

*City/County  
Association of  
Governments of San  
Mateo County*

**FINAL  
CONGESTION  
MANAGEMENT  
PROGRAM  
FOR 2005**

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# **CHAPTER 1**

## **Introduction**

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In the summer of 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 ISTEA in 1998, known as the Transportation Equity Act for the 21<sup>st</sup> 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.).

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.”<sup>1</sup> The first CMP for San Mateo County was adopted by C/CAG in 1991. It was updated and amended in 1993, 1995, 1997, 1999, 2001, and 2003. This is the eighth CMP for San Mateo County. It describes the decisions adopted by C/CAG in 2000, 2001 and 2003 to comply with the applicable sections of AB 471, AB 1791, AB 1963, SB1636 and to include new provisions required by SB 45 and TEA-21.

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 TEA-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.<sup>2</sup> The following elements must be included in a congestion management program:

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<sup>1</sup>California Government Code Section 65088(e).

<sup>2</sup>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.

## 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).<sup>3</sup>

## 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.<sup>4</sup> 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.

## 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.<sup>5</sup>

## 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.<sup>6</sup>

## 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.<sup>7</sup> Estimates of the costs associated with mitigating the projected impacts must be included in the CMP, with some exceptions.<sup>8</sup>

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<sup>3</sup>California Government Code Section 65089(b)(1)(A).

<sup>4</sup>Ibid.

<sup>5</sup>California Government Code Section 60589(b)(2).

<sup>6</sup>California Government Code Section 65089(b)(3).

<sup>7</sup>California Government Code Section 65089(b)(4).

<sup>8</sup>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.

### 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.<sup>9</sup>

In addition to these elements, a CMP must also include a uniform data base 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 2005 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 Chapter 3.

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<sup>9</sup>California Government Code Section 65089(b)(5).

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 2005 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) *Transportation 2030*, a Regional Transportation Plan for the San Francisco Bay Area.
8. The features of the San Mateo Countywide Travel Demand Forecasting 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 newly approved AB 1546 ( \$4 fee on motor vehicles registered in San Mateo County) for a program for the management of traffic congestion and stormwater pollution within San Mateo County in Chapter 11.
11. The results of the 2005 monitoring report are presented in Appendix F.

## *Introduction*

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## **CHAPTER 2**

### **CMP Roadway System**

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#### **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. The C/CAG has identified which freeways, streets, highways,<sup>1</sup> 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

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<sup>1</sup>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).

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.<sup>2</sup>

## **2005 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.)
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 (all in Daly City) are the only roadways that are not State Highways that connect to roadways included in the CMP of an

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<sup>2</sup>Each of those kinds of actions are discussed in the chapters that follow.



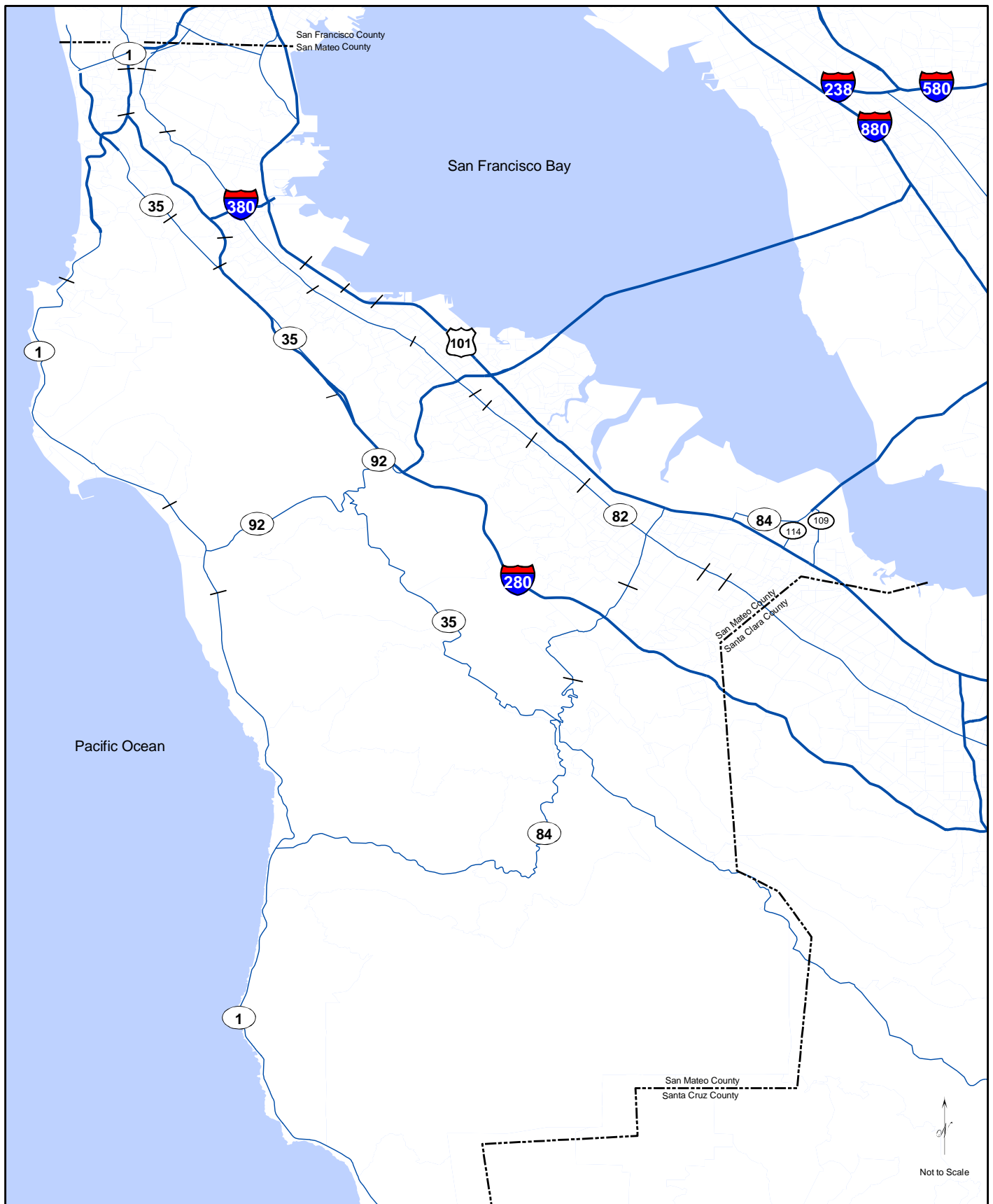
adjacent county. These roadways had to be included in San Mateo County's CMP Roadway System to be consistent with San Francisco County's CMP Roadway System. (No roadways, in addition to the State Highways already mentioned, needed to be added to be consistent with the CMP Roadway Systems of Alameda, 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. (All of 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 so as to have their levels of service monitored.

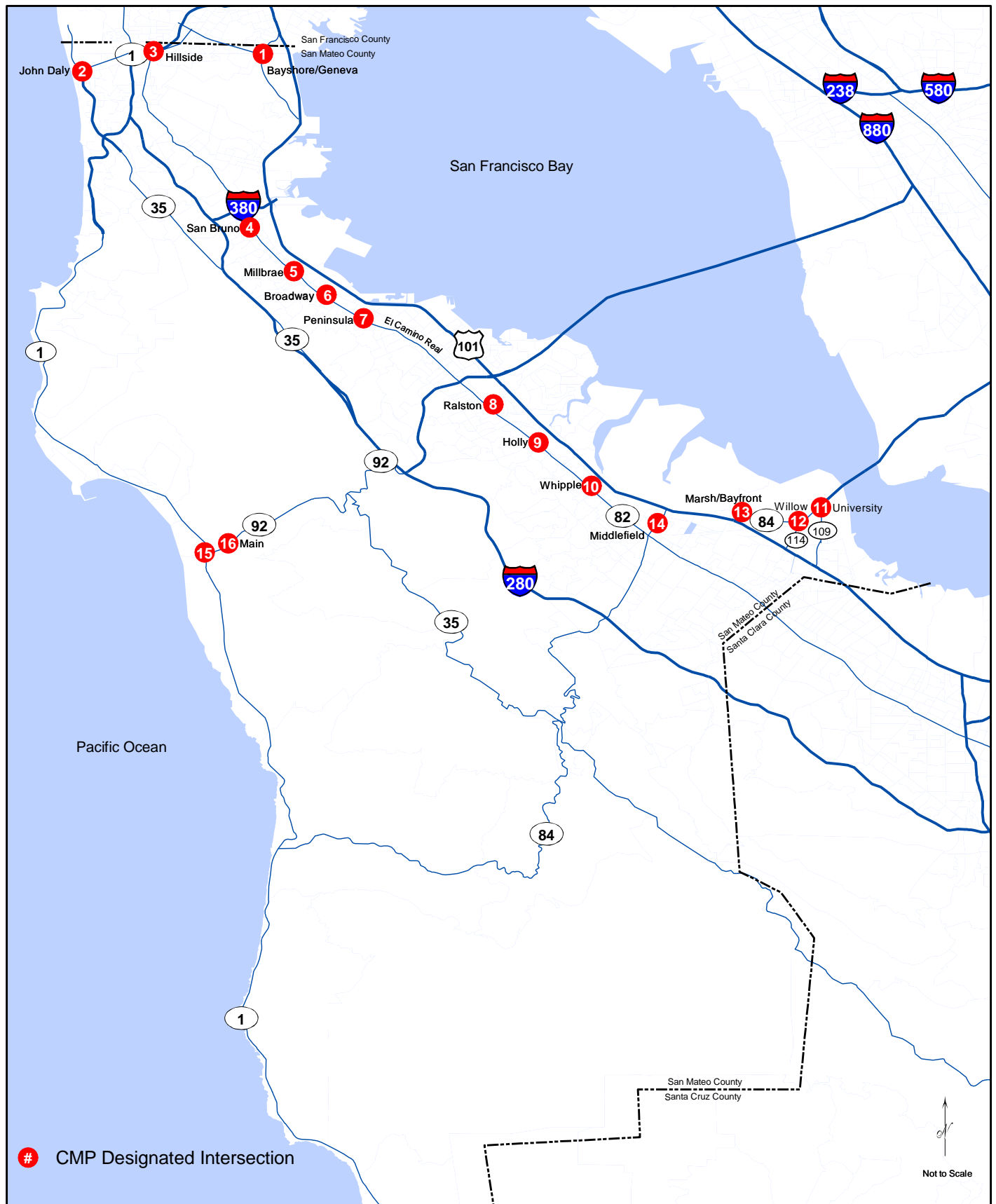
- Geneva Avenue and Bayshore Boulevard
- SR 35 and John Daly Boulevard
- SR 82 (Mission Street) and John Daly Boulevard/Hillside Boulevard
- SR 82 (El Camino Real) and San Bruno Avenue
- SR 82 and Millbrae Avenue
- SR 82 and Broadway
- SR 82 and Peninsula Avenue
- SR 82 and Ralston Avenue
- SR 82 and 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 2-1 and Figure 2-2, respectively. 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 2005 monitoring report with the current levels of service are contained in Appendix F.



