month thereafter for the duration of the fee, the Department of Motor Vehicles (DMV) will issue C/CAG a monthly check for revenues collected from the prior month. The estimated revenue is $6.7 million annually and $33.5 million over the initial 5-year implementation period. This amount takes into consideration the DMV's administrative fee charge of approximately $0.005 (one-half of a cent) for each check issued to C/CAG.

IMPLEMENTATION STRATEGY (FY 2017 – 2021)

As indicated in the approved Measure M Expenditure Plan up to 5% of the proceeds is allocated for administration with 50% of the net revenue allocated to the Local Streets and Roads category and 50% of the net revenue allocated to the Countywide Transportation Programs which includes the following programs: Transit Operations and/or Senior Transportation, Intelligent Transportation System (ITS) and Smart Corridors, Safe Routes to Schools (SRTS), and National Pollutant Discharge Elimination System (NPDES) and Municipal Regional Permit.

The FY 2017–2021 Implementation Strategy is as follows:

PROGRAM ADMINISTRATION (Up to 5%)
▪ Allocation of funds to be taken off the top. ▪ A portion of the funds will be used for routine program administration activities. ▪ Any unused administration funds would be redistributed to the Local Streets and Roads and/or Countywide Program categories as appropriate.

LOCAL STREETS AND ROADS (50% of Net Revenue)

- Allocations to local jurisdictions (20 cities and the County) for congestion mitigation and stormwater pollution mitigation programs.
- Allocation to be on a cost reimbursement basis utilizing a distribution formula consisting of 50% population and 50% road miles for each jurisdiction modified for a minimum guaranteed amount of $75,000 for each jurisdiction. (Exhibit A)
- Allocations will be made two times a year, at a minimum every 6 months.
- Jurisdictions have the flexibility on use of the funds between the categories and projects; therefore, there are no requirements to split the funds evenly between the categories.
- Measure M should not be used to supplant existing city general funds.

Category	Programs/Projects Description	Performance Measure
Traffic Congestion Management	▪ Local Shuttles/transportation	▪ Number of passengers transported
	▪ Road resurfacing/reconstruction	▪ Miles/fraction of miles of roads improved
	▪ Deployment of local Intelligent Transportation System (ITS)	▪ Number of ITS components installed/ implemented
	▪ Roadway operations (e.g., restriping, signal timing / coordination, signage	▪ Miles/fraction of miles of roads improved
	▪ Replacement and/or upgrading of traffic signal hardware and/or software	▪ Number of units replaced and/or upgraded
Stormwater Pollution Prevention	▪ Street Sweeping	▪ Miles of streets swept
	▪ Roadway storm inlet cleaning	▪ Number of storm inlets cleaned
	▪ Street side runoff treatment	▪ Square feet of surfaces managed
	▪ Auto repair shop inspections	▪ Number of auto repair shops inspected
	▪ Managing runoff from street/parking lot	▪ Square feet of surfaces managed annually
	▪ Small capital projects such as vehicle related runoff management/controls	▪ Number of projects implemented
	▪ Capital purchases for motor vehicle related runoff management/controls	▪ Number of pieces of equipment purchased and installed

LOCAL STREETS AND ROADS (Continue)		
Category	**Programs/Projects Description**	**Performance Measure**
Stormwater Pollution Prevention (Cont'd)	▪ Additional used oil drop off locations ▪ Motor vehicle fluid recycling programs ▪ Installation of new pervious surface median strips in roadways ▪ Municipal Regional Permit Compliance Activities	▪ Number of locations implemented/ operated; oil quantity collected ▪ Number of programs implemented/ operated; fluid quantity collected ▪ Square footage of new pervious surface median strips installed ▪ Identification of permit provision(s) and compliance activities performed

COUNTYWIDE TRANSPORTATION PROGRAMS (50% of Net Revenue)

- Allocations for the four (4) Countywide Programs are as follows:
  - Transit Operations and/or Senior Transportation - 22%
  - Intelligent Transportation System (ITS) and Smart Corridors - 10%
  - Safe Routes to Schools (SRTS) Infrastructure - 6%
  - National Pollutant Discharge Elimination System (NPDES) and Municipal Regional Permit (MRP) for administration and projects - 12%
- Allocation to be on a cost reimbursement basis.
- Up to a maximum of 4% may be transferred between the ITS/Smart Corridors, SR2S, and NPDES/MRP within the 5-year period taking into consideration actual expenditures, unused allocations, program shortfalls, and program needs.
- The ITS and NPDES projects to be selected by a competitive "call for project" process.
- The Transit Operations and/or Senior Transportation programs to be sponsored by SamTrans or Caltrain. Proposed projects to be submitted to C/CAG annually for approval.
- The SRTS Infrastructure Program to be administered by the C/CAG. Funds will also be provided to County Office of Education (COE) as match for non-infrastructure projects.
- The ITS/Smart Corridors and NPDES/MRP Programs to be administered by C/CAG

Category	**Programs/Projects Description**	**Performance Measure**
Transit Operations and/or Senior Transportation	▪ SamTrans Paratransit operations and maintenance (Caltrain projects are also eligible)	▪ Operating costs and fare revenue; Usage; Operating Efficiency; Reliability and Safety; Customer satisfaction; Cost effectiveness
	▪ Senior Mobility Management projects that complement paratransit (e.g., Mobility Ambassadors, Van Sharing) ▪ Senior Mobility Education (e.g. Senior Mobility Guide, Website Management)	▪ Hours of service per month; number of trips per month; and number of individuals who ride in a given month ▪ Frequency of in-person presentations; number of individuals participated; increased activity on web page

COUNTYWIDE TRANSPORTATION PROGRAMS (Continue)		
Category	**Programs/Projects Description**	**Performance Measure**
ITS and Smart Corridors	▪ Deployment of projects having regional and countywide significance ▪ Maintenance and operations of the Smart Corridors specific equipment located within the San Mateo County jurisdictions' right-of-way	▪ Number of ITS components installed and implemented ▪ Number of instances and duration that the equipment (directional signs, CCTV, communications, power supply line and equipment) is inoperable; Operability and activation of equipment
SRTS	▪ San Mateo County SRTS Program includes infrastructure and non-infrastructure (education, outreach, encouragement, and evaluation activities)	▪ Number of schools participating in the Program; Number of projects (infrastructure and non-infrastructure)implemented

COUNTYWIDE TRANSPORTATION PROGRAMS (Continue)		
Category	**Programs/Projects Description**	**Performance Measure**
NPDES and MRP	▪ Street and Road Repair and Maintenance	▪ Number of guidance documents developed; area/length of roadways managed
	▪ Green Street projects	▪ Number of projects completed, area of impervious surface managed with low impact development measures
	▪ Control mobile sources	▪ Number of guidance documents developed, outreach events or materials distributed, or mobile source properly managed
	▪ Public outreach events	▪ Number of materials/events developed, distributed, and/or attended; Number of people contacted
	▪ Trash load reduction and hot spot cleanup	▪ Number of guidance documents developed; quantity of area addressed by trash management measures; amount of trash loading reduced/prevented through implementation of management measures
	▪ Vehicle brake pad pollution impacts	▪ Number of guidance documents developed and/or quantity of pollutants addressed by management measures
	▪ Municipal Regional Permit Compliance Activities	▪ Identification of permit provision(s) and compliance activities performed

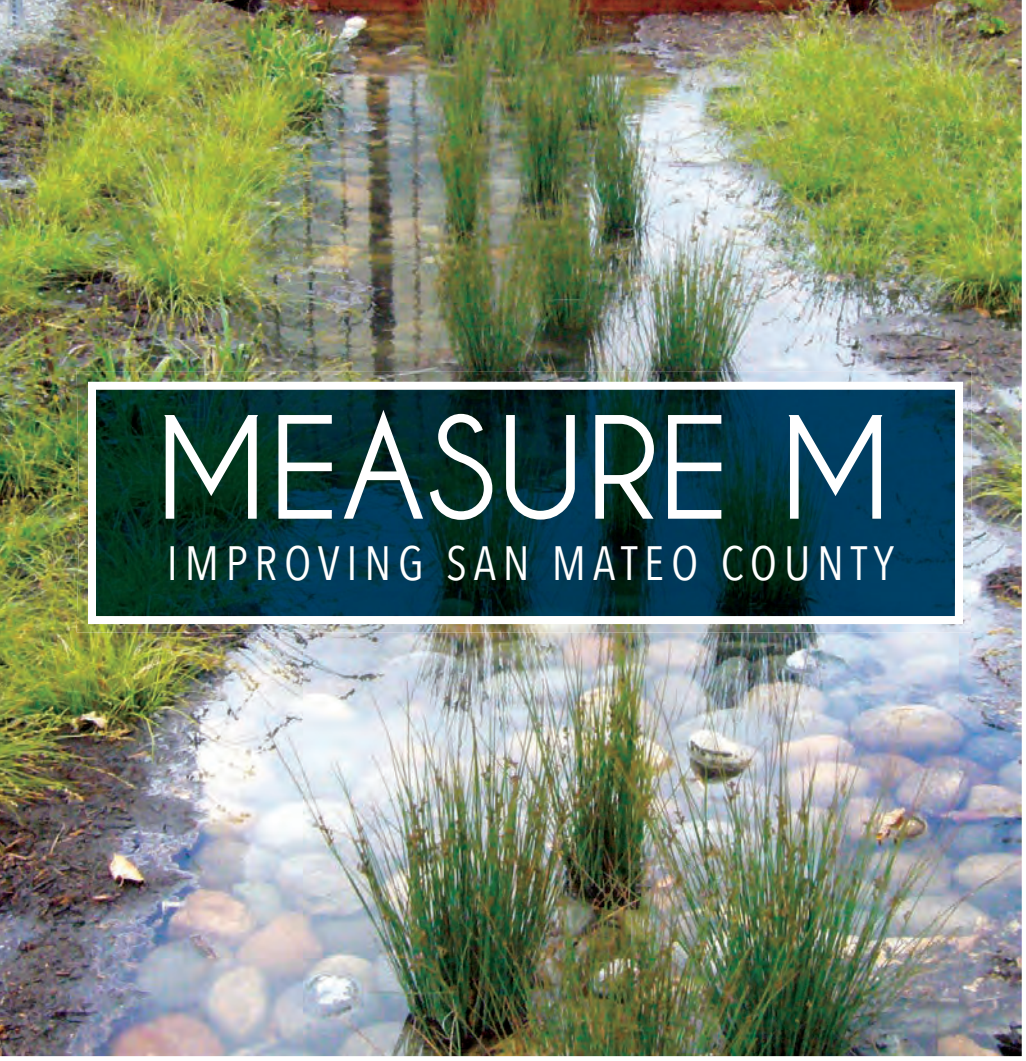
EXHIBIT A

The table below provides an estimated distribution for the Local Streets and Roads allocation based a formula consisting of 50% population and 50% road miles for each jurisdiction modified for a minimum guaranteed amount of $75,000 for each jurisdiction.

Jurisdiction	% of Total Allocation	Estimated Net Annual Revenue	Estimated Net 5-Year Revenue
Atherton	2.35%	$75,000	$375,000
Belmont	3.30%	$104,950	$524,750
Brisbane	2.35%	$75,000	$375,000
Burlingame	3.92%	$124,650	$623,250
Colma	2.35%	$75,000	$375,000
Daly City	9.71%	$309,000	$1,545,000
East Palo Alto	2.99%	$95,300	$476,500
Foster City	3.13%	$99,750	$498,750
Half Moon Bay	2.35%	$75,000	$375,000
Hillsborough	2.80%	$89,000	$445,000
Menlo Park	4.49%	$143,000	$715,000
Millbrae	2.71%	$86,400	$432,000
Pacifica	4.82%	$153,500	$767,500
Portola Valley	2.35%	$75,000	$375,000
Redwood City	8.96%	$285,350	$1,426,750
San Bruno	4.69%	$149,100	$745,500
San Carlos	3.98%	$126,750	$633,750
San Mateo	11.00%	$350,000	$1,750,000
South San Francisco	7.13%	$226,800	$1,134,000
Woodside	2.35%	$75,000	$375,000
San Mateo County	12.22%	$388,950	$1,944,750
Total	**100.00%**	**$3,182,500**	**$15,912,500**

Notes:

1. Population totals are updated based on the State of California Department of Finance estimates (2015)
2. Figures may be slightly off due to rounding off errors.
3. Assumes constant annual revenue over the 5-year Implementation Plan period.



MEASURE M

IMPROVING SAN MATEO COUNTY

5 YEAR PERFORMANCE REPORT | FISCAL YEARS 2012-2016

$10 VEHICLE REGISTRATION FEE

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

MEASURE M

Measure M, sponsored by the City/County Association of Governments of San Mateo County (C/CAG) and approved by the voters of San Mateo County in 2010, imposes an annual fee of ten dollars ($10) on motor vehicles registered in San Mateo County for transportation-related traffic congestion and water pollution mitigation programs. The revenue is estimated at $6.7 million annually over a 25 year period. Per the Expenditure Plan, 50% of the net proceeds will be allocated to the 20 cities and 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.

LOCAL STREETS AND ROADS:
$16.9 MILLION

TRANSIT OPERATIONS/SENIOR MOBILITY: **$7.4 MILLION**

SAFE ROUTES TO SCHOOL:
$2.0 MILLION

INTELLIGENT TRANSPORTATION SYSTEM (ITS)/SMART CORRIDOR: **$3.4 MILLION**

NPDES AND MUNICIPAL REGIONAL PERMIT ADMIN AND PROJECTS: **$4.1 MILLION**

FISCAL YEARS
2011-12 THROUGH 2015-16

Revenue

Collection of the $10 Vehicle Registration Fee (VRF) commenced in May 2011. As part of the initial 5 Year Implementation Plan, the annual program budget is estimated at $6.7 million with average monthly revenue of $560,000. The actual revenue received during the five year period of Fiscal Years 2011-12 through 2015-16 is $36.1 million with an average monthly revenue of approximately $586,000. The following table summarizes the actual revenue received by C/CAG through Fiscal Year 2015-16, and accrued interest income for each fiscal year to date. Interest is accumulated and is reallocated to the countywide programs in future years. The amount allocated to the various program categories is the total revenue received, excluding interest earned and after subtracting 5% from the top for program administration, as summarized below.

REVENUE	TOTAL TO DATE	FY 2011-12[1]	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Total VRF Collected	$36,220,414	$7,981,296	$6,849,938	$6,981,050	$7,155,362	$7,252,769
DMV Fees	($73,183)	($59,063)	($3,425)	($3,491)	($3,578)	($3,626)
To C/CAG	$36,147,231	$7,922,233	$6,846,513	$6,977,559	$7,151,784	$7,249,143
Interest[2]	$140,525	$24,342	$15,403	$45,226	$26,711	$28,843
TOTAL REVENUE	**$36,287,756**	**$7,946,575**	**$6,861,916**	**$7,022,785**	**$7,178,495**	**$7,277,986**
Administration						
Program Administration 5%	$1,807,362	$396,112	$342,326	$348,878	$357,589	$362,457
County Assessors Election Costs	($549,527)	($549,527)				
Net Available for Programs	$33,790,343	$6,976,594	$6,504,187	$6,628,681	$6,794,195	$6,886,685

1. FY 2011-12 Revenue includes fees collected in May and June 2011 2. Interest not included in distribution

ALLOCATION	TOTAL TO DATE	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Jurisdiction 50%	$16,895,171	$3,488,297	$3,252,094	$3,314,341	$3,397,097	$3,443,343
Local Streets and Roads (Traffic Congestion Management/ Stormwater Pollution Prevention)						
Programs						
Countywide Transportation Programs 50%	$16,895,171	$3,488,297	$3,252,094	$3,314,341	$3,397,097	$3,443,343
Transit Operations/ Senior Programs 22%	$7,433,875	$1,534,851	$1,430,921	$1,458,310	$1,494,723	$1,515,071
ITS / Smart Corridor 10%	$3,379,034	$697,659	$650,419	$662,868	$679,419	$688,669
Safe Routes to School 6%	$2,027,421	$418,596	$390,251	$397,721	$407,652	$413,201
NPDES and MRP Admin and Projects 12%	$4,054,841	$837,191	$780,502	$795,442	$815,303	$826,402
PROGRAM TOTAL	**$33,790,343**	**$6,976,594**	**$6,504,187**	**$6,628,681**	**$6,794,195**	**$6,886,685**

ALLOCATION AND EXPENDITURE

Program Administration

Funds allocated under this category pays for program management and administration activities. Over the 5-Year period, out of $1, 807,362 reserved for administration, $579,012 has been spent, which is approximately 30% of the available allocation (or 1.5% of the total revenue). Per the adopted Measure M 5-Year Implementation Plan, unexpended allocation for program administration will be reallocated to the countywide programs in future years, similar to the accumulated interest.

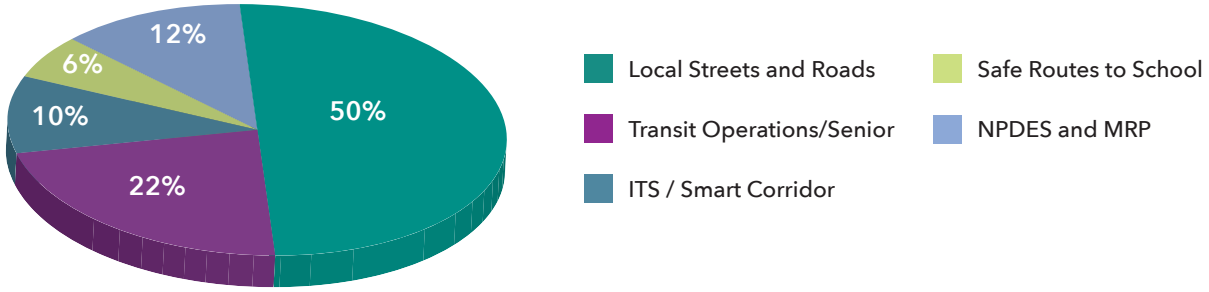
		REVENUE	EXPENDITURE	BALANCE
Administration (Excl. Interest)	**5%**	$1,807,362	($579,012)	$1,228,350

Local Streets and Roads / Countywide Transportation Programs

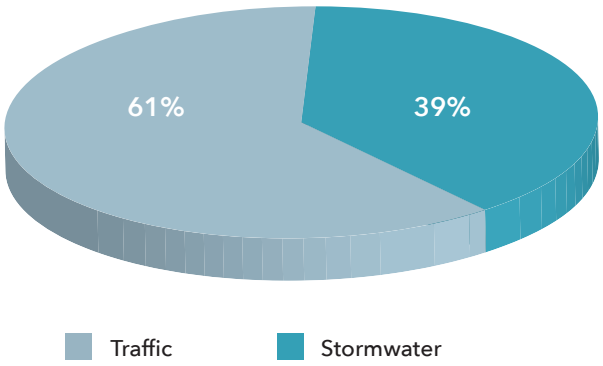
Net funds available over the 5-Year period for distribution, after subtracting five percent for program administration, and the actual expenditure for each program category is summarized in the table and pie chart below.

PROGRAMS	%	REVENUE	EXPENDITURE	ENCUMBRANCE	TO BE ALLOCATED
Local Streets and Roads	50%	$16,895,171	($15,137,534)	($1,757,637)	$0
Transit Operations/Senior	22%	$7,433,875	($7,000,000)	($433,875)	$0
ITS / Smart Corridor	10%	$3,379,034	($900,000)	($900,000)	$1,579,034
Safe Routes to School	6%	$2,027,421	($1,642,290)	($385,131)	$0
NPDES and MRP	12%	$4,054,841	($3,955,776)	($99,065)	$0
TOTAL		**$33,790,342**	**($28,635,600)**	**($3,575,708)**	**$1,579,034**

The balance indicated for Local Streets and Roads are allocations to be distributed to the jurisdictions. The balances for the countywide programs are encumbered for future projects.



PROGRAM ALLOCATION



Local Streets and Roads

Funds for local streets and roads are allocated to jurisdictions to reimburse expenditures related to traffic congestion management or stormwater pollution prevention related activities. Allocations are issued biennially for funds collected from July to December and from January to June of each fiscal year, after funds are collected for each six-month period. For the 5-Year period, C/CAG has allocated $16.9 million with $14.4 million claimed by the local jurisdictions. Sixty one percent (61%) of the total distribution has reimbursed jurisdictions for street resurfacing and congestion management related projects with 39% of the funds used to reimburse stormwater pollution prevention related activities such as street sweeping, storm drain inlet cleaning, and Municipal Regional Permit (MRP) compliance. The total allocations and reimbursements (through November 30, 2016) over the 5-Year period are as follows.

JURISDICTION	%	ALLOCATION	REIMBURSEMENT		
			STORMWATER	TRAFFIC	TOTAL
ATHERTON	2.36%	$398,158	$93,485	$304,673	$398,158
BELMONT	3.29%	$555,162	$90,601	$464,561	$555,162
BRISBANE	2.36%	$398,158	$230,700	$167,458	$398,158
BURLINGAME	3.95%	$667,141	$164,757	$502,384	$667,141
COLMA	2.36%	$398,158	$41,241	$117,606	$158,847
DALY CITY	9.62%	$1,624,479	$ -	$1,624,479	$1,624,479
EAST PALO ALTO	3.06%	$517,310	$ -	$64,709	$64,709
FOSTER CITY	3.12%	$526,773	$42,291	$484,482	$526,773
HALF MOON BAY	2.36%	$398,158	$ -	$317,011	$317,011
HILLSBOROUGH	2.81%	$474,726	$32,056	$390,512	$422,568
MENLO PARK	4.50%	$759,659	$357,371	$402,288	$759,659
MILLBRAE	2.74%	$462,109	$330,322	$81,015	$411,337
PACIFICA	4.84%	$816,971	$313,522	$247,871	$561,393
PORTOLA VALLEY	2.36%	$398,158	$93,317	$143,000	$236,317
REDWOOD CITY	8.82%	$1,490,420	$1,062,450	$264,217	$1,326,667
SAN BRUNO	4.76%	$804,354	$374,945	$429,409	$804,354
SAN CARLOS	4.03%	$681,335	$165,119	$441,357	$606,476
SAN MATEO	11.02%	$1,861,054	$598,277	$1,262,777	$1,861,054
SOUTH SAN FRANCISCO	7.17%	$1,211,262	$213,556	$997,706	$1,211,262
WOODSIDE	2.36%	$398,158	$78,588	$319,570	$398,158
SAN MATEO COUNTY	12.15%	$2,053,468	$1,570,989	$256,864	$1,827,853
TOTAL	**100%**	**$16,895,171**	**$5,853,587**	**$9,283,948**	**$15,137,534**

COUNTYWIDE TRANSPORTATION PROGRAMS

Transit Operations/Senior Mobility Programs

Funds for this category are currently used for paratransit (disabled and senior) service including Senior Mobility programs. C/CAG provides the San Mateo County Transit District (SamTrans) $1.4 million annually to partially fund the RediWheels and Senior Mobility programs. SamTrans' annual paratransit service budget is $15.4 million. The programs are summarized as follows:

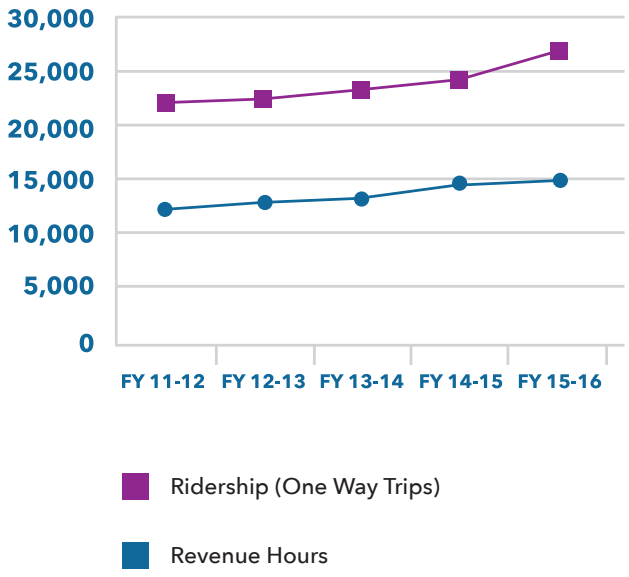
The Senior Mobility Program promotes and coordinates community transit; provides rides through community-based transportation; encourages the use of transit; provides information and assistance of older drivers; and promotes improvements to remove barriers to pedestrian activities by older adults.