## CMP Roadway Segments

Figure 2-1



**CMP Intersections**  
Figure 2-2

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## **CHAPTER 3**

### **Traffic Level of Service Standards**

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#### **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 an uniform methodology adopted by the CMA that is consistent with the *Highway Capacity Manual*. The CMA (C/CAG in San Mateo) is responsible for selecting the LOS methodology to be used.

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 an 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 3-1. Graphical illustrations of the LOS designations are presented on Figure 3-1.

**Table 3-1**  
**Level of Service Descriptions**

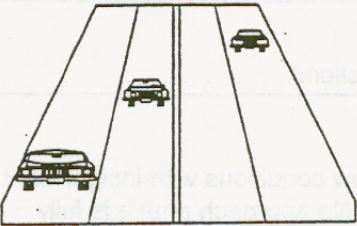
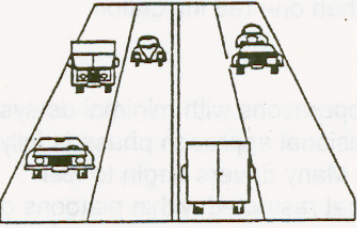
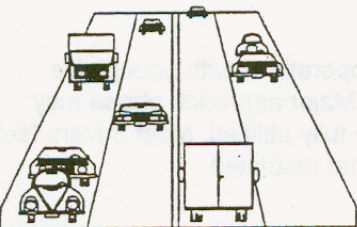
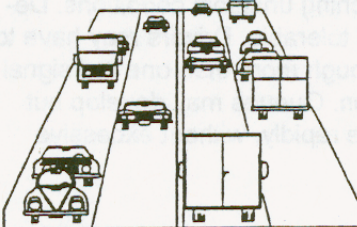
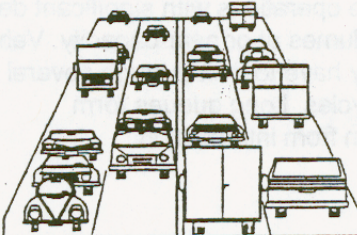
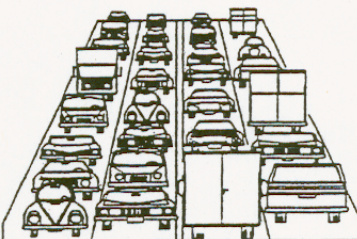
Level of Service	Freeways and Multilane Highways	Two-Lane Highways
A	Highest quality of service with free-flow conditions and a high level of maneuverability.	Free-flow conditions with a high level of maneuverability. Passing is easy to accomplish.
B	Free-flow conditions, but presence of other vehicles is 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	Free-flow conditions with a high level of maneuverability. Minimal stopped delays at signalized intersections.	Free-flow conditions with insignificant delays. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.
B	Reasonably unimpeded operations with slightly restricted maneuverability. Stopped delays are not bothersome.	Stable operations with minimal delays. An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles.
C	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.	Stable operations with acceptable delays. Major approach phase may become fully utilized. Most drivers feel somewhat restricted.
D	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.	Approaching unstable conditions. Delays are tolerable. Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delay.
E	Unstable operations with significant intersection approach delays and low average speeds.	Unstable operations with significant delays. Volumes at or near capacity. Vehicles may have to wait through several signal cycles. Long queues form upstream from intersection.



Figure 3-1

# LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE	FLOW CONDITIONS	DELAY	SERVICE RATING
<b>A</b> 	Highest quality of service. Free traffic flow with low volumes. Little or no restriction on maneuverability or speed.	None	Good
<b>B</b> 	Stable traffic flow, speed becoming slightly restricted. Low restriction on maneuverability.	None	Good
<b>C</b> 	Stable traffic flow, but less freedom to select speed or to change lanes.	Minimal	Adequate
<b>D</b> 	Approaching unstable flow. Speeds tolerable but subject to sudden and considerable variation. Less maneuverability and driver comfort.	Minimal	Adequate
<b>E</b> 	Unstable traffic flow and rapidly fluctuating speeds and flow rates. Low maneuverability and low driver comfort.	Significant	Poor
<b>F</b> 	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 2005 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.<sup>1</sup>

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 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 unsignalized 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 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.

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.

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<sup>1</sup>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.

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.

- a. If the existing (1990/91) level of service was F, then the standard was set to be LOS F.
- b. If the existing or future level of service was or will be E, then the standard was set to be LOS E.
- c. The standard for roadway segments near the San Francisco, Santa Clara, and Alameda County borders, with one exception,<sup>2</sup> 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.)
- d. On SR 82 (El Camino Real), the standard was set to be LOS E.
- 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 3-2 and on Figure 3-2.

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.*

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<sup>2</sup>For I-280 south of SR 84, the adopted standard is LOS D.

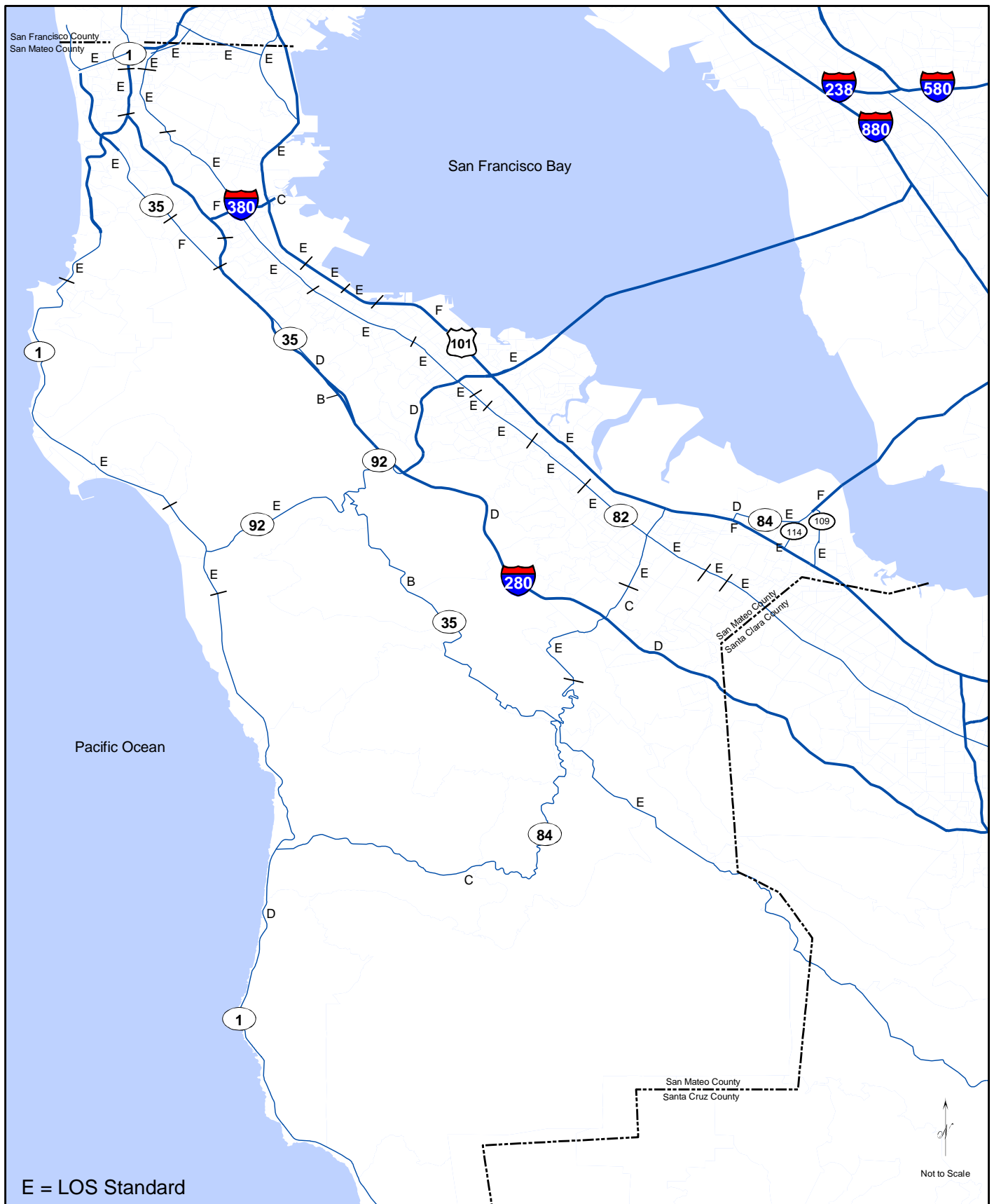
**Table 3-2**  
**Level of Service Standards for CMP Roadway Segments<sup>a</sup>**

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 <sup>b</sup>
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 Avenue	B	E
82	3rd Avenue to SR 92	B	E
82	SR 92 to Hillsdale Avenue	A	E
82	Hillsdale Avenue to 42nd Avenue	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 Pulgas 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
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

Route	Roadway Segment	Baseline (1990-91) LOS	LOS Standard
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 Avenue 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

<sup>a</sup> Levels of Service calculated based on volume-to-capacity ratios.