The RediWheels program is a fixed-route paratransit service for persons with disabilities who cannot independently use regular SamTrans bus service. The RediWheels service is provided on the bayside of the County (RediCoast on the coast side). SamTrans offers paratransit customers a financial incentive to use the services by allowing ADA (American with Disabilities Act) certified customers and personal care attendants to ride all regular fixed-route SamTrans trips without paying a fare.

Performance measures to assess effectiveness of the RediWheels program regarding ridership and contractor are provided below.

REDIWHEELS

Program Performance



Data reflect entire RediWheels Program

SHUTTLE SERVICE	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Revenue Hours	12,284	12,986	13,387	14,615	14,906
Ridership (one way trips)	22,094	22,453	23,053	24,317	26,634
Individual Riding[1]	1,963	2,012	2,062	2,170	2,240
Cost Per Rider	$46.22	$47.69	$52.15	$48.30	$48.82

CONTRACTOR	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16
Productivity (Passengers/hr.) [Std. 1.7]	1.7	1.73	1.72	1.66	1.79
On Time Performance [90%]	88.7%	89.5%	90.5%	89%	90%
Complaints per thousand riders [2.5]	0.70	0.68	0.72	0.67	0.64
Telephone hold time (minutes) [1.5]	0.9	1.0	1.5	1.2	1.3

1. Number of enrolled individual RediWheels users who rode

Data reflect entire RediWheels Program

Intelligent Transportation System (ITS)/ Smart Corridor

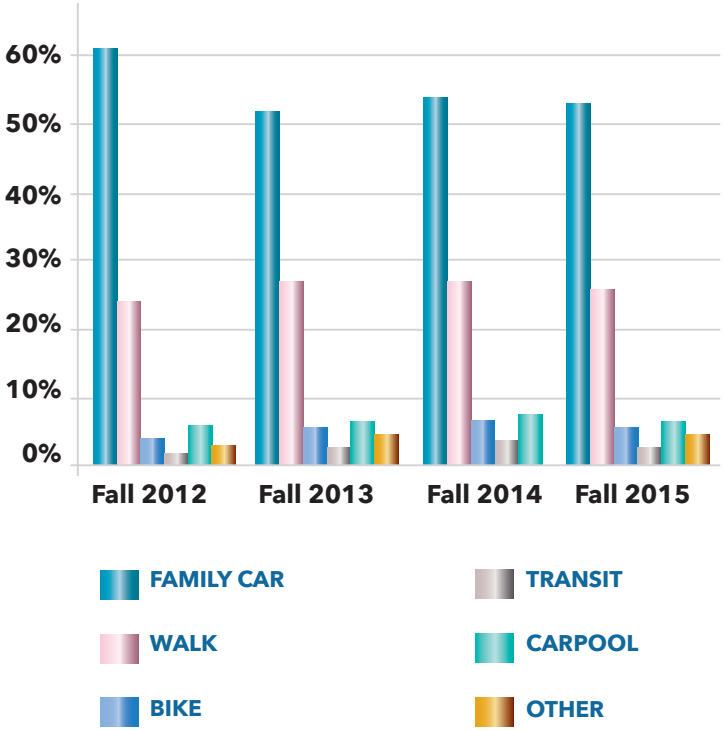
Funds are being accumulated under this program category to be used for the San Mateo County Smart Corridor project construction and maintenance in addition to funding other countywide ITS projects. The Smart Corridor project deploys and integrates ITS elements, including communication network, signal system upgrade, signage and close circuit cameras along state routes (El Camino Real) and major local streets enabling Caltrans and local cities to implement strategies to manage recurring and non-recurring traffic congestion to reduce delays and improve mobility. The completed project segments are located from I-380 to the Santa Clara County line and includes local arterials connecting US 101 and SR 82 (El Camino Real).

A total of $900,000 of Measure M was spent towards the design and construction of the $35 million Smart Corridor project. For other ITS projects within the County, an assessment will be performed to identify needs for San Mateo County for the next years and beyond.

PARTICIPATION	TOTAL
School Districts	18
Individual Schools	133
Students	Over 57,700

ACTIVITIES/EVENTS	TOTAL
Educational Bicycle Rodeos	735
Assemblies and Classes	3,090
Encouragement Events	2,769
Walk and Bike Audits	181
Route Maps	194

SRTS MODE SPLIT TO SCHOOL (2012-2015)



Safe Routes to School (SRTS)

The San Mateo County SRTS Program is a countywide effort to promote activities that increase the number of students walking, biking and carpooling to schools as ways of reducing traffic congestion around schools and improving air quality with the co-benefit of promoting students' health and fitness. The program has focused on non-infrastructure project outreach activities such as education, encouragement, and evaluation. C/CAG subcontracts to the San Mateo County Office of Education for the day-to-day program management. The overall SRTS Program, funded by a combination of STP/CMAQ and matching funds from Measure M, is budgeted at approximately $1 million annually with 25% reserved for administration and indirect costs and 75% of the funds provided to the schools in the form of grants.

Funding is provided to schools for non-infrastructure projects such as outreach and education activities and walkability/bikability audits. Typical non-infrastructure projects include walking and bicycle audits and student education such as bike rodeos, safety assemblies, pedestrian safety, and development of educational videos. Schools are also implementing walking school buses, bike trains/carpools, and parking lot management. Encouragement events include Walk and Roll Wednesdays/Fresh Air Fridays, Bike to School Day, Walk to School Day, and various contests.

Measure M funds also support small capital infrastructure projects located on school sites such as signage, safety measures within school parking lots, bike lockers/racks, and other improvements addressing bicyclist and pedestrian access to/from school as well as promoting safe driving practices. Through the first five years of the Program (FY 2011-12 through FY 2015-16), $3.5 million in grants have been awarded to schools, an average of $705,000 per year. A summary of participants and types of activities provided are as follows:

C/CAG partnered with the San Mateo-Foster City School District and City of San Mateo to facilitate and fund the design and construct of the Laurel Elementary School Sustainable Stormwater and Safe Routes to School Project. The project, which demonstrates an integrated approach of merging safe routes to school improvements and stormwater pollution prevention management, included construction of infrastructures within and around the school to improve access for children walking or bicycling to school as well as vehicle movements, at the same time incorporating elements for the capture and treatment of stormwater runoff from impervious areas such as streets and parking lots, Increased landscaping and trees resulting in a more aesthetically pleasing environment.

National Pollutant Discharge Elimination System (NPDES)/Municipal Regional Permit (MRP)

Funds accumulating under this program category are designated for pollution mitigation programs and projects, as allowed under Measure M's authorizing legislation, Government Code Section 65089.20. The C/CAG Board authorized unrestricted use of these funds for Municipal Regional Permit compliance activities in May 2012. As such, these funds are being directed toward countywide compliance activities through C/CAG's Countywide Water Pollution Prevention Program, primarily for technical consultant costs for regulatory compliance support programs. Use of funds varies from year to year based on the level of technical support needed to meet each year of Municipal Regional Permit compliance. Measure M funds supplement other revenue to the Countywide Water Pollution Prevention Program and generally cover half of the Countywide Program's consultant costs each year.

C/CAG utilizes Measure M funding, $4 million from FY 2012-13 to FY 2015-16 (approximately $1 million annually) for consultant support in meeting Municipal Regional Permit requirements which includes the following technical support activities: Water quality monitoring, Mercury/PCBs controls, Trash load reduction, Public information and outreach, General education/training/guidance/regional involvement & coordination, and Annual reporting.

Overall, Measure M funds in this program category have helped ensure C/CAG's member agencies stay in compliance with requirements in the MRP. C/CAG performs all of the mandated water quality monitoring in San Mateo County, the majority of stormwater-related public education and outreach, and significant efforts to support member agencies in achieving mandated reductions in mercury and PCBs (polychlorinated biphenyls), trash, and urban pesticides. In addition, Measure M funds support C/CAG's consultant efforts to educate and train member agency staffs in implementing their local stormwater control programs, as well as support annual reporting of regional, countywide, and local stormwater management efforts.

In 2015-16, C/CAG also began supporting its member agencies with requirements to develop Green Infrastructure Plans and a countywide Stormwater Resource Plan, including applications for state grant funds. Many of these efforts would have to be eliminated or significantly reduced without Measure M funds.

ABOUT CITY/COUNTY ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY (C/CAG)

C/CAG deals with issues that affect the quality of life in general; transportation, air quality, stormwater runoff, hazardous waste, solid waste and recycling, and land use near airports.

C/CAG operates as a Joint Powers Authority and has membership that includes each of the 20 cities and the County in San Mateo County.

AIRPORT LAND USE COMMISSION:
ALUCP - Airport Land Use Compatibility Plan

CONGESTION MANAGEMENT AGENCY (CMA):
Congestion Management Program
Countywide Transportation Plan

INTEGRATED SOLID WASTE MANAGEMENT LOCAL TASK FORCE:
Integrated Solid Waste Management Planning

PROGRAM MANAGER FOR AB434 40% FUNDS (TRANSPORTATION FUND FOR CLEAN AIR):
Expenditure Program for San Mateo County

PROGRAM MANAGER FOR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES):
Stormwater Management Plan

555 COUNTY CENTER, 5TH FLOOR | REDWOOD CITY, CA 94063 | (650) 599-1406 | WWW.CCAG.CA.GOV

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

Appendix N: MTC Guidance for Consistency of Congestion Management Programs with the Regional Transportation Plan

Metropolitan Transportation Commission
Planning Committee

June 14, 2019 **Agenda Item 2b**

MTC Resolution No. 3000, Revised – Congestion Management Program Policy

Subject: Approval of revisions to MTC's Congestion Management Program Policy to inform the Bay Area's County Transportation Agencies (CTAs) (also known as "Congestion Management Agencies" or "CMAs") on how MTC intends to make a finding of consistency between each prepared 2019 Congestion Management Program (CMP) and Plan Bay Area 2040, the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS).

Background: CMPs were established by State law in 1990 with the intention of creating a cooperative context for transportation planning by cities and their respective CTAs. A primary intent of CMPs is to monitor county multi-modal transportation networks and identify improvements to the performance of these multi-modal systems. The CMPs primary performance measure is vehicle delay presented as Level of Service (LOS) A through F.

The CMPs are prepared biennially (odd years). However, CMPs are not required in a county if a majority of local governments representing a majority of the population adopt resolutions electing to be exempt from this requirement (AB 2419 (Bowler) Chapter 293, Statutes of 1996). Jurisdictions throughout the state have chosen to opt out of the CMP process as provided for in the law, including San Diego, Fresno, Santa Cruz, and San Luis Obispo counties. Los Angeles County began the opt out process in 2018. MTC has encouraged local consideration of the opt out process, noting that the CMP legislation is outdated and the CMP's primary measure – LOS – has largely been superseded by other statewide priorities to reduce vehicle miles ("VMT") and reduce greenhouse gas emissions. Instead, MTC has encouraged CTAs to focus limited planning resources on Countywide Transportation Plans (CTP) as a more flexible, comprehensive, and inclusive planning process to identify and reflect local funding priorities, and to focus on coordination with MTC staff on the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS).

Revisions to the Guidelines
Staff revised Attachments A and B of MTC Resolution No. 3000, Revised, to reflect updated federal and state regulatory settings and the adoption of Plan Bay Area 2040, to clarify how MTC will make a finding of consistency between each prepared CMP and Plan Bay Area 2040, to update the Travel Demand Modeling Checklist, to reference the latest release of the Highway Capacity Manual, and to reflect minor updates to descriptive language.

MTC's Responsibility
For each prepared CMP, MTC's responsibilities include making a finding of consistency between the CMP and the RTP/SCS (currently "Plan Bay Area 2040"), evaluating the consistency and compatibility of the CMPs in the Bay Area, and including CMP projects into the Regional Transportation Improvement Program (RTIP). For counties that opt out of preparing a CMP, MTC will work directly with the respective CTA to reflect project priorities from an adopted

Capital Improvement Program (CIP) and are consistent with Plan Bay Area 2040 for RTIP funding.

Next Steps
In fall 2019, CTAs will submit their 2019 CMP and their respective project priorities for consideration into the 2020 RTIP. MTC will then begin its consistency review before submitting the final 2020 RTIP priorities to the California Transportation Commission by December 15, 2019. See Table 1 for a summary of the 2019 CMP review process.

Issues: The CMP legislation and ensuing process is outdated and its primary measure – LOS – is out of step with more recent statewide guidance. In response, MTC envisions a future redrafting of the CMP Policy in advance of the 2021 CMPs to re-assess what it means to be consistent with the RTP/SCS. There are two primary ways in which CTA's develop short and long-range transportation project priorities to support regional planning and programming efforts, the CMP and the CTP. Currently, six of the nine Bay Area counties prepare both a CMP and CTP, and the two counties that are not required to prepare CMPs prepare CTPs. Given this redundancy, MTC may want to seek legislative action to revisit the CMP statutes and one modern comprehensive planning process, as the CTP are also established under state statute.

Recommendation: MTC Resolution No. 3000, Revised, delegates to this Committee the responsibility for approving revisions to the CMP Guidance (MTC Resolution No. 3000, Revised). Staff recommends that the Committee approve the revisions to Attachments A and B of MTC Resolution No. 3000, Revised, for the purpose of providing guidance for the development of the 2019 CMPs consistent with Plan Bay Area 2040.

Attachments: Attachment A: Table 1: 2019 CMP Schedule
Attachment B: MTC Resolution No. 3000, Revised

Therese W. McMillan

Table 1. 2019 CMP Review Process and Schedule

Date	Activity	Responsible Party
June 14, 2019	Approval of updates to CMP Policy	MTC's Planning Committee
October 2019	CMAs submit 2019 CMP, RTIP projects summary listings, and identification of projects requiring project-level performance measure analysis to MTC. Deadline to submit Complete Streets Checklist for new projects.	CTAs
October 2019	• Submittal of CMPs for counties that prepare CMPS • Review of consistency of CMPs with Plan Bay Area 2040 (RTP/SCS)	MTC staff
November 2019	Final Project Programming Request (PPR) forms due to MTC. Final RTIP project listing and performance measure analysis due to MTC. Final PSR (or PSR equivalent), Resolution of Local Support, and Certification of Assurances due to MTC (final complete applications due)	CTAs
December 11, 2019	Programming & Allocations scheduled review of RTIP and referral to Commission for approval	MTC's Programming & Allocations Committee
December 15, 2019	2020 RTIP due to the California Transportation Commission (CTC) (PAC approved project list will be submitted)	MTC staff
December 18, 2019	MTC's scheduled Consistency Findings on 2019 CMPs MTC's scheduled approval of the 2020 RTIP	MTC Commission

Date: June 25, 1997
W.I.: 30.5.10
Referred By: WPC
Revised: 06/11/99-W 05/11/01-POC
06/13/03-POC 06/10/05-POC
05/11/07-PC 05/08/09-PC
06/10/11-PC 07/12/13-PC
10/09/15-PC 06/14/19-PC

ABSTRACT

Resolution No. 3000, Revised

This resolution revises MTC's Guidance for Consistency of Congestion Management Programs with the Regional Transportation Plan (RTP).

This resolution supersedes Resolution No. 2537

Attachments A and B of this resolution were revised on June 11, 1999, to reflect federal and state legislative changes established through the passage of the Transportation Equity Act of the 21st Century and SB 45, respectively. In addition, the Modeling Checklist has been updated.

Attachments A and B of this resolution were revised on May 11, 2001, to reflect state legislative changes and to reference updated demographic and forecast data.

Attachments A and B of this resolution were revised on June 13, 2003, to reflect state legislative changes, 2001 RTP goals and policies, and to reference updated demographic and forecast data.

Attachments A and B of this resolution were revised on June 10, 2005, to reflect the updated RTP goals, as per Transportation 2030, and to reference updated demographic and forecast data.

Attachments A and B of this resolution were revised on May 11, 2007, to reflect federal legislative changes established through the passage of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA), and to reference new State Transportation Control Measures and updated demographic and forecast data.

Attachments A and B of this resolution were revised on May 8, 2009, to reflect MTC's new RTP (Transportation 2035 Plan), an updated Travel Demand Modeling Checklist, and revised Resolution 3434 and TOD policy.

Attachments A and B of this resolution were revised on June 10, 2011, to reflect the new regional coordinated land use and transportation planning process as directed through SB 375, an updated Travel Demand Modeling Checklist, the newly released Highway Capacity Manual 2010, the Bay Area 2010 Ozone Strategy, and updates to the table noting achievement of the Transit Oriented Development requirements by Resolution No. 3434 transit extension project.

Attachments A and B of this resolution were revised on July 12, 2013, to reflect the new RTP (Plan Bay Area) and the statutory requirements in MAP-21 for RTP and air quality conformity requirements.

Attachments A and B of this resolution were revised on October 9, 2015, to reflect the final Plan Bay Area document, revisions to the Modeling Consistency Requirements and Transportation Control Measures, and to include minor updates to descriptive language.

Attachments A and B of this resolution were revised on June 14, 2019, to reflect updated federal and state regulatory settings and the Bay Area's new RTP/SCS (Plan Bay Area 2040), clarifications to the manner in which MTC will make a finding of consistency with PBA 2040, revisions to the Travel Demand Modeling Checklist, the newly released Highway Capacity Manual 2016, and to include minor updates to descriptive language.

Date: June 25, 1997
W.I.: 30.5.10
Referred By: WPC

Re: Congestion Management Program Policy.

METROPOLITAN TRANSPORTATION COMMISSION
RESOLUTION NO. 3000

WHEREAS, the Metropolitan Transportation Commission (MTC) is the regional transportation planning agency for the San Francisco Bay Area pursuant to Government Code Sections 66500 et seq; and

WHEREAS, Government Code § 65080 requires each transportation planning agency to prepare a regional transportation plan and a regional transportation improvement program directed at the achievement of a coordinated and balanced regional transportation system; and

WHEREAS, Government Code § 65089 requires a designated local agency in each urbanized county to develop, adopt, and periodically update a congestion management program for the county and its included cities unless a majority of local governments in a county and the county board of supervisors elect to be exempt; and requires that this congestion management program be developed in consultation, among others, with the regional transportation planning agency; and

WHEREAS, Government Code § 65089.2 requires that, for each congestion management program prepared, the regional transportation planning agency must make a finding that each congestion management program is consistent with the regional transportation plan, and upon making that finding shall incorporate the congestion management program into the regional transportation improvement program; and

WHEREAS, Government Code § 65082 requires that adopted congestion management programs be incorporated into the regional transportation improvement program approved by MTC; and

WHEREAS, MTC has adopted a Congestion Management Program Policy (MTC Resolution 2537, Revised) to provide guidance for all the counties and cities within the region in preparing their congestion management programs; and,

WHEREAS, MTC's Congestion Management Program Policy needs to be updated from time to time to provide further guidance, now, therefore, be it

RESOLVED, that MTC adopts the Congestion Management Program Policy, as set forth in Attachments A and B to this resolution, which are incorporated herein by reference; and, be it further

RESOLVED, that the MTC Work Program Committee is delegated the responsibility for approving amendments to Attachments A and B; and, be it further

RESOLVED, that this resolution shall be transmitted to the nine Bay Area Congestion Management Agencies for use in preparing their congestion management programs; and, be it further

RESOLVED, that MTC Resolution No. 2537, Revised is hereby superceded.

METROPOLITAN TRANSPORTATION COMMISSION

_____

Jane Baker, Chairwoman

The above resolution was entered into
by the Metropolitan Transportation
Commission at a regular meeting of the
Commission held in Oakland,
California, on June 25, 1997.

Date: June 25, 1997
W.I.: 30.5.10
Referred By: WPC
Revised: 06/11/99-W 05/11/01-POC
06/13/03-POC 06/10/05-POC
05/11/07-PC 05/08/09-PC
06/10/11-PC 07/12/13-PC
10/09/15-PC 06/14/19-PC

GUIDANCE FOR CONSISTENCY OF

CONGESTION MANAGEMENT PROGRAMS

WITH THE REGIONAL TRANSPORTATION PLAN

Metropolitan Transportation Commission

June 2019

Title Page

GUIDANCE FOR CONSISTENCY OF CONGESTION MANAGEMENT PROGRAMS WITH THE REGIONAL TRANSPORTATION PLAN

TABLE OF CONTENTS

Abbreviations

AB ..... Assembly Bill
ABAG ..... Association of Bay Area Governments
BAAQMD ..... Bay Area Air Quality Management District
BCDC ..... Bay Conservation and Development Commission
CFR ..... Code of Federal Regulations
CIP ..... Capital Improvement Program
CMA ..... Congestion Management Agency
CMP ..... Congestion Management Program
CTC ..... California Transportation Commission
FAST ..... Fixing America's Surface Transportation Act
GHG ..... Greenhouse Gas (CO_2)
HCM ..... Highway Capacity Manual
ITIP ..... Interregional Transportation Improvement Program
LOS ..... Level of Service
MPO ..... Metropolitan Planning Organization
MTC ..... Metropolitan Transportation Commission
MTP ..... Metropolitan Transportation Plan
PCA ..... Priority Conservation Area
PDA ..... Priority Development Area
RMWG ..... Regional Model Working Group
RTIP ..... Regional Transportation Improvement Program
RTP/SCS ..... Regional Transportation Plan/Sustainable Communities Strategy
RTPA ..... Regional Transportation Planning Agency
SB ..... Senate Bill
TCM ..... Transportation Control Measures
TOD ..... Transit Oriented Development
TPA ..... Transit Priority Area
UGB ..... Urban Growth Boundary

I. INTRODUCTION

A. Purpose of This Guidance

The Congestion Management Program (CMP) statutes establish specific requirements for the content and development process for CMPs; the relationship between CMPs and the regional transportation planning process; Congestion Management Agency (CMA) monitoring and other responsibilities; and, the responsibilities of MTC as the Bay Area's Regional Transportation Planning Agency (RTPA) and Metropolitan Planning Organization (MPO). CMPs are not required to be prepared in counties where a majority of local governments representing a majority of the county's population and the Board of Supervisors adopt resolutions requesting to be exempt from this requirement (AB 2419 (Bowler) Chapter 293, Statutes of 1996). The following Guidance is for those counties that prepare a CMP following state statutes. For counties that opt out of preparing a CMP, MTC will work directly with the appropriate county transportation agencies to establish project priorities for funding.