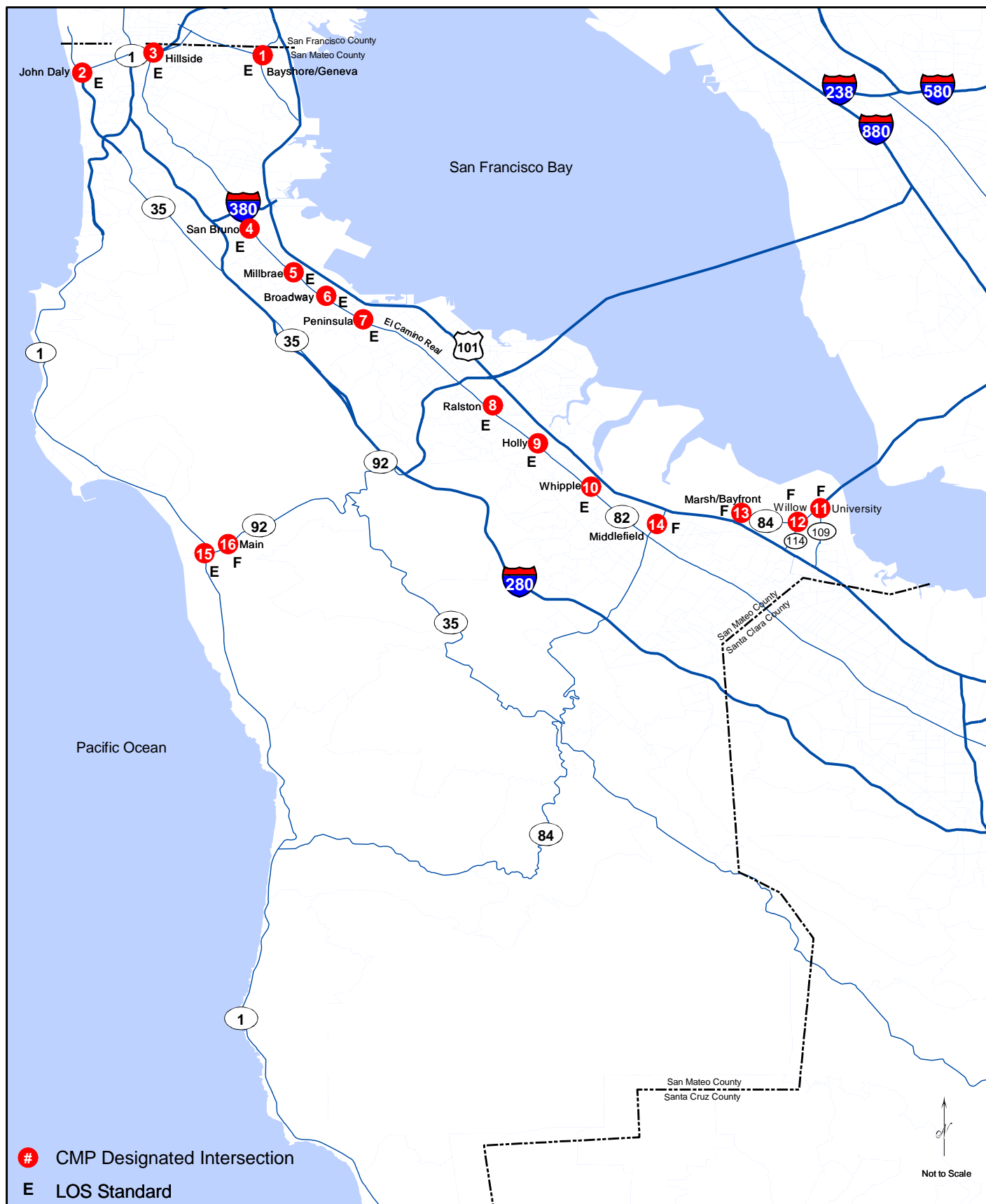
<sup>b</sup> The LOS Standard has been changed from LOS E to LOS F based on the evaluation of additional traffic count data.



**CMP Roadway Segments and LOS Standards**

Figure 3-2





**CMP Intersections and LOS Standards**  
Figure 3-3



2. The standards established the direction for subsequent CMPs. With the adoption of those standards, the C/CAG started the technical and political processes of respecting small area or city-based differentiations, while requiring that information on operating conditions be collected throughout San Mateo County to monitor changes in levels of service on roadways considered to be of importance to more than one jurisdiction.
3. 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.)

## **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 for 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 of the segments on which these intersections are located have standards set to LOS E.)

The LOS standards adopted by C/CAG for the 16 designated intersections are presented in Table 3-3 and Figure 3-3.

**Table 3-3**  
**Intersection Level of Service Standards**

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

Intersection	Peak Hour	Baseline (1993) LOS	LOS Standard
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	

## 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 2005 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 Tables 3-2 and 3-3 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 of these changes, 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 that new information.

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## **CHAPTER 4**

### **Performance Element**

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#### **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**

## *Performance Element*

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, retained for the 1999, 2001, and 2003 CMP's, and will be retained for the 2005 CMP. In addition, for the 2003 CMP, retained for the 2005 CMP, the Pedestrian and Bicycle Improvement performance measure will be 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.* 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 (bus, 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 in order to better assess the degree to which congestion is improving or worsening.

*Performance Element*

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## **CHAPTER 5**

### **Trip Reduction and Travel Demand Element**

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#### **Legislative Requirements**

California Government Code 65089.a.3 requires that a Trip Reduction and Travel Demand Element be part of the CMP. As stated in that legislation, and amended by AB 1963, 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.

The agency and air quality management district are to coordinate the development of trip reduction responsibilities and shall avoid duplication. A multiple site employer shall have the option of complying with a district employer trip reduction rule, or a similar rule proposed pursuant to a federal implementation plan, and reporting directly to the district or a federal or state agency. A multiple site employer that exercises this option shall be exempt from an employer-based trip reduction requirement imposed pursuant to the trip reduction and travel demand element. As per Health and Welfare Code 40929, the Congestion Management Agency shall not require an employer to implement an employee trip reduction program unless the program is expressly required by federal law and the elimination of the program will result in the imposition of federal sanctions, including, but not limited to, the loss of federal funds for transportation purposes. This does not however, prohibit local jurisdictions from requiring trip reduction and other transportation demand management programs as a condition for the approval of development permits.

Measure A, adopted by the San Mateo County voters on June 7, 1988, and reauthorized for extension in November 2004, authorized the imposition of a one-half cent increase in the sales tax to support transportation improvements contained in the Transportation Expenditure Plan adopted by the Board of Supervisors and a majority of the cities representing a majority of the population. This Plan requires that the Transportation Authority adopt in conjunction with the County and the Cities, a Transportation Systems/Demand Management (TSM/TDM) Plan, and that no Measure A project (excluding Paratransit, Local Entities, TSM, Bicycle Program, and Administration) shall be allocated funds unless the project is found to be in conformity with the TSM/TDM Plan. Each jurisdiction in

San Mateo County must have a TSM/TDM plan/program in order to be eligible to receive Measure A funds.

## **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 5-1

**Table 5-1**  
**San Mateo County Employed Residents (Mode of Transportation to Work)**

	1990		2000		Change
Drive Alone	251,218	(.72)	256,066	(.72)	4,848
Carpool	45,104	(.13)	45,637	(.13)	533
Public Transportation	25,788	(.07)	26,029	(.07)	241
Motorcycle	1,333	(.01)	878	(.00)	-455
Bicycle	2,606	(.01)	2,896	(.01)	290
Walked	8,868	(.03)	7,609	(.02)	-1,249
Other Means	6,059	(.02)	2,406	(.01)	-3,652
Work at Home	9,532	(.03)	12,845	(.04)	3,313
TOTAL:	346,559		354,096		7,537
Source: 1990 and 2000 Census.					

Most county employed residents are driving alone to work, a trend that has grown stronger since 1980. In 1990 and 2000, solo automobile drivers accounted for 72 percent of the county employed residents' commute trips. By comparison, only 7 percent traveled to work by transit and 13 percent by carpool.

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 5-2, the number of jobs to be located in San Mateo County will grow faster than the number of county residents seeking employment.

**Table 5-2**  
**San Mateo County's Employment and Employed Residents**

	2000	2005	2010	2020	2030
Employment	386,590	336,460	368,390	433,860	507,090
Employed Residents	369,725	318,600	348,100	403,900	464,600
Ratio of Employment to Employed Residents	1.05	1.06	1.06	1.07	1.09

Source: ABAG Projections 2005

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 5-3, 59 percent of the jobs in San Mateo County are filled by San Mateo County residents in year 2000. The remaining jobs are filled by employees who reside in the neighboring counties in relatively equal parts. Similarly, approximately 59 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 is expected to work within San Mateo County.

**Table 5-3**  
**Origins and Destinations of Home-to-Work Trips**

	San Mateo County Jobs Filled by Employees Residing in Each County		San Mateo County Employed Residents Who Commute to Each County	
	2000	2020	2000	2020
San Mateo	206,093	252,555	206,093	252,555
San Francisco	43,306	50,071	71,702	83,367
Santa Clara	40,666	53,313	55,473	61,887
Alameda	33,501	47,134	14,783	16,489
Rest of Region	23,334	N/A	4,209	N/A

Source should now reflect that data came from Census 2000 journey-to-work data and it was adjusted using work trip increases forecast from ABAG Projections 2003.

## **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 which 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.

### *Trip Reduction and Travel Demand Element*

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.

### ***Local TSM/TDM Programs That Have Been Implemented In Direct Response To The Requirements Under Measure A***

Local governments in San Mateo County continue to 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 operate 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). Many of the cities in ITSMA and MTSMA are large employers themselves and have programs for their own employees. In May 2000, these two agencies joined forces in order to provide a comprehensive program of services for the entire County. The new agency is the Peninsula Traffic Congestion Relief Alliance. 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 of the tenants at the Airport.

### ***Peninsula Traffic Congestion Relief Alliance Programs***

The Peninsula Traffic Congestion Relief Alliance, (the Alliance) is San Mateo County's Transportation Demand Management Agency. Established in May 2000, as a result of the merger of the Multi-City Transportation Systems Management Agency and the Inter-City Transportation Systems Management Agency, the primary objective of the Alliance is to reduce the number of single occupant vehicles traveling in, to and through San Mateo County, reducing traffic congestion and vehicle emissions, thus improving air quality. The Alliance's programs are accomplished through sales, marketing and management of transportation demand management (TDM) programs provided to commuters, local employers and residents.

These TDM programs promote use of alternative modes of transportation including taking public transit such as SamTrans, Caltrain and BART, express employer shuttle bus connections from public transit, vanpools, carpools, residential shuttle buses, bicycling, and walking. The Alliance also provides for transit complementary programs such as the Emergency Ride Home Program and Downtown Dasher, a mid-day, on-demand taxi program.

Specific programs offered through the Alliance include the following:

Emergency Ride Home Program: Employers can provide their employees with the assurance that if

the employee takes an alternative type of commute to work (other than their car) the employee can be provided a ride home if an emergency arises during the work day. The Alliance pays for 75% of the ride home either by taxi or 24-hour rental car and the employer pays the other 25%.

**Vanpool Incentive Program:** Employees who agree to drive a new vanpool for six months consecutively will receive a \$500 cash incentive. Other employees who agree to become passengers of the new vanpool for three months consecutively will be reimbursed half of their vanpool costs (maximum of \$80 per month). This is a one-time incentive program.

**Carpool Incentive Program:** Employees and residents of San Mateo County who commit to carpooling together at least 2 days per week for 8 consecutive weeks receive a \$40 gas card (per passenger) as an incentive. Carpool participants may reapply annually for the program.

**Carpool to College and School Pool Pilot Program:** Students who commit to carpooling together at least 2 days per week for 4 weeks during a semester of school receive a \$20 gas card (per passenger) per semester as an incentive. While parents who agree to take their children to school with another parent and child of another family at least 2 days per week for 4 weeks during a semester of school will also receive a \$20 gas card (per participating parent) as an incentive. (The school pool program is a pilot program working with one school in Half Moon Bay, California).

**Try Transit Program:** Employees and residents of San Mateo County can try transit for free. Many of the local public transit agencies including Caltrain, SamTrans, BART, AC Transit and VTA provide tickets to get people who have not taken public transit, to try transit as a one-time incentive.