CMP statutes specify responsibilities for MTC as the Bay Area's RTPA/MPO. These responsibilities include: reviewing the consistency between each CMP and the Regional Transportation Plan (RTP) – which encompasses the Bay Area's Sustainable Communities Strategy (SCS) demonstrating how the region could achieve state greenhouse gas (GHG) emission reduction targets; evaluating the consistency and compatibility of the CMPs in the Bay Area; and, including CMP projects into the Regional Transportation Improvement Program (RTIP).

The purpose of this Guidance is to focus on MTC's role in determining consistency between the CMPs and the region's RTP/SCS (herein also referred to as "Plan Bay Area 2040").

B. Legislative Requirement for Congestion Management Programs

CMPs were established as part of a bi-partisan legislative package in 1989 and approved by the voters in 1990. This legislation also increased transportation revenues and changed state transportation planning and programming processes. The specific CMP provisions were originally chartered by the Katz-Kopp-Baker-Campbell Transportation Blueprint for the Twenty-First Century by AB 471 (Katz); (Chapter 106, Statutes 1989). They were revised by AB 1791 (Katz) (Chapter 16, Statutes of 1990), AB 3093 (Katz) (Chapter 2.6, Statutes of 1992), AB 1963 (Katz) (Chapter 1146, Statutes of 1994), AB 2419 (Bowler) (Chapter 293, Statutes of 1996), AB 1706 (Chapter 597, Statutes of 2001), and SB 1636 (Figueroa) (Chapter 505, Section 4, Statutes of 2002), which defines and incorporates "infill opportunity zones." The provisions regarding establishing new "infill opportunity zones" have now expired, but established infill opportunities zones are still subject to the statutes.

CMP statutes establish requirements for local jurisdictions to receive certain gas tax subvention funds. Additionally, CMPs play a role in the development of specific project proposals for the RTIP.

C. The Role of CMPs in the Regional Transportation Planning Process

CMPs can play a role in the countywide and regional transportation planning processes (although these functions can be achieved without an official CMP as well):

- CMPs can be used to identify near-term projects to implement the long-range vision established in a countywide transportation plan.
- Through CMPs, the transportation investment priorities of the multiple jurisdictions in each county can be addressed in a countywide context.
- CMPs can be used to establish a link between local land use decision making and the transportation planning process.
- CMPs can be used as a building block for the federally required Congestion Management Process[1].

II. MTC's ROLE & RESPONSIBILITIES

A. MTC's Responsibilities Regarding CMPs

MTC's direct responsibilities under CMP statutes are concentrated in the following provisions:

> ***"The regional agency shall evaluate the consistency between the program (i.e., the CMP) and the regional transportation plans required pursuant to Section 65080. In the case of a multicounty regional transportation planning agency, that agency shall evaluate the consistency and compatibility of the programs within the region.*** (Section 65089.2 (a))
>
> ***The regional agency, upon finding that the program is consistent, shall incorporate the program into the regional transportation improvement program as provided for in Section 65082. If the regional agency finds the program is inconsistent, it may exclude any project in the congestion management program from inclusion in the regional transportation improvement program.*** (Section 65089.2(b))
>
> ***It is the intent of the Legislature that the regional agency, when its boundaries include areas in more than one county, should resolve inconsistencies and mediate disputes which arise between agencies related to congestion management programs adopted for those areas."*** Section 65089.2.(d)(1))

B. The RTP Regulatory Setting

Federal Requirements

The primary federal requirements regarding RTPs are addressed in the metropolitan transportation planning rules in Title 23 of the Code of Federal Regulations (CFR) Part 450 and 500 and Title 49 CFR Part 613. These federal regulations have been updated to reflect the

[1]See the following link for more information on the federal Congestion Management Process, https://ops.fhwa.dot.gov/plan4ops/focus_areas/cmp.htm

metropolitan transportation planning regulations called out in 2015's federal transportation bill, Fixing America's Surface Transportation Act (FAST). Under FAST, the U.S. Department of Transportation requires that MPOs, such as MTC, prepare long-range Metropolitan Transportation Plans (MTPs) and update them every four years if they are in designated "nonattainment" or "maintenance" areas for federal air quality standards.

State Requirements

California Government Code Section 65080 sets forth the state's requirements for RTPs. Section 65080 requires MPOs located in air quality nonattainment regions update their RTPs at least every four years.

The regional agencies, the Association of Bay Area Governments (ABAG), the Bay Area Air Quality Management District (BAAQMD), and the Bay Conservation and Development Commission (BCDC), assist MTC in addressing the requirements flowing from California's Sustainable Communities and Climate Protection Act (Sustainable Communities Act, SB 375, Chapter 728, Statutes of 2008), which requires each of the state's 18 metropolitan areas, including the Bay Area, to reduce GHG emissions from cars and light-duty trucks. The mechanism for achieving these reductions is the preparation of an SCS.

State RTP Guidelines

The California Transportation Commission (CTC)'s RTP Guidelines, last updated in 2017, tie together federal and state regulations and CTC policy direction to guide the development of RTPs. CTC programming policy prohibits the allocation of funds to projects that are not consistent with an adopted RTP.

Section 65080 of the Government Code, as amended by SB 375, states that the RTP shall contain four distinct elements:

- A Policy Element that reflects the mobility goals, policies and objectives of the region;
- A Sustainable Communities Strategy (SCS), as established through SB 375;
- An Action Element that identifies programs and actions to implement the RTP; and
- A Financial Element that summarizes the cost of implementing the projects in the RTP in a financially constrained environment.

C. Consistency Findings with the RTP/SCS

MTC's findings for the consistency between CMPs and the RTP/SCS focus on four areas:

- Consistency with the RTP/SCS goals, growth pattern, and supporting transportation investment strategy;
- Consistency with the MTC travel demand modeling database and methodologies; and,
- Consistency with federal and state air quality plans.

1) The RTP/SCS ("Plan Bay Area 2040")

Plan Bay Area 2040, adopted in 2017, along with its predecessor – Plan Bay Area – grew out of SB 375 and serves as the Bay Area's MTP and RTP/SCS. Plan Bay Area 2040 integrates the

region's SCS into the RTP. Plan Bay Area 2040 was prepared by MTC in partnership with ABAG, BAAQMD, and BCDC and in collaboration with Caltrans, the nine county-level CMAs or substitute agencies, over two dozen Bay Area transit operators, and numerous transportation stakeholders and the public. Plan Bay Area 2040 achieves and exceeds the Bay Area's regional GHG reduction targets set forth by CARB and was prepared in compliance with the CTC's RTP Guidelines.

Goals and Targets

Plan Bay Area 2040 incorporates a set of seven goals and thirteen performance targets – one of those being CARB's GHG emissions reduction target – as quantifiable measures against which progress may be evaluated in addressing the major challenges facing the region, as shown in Table 1. CMAs should consider these goals and targets when preparing their CMPs.

To determine whether a CMP is consistent with Plan Bay Area 2040, MTC *will* first qualitatively evaluate whether the CMP is supportive or in conflict with the Plan Bay Area 2040's goals and targets shown in Table 1, below. MTC *will not* evaluate whether each CMP achieves Plan Bay Area 2040's adopted targets.

Table1. Plan Bay Area 2040 Performance Targets

Goal	#	Target
Climate Protection	**1**	Reduce per-capita GHG (CO_2) emissions from cars and light duty trucks by 15% *Statutory - Source: California Air Resources Board, as required by SB 375*
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 urban growth boundaries (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, transit priority areas (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%

Unless noted, the Performance Target increases or reductions are for 2040 compared to a year 2005 baseline.

Growth Pattern

In addition to reducing GHG emissions, SB 375 requires that the SCS promote compact, mixed-use commercial and residential development, and identify how the region could house its current and projected population. To meet the goals of SB 375, and the GHG reduction targets, Plan Bay Area 2040 largely reflects the foundation and regional growth pattern established in the original Plan Bay Area. Plan Bay Area 2040's core strategy is "focused growth" in existing communities along the existing transportation network. This strategy builds upon existing community characteristics and leverages existing infrastructure. Key to implementing the focused growth strategy are Priority Development Areas (PDAs) and Priority Conservation Areas (PCAs) identified, recommended, and approved by local governments.

- **Priority Development Areas (PDAs) -**
  These existing neighborhoods are nominated locally, served by public transit, and include areas that are or will be walkable and bikeable and close to public transit, jobs, schools, shopping, parks, recreation and other amenities.
- **Priority Conservation Areas (PCAs) -**
  These regionally significant open spaces which have a broad consensus for long-term protection but which face nearer-term development pressures.

In addition, MTC has adopted a Transportation and Land Use Platform that calls for supportive land use plans and policies to support transit extensions in Res. 3434. Further, MTC has adopted a Transit Oriented Development (TOD) Policy, as part of Res. 3434, that establishes specific housing thresholds for these extensions, requires station area plans and establishes corridor working groups. These regional policies and specific projects within the county should be recognized in the CMP (attached as Attachment B, Appendix C).

As a second check to determine whether a CMP is consistent with Plan Bay Area 2040, MTC will qualitatively evaluate whether the CMP is supportive versus in conflict with the Plan Bay Area 2040's growth strategy.

Investment Strategy

Plan Bay Area 2040's focused growth strategy is supported by a robust, multi-modal transportation investment strategy that enables the Bay Area to exceed its regional GHG

reduction targets. The Plan develops a blueprint for short- term and long-term transportation investments to support the plan's focused growth strategy. Investment priorities reflect a primary commitment to "Fix It First," a key emphasis area in the original Plan Bay Area as well.

Approximately 90 percent of Plan Bay Area 2040's investments focus on operating, maintaining and modernizing the existing transportation system. Plan Bay Area 2040 also directs almost two-thirds of future funding to investments in public transit, mostly to ensure that transit operators can sustain existing service levels through 2040.

- **Operate + Maintain**: This strategy includes projects that replace transit assets, pave local streets and state highways, and operate the transit system.
- **Modernize**: This strategy includes projects that improve the existing system without significantly increasing the geographical extent of the infrastructure. Electrifying Caltrain and portions of the express lane network are two major investments in this category.
- **Expand**: This strategy includes projects that extend fixed-guideway rail service or add lanes to roadways. Extending Caltrain to downtown San Francisco and BART into Silicon Valley, as well as implementing express lanes on U.S.101 in San Mateo and Santa Clara counties, are major investments in this category.

Regional Transit Expansion Program

The Regional Transit Expansion Program –adopted by the Commission as Resolution 3434– calls for a nearly $18 billion investment in new rail and bus projects that will improve mobility and enhance connectivity for residents throughout the Bay Area. Further, Plan Bay Area 2040 identifies modernization and expansion projects to increase transit capacity in core locations of the Bay Area, including the transbay corridor, peninsula corridor, within San Francisco, and within Santa Clara County. This includes projects such as extending BART to San Jose and Santa Clara, extending Caltrain to downtown San Francisco, extending VTA's light rail on the Capitol Expressway and Vasona lines, and extending SMART to Larkspur and Windsor.

RTP Financial Requirements and Projections

Under the federal transportation authorization (FAST), the actions, programs and projects in the RTP must be fiscally constrained, meaning their costs cannot exceed the forecast of public and private revenues that are reasonably expected to be available. While CMPs are not required by legislation to be fiscally constrained, recognition of financial constraints, including the costs for maintaining, rehabilitating, and operating the existing multi-modal system and the status of specific major projects, will strengthen the consistency and linkage between the regional planning process and the CMP. The CMA may submit project proposals for consideration by MTC in developing future fiscally constrained RTPs.

As a final check to determine whether a CMP is consistent with Plan Bay Area 2040, MTC will verify whether the CMP's CIP is consistent with the Plan Bay Area 2040's adopted investment strategy. The scope, schedule, and cost estimates of regionally-significant projects must be consistent with Plan Bay Area 2040's adopted project list, and non-regionally significant projects must align with a programmatic category in Plan Bay Area 2040's adopted project list.

2) Consistency with the MTC Travel Demand Modeling Databases and Methodologies

MTC's statutory requirements regarding consistent databases are as follows:

> ***The agency, (i.e., the CMA) in consultation with the regional agency, cities, and the county, shall develop a uniform data base on traffic impacts for use in a countywide transportation computer model . . . The computer models shall be consistent with the modeling methodology adopted by the regional planning agency. The data bases used in the models shall be consistent with the data bases used by the regional planning agency. Where the regional agency has jurisdiction over two or more counties, the data bases used by the agency shall be consistent with the data bases used by the regional agency***. (Section 65089 (c))

MTC desires the development and implementation of consistent travel demand models, with shared input databases, to provide a common foundation for transportation policy and investment analysis.

The Bay Area Partnership's Regional Model Working Group (RMWG) serves as a forum for sharing data and expertise and providing peer review for issues involving the models developed by or for the CMAs, MTC, and other parties. The MTC Checklist for Modeling will be used to guide the consistency assessment of CMA models with the MTC model.

The Checklist is included in Attachment B, and addresses:

- Demographic/econometric forecasts;
- Pricing assumptions;
- Network assumptions;
- Travel demand methodologies; and,
- Traffic assignment methodologies.

<u>Level of Service Methodology</u>

CMP statutory requirements regarding level of service are as follows

> ***"Level of service (LOS) shall be measured by Circular 212, by the most recent version of the Highway Capacity Manual, or by a uniform methodology adopted by the agency that is consistent with the Highway Capacity Manual."*** (Section 65089 (b)

The most recently adopted highway capacity manual is Highway Capacity Manual, Sixth Edition: A Guide for Multimodal Mobility Analysis, or HCM 2016, or HCM6, was released in 2016. This edition incorporates the latest research on highway capacity, qualify of service, *Active Traffic and Demand Management*, and travel time reliability.

Over the last several years, the State of California Office of Planning and Research (OPR) has been in the process of developing an alternative to the LOS approach as it relates to the California Environmental Quality Act (CEQA) in response to SB 743 (Steinberg, 2013). OPR's proposed alternative is an assessment of vehicle miles traveled (VMT). In December 2018, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package, including the Guidelines section implementing SB 743 (§ 15064.3).

3) Consistency with pertinent Air Quality Plans

Transportation Control Measures (TCMs) are identified in the federal and state air quality plans to achieve and maintain the respective standards for ozone and carbon monoxide. The statutes require that the Capital Improvement Program (CIP) of the CMP conform to transportation related vehicle emission air quality mitigation measures. CMPs should promote the region's adopted TCMs for federal and state air quality plans. In addition, CMPs are encouraged to consider the benefits of GHG reductions in developing the CIP, although GHG emission reductions are not currently required in federal and state air quality plans.

A reference to the lists of federal and state TCMs is provided in Attachment B. The lists may be updated from time to time to reflect changes in the federal and state air quality plans.

In particular, TCMs that require local implementation should be identified in the CMP, specifically in the CIP.

CMPs are also required to contain provisions pertaining to parking cash-out.

> ***The city or county in which a commercial development will implement a parking cash-out program that is included in a congestion management program pursuant to subdivision (b), or in a deficiency plan pursuant to Section 65089.4, shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for new commercial development. (2) At the request of an existing commercial development that has implemented a parking cashout program, the city of county shall grant an appropriate reduction in the parking requirements otherwise applicable based on the demonstrated reduced need for parking, and the space no longer needed for parking purposes may be used for other appropriate purposes.*** (Section 65089 (d)

As of January 1, 2010, cities, counties and air districts were given the option to enforce the State Parking Cash-Out statutes (Section 43845 of the Health and Safety Code), as per SB 728 (Lowenthal). This provided local jurisdictions with another tool to craft their own approaches to support multi-modal transportation systems, address congestion and greenhouse gases.

D. Consistency and Compatibility of the Programs within the Region

The CMP statutes require that, in the case of a multi-county regional transportation agency, that agency shall evaluate the consistency and compatibility of the CMPs within the region. Further, it is the Legislature's stated intention that the regional agency (i.e., MTC in the San Francisco Bay Area) resolve inconsistencies and mediate disputes between or among CMPs within a region.

To the extent useful and necessary, MTC will identify differences in methodologies and approaches between the CMPs on such issues as performance measures and land use impacts.

The CMP statutes also require that the CMA designate a system of highways and roadways which shall be subject to the CMP requirements. Consistency requires the regional continuity of the CMP designated system for facilities that cross county borders.

To determine whether a CMP is consistent with the system definition of adjoining counties, MTC will review the draft CMPs to determine whether adjacent counties have the same designations of cross border facilities.

E. Incorporation of the CMP Projects into the RTIP

State transportation statutes require that the MTC, in partnership with the state and local agencies, develop the RTIP on a biennial cycle. The RTIP is the regional program for state and federal funding, adopted by MTC and provided to CTC for the development of the State Transportation Improvement Program (STIP). In 1997, SB 45 (Statutes 1997, Chapter 622) significantly revised State transportation funding policies, delegating project selection and delivery responsibilities for a major portion of funding to regions and counties. Subsequent changes to state law (AB 2928 – Statutes 2000, Chapter 91) made the RTIP a five-year proposal of specific projects, developed for specific fund sources and programs. The RTIP is required to be consistent with the most recently adopted RTP (Plan Bay Area 2040).

The CMP statutes establish a direct linkage between CMPs that have been found to be consistent with the RTP, and the RTIP. MTC will review the projects in the CIP of the CMP for consistency with the RTP. MTC's consistency findings for projects in the CMPs will be limited to those projects that are included in the RTP, and do not extend to other projects that may be included in the CMP. Some projects may be found consistent with a program or programmatic category in the RTP. MTC, upon finding that the CMP is consistent with the RTP, shall incorporate the CMP's program of projects into the RTIP, subject to specific programming and funding requirements. If MTC finds the CMP inconsistent, it may exclude any project in the program from inclusion in the RTIP. Since the RTIP must be consistent with the RTP, projects that are not consistent with the RTP will not be included in the RTIP. MTC may include certain projects or programs in the RTIP which are not in a CIP, but which are in the RTP. In addition, SB 45 requires projects included in the Interregional Transportation Improvement Program (ITIP) to be consistent with the RTP.

MTC will establish funding bid targets for specific funds, based upon the fund estimate as adopted by the CTC. Project proposals can only be included in the RTIP within these funding bid targets. MTC will also provide information on other relevant RTIP processes and requirements, including coordination between city, county, and transit districts for project applications, schedule, evaluations and recommendations of project submittals, as appropriate for the RTIP.

As per CTC's Guidelines, MTC will evaluate the projects in the RTIP based on specific performance indicators and measures as established in the RTP and provide this evaluation to the CTC along with the RTIP. CMAs are encouraged to consider the performance measures in Plan Bay Area when developing specific project proposals for the RTIP; more details will be provided in the RTIP Policies and Procedures document, adopted by MTC for the development of the RTIP.

III. CMP PREPARATION & SUBMITTAL TO MTC

A. CMP Preparation

If prepared, the CMP shall be developed by the CMA in consultation with, and with the cooperation of, MTC, transportation providers, local governments, Caltrans, and the BAAQMD, and adopted at a noticed public hearing of the CMA. As established in SB 45, the RTIP is scheduled to be adopted by December 15 of each odd numbered year. If circumstances arise that change this schedule, MTC will work with the CMAs and substitute agencies in determining an appropriate schedule and mechanism to provide input to the RTIP.

B. Regional Coordination

In addition to program development and coordination at the county level, and consistency with the RTP, the compatibility of the CMPs with other Bay Area CMPs would be enhanced through identification of cross county issues in an appropriate forum, such as Partnership and other appropriate policy and technical committees. Discussions would be most beneficial if done prior to final CMA actions on the CMP

C. Submittal to MTC

To provide adequate review time, draft CMPs should be submitted to MTC in accordance to a schedule MTC will develop to allow sufficient time for incorporation into the RTIP for submittal to the California Transportation Commission. Final CMPs must be adopted prior to final MTC consistency findings.

D. MTC Consistency Findings for CMPs

MTC will evaluate consistency of the CMP every two years with the RTP that is in effect when the CMP is submitted; for the 2019 CMP the RTP in effect will be Plan Bay Area 2040. MTC will evaluate the consistency of draft CMPs when received, based upon the areas specified in this guidance, and will provide staff comments of any significant concerns. MTC can only make final consistency findings on CMPs that have been officially adopted.

Attachment B to MTC Resolution No. 3000 consists of:

Appendix A	Federal and State Transportation Control Measures
Appendix B	Checklist for Modeling Consistency for CMPs
Appendix C	MTC's Regional Transit Expansion Program of Projects (MTC Resolution No. 3434, revised 09/24/08)
Appendix D	MTC's Resolution No. 3434 Transit Oriented Development (TOD) Policy, revised 10/24/07

Title Page

Appendix A: Federal and State Transportation Control Measures (TCMs)

Federal TCMs:

For a list and description of current Federal TCMs, see the "Federal Ozone Attainment Plan for the 1-Hour National Ozone Standard" adopted Oct. 24, 2001, and "2004 Revision to the California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for Ten Federal Planning Areas," approved January 30, 2006.

The current Federal TCMs have been fully implemented. Refer to the "Final Transportation Air Quality Conformity Analysis for the Plan and the Proposed Final 2015 Transportation Improvement Program" at http://files.mtc.ca.gov/pdf/final_pba_and_2015_tip_air_quality_conformity_analysis.pdf (page 19) for the specific implementation steps in the advancement of these Federal TCMs.

State TCMs:

For a list and description of current State TCMs, see "Bay Area 2010 Ozone Strategy," or subsequent revisions as adopted by the Bay Area Air Quality Management.

CMAQ Evaluation and Assessment Report:

MTC participated in a federal evaluation and assessment of the direct and indirect impacts of a representative sample of Congestion Mitigation and Air Quality (CMAQ) – funded projects on air quality and congestion levels. The study estimated the impact of these projects on emissions of transportation related pollutants, including carbon monoxide (CO), ozone precursors – oxides of nitrogen (NOx), volatile organic compounds (VOCs), particulate matter (PM_{10} and $PM_{2.5}$), and carbon dioxide (CO_2) for information purposes, as well as on traffic congestion and mobility. There is also additional analysis of the selected set of CMAQ-funded projects to estimate of the cost effectiveness at reducing emissions of each pollutant. This report may be of interest to CMAs; it is available on line at:
http://www.fhwa.dot.gov/environment/cmaqpgs/safetealu1808/index.htm

or from the MTC/ABAG Library.