**Bicycle Parking Incentive and Safety Program:** Employers can provide accommodation for employees interested in bicycling to and from work by installing bicycle racks or lockers at their business. The Alliance provides 50% of the cost of the bicycle parking from basic bike racks to high security bike lockers, up to a maximum of \$500 per unit.

The Alliance can also provide complimentary bicycle safety sessions for employees and for local residents who are commuting by bicycle. A certified bicycle safety instructor provides rules of the road information and bicycle repair and maintenance tips.

**Shuttle Program:** The Alliance offers complimentary shuttle services to employees from BART and Caltrain stations through employer participation in shuttle consortium groups. This is a cooperative effort between the Alliance, SamTrans/JPB, the cities who are sponsoring the program and local employers. This partnership has fostered fourteen sponsored shuttles operating in the cities of Brisbane, Burlingame, Foster City, San Carlos, San Mateo and South San Francisco. These shuttles transport, on average, 300,000 riders annually.

**Commuter Benefits Consulting:** The Alliance assists employers with setting up a commuter subsidy program for employers utilizing \$105 per employee per month as a pre-tax payroll benefit or as a fully subsidized program for commuter checks to be used for employees who take public transit.

**Downtown Dasher:** An on-demand taxi service in South San Francisco, providing employees of companies East of Highway 101 with access to downtown South San Francisco during mid-day. This service promotes downtown businesses in South San Francisco and also assists in alleviating drivers of single occupant automobiles to utilize a taxi service as an alternative during the lunch hour.

Commute.org Internet Site: The Alliance's website, [commute.org](http://commute.org), provides detailed information on all Alliance programs including: forming vanpools, receiving vanpool incentives; starting a carpool and receiving the carpool incentive; the emergency ride home program; the try transit program; bicycle parking incentive and safety classes; shuttle routes and schedules; transit schedules and information. Commute.org also provides rider alerts to advise shuttle riders of changes to schedules or other pertinent information that riders may need.

### *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 45,301 passengers in calendar year 2004. This program is funded by a combination of City and County Association of Governments Local Services grant, business contributions, and the San Mateo County Joint Powers Board.

The City also manages a the Midday shuttle service which is a community service route open to the general public but focuses on the senior community. During the calendar year of 2004, the Midday carried 24,559 passengers. Smaller minibuses provide a community feel; buses are easily identified with the City of Menlo Park logo and other design elements. The small buses are able to drive into major activity centers such as the senior centers and popular shopping destinations. In addition, stops are made at the library in downtown Menlo Park, the Veterans Hospital, Stanford Hospital, and OICW. For those residents who do not live within an easy walking distance of a SamTrans stop or the Midday shuttle service stop, Menlo Park offers a shuttle service that picks up passengers at their homes provides rides to specific shopping areas. These programs are funded by a combination of AB 434 Transportation Fund for Clean Air local allocation, Redevelopment funds, City and County Association of Governments Local Services grant and new office development fees.

### ***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 which 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. The third cycle of the Local Transportation Services program was adopted by the C/CAG Board on June 9, 2005, awarded funds for the following jurisdictions:

City of Menlo Park	\$60,145
City of Foster City	\$66,550
City of Burlingame	\$45,000
City of East Palo Alto	\$73,915
City of Millbrae	\$56,000
Cities of Brisbane & Daly City	\$44,989

### *San Francisco International Airport's Program*

San Francisco International Airport (SFO) adopted a TSM program as part of the mitigation measures required under CEQA to reduce the significant transportation impacts of the airport's recently completed master plan expansion. The objective of the TSM program is to reduce travel throughout the day by private automobile, especially single-occupant vehicles. The goal of the TSM program is to attain a reduction in the percentage of air passengers and employees who come to SFO by single-occupant vehicle of two percent each year for the first five years of the Master Plan period, and one percent each year thereafter through the end of the Master Plan. A TSM Manager developed the specific program and coordinated it with activities of SFO tenants, San Mateo County, the City and County of San Francisco, SamTrans, BART, CalTrain, shuttle/van/taxi companies that serve SFO, and other public agencies whose services or regulatory functions affect the mode of travel chosen by employees and air passengers. The TSM Manager will continue to meet regularly with the San Mateo County Congestion Management Agency staff and the San Mateo County Transportation Authority staff to exchange information related to traffic and transportation issues within San Mateo County and exchange progress reports on the Airport and County TSM programs. SFO continues to have one of the highest commercial, shared ride ground access usage rates in the country, with over 42 percent of all air passengers arriving at the airport via door-to-door van, scheduled airporter, charter bus, hotel courtesy shuttle, taxi or limousine. Approximately 7.5 percent of air passengers use BART to access the airport. BART provides a 25 percent fare discount to/from the airport for airline employees to encourage commute ridership. SFO is subsidizing SamTrans Route 397 to maintain the owl bus service that operates between San Francisco and Palo Alto with a stop at SFO. The subsidy is based on the number of passengers boarding or alighting at SFO. Together, SamTrans bus routes 397 and 292 provide 24-hour public transit service to SFO and benefit both air passengers on delayed flights arriving after BART and other ground transportation services cease operation at night, as well as employees with shift start/end times outside normal ground transportation operating hours.

SFO tenant trip reduction programs include flexible work hours, transit incentives, carpool/vanpool matching, preferential parking for carpools/vanpools, and guaranteed ride home. The Airport's TSM program also includes consolidation of hotel shuttle services. As a result of this program, hotel shuttle trips have been reduced by 40 percent since 1999. During the same time period, the number of hotel rooms has increased by 20 percent, according to the San Mateo County Convention and

Visitors Bureau, resulting in a trips/room decline of 50 percent. The Airport's Transportation Management Program also includes a Transit Information Program for air passengers. Within the terminals, detailed ground transportation information is available at staffed information booths through computerized kiosks adjacent to the booths. Information on ground transportation access options to SFO is also available via the Airport's Internet web page: [www.flysfo.com](http://www.flysfo.com). The Airport's recently completed Master Plan incorporated several projects designed to reduce the number of single-occupant vehicles accessing the Airport. These projects included a convenient, consolidated rental car facility and the AirTrain people-mover system. The AirTrain people-mover system replaces the Airport's consolidated rental car shuttle buses, which operated a total of almost 600 round trips per day. AirTrain, powered by hydro-electricity, eliminates all emissions for these trips.

#### ***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 has recently begun to examine the City of South San Francisco's TDM ordinance for use in the next update of the guidelines for the land use component of the Congestion Management Program.

#### ***AB 434, Transportation Fund for Clean Air and Its Relationship to TSM/TDM***

AB 434 provides authority for the Bay Area Air Quality Management District to impose a surcharge of up to \$4 on motor vehicle registration fees. The surcharge provides funding specifically for projects that reduce air pollution from the use of motor vehicles. Funds generated by the fee are referred to as the Transportation Fund for Clean Air (TFCA). Projects funded by TFCA funds often have a positive impact on the TSM and TDM effort. This impact however, is incidental to the purpose of the funds - which is to improve air quality.

TFCA funds raised through the surcharge are distributed by the District through two processes. Sixty (60) percent, referred to as the Regional Fund, are first used to fund certain District programs. These funds are distributed throughout the nine-county Bay Area on a competitive basis. The remaining 40 percent of the funds generated in each county are returned to the Program Manager(s) of that county. C/CAG has been designated as the overall Program Manager to receive the funds in San Mateo County. For the past years, C/CAG has allocated the Program Manager Funds to shuttle programs.

### **TSM/TDM and Other Elements of the CMP**

Under the Land Use Impact Analysis Program (Chapter 6), C/CAG requires that a plan to mitigate all new peak hour trips be included as a condition of the approval of development agreements. A copy of this new policy and implementation guidelines is included in Appendix G. TDM measures can be used to satisfy this requirement. C/CAG strongly encourages existing developments to adopt these same measures on a voluntary basis. TSM and TDM measures also comprise BAAQMD's Deficiency List of Programs, actions, and improvements to be included in Deficiency Plans.

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## **CHAPTER 6**

### **Land Use Impact Analysis Program**

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#### **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 has been collected and updated over the past two years and will be updated annually. This data 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.

## **2005 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 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.

C/CAG will also develop a financial plan for review and consideration by all jurisdictions and agencies. The financial plan will specify how to most effectively use pools of federal, State, and local funds to implement capital improvement programs.

### ***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 of 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.

1. Reduce the scope of the project so that it will generate less than 100 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. 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.
4. 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 in order 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. 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 in order 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**

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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<sup>1</sup> shall monitor the implementation of the elements of the congestion management program. At least biennially, the agency shall determine if the county and cities are conforming to the congestion management program, including, but not limited to, all of the following:
  - (1) Consistency with the levels of service and performance standards, except as provided in subdivisions (b) and (c).
  - (2) Adoption and implementation of a trip reduction and travel demand ordinance.
  - (3) Adoption and implementation of a program to analyze the impacts of land use decisions, including the estimate of the costs associated with mitigating these impacts.
- (b) (1) A city or county may designate individual deficient segments or intersections which do not meet the established level of service standards if, prior to the designation, at a noticed public hearing, the city or county has adopted a deficiency plan which shall include all of the following:
  - (A) An analysis of the causes of the deficiency.
  - (B) A list of improvements necessary for the deficient segment or intersection to maintain the minimum level of service otherwise required and the estimated costs of the improvements.
  - (C) A list of improvements, programs, or actions, and estimates of costs that will (i) measurably improve the level of service of the system, as defined in subdivision (b) of Section 65089, and (ii) contribute to significant improvements in air quality, such as improved public transit service and facilities, improved nonmotorized 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.

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

- (D) An action plan, consistent with the provision of Chapter 5 (commencing with Section 66000) of Division 1 of Title 7,<sup>2</sup> 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.

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<sup>2</sup>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.

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

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

- (a) If, pursuant to the monitoring provided for in Section 65089.3, the agency determines, following a noticed public hearing, that a city or county is not conforming with the requirements of the congestion management program, the agency shall notify the city or county in writing of the specific areas of nonconformance. If, within 90 days of the receipt of the written notice of nonconformance, the city or county has not come into conformance with the congestion management program, the governing body of the agency shall make a finding of nonconformance and shall submit the finding to the commission and to the Controller.
- (b) Upon receiving notice from the agency of nonconformance, the Controller shall withhold apportionments of funds required to be apportioned to that nonconforming city or county by Section 2105 of the Streets and Highways Code, until the Controller is notified by the agency that the city or county is in conformance.

In addition, per SB 1435, a nonconforming jurisdiction will be disqualified from receiving funding from the Transportation Equity Act for the 21<sup>st</sup> 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

## *Deficiency Plan Guidelines*

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. 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. 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 taken into account toward the LOS determination for the purpose of 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 of 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.



## *Deficiency Plan Guidelines*

### 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) has retained Fehr & Peers Transportation Consultants to conduct the 2005 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 indicate that five of the 53 roadway segments are in violation of the LOS Standard in 2005. These locations are:

SR 1, San Francisco County Line to Linda Mar Boulevard  
SR 35, I-280 to SR 92  
SR 84, Willow Street to University Avenue  
SR 92, I-280 to US 101  
I-280, SR 1 (south) to San Bruno Avenue

Of the above five segments, the SR 35 and SR 92 segments were not in violation in 2003. The remaining segments (SR 1, SR 84, and I-280) were also in violation in 2003. The following roadway segment that violated the LOS Standard in 2003 were found not to be in violation in 2005:

I-280, San Francisco County Line to SR 1 (north)

A number of 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 a number of 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, 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 for the next four years, starting from July 1, 2002, resulting from roadway LOS monitoring. An executive summary of the Plan is shown below.

## **Executive Summary Of San Mateo County Congestion Relief Plan (Deficiency Plan)**

This Congestion Relief Plan is necessary because a number of 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 each and every jurisdiction, while not putting a halt to this economic growth.

The Plan being proposed 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, starting from July 1, 2002.

The following elements 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. Expand the Countywide Employer-Based Shuttle Program.

Recommendation: Increase the permanent funding available for the Countywide Employer Shuttle program of proven effectiveness. This shuttle program focuses on connecting employment centers to transit centers (both BART and Caltrain). The cost to the 20 cities and the County for this component will be \$500,000 based on each jurisdiction's share of automobile trips both generated and attracted as a percent of the Countywide total. It is anticipated that these funds will be matched dollar for dollar by a combination of Transportation Authority, SamTrans, Joint Powers Board, and/or employer contributions. The benefit to the cities and the County will be the creation of new employer-based shuttles for the residents and employers in the community.

2. Create a network of Local Transportation Services.

Recommendation: The intent of this recommendation is to increase the use of public transit by the residents of each local community, thereby reducing local congestion. Local jurisdictions will be encouraged to participate in experimental efforts to provide transportation services for its residents that meet the unique characteristics and needs of that jurisdiction. A Countywide pool of funds of approximately \$1 million dollars will be

established and made available to match local jurisdiction efforts on a dollar for dollar basis. 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.

3. Expand the Provision of Countywide Transportation Demand Management Programs and 4. Creation of a Countywide "Try Transit" Campaign.

Recommendation: Increase the permanent funding available for Countywide Transportation Demand Management projects of proven effectiveness through the Peninsula Congestion Relief Alliance. Employees and residents of San Mateo County can try transit for free. Many of the local public transit agencies including Caltrain, SamTrans, BART, AC Transit and VTA provide tickets to get people who have not taken public transit, to try transit as a one-time incentive. The cost to the cities and the County for this component will be \$500,000 based on each jurisdiction's share of automobile trips both generated and attracted as a percent of the Countywide total. The benefit to the cities and the County will be the creation of new employer-based initiatives that encourage and support workers taking alternative transportation modes to and from work.

4. Develop a Countywide Intelligent Transportation Study and Plan.

Recommendation: New technologies and other techniques can improve the efficiency of the existing transportation infrastructure. In order to be truly effective, these systems must be implemented on a regional basis, and not only in selected locations. This recommendation is to fund a comprehensive plan and recommendations for the implementation of state-of-the-art intelligent transportation systems throughout San Mateo County. The plan will include an evaluation of the current technology, estimated traffic improvements resulting from implementation of the plan, and anticipated cost of deploying and maintaining the system. The cost to the cities and the County for this component will be \$200,000 based on each jurisdiction's share of automobile trips both generated and attracted as a percent of the Countywide total. These funds will be matched dollar for dollar by the Transportation Authority. The benefit to the cities and the County will be the improvement of mobility within and through each community as a result of the more efficient use of the existing roadway and freeway network.

5. Develop a Countywide Ramp Metering Study and Plan for U.S. 101 Corridor.

Recommendation: Currently each jurisdiction in which a ramp-metering site is located must develop an agreement with Caltrans before that site is activated. This recommendation is to develop a Countywide approach. C/CAG will first commission a detailed operational analysis of the Route 101 corridor. C/CAG staff will work closely with the staffs of its

member cities in creating a detailed work plan for this study and to identify a recommended list of criteria for C/CAG to consider before determining if ramp metering should be implemented. This work plan will be subject to the review and recommendation of the Technical Advisory Committee (TAC) and the Congestion Management and Air Quality Committee (CMAQ) of C/CAG. The C/CAG Board will ultimately determine the acceptability of the work plan. The operational analysis will also include the impacts of ramp metering on local streets and roads. This analysis is currently conducted by an independent contractor, DKS Associates, under the direction of C/CAG and will identify the congestion relieving benefits (if any) for specific locations. The staffs of local jurisdictions, the TAC, and CMAQ will continue to be involved in all aspects of the study and the formulation of recommendations for C/CAG. After consideration of this study and the recommendations of the TAC and CMAQ, C/CAG would decide whether to enter into a Countywide agreement with Caltrans for the activation of ramp metering along any parts of the Route 101 corridor. No location will be activated without conducting the analysis or without the prior authorization of the C/CAG Board. Local jurisdictions impacted by the outcomes of the study will have an opportunity to review and comment on any recommendations before they are presented to the C/CAG Board for consideration. The cost to the cities and the County for this study will be \$100,000 based on each jurisdiction's share of automobile trips both generated and attracted as a percent of the Countywide total. These funds will be matched dollar for dollar by the Transportation Authority. The benefit to the cities and the County will be the improvement of mobility within and through the community as a result of the more efficient use of the existing roadway and freeway network.

## 6. Expansion of the Transit-Oriented Development Program

Recommendation: Expand the Transit Oriented Development Program to include incentives for concentrated housing developments and employment centers within one-third of a mile of a fixed rail station. The incentives could be in the form of transit subsidies, flexible work hours, guaranteed ride home program, etc. There is no financial contribution required of the cities or the County to participate in this incentive program. If a city or the County approves a project(s) meeting these criteria and that are subsequently built, they will qualify for funding to make roadway and other community improvements that make it more attractive and convenient for walking and bicycle travel.

## **SUMMARY**

Under this Plan, the cities and the County will be assessed a total of \$1.3 million on an annual basis for the four year period of the Plan, starting from July 1, 2002. This amount represents 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 as a result of the generation of matching funds to support the Plan. Also, as a participant in this Plan the cities and the County will be exempt from any deficiency planning requirements for the next four years, starting from July 1, 2002, that are the result of a roadway segment or intersection exceeding the Level of Service Standard set forth in the Congestion Management Program.

## **EXTENSION**

On April 8, 2004, the C/CAG Board decided to allocate one half of the total funds collected from the Cities/County under the Congestion Relief Plan in fiscal years 2003-04 and 2004-05 to the Cities/County to assist them in addressing the backlog of transportation projects (both maintenance and new projects). In order to ensure that the full funding for the Congestion Relief Plan was still available to accomplish the projects originally set forth in the Congestion Relief Plan, the time period over which the Congestion Relief Plan covered and the assessments were to be collected, was extended for an additional year through 2006-07.

**TOTAL ANNUAL COST TO IMPLEMENT COUNTYWIDE DEFICIENCY PLAN BY JURISDICTION**

		1	2	3 & 4	5	6	7	
	% of Trip Generation	*Employer Based Shuttles	#Local Service	*TDM Programs	*ITS Plan	*Ramp Metering Study	+TOD Programs	Total Annual Cost
Atherton	1.5	\$7,500		\$7,500	\$3,000	\$1,500		\$19,500
Belmont	3.3	\$16,500		\$16,500	\$6,600	\$3,300		\$42,900
Brisbane	1.7	\$8,500		\$8,500	\$3,400	\$1,700		\$22,100
Burlingame	5.0	\$25,000		\$25,000	\$10,000	\$5,000		\$65,000
Colma	1.3	\$6,500		\$6,500	\$2,600	\$1,300		\$16,900
Daly City	9.8	\$49,000		\$49,000	\$19,600	\$9,800		\$127,400
East Palo Alto	2.4	\$12,000		\$12,000	\$4,800	\$2,400		\$31,200
Foster City	4.3	\$21,500		\$21,500	\$8,600	\$4,300		\$55,900
Half Moon Bay	1.0	\$5,000		\$5,000	\$2,000	\$1,000		\$13,000
Hillsborough	1.0	\$5,000		\$5,000	\$2,000	\$1,000		\$13,000
Menlo Park	6.3	\$31,500		\$31,500	\$12,600	\$6,300		\$81,900
Millbrae	2.8	\$14,000		\$14,000	\$5,600	\$2,800		\$36,400
Pacifica	3.4	\$17,000		\$17,000	\$6,800	\$3,400		\$44,200
Portola Valley	1.1	\$5,500		\$5,500	\$2,200	\$1,100		\$14,300
Redwood City	13.8	\$69,000		\$69,000	\$27,600	\$13,800		\$179,400
San Bruno	3.7	\$18,500		\$18,500	\$7,400	\$3,700		\$48,100
San Carlos	4.4	\$22,000		\$22,000	\$8,800	\$4,400		\$57,200
San Mateo	14.5	\$72,500		\$72,500	\$29,000	\$14,500		\$188,500
South San Francisco	9.2	\$46,000		\$46,000	\$18,400	\$9,200		\$119,600
Woodside	1.0	\$5,000		\$5,000	\$2,000	\$1,000		\$13,000
San Mateo County	8.5	\$42,500		\$42,500	\$17,000	\$8,500		\$110,500
Required Assessment	100.0	\$500,000		\$500,000	\$200,000	\$100,000		\$1,300,000
Other Resources		\$500,000	\$1,000,000		\$200,000	\$100,000	\$3,000,000	\$4,800,000
Optional City/County Contribution			\$1,000,000					\$1,000,000
Total Program Value		\$1,000,000	\$2,000,000	\$500,000	\$400,000	\$200,000	\$3,000,000	\$7,100,000

\* Distribution of these assessments is based on the % of Countywide automobile trips generated by jurisdiction.

# Local jurisdictions can apply for the Local Service matching funds on a dollar for dollar basis.

+ Current STIP dedication is \$6 million for 2 years and will be evaluated after that time period.

## **CHAPTER 8**

### **Seven-Year Capital Improvement Program**

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#### **Legislative Requirements**

California Government Code 65089.b.5 requires that the CMP include a seven-year Capital Improvement Program (CIP) to maintain or improve the Traffic Level of Service Standards and to mitigate impacts to the regional transportation system of land use decisions made by local jurisdictions (cities and the County). The CIP must also conform to the requirements of transportation-related programs to mitigate air quality problems.

#### **Discussion**

The purpose of the CIP is to identify transportation system improvements, (i.e., projects) that 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.