Appendix B: MTC Checklist for Modeling Consistency for CMPs

Overall approach

MTC's goal is to establish regionally consistent model "sets" for application by MTC and the CMAs. In the winter of 2010/2011, MTC implemented *Travel Model One* – an "activity-based" model – to replace the previous trip-based modeling tool – *BAYCAST-90* – that had been in place for the past two decades. *Travel Model One* has seen incremental updates since its implementation. Additionally, MTC has been developing the next generation of its activity-based model, called *Travel Model Two,* although it is not yet ready for application. Because the CMAs use a variety of modeling tools, these guidelines must accommodate a framework in which trip-based and activity-based models can be aligned. The approach therefore consists of a checklist to adjudge consistency across model components.

Checklist

This checklist guides the CMAs through their model development and consistency review process by providing an inventory of specific products to be developed and submitted to MTC, and by describing standard practices and assumptions.

Because of the complexity of the topic, the checklist may need additional detailed information to explain differences in methodologies or data. Significant differences will be resolved between MTC and the CMAs, taking advantage of the Regional Model Working Group (RMWG). Standard formats for model comparisons will be developed by MTC for use in future guidelines.

Incremental updates

The CMA forecasts must be updated every two years to be consistent with MTC's forecasts. Alternative approaches to fully re-running the entire model are available, including incremental approaches through the application of factors to demographic inputs and/or trip tables. Similarly, the horizon year must be the same as the TIP horizon year. However, interpolation and extrapolation approaches are acceptable, with appropriate attention to network changes. These alternatives to re-running the entire model should be discussed with MTC before the CMP is adopted by the CMA.

Defining the MTC model sets

The MTC model sets referred to below are defined as those in use on December 31st of the year preceding the CMP update.

Key Assumptions

Please report the following information.

A. General approach:

Discuss the general approach to travel demand modeling by the CMA and the CMA model's relationship to *BAYCAST-90, Travel Model One* or *Travel Model Two*.

Product: 1) Description of the above.

B. Demographic/economic/land use forecasts:

Both base and forecast year demographic/economic/land use ("land use") inputs must be consistent – though not identical – to *Plan Bay Area 2040's* traffic analysis zone (TAZ) level land use data provided by MTC/ABAG. Specifically, if CMAs wish to reallocate land use within their own county (or counties), they must consult with the affected city (or cities) as well as with MTC/ABAG. Further, the resulting deviation in the subject county (or counties) should within the ranges specified by MTC/ABAG for the following variables: population, households, jobs, and employed residents. Outside the subject county (or counties), the land use variables in the travel analysis zones used by the county must match either MTC/ABAG's estimates exactly when aggregated/disaggregated to census tracts or the county-in-question's estimates per the revision process noted above (e.g. Santa Clara county could use the revised estimates San Mateo developed through consultation with local cities and MTC/ABAG). Forecast year demand estimates should use the *Plan Bay Area 2040* land use data. CMAs may also analyze additional, alternative land use scenarios that will not be subject to consistency review.

Products: 2) A statement establishing that the differences between key ABAG land use variables (i.e., population, households, jobs, and employed residents), and those of the CMA do not differ by more than one percent at the county level for the subject county. A statement establishing that no differences exist at the TAZ-level outside the county between the MTC/ABAG forecast or the MTC/ABAG/CMA revised forecast.

3) A table comparing the MTC/ABAG land use estimates with the CMA land use estimates by county for population, households, jobs, and employed residents for both the base year and the horizon year.

4) If land use estimates within the CMA's county are modified from MTC/ABAG's projections, agendas, discussion summaries, and action items from each meeting held with cities, MTC, and/or ABAG at which the redistribution was discussed, as well as before/after census-tract-level data summaries and maps.

C. Pricing assumptions:

Use MTC's automobile operating costs, transit fares, and bridge tolls or provide an explanation for the reason such values are not used.

Product: 5) Table comparing the assumed automobile operating cost, key transit fares, and bridge tolls to MTC's values for the horizon year.

D. Network assumptions:

Use MTC's regional highway and transit network assumptions for the other Bay Area counties. CMAs should include more detailed network definition relevant to their own county in addition to the regional highway and transit networks. For the CMP horizon year, to be compared with the TIP interim year, regionally significant network changes in the base case scenario shall be limited to the current Transportation Improvement Program (TIP) for projects subject to inclusion in the TIP.

Product: 6) Statement establishing satisfaction of the above.

E. Automobile ownership:

Use *Travel Model One* automobile ownership models or forecasts or submit alternative models to MTC for review and comment.

Product: 7) County-level table comparing estimates of households by automobile ownership level (zero, one, two or more automobiles) to MTC's estimates for the horizon year.

F. Tour/trip generation:

Use *Travel Model One* tour generation models or forecasts or submit alternative models to MTC for review and comment.

Product: 8) Region-level tables comparing estimates of trip and/or tour frequency by purpose to MTC's estimates for the horizon year.

G. Activity/trip location:

Use *Travel Model One* activity location models or forecasts or submit alternative models to MTC for review and comment.

Products: 9) Region-level tables comparing estimates of average trip distance by tour/trip purpose to MTC's estimates for the horizon year.

10) County-to-county comparison of journey-to-work or home-based work flow estimates to MTC's estimates for the horizon year.

H. Travel mode choice:

Use *Travel Model One* models or forecasts or submit alternative models to MTC for review and comment.

Product: 11) Region-level tables comparing travel mode share estimates by tour/trip purpose to MTC's estimates for the horizon year.

I. Traffic assignment:

Use *Travel Model One* models or submit alternative models to MTC for review and comment.

Products: 12) Region-level, time-period-specific comparison of vehicle miles traveled and vehicle hours traveled estimates by facility type to MTC's estimates for the horizon year.

13) Region-level, time-period-specific comparison of estimated average speed on freeways and all other facilities, separately, to MTC's estimates for the horizon year.

Alternatively, CMAs may elect to utilize MTC zone-to-zone vehicle trip tables, adding network and zonal details within the county as appropriate, and then re-run the assignment. In this case, only Products 12 and 13 are applicable.

Appendix C: MTC's Regional Transit Expansion Program of Projects

Note that Resolution No. 3434, Revised, is reproduced below with the TOD Policy attached as Appendix D to Resolution No. 3000; other associated appendices are not attached here – the other appendices are available upon request from the MTC library.

Date: December 19, 2001
W.I.: 12110
Referred by: POC
Revised: 01/30/02-C 07/27/05-C
04/26/06-C 10/24/07-C
09/24/08-C

ABSTRACT

Resolution No. 3434, Revised

This resolution sets forth MTC's Regional Transit Expansion Program of Projects.

This resolution was amended on January 30, 2002 to include the San Francisco Geary Corridor Major Investment Study to Attachment B, as requested by the Planning and Operations Committee on December 14, 2001.

This resolution was amended on July 27, 2005 to include a Transit-Oriented Development (TOD) Policy to condition transit expansion projects funded under Resolution 3434 on supportive land use policies, as detailed in Attachment D-2.

This resolution was amended on April 26, 2006 to reflect changes in project cost, funding, and scope since the 2001 adoption.

This resolution was amended on October 24, 2007 to reflect changes in the Transit-Oriented Development (TOD) Policy in Attachment D-2.

This resolution was amended on September 24, 2008 to reflect changes associated with the 2008 Strategic Plan effort (Attachments B, C and D).

Further discussion of these actions are contained in the MTC Executive Director's Memorandum dated December 14, 2001, July 8, 2005, April 14, 2006, October 12, 2007 and September 10, 2008.

Date: December 19, 2001
W.I.: 12110
Referred by: POC

RE: Regional Transit Expansion Program of Projects

METROPOLITAN TRANSPORTATION COMMISSION
RESOLUTION NO. 3434, Revised

WHEREAS, the Metropolitan Transportation Commission (MTC) is the regional transportation planning agency for the San Francisco Bay Area pursuant to Government Code Section 66500 et seq.; and

WHEREAS, MTC adopted Resolution No. 1876 in 1988 which set forth a new rail transit starts and extension program for the region; and

WHEREAS, significant progress has been made in implementing Resolution No. 1876, with new light rail service in operation in San Francisco and Silicon Valley, new BART service extended to Bay Point and Dublin/Pleasanton in the East Bay, and the BART extension to San Francisco International Airport scheduled to open in 2002; and

WHEREAS, MTC's long range planning process, including the Regional Transportation Plan and its *Transportation Blueprint for the 21st Century,* provides a framework for comprehensively evaluating the next generation of major regional transit expansion projects to meet the challenge of congestion in major corridors throughout the nine-county Bay Area; and

WHEREAS, the Commission adopted Resolution No. 3357 as the basis for assisting in the evaluations of rail and express/rapid bus projects to serve as the companion follow-up program to Resolution No. 1876; and

WHEREAS, local, regional, state and federal discretionary funds will continue to be required to finance an integrated program of new rail transit starts and extensions including those funds which are reasonably expected to be available under current conditions, and new funds which need to be secured in the future through advocacy with state and federal legislatures and the electorate; and

WHEREAS, the Regional Transit Expansion program of projects will enhance the Bay Area's transit network with an additional 140 miles of rail, 600 miles of new express bus routes, and a 58% increase in service levels in several existing corridors, primarily funded with regional and local sources of funds; and

WHEREAS, MTC recognizes that coordinated regional priorities for transit investment will best position the Bay Area to compete for limited discretionary funding sources now and in the future; now, therefore, be it

RESOLVED, that MTC adopts a Regional Transit Expansion Program of Projects, consistent with the Policy and Criteria established in Resolution No. 3357, as outlined in Attachment A, attached hereto and incorporated herein as though set forth at length; and be it further

RESOLVED, that this program of projects, as set forth in Attachment B is accompanied by a comprehensive funding strategy of local, regional, state and federal funding sources as outlined in Attachment C, attached hereto and incorporated herein as though set forth at length; and, be it further

RESOLVED, that the regional discretionary funding commitments included in this financial strategy are subject to the terms and conditions outlined in Attachment D, attached hereto and incorporated herein as though set forth at length; and, be it further

METROPOLITAN TRANSPORTATION COMMISSION

_____

Sharon J. Brown, Chair

The above resolution was entered into
by the Metropolitan Transportation
Commission at a regular meeting of the
Commission held in Oakland,
California, on December 19, 2001.

Appendix D: MTC's Regional Transit Expansion Program of Projects - TOD Policy

Res. No. 3434, TOD Policy (Attachment D-2), revised October 24, 2007, is shown below; other associated Res. 3434 appendices are available upon request from the MTC library.

Date: July 27, 2005
W.I.: 12110
Referred by: POC
Revised: 10/24/07-C

Attachment D-2
Resolution No. 3434
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MTC RESOLUTION 3434 TOD POLICY FOR REGIONAL TRANSIT EXPANSION PROJECTS

1. Purpose

The San Francisco Bay Area—widely recognized for its beauty and innovation—is projected to grow by almost two million people and one and a half million jobs by 2030. This presents a daunting challenge to the sustainability and the quality of life in the regionWhere and how we accommodate this future growth, in particular where people live and work, will help determine how effectively the transportation system can handle this growth.

The more people who live, work and study in close proximity to public transit stations and corridors, the more likely they are to use the transit systems, and more transit riders means fewer vehicles competing for valuable road space. The policy also provides support for a growing market demand for more vibrant, walkable and transit convenient lifestyles by stimulating the construction of at least 42,000 new housing units along the region's major new transit corridors and will help to contribute to a forecasted 59% increase in transit ridership by the year 2030.