## *Seven-Year Capital Improvement Program*

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. On July 29, 2005, Congress has passed the reauthorization of the Transportation Bill - Safe, Accountable, Flexible and Efficient (SAFE), a six-year bill through 2009. The STP and CMAQ programs are expected to continue.

State funding for local transportation projects is available primarily through the State Transportation Improvement Program (STIP). A list of the current projects funded under this program is included in Appendix G. In October 2005, the California Transportation Commission (CTC) provided the Fund Estimates (FE) for the 2006 STIP. C/CAG will consider a list of projects to be recommended to the Metropolitan Transportation Commission (MTC) that in turn will incorporate into a regional recommendation that is submitted to the CTC for adoption in April 2006. A draft list of projects in San Mateo County for the 2006 STIP is in Table 8-1.

## **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 increase 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 in order 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 will include bicycle and pedestrian improvements. A summary of the Transportation Expenditure Plan for Measure A extension is included in Appendix H.

The Transportation Authority is in the process of preparing a Strategic Plan to prioritize improvements. Many of those improvements will also require state and/or federal funding and are part of the CMP.

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

- Four dollar fee on motor vehicles registered in San Mateo County (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 (also enacted in 1990)

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 San Francisco Bay Area Regional Transportation Plan – The *Transportation 2030***

In February 2005, the Metropolitan Transportation Commission (MTC) adopted the *Transportation 2030 Plan*. It is the Regional Transportation Plan (RTP) for the San Francisco Bay Area which details how the transportation system will be maintained, improved and expanded over the next 25 years. The *Transportation 2030 Plan* set goals to ensure safety of travelers, improve the reliability of the transportation systems, equitably distribute mobility benefits by improving access to segments of the population who have fewer mobility options, provide livable communities, clean air, and efficient freight travel. The 2005 Congestion Management Plan (CMP) for San Mateo County is consistent with those goals and objectives established in the *Transportation 2030*.

The RTP is a fiscally constrained planning document that identifies the projects in the region that can be funded through the Year 2025 based on a careful review of all the funding sources anticipated to be available. Each Congestion Management Agency within the Bay Area Region has had its projects in the financially constrained element and the vision element. The financially constrained element refers to programmed local, regional, state, federal funds as well as discretionary state and federal funds anticipated to be available over the 25 years. The vision element refers to funds that may become available through voter approval or legislative authorization.

The projects for San Mateo County included in the *Transportation 2030 Plan* are included in Appendix J.

**Table 8-1**

<b>Proposed 2006 State Transportation Improvement Program (STIP)</b>									
<b>Implementing Agency</b>	<b>Project Title</b>	<b>2006 RTIP Only</b>	<b>2006 RTIP Funding by Fiscal Year</b>						<b>ITIP</b>
			05/06	06/07	07/08	08/09	09/10	10/11	
Caltrans	SR 1 - Devil Slide Bypass Tunnel	\$750				\$750			
San Mateo TA	US 101 - Auxilliary Lane (3rd to Millbrae Ave	\$28,495	\$28,495						\$15,211
Caltrans									
Caltrans	US 101 - Auxilliary Lane (SCL Co. Line to M	\$9,021				\$9,021			
Caltrans	SR 92 - Shoulder widening & Curve Correcti	\$2,619		\$2,619					
Caltrans	SR 92 - Slow Vehicle Lanes from SR 35 to I	\$12,540				\$12,540			
BART	SFO Extension bike/ped path (SO)	\$2,120			\$2,120				
Caltrans	US 101 - Willow Road Interchange Reconst	\$10,961		\$1,940		\$9,021			
San Mateo TA	Caltrain - Tilton/Popular Grade Separation	\$8,485		\$8,485					
	Total:	\$74,991	\$28,495	\$13,044	\$2,120	\$31,332			\$15,211

## **CHAPTER 9**

### **Data Base and Travel Model**

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#### **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**

The purpose of the requirements presented above is to establish uniform technical assumptions and methodology for the congestion management process. Included in possible decisions must be consideration of the benefits of transit service and transportation demand management programs, as well as highway projects, to alleviate potential congestion on the designated CMP Roadway System. The modeling requirement is also intended to assist local agencies in assessing the impacts of new land development(s) on the transportation system.

The San Mateo Countywide Travel Demand Forecasting Model is a tool essential to the success of the ongoing CMP planning process. Application of the model will allow the C/CAG to project the potential impacts of local land development decisions on the CMP Roadway System.

## **Land Use Data Base Development**

The land use data base that will be used in conjunction with the Countywide Travel Demand Forecasting Model is based primarily on data from the 2000 Census of Population for existing residential uses and projections summarized in the *Projections '03* report prepared by the Association of Bay Area Governments (ABAG). Projections of socioeconomic variables were made for the traffic analysis zones defined for San Mateo County. Aggregations of the zonal projections make it possible to produce projections of socioeconomic characteristics for individual unincorporated areas and the 20 cities in the County.

## **Model Development**

The original Countywide Travel Demand Forecasting Model was developed in 1993. A technical description of the work that was conducted to develop and validate the model is provided in the *San Mateo County Travel Demand Forecasting Model, Documentation*, Barton-Aschman Associates, Inc., January 1994. In May 1996 a number of refinements and enhancements were made to the countywide model, specifically with respect to the zonal level of detail in the vicinity of transit corridors, and to the structure and performance of the mode choice models. In November 2001, additional refinements were made to the trip generation models (to conform to the recently completed *MTC-Baycast* model) and highway assignment models. Most recently, the model land use was updated to ABAG Projections 2003, the zone system outside San Mateo County (but within the 9-county Bay Area) was made consistent with the MTC-1454 traffic analysis zone system, and the base year validation was performed to year 2005 highway and transit counts. The countywide model produces 4-hour peak period trips for AM and PM.

The framework established for the model encompasses the following five components: trip generation, trip distribution, mode choice, highway assignment, and transit assignment. These are the typical model components found in any model whose purpose is to produce simulations of travel demand based on different assumptions about land use, demographic, and transportation system characteristics.

The San Mateo Countywide Travel Demand Forecasting Model was implemented using the EMME/2 (version 9.2) software. EMME/2 is an interactive transportation planning program that produces numerical and graphic representations of travel supply and demand.

The model has been structured to provide forecasting detail that adequately addresses the evaluation needs of both countywide and corridor-specific transportation strategies. To accomplish these objectives, the San Mateo Countywide Model was developed to rely on a zone structure detailed enough to depict changes in land use and demographic characteristics that would affect travel demand on state highways and intracounty transit systems, and highway and transit networks detailed enough for the analysis of those types of travel demand.

A representation of land use and demographic characteristics of the entire nine-county Bay Area also allows the travel model to produce travel demand forecasts that incorporate influences of regional travel demand on transportation facilities in San Mateo County.

## **Traffic Analysis Zone System**

The traffic analysis zone (TAZ) structure developed for the San Mateo Countywide Travel Demand Forecasting Model is a refinement of the 1454-zone structure used by MTC for their nine-county regional travel model. TAZs are small geographical subdivisions of a region. Forecasts of socioeconomic variables, such as households and employment, are collected at the TAZ level for use by the travel demand models.

The San Mateo Countywide Travel Demand Forecasting Model required disaggregating or splitting the MTC zones within San Mateo County into more and smaller TAZs. The San Mateo County TAZs nest precisely within the larger MTC zones. This facilitates the disaggregation of projections of travel (person trip tables) created using MTC's zone structure to the traffic zones, and allows direct comparisons between the San Mateo Countywide Model's outputs and those from the MTC model.

### ***Internal San Mateo County Zones***

Within San Mateo County, MTC's 1099-zone system was refined to better suit the more detailed model network of the San Mateo Countywide model. As a result of this zone refinement effort, the approximate 100 to 200 MTC zones in San Mateo County were increased to 333 TAZs.

### ***External Zones***

Outside of San Mateo County, the level of detail decreased as the distance from San Mateo County increased. The MTC 1454-zone structure was used for areas directly adjacent to San Mateo County, except for specific study areas where a greater level of detail was desired. MTC's superdistricts (of which there are 34 in the entire region) were used for the remaining areas of the region. A total of 769 external TAZs were developed.

## **Highway and Transit Networks**

Networks are representations of transportation systems. For the purpose of model validation and calibration, a network describing the characteristics of the transportation systems in 2005 and 2000, respectively, was created. These networks consist of highway, transit, and auxiliary transit (walk- and park-and-ride access connectors) elements.

As with the TAZ development process, the San Mateo County highway and transit networks were derived from the MTC regional networks. Within San Mateo County, the roadway network level of detail was increased to include intracounty arterials not included in the regional network. These roadways were added to ensure that every TAZ is accessible to the network, that principal travel routes exist in their entirety, and to maintain the continuity of bus routes that were coded over the roadway network.

The level of detail for the transportation network represented outside San Mateo County decreases with increasing distance from the county. For counties directly adjacent to San Mateo an arterial network was maintained, while for counties farther away only regional facilities (usually freeways) were coded in the network. Regional transit facilities, such as express bus routes and rail transit, such as BART and CalTrain are also coded into the networks to allow for the estimation of inter-county and intracounty transit travel. Large feeder services such as MUNI, Samtrans bus, VTA bus and VTA light rail are also coded in these networks and maintained

## **Model Components**

The model produces the following countywide travel information:

- « Trip generation (these are forecasts of the number of trips produced by and attracted to each TAZ)
- « Trip distribution (these are distributions of trips simulated between each pair of TAZs, by trip purpose)
- « Mode choice for interzonal trips (these are the forecasts of trips by travel modes such as drive-alone auto, shared-ride auto, and transit made between TAZs)
- « Highway assignment (forecasts of trips made on the roadway networks being modeled)
- « Transit assignment (forecasts of trips made on the transit networks being modeled)

(It should be noted that the model developed for San Mateo County has the capability of creating forecasts of home-based university and home-based secondary school, as well as air passenger trips.)

## **Model Updates**

MTC completed work on its BAYCAST model several years ago. In response to that, C/CAG has maintained a series of overhaul updates of the countywide model so that it primarily implements the BAYCAST models and it continues to be consistent with the MTC regional model. The latest update includes ABAG Projections 2003 as the basis for land use assumptions. A copy of the Checklist for Modeling Consistency is included as Appendix K.

## CHAPTER 10

# Monitoring and Updating the CMP

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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<sup>1</sup> basis by the designated Congestion Management Agency. The specific language regarding monitoring states that:<sup>2</sup>

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 of the following:

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<sup>1</sup>According to AB 1963.

<sup>2</sup>California Government Code Section 65089.3 (a).



## *Monitoring and Updating*

- (1) Consistency with levels of service and performance standards, except as provided in subdivisions (b)<sup>3</sup> and (c).<sup>4</sup>
- (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 C/CAG would make a finding of nonconformance. The CMP legislation describes the process for determining nonconformance as follows:<sup>5</sup>

- (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) Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) until such time as 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.

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<sup>3</sup>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.

<sup>4</sup>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).

<sup>5</sup>California Government Code Section 65089.5, subsections (a) and (b).

## **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 five deficient segments have been identified through the 2005 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 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:

1. Whether they are being implemented according to the schedule described in their specific action plans, and
2. 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

### *Monitoring and Updating*

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 TEA-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**

# **Pilot Program For The Management of Traffic Congestion and Stormwater Pollution**

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### **BACKGROUND/DISCUSSION**

Assemblymember Simitian introduced AB 1546 on behalf of C/CAG in 2003. This bill was adopted by the Legislature on August 18, 2004, and signed into law by the Governor on September 29, 2004. It took effect on January 1, 2005 as Chapter 2.65 (commencing with Section 65089.11) to Division 1 of Title 7 of the Government Code and Section 9250.5 of the Vehicle Code, relating to local government. The new law provides authorization for the City/County Association of Governments of San Mateo County to impose an annual fee of up to \$4 on motor vehicles registered within San Mateo County for a program for the management of traffic congestion and stormwater pollution within San Mateo County.

AB 1546 created a pilot program for San Mateo County with strong management controls including public hearings, specific work program/budget, performance measures, independent audit, sunset provision, and a report to the Legislature.

In order to impose the fee, the C/CAG Board must hold a public hearing to adopt a program and budget for the management of traffic congestion and stormwater pollution within San Mateo County, make a finding of fact that those programs bear a relationship or benefit to the motor vehicles that will pay the fee, and adopt performance measures for those programs.

Proceeds from the fee must only be used for programs that bear a relationship or benefit to the motor vehicles that will pay the fee. This includes motor vehicle congestion and stormwater pollution prevention programs that directly address the negative impacts on creeks, streams, bays, and the ocean caused by motor vehicles and the infrastructure supporting motor vehicle travel. The C/CAG Board, by a two-thirds vote, must make a finding of fact that there is such a relationship between the use of the fee and the payers of the fee.

On December 9, 2004 the C/CAG Board unanimously approved the imposition of a four dollar (\$4.00) fee for motor vehicles registered in San Mateo County, a corresponding program of services,

and a budget for the expenditure of the fees. On March 10, 2005 the C/CAG Board unanimously approved Resolution 05-08 that refined the program and budget, clearly justified the need for the fee, and established performance measures for each of the programs to be funded with the fee .

## **JUSTIFICATION FOR THE FOUR DOLLAR (\$4.00) FEE**

The fee revenue must not exceed the cost of the service, including reasonable administrative expenses, and it must be used to pay only for services for which the fee is charged.

C/CAG Staff has analyzed the past and anticipated costs associated with the implementation of the programs listed in the attachment to Resolution 05-08 and has concluded that these costs will far exceed the revenues anticipated to be realized through the imposition of the \$4.00 fee. Attached is the Justification for the fee. This provides the overall basis and analysis. Staff identified both the need and the program planned for the fee. The source is also identified. The following is a summary of that analysis:

Motor Vehicle Related Program Needs - The need is \$528,213,811 with local roads maintenance and \$33,231,003 without, versus \$8,680,000 in revenue from the fee.

The proposed budget is \$8,680,000 over the term, which utilizes all the revenue (\$8,680,000) from the fee.

Program Administration – Limited by statute to no more than 5% of the proceeds of the fee provided to C/CAG. Any unexpended funds in this category will be divided among the program categories.

Department of Motor Vehicles (DMV) setup costs – This amount is a one-time cost to program computers and establish procedures for the collection of the fee. The amount is based on an estimate provided by the DMV. Any unexpended funds in this category will be divided among the program categories.

Local Congestion Management Programs – Based on a recent analysis of the need for San Mateo County local streets and roads maintenance and improvements, there will be a cumulative funding shortfall of \$494,982,808 over the next 25 years.

Clean fuel shuttle program – The annual cost of implementing existing shuttle programs averages \$100,000 per shuttle. The cost of a clean fuel shuttle program will require additional expense.

Deployment of Intelligent Transportation System Countywide Plan – The C/CAG Board has commissioned the development of a Countywide Intelligent Transportation System Plan. It is expected to be completed in the fall of 2005. Based on the program elements included in this Plan, the cost of full implementation is anticipated to exceed ten million dollars. The funding proceeds from this fee will be used as matching funds to hopefully attract other funding sources.

Local Motor Vehicle Related Stormwater Pollution Prevention Programs - The estimates are based on the actual City/ County cost for Street Sweeping, Storm Drain Inlet Cleaning, and Shop Inspections. The Capital Project investment is an estimate assuming \$50,000 each for 20 cities and the County.

Countywide Motor Vehicle Related Stormwater Pollution Prevention Programs -

The Recycling, BMP, and Training Implementation are based on C/CAG Staff estimates. The Hydrology Modification Plan is a quote with an analysis identifying the motor vehicle related portion that is 65% of the total plan. The Hydrology Modification Plan Implementation is interpolated from the actual costs for Santa Clara County.

Therefore, the \$4.00 fee is justified on the following basis:

- 1- The unmet need for the programs to be funded far exceeds the revenue raised by the fee.
- 2- The cost of the planned programs for the term of the fee is the same or greater than the revenue raised by the fee.

- 3- These or similar programs will be supplemented by other revenue such as local, State, and Federal transportation funds in order to try to meet the need.
- 4- Depending on the cost of the individual programs and revenue available additional motor vehicle related services could be provided.
- 5- All the revenue from the fee will be used for eligible programs to address the large need.

## **NEXUS OF THIS PROGRAM TO THE FEE**

The programs to be funded with the proceeds from the fee must have a relationship or benefit to the motor vehicles that are paying the fee.

As it relates to the congestion management component of the program, motor vehicles are the clear and direct cause of traffic congestion on the roadways. The programs to be implemented with the proceeds from the fee will include improvements to the roadway system that facilitate the flow of traffic and reduce travel times, improve the conditions and maintenance of roadways to have the added benefit of reducing the wear and tear on vehicles, improve the performance and efficiency of roadways through deployment of new technologies, and through improvements to public transit to provide alternatives to driving single occupant vehicles.

The stormwater pollution prevention component of the program is designed to curb one of the primary sources of pollutants in the Ocean, the Bay and other San Mateo County waterways, which are the fluids, emissions, and residue from the wearing of parts on motor vehicles. These materials are deposited on impervious surfaces throughout the County and are washed into the waterways by storms. This has been documented by the California State Water Resources Control Board (Resolution No. 2003-009, Monitoring List 2002), the San Mateo Countywide Clean Water program in a 1999 study, the Santa Clara Valley Nonpoint Source Program (Source Identification and Control Report), and by the U.S. Environmental Protection Agency. The programs to be implemented with the AB 1546 fee will directly impact the negative impacts of these materials produced by motor vehicles on waterways, and also to address the pollution created by the infrastructure supporting motor vehicle travel. Therefore the fee paid by the owners of motor vehicles will be used to mitigate the water pollution created by the vehicles that are assessed the fee.

Under both of these program elements, the motor vehicles and operators are directly responsible for the problems created; and the fee is being assessed to these same entities in order to develop and implement the solutions to these same problems.

## **PROPOSED FY 05-06 PROGRAM, BUDGET, AND PERFORMANCE MEASURES**

The chart attached to Resolution 05-08 summarizes the allowable uses of the anticipated revenues for each year of the program. The C/CAG Board will conduct an annual review of the programs for each of the subsequent years that the program is in effect. The law provides for the fees to terminate on January 1, 2009.

Under the allowable programs identified in the chart attached to Resolution 05-08, the cities and the County will receive significant financial relief for the National Pollutant Discharge Elimination System Program (NPDES) and transportation programs that they are currently supporting. Many of these programs are unfunded mandates. The program has been defined such that the cities and the County will be able to qualify for its full allocation of funds under both the NPDES and transportation categories.

The Congestion Management Program TAC has reviewed and supports these programs. The NPDES TAC has also reviewed these programs and has identified the types of specific NPDES programs that could be funded with both the allocated funds and the funds retained for Countywide efforts.

## **BENEFIT TO THE CITIES AND THE COUNTY**

Through the program proposed for the implementation of the fee in FY 05-06, the County and all 20 Cities will each receive a proportional share of 50% of the proceeds from the adoption of this fee (minus administrative costs for C/CAG and the Department of Motor Vehicles). These allocations will be used to directly offset existing costs for the implementation of transportation and stormwater pollution prevention programs at the local level to address the negative impacts of motor vehicles. Only those costs that bear a direct relationship or benefit to the motor vehicles paying the fee are eligible for the use of these fees. The remaining 50% of the fees collected will be for new Countywide programs and services related to motor vehicles. The Countywide program will also be beneficial to the Cities/County.

## **ATTACHMENTS**

Resolution 05-08 and attachments.

## **RESOLUTION 05-08**

\* \* \* \* \*

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE CITY/ COUNTY  
ASSOCIATION OF GOVERNMENTS OF SAN MATEO COUNTY ADOPTING A  
PROGRAM, BUDGET, PERFORMANCE MEASURES, AND A \$4 (FOUR DOLLAR)  
FEE ON MOTOR VEHICLES REGISTERED IN SAN MATEO COUNTY AS  
AUTHORIZED BY CALIFORNIA GOVERNMENT CODE SECTION 65089.11  
ET. SEQ.**

\* \* \* \* \*

**RESOLVED**, by the Board of Directors of the City/County Association of Governments of San Mateo County (C/CAG); that,

**WHEREAS**, C/CAG is the Congestion Management Agency (CMA) for San Mateo County and the National Pollutant Discharge Elimination System (NPDES) Permit Holder for San Mateo County Stormwater Pollution Prevention Program; and

**WHEREAS**, California Government Code Section 65089.11 et. seq. authorizes C/CAG to impose an annual fee of up to \$4 on motor vehicles registered within San Mateo County for a program for the management of traffic congestion and stormwater pollution within that County; and

**WHEREAS**, California Government Code Section 65089.11 et. seq. requires that in order to impose such fee, C/CAG must hold a noticed public hearing and must adopt a resolution providing for both the fee and a corresponding program for the management of traffic congestion and stormwater pollution by a vote of approval by Board Members representing two-thirds of the population of San Mateo County; and

**WHEREAS**, California Government Code Section 65089.11 et. seq. requires that prior to imposing the fee, C/CAG must make a finding of fact by a two-thirds vote that those programs to be funded with the proceeds from the fee, bear a relationship or benefit to the motor vehicles that will pay the fee.