This TOD policy addresses multiple goals: improving the cost-effectiveness of regional investments in new transit expansions, easing the Bay Area's chronic housing shortage, creating vibrant new communities, and helping preserve regional open space. The policy ensures that transportation agencies, local jurisdictions, members of the public and the private sector work together to create development patterns that are more supportive of transit.

There are three key elements of the regional TOD policy:

(a) Corridor-level thresholds to quantify appropriate minimum levels of development around transit stations along new corridors;

(b) Local station area plans that address future land use changes, station access needs, circulation improvements, pedestrian-friendly design, and other key features in a transit-oriented development; and

(c) Corridor working groups that bring together CMAs, city and county planning staff, transit agencies, and other key stakeholders to define expectations, timelines, roles and responsibilities for key stages of the transit project development process.

2. TOD Policy Application

The TOD policy only applies to physical transit extensions funded in Resolution 3434 (see Table 1). The policy applies to any physical transit extension project with regional discretionary funds, regardless of level of funding. Resolution 3434 investments that only entail level of service improvements or other enhancements without physically extending the system are not subject to the TOD policy requirements. Single station extensions to international airports are not subject to the TOD policy due to the infeasibility of housing development.

TABLE 1:
RESOLUTION 3434 TRANSIT EXTENSION PROJECTS SUBJECT TO CORRIDOR THRESHOLDS

Project	Sponsor	Type	Threshold met with current development?	Meets TOD Policy (with current + new development as planned)?
BART East Contra Costa Rail Extension (eBART)				
(a) Phase 1 Pittsburg to Antioch			No	Yes
(b) Future phases	BART/ CCTA	Commuter Rail	No	No
BART – Downtown Fremont to San Jose/ Santa Clara				
(a) Fremont to Berryessa	(a) BART	BART Extension	No	Not yet determined; planning is underway
(b) Berryessa to San Jose/ Santa Clara	(b) VTA		No	Not yet determined
AC Transit Berkeley/Oakland/San Leandro Bus Rapid Transit: Phase 1	AC Transit	Bus Rapid Transit	Yes	Yes
Caltrain Downtown Extension/Rebuilt Transbay Terminal	TJPA	Commuter Rail	Yes	Yes
MUNI Third Street LRT Project Phase 2 – New Central Subway	MUNI	Light Rail	Yes	Yes
Sonoma-Marin Rail				
(a) Phase 1 downtown San Rafael to downtown Santa Rosa				Not yet determined; planning is underway
(b) Futures phases tbd	SMART	Commuter Rail	No	Not yet being planned
Dumbarton Rail	SMTA, ACCMA, VTA, ACTIA, Capitol Corridor	Commuter Rail	No	Not yet determined; planning is underway
Expanded Ferry Service to Berkeley, Alameda/Oakland/Harbor Bay, Hercules, Richmond, and South San Francisco; and other improvements*	WTA	Ferry	No	Line specific

** Ferry terminals where development is feasible shall meet a housing threshold of 2500 units. MTC staff will make the determination of development feasibility on a case by case basis.*

3. Definitions and Conditions of Funding

For purposes of this policy "regional discretionary funding" consists of the following sources identified in the Resolution 3434 funding plan:

FTA Section 5309- New Starts
FTA Section 5309- Bus and Bus Facilities Discretionary
FTA Section 5309- Rail Modernization
Regional Measure 1- Rail (bridge tolls)
Regional Measure 2 (bridge tolls)
Interregional Transportation Improvement Program
Interregional Transportation Improvement Program-Intercity rail
Federal Ferryboat Discretionary
AB 1171 (bridge tolls)
CARB-Carl Moyer/AB434 (Bay Area Air Quality Management District) [1]

These regional funds may be programmed and allocated for environmental and design related work, in preparation for addressing the requirements of the TOD policy. Regional funds may be programmed and allocated for right-of-way acquisition in advance of meeting all requirements in the policy, if land preservation for TOD or project delivery purposes is essential. No regional funds will be programmed and allocated for construction until the requirements of this policy have been satisfied. See Table 2 for a more detailed overview of the planning process.

4. Corridor-Level Thresholds

Each transit extension project funded in Resolution 3434 must plan for a minimum number of housing units along the corridor. These corridor-level thresholds vary by mode of transit, with more capital-intensive modes requiring higher numbers of housing units (see Table 3). The corridor thresholds have been developed based on potential for increased transit ridership, exemplary existing station sites in the Bay Area, local general plan data, predicted market demand for TOD-oriented housing in each county, and an independent analysis of feasible development potential in each transit corridor.

[1] The Carl Moyer funds and AB 434 funds are controlled directly by the California Air Resources Board and Bay Area Air Management District. Res. 3434 identifies these funds for the Caltrain electrification project, which is not subject to the TOD policy.

TABLE 2:
REGIONAL TOD POLICY IMPLEMENTATION PROCESS FOR TRANSIT EXTENSION PROJECTS

Transit Agency Action	City Action	MTC/CMA/ABAG Action
All parties in corridors that do not currently meet thresholds (see Table 1) establish Corridor Working Group to address corridor threshold. Conduct initial corridor performance evaluation, initiate station area planning. ⇩		
Environmental Review/ Preliminary Engineering/ Right-of-Way	Conduct Station Area Plans	Coordination of corridor working group, funding of station area plans
Step 1 Threshold Check: the combination of new Station Area Plans and existing development patterns exceeds corridor		
Final Design	Adopt Station Area Plans. Revise general plan policies and zoning, environmental reviews	Regional and county agencies assist local jurisdictions in implementing station area plans
Step 2 Threshold Check: (a) local policies adopted for station areas; (b) implementation mechanisms in place per adopted Station Area Plan by the time Final Design is completed. ⇩		
Construction	Implementation (financing, MOUs) Solicit development	TLC planning and capital funding, HIP funding

TABLE 3: CORRIDOR THRESHOLDS
HOUSING UNITS – AVERAGE PER STATION AREA

Project Type	BART	Light Rail	Bus Rapid Transit	Commuter Rail	Ferry
Housing Threshold	3,850	3,300	2,750	2,200	2,500

Each corridor is evaluated for the Housing Threshold. For example, a four station commuter rail extension (including the existing end-of-the—line station) would be required to meet a corridor-level threshold of 8,800 housing units.

Threshold figures above are an average per station area for all modes except ferries based on both existing land uses and planned development within a half mile of all stations. New below market rate housing is provided a 50% bonus towards meeting housing unit threshold.

** Ferry terminals where development is feasible shall meet a housing threshold of 2500 units.*

MTC staff will make the determination of development feasibility on a case by case basis.

Meeting the corridor level thresholds requires that within a half mile of all stations, a combination of existing land uses and planned land uses meets or exceeds the overall corridor threshold for housing (listed in Table 3);

Physical transit extension projects that do not currently meet the corridor thresholds with development that is already built will receive the highest priority for the award of MTC's Station Area Planning Grants.

To be counted toward the threshold, planned land uses must be adopted through general plans, and the appropriate implementation processes must be put in place, such as zoning codes. General plan language alone without supportive implementation policies, such as zoning, is not sufficient for the purposes of this policy. Ideally, planned land uses will be formally adopted through a specific plan (or equivalent), zoning codes and general plan amendments along with an accompanying programmatic Environmental Impact Report (EIR) as part of the overall station area planning process. Minimum densities will be used in the calculations to assess achievement of the thresholds.

An existing end station is included as part of the transit corridor for the purposes of calculating the corridor thresholds; optional stations will not be included in calculating the corridor thresholds.

New below-market housing units will receive a 50 percent bonus toward meeting the corridor threshold (i.e. one planned below-market housing unit counts for 1.5 housing units for the purposes of meeting the corridor threshold. Below market for the purposes of the Resolution 3434 TOD policy is affordable to 60% of area median income for rental units and 100% of area median income for owner-occupied units);

The local jurisdictions in each corridor will determine job and housing placement, type, density, and design.

The Corridor Working Groups are encouraged to plan for a level of housing that will significantly exceed the housing unit thresholds stated here during the planning process. This will ensure that the Housing Unit Threshold is exceeded corridor-wide and that the ridership potential from TOD is maximized.

5. Station Area Plans

Each proposed physical transit extension project seeking funding through Resolution 3434 must demonstrate that the thresholds for the corridor are met through existing development and adopted station area plans that commit local jurisdictions to a level of housing that meets the threshold. This requirement may be met by existing station area plans accompanied by appropriate zoning and implementation mechanisms. If new station area plans are needed to meet the corridor threshold, MTC will assist in funding the plans. The Station Area Plans shall be conducted by local governments in coordination with transit agencies, Association of Bay Area Governments (ABAG), MTC and the Congestion Management Agencies (CMAs).

Station Area Plans are opportunities to define vibrant mixed use, accessible transit villages and quality transit-oriented development – places where people will want to live, work,

shop and spend time. These plans should incorporate mixed-use developments, including new housing, neighborhood serving retail, employment, schools, day care centers, parks and other amenities to serve the local community.

At a minimum, Station Area Plans will define both the land use plan for the area as well as the policies—zoning, design standards, parking policies, etc.—for implementation. The plans shall at a minimum include the following elements:

- Current and proposed land use by type of use and density within the ½ mile radius, with a clear identification of the number of existing and planned housing units and jobs;
- Station access and circulation plans for motorized, non-motorized and transit access. The station area plan should clearly identify any barriers for pedestrian, bicycle and wheelchair access to the station from surrounding neighborhoods (e.g., freeways, railroad tracks, arterials with inadequate pedestrian crossings), and should propose strategies that will remove these barriers and maximize the number of residents and employees that can access the station by these means. The station area and transit village public spaces shall be made accessible to persons with disabilities.
- Estimates of transit riders walking from the half mile station area to the transit station to use transit;
- Transit village design policies and standards, including mixed use developments and pedestrian-scaled block size, to promote the livability and walkability of the station area;
- TOD-oriented parking demand and parking requirements for station area land uses, including consideration of pricing and provisions for shared parking;
- Implementation plan for the station area plan, including local policies required for development per the plan, market demand for the proposed development, potential phasing of development and demand analysis for proposed development.
- The Station Area Plans shall be conducted according to the guidelines established in MTC's Station Area Planning Manual.

6. Corridor Working Groups

The goal of the Corridor Working Groups is to create a more coordinated approach to planning for transit-oriented development along Resolution 3434 transit corridors. Each of the transit extensions subject to the corridor threshold process, as identified in Table 1, will need a Corridor Working Group, unless the current level of development already meets the corridor threshold. Many of the corridors already have a transit project working group that may be adjusted to take on this role. The Corridor Working Group shall be coordinated by the relevant CMAs, and will include the sponsoring transit agency, the local jurisdictions in the corridor, and representatives from ABAG, MTC, and other parties as appropriate.

The Corridor Working Group will assess whether the planned level of development satisfies the corridor threshold as defined for the mode, and assist in addressing any deficit in meeting the threshold by working to identify opportunities and strategies at the local level. This will include the key task of distributing the required housing units to each of the affected station sites within the defined corridor. The Corridor Working Group will continue with corridor evaluation, station area planning, and any necessary refinements to

station locations until the corridor threshold is met and supporting Station Area Plans are adopted by the local jurisdictions.

MTC will confirm that each corridor meets the housing threshold prior to the release of regional discretionary funds for construction of the transit project.

7. Review of the TOD Policy

MTC staff will conduct a review of the TOD policy and its application to each of the affected Resolution 3434 corridors, and present findings to the Commission, within 12 months of the adoption of the TOD policy.