**NOW THEREFORE, BE IT RESOLVED**, that the Board of Directors of the City/County Association of Governments of San Mateo County on March 10, 2005 at a noticed public hearing, by a vote of approval by Board Members representing at least two-thirds of the population of San Mateo County –

1. Adopts a program and budget for the management of traffic congestion and stormwater pollution within San Mateo County; and
2. Makes a finding of fact that those programs bear a relationship or benefit to the motor vehicles that will pay the fee; and
3. Adopts performance measures for those programs; and
4. Adopts a fee of four dollars (\$4.00) on motor vehicles registered within San Mateo County.
5. Authorizes the State of California, Department of Motor Vehicles to collect the annual fee of four dollars (\$4.00) on motor vehicles registered within San Mateo County beginning on July 1, 2005.



6. Authorizes the Chair to sign this Resolution in compliance with the requirements of California Government Code Section 65089.11 et. seq.

**PASSED, APPROVED, AND ADOPTED, THIS 10TH DAY OF MARCH 2005.**

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Deborah E.G. Wilder, Chair

**AYES**

<b>Jurisdiction</b>	<b>Voting Member</b>	<b>Population</b>
Atherton	William Conwell	7,194
Belmont	David Bauer	25,123
Brisbane	Lee Panza	3,597
Burlingame	Rosalie O'Mahony	28,158
Colma	Joe Silva	1,191
Daly City	Judith Christensen	103,621
Foster City	Deborah Wilder	28,803
Hillsborough	Catherine Mullooly	10,825
Menlo Park	Nicholas Jellins	30,785
Millbrae	Marc Hershman	20,718
Pacifica	James Vreeland	38,390
Redwood City	Barbara Pierce	75,402
San Carlos	Mike King	27,718
San Mateo	Carole Groom	92,482
San Mateo County	Rose Jacobs-Gibson	61,275
South San Francisco	Karyl Matsumoto	60,552
Woodside	Deborah Gordon	5,352
<b>Total</b>		<b>621,186</b>

**NOES**

None	--	--
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**ABSENT, ABSTAINING, OR NOT VOTING**

East Palo Alto	Absent	29,506
Half Moon Bay	Absent	11,842
Portola Valley	Absent	4,462
San Bruno	Absent	40,165

Two Attachments are included with Resolution 05-08

**ATTACHMENT TO RESOLUTION 05-08**  
**REVISED Environment/Transportation Pilot Program for FY 05-06**  
**(July 1, 2005 Through June 30, 2006)**

<b>Anticipated Allocation</b>	<b>Recipient of \$</b>	<b>Allocation Method</b>	<b>Use of Funds</b>
\$124,000	C/CAG	5% of total funds	Program Administration
\$250,000	DMV	Anticipated actual cost for collection of fees	Computer programming and administration for collection of the additional vehicle registration fees
\$526,500	Cities and County	25% of net proceeds (total funds minus Program Administration minus DMV fees)  Return to source based on # of registered vehicles combined with population share	Programs must be included in the Congestion Management Program and can only include: Local shuttles/transportation Road resurfacing/reconstruction Deployment of Local Intelligent Transportation Systems Roadway operations such as: - Restriping - Signal timing, coordination, etc. - Signage Replacement and/or upgrading of traffic signal hardware and/or software
\$350,000	To be determined	Anticipated cost for the 1 <sup>st</sup> year	Programs must be included in the Congestion Management Program and can only include: Maintenance and operation of up to four hydrogen and/or other clean fuel shuttle vehicles and related fueling infrastructure
\$176,500	C/CAG	Matching funds needed to begin the deployment of Intelligent Transportation System (ITS) improvements that are identified in the Countywide ITS Plan.  This category plus the category for hydrogen fuel programs (above) equals 25% of net proceeds (total funds minus Program Administration minus DMV fees)	Programs must be included in the Congestion Management Program and can only include: Deployment of Intelligent Transportation System projects having regional (Countywide) significance
\$526,500	Cities and County	25% of net proceeds (total funds minus Program Administration minus DMV fees)  Return to source based on # of registered vehicles combined with population share	Programs must clearly bear a relationship or benefit to the motor vehicles that will pay the fee.  Programs must directly address the negative impact on creeks, streams, bays, and the ocean caused by motor vehicles and the infrastructure supporting motor vehicle travel.  Programs must be included in the NPDES permit and can only include: Street sweeping Roadway storm inlet cleaning Street side runoff treatment Auto repair shop inspections Managing runoff from Street/Parking lot surfaces

Pilot Program for the Management of Traffic Congestion  
and Stormwater Pollution

			<p>Small capital projects such as vehicle wash racks for public agencies that include pollution runoff controls</p> <p>Capital purchases for motor vehicle related runoff management and controls</p> <p>Additional used oil drop off locations</p> <p>Motor vehicle fluid recycling programs</p> <p>Installation of new pervious surface medium strips in roadways</p>
\$526,500	C/CAG	25% of net proceeds (total funds minus Program Administration minus DMV fees)	<p>Programs must clearly bear a relationship or benefit to the motor vehicles that will pay the fee.</p> <p>Programs must directly address the negative impact on creeks, streams, bays, and the ocean caused by motor vehicles and the infrastructure supporting motor vehicle travel.</p> <p>Programs must be included in the NPDES permit and can only include the following Countywide programs:</p> <ul style="list-style-type: none"> <li>Pilot water studies</li> <li>Public outreach to auto repair shops</li> <li>Training and implementation of car wash</li> <li>Best Management Practices (BMPs)</li> <li>NPDES consulting assistance on motor vehicle related issues</li> <li>Brake pad partnership</li> <li>Partial funding for hydromodification plan</li> <li>Monitoring of motor vehicle related BMPs</li> <li>Addressing stormwater pollution on the freeways and other State highways through installation of filtration systems</li> <li>Countywide oil and other motor vehicle fluid recycling programs</li> <li>Countywide training on the prevention and control of water pollution attributable to motor vehicles</li> </ul>
<b>\$2,480,000</b>	<b>Total funds anticipated for the first year of the program based on a projection of 620,000 registered vehicles in San Mateo County.</b>		

## PERFORMANCE MEASURES

Programs	Performance Measure
<b>Cities and County programs include:</b>	
Local shuttles/transportation	Number of passengers transported.
Road resurfacing/reconstruction	Miles/fraction of miles of roads improved.
Deployment of Local Intelligent Transportation Systems (ITS)	Number of ITS components installed/implemented.
Roadway operations such as: - Restriping - Signal timing, coordination, etc. - 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.
<b>Countywide programs include:</b>	
Maintenance and operation of up to four hydrogen and/or other clean fuel shuttle vehicles and related fueling infrastructure	Number of passengers transported and number of passenger miles.
Deployment of Intelligent Transportation System projects having regional (Countywide) significance	Number of ITS components installed/implemented.
<b>Cities and County programs can only include:</b>	
Street sweeping	Miles of streets swept an average of once a month.
Roadway storm inlet cleaning	Number of storm inlets cleaned per year.
Street side runoff treatment	Square feet of surfaces managed annually.
Auto repair shop inspections	Number of auto repair shops inspected per year.
Managing runoff from Street/Parking lot surfaces	Square feet of surfaces managed annually.
Small capital projects such as vehicle wash racks for public agencies that include pollution runoff controls	Number of projects implemented.
Capital purchases for motor vehicle related runoff management and controls	Number of pieces of equipment purchased and installed.
Additional used oil drop off locations	Number of locations implemented and operated, and quantity of oil collected.
Motor vehicle fluid recycling programs	Number of programs implemented and operated, and quantity of fluids collected..
Installation of new pervious surface medium strips in roadways	Square footage of new pervious surface medium strips installed.

<b>Countywide programs can only include:</b>	
Pilot water studies	Number of studies completed.
Public outreach to auto repair shops	Number of shops contacted and provided information to.
Training and implementation of car wash Best Management Practices (BMPs)	Number of individuals trained.
NPDES consulting assistance on motor vehicle related issues	Person hours of consulting assistance.
Brake pad partnership	Number of studies participated in.
Partial funding for hydromodification plan	Percent implementation of the Plan.
Monitoring of motor vehicle related BMPs	Number of locations where BMPs were monitored annually.
Addressing stormwater pollution on the freeways and other State highways through installation of filtration systems	Number of filtration systems installed.
Countywide oil and other motor vehicle fluid recycling programs	Number of programs implemented and operated.
Countywide training on the prevention and control of water pollution attributable to motor vehicles	Number of individuals trained.

## **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 Ralston Ave 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 system for the 1997 Congestion Management Program (CMP). The components of the 1997 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 1995 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. The latest update to the HCM published in 1994 specifies level of service methods 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 latest version of the *Highway Capacity Manual* (1994 HCM), the LOS of freeway segments is based on the density of vehicles, expressed in passenger cars per mile per lane. The LOS can also be evaluated with volume-to-capacity (V/C) ratios, average travel

speeds, and maximum service flow rates. The specific LOS criteria for freeways are presented in Table B-1. Illustrations of the various levels of service are presented on Figure B-1.

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

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

### ***Multilane Highways***

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

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

### ***Two-Lane Highways***

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

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

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

LOS	70 mph Free-Flow Speed				65 mph Free-Flow Speed				60 mph Free-Flow Speed			
	Density <sup>a</sup> (pc/mi/ln)	Speed <sup>b</sup> (mph)	Maximum <sup>c</sup> V/C	MSF <sup>d</sup> (pcphpl)	Density <sup>a</sup> (pc/mi/ln)	Speed <sup>b</sup> (mph)	Maximum <sup>c</sup> V/C	MSF <sup>d</sup> (pcphpl)	Density <sup>a</sup> (pc/mi/ln)	Speed <sup>b</sup> (mph)	Maximum <sup>c</sup> V/C	MSF <sup>d</sup> (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

<sup>a</sup> Density in passenger cars per mile per lane.

<sup>b</sup> Average travel speed in miles per hour.

<sup>c</sup> Maximum volume-to-capacity ratio.

<sup>d</sup> Maximum service flow rate under ideal conditions in passenger cars per hour per lane.

≤ less than or equal to

≥ greater than or equal to

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

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

**Table B-2**  
**Level of Service Criteria for Multilane Highways**

LOS	60 mph Free-Flow Speed				55 mph Free-Flow Speed				50 mph Free-Flow Speed			
	Density <sup>a</sup> (pc/mi/ln)	Speed <sup>b</sup> (mph)	Maximum <sup>c</sup> V/C	MSF <sup>d</sup> (pcphpl)	Density <sup>a</sup> (pc/mi/ln)	Speed <sup>b</sup> (mph)	Maximum <sup>c</sup> V/C	MSF <sup>d</sup> (pcphpl)	Density <sup>a</sup> (pc/mi/ln)	Speed <sup>b</sup> (mph)	Maximum <sup>c</sup> V/C	MSF <sup>d</sup> (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 <sup>e</sup>	< 55 <sup>e</sup>	- <sup>e</sup>	- <sup>e</sup>	> 41 <sup>e</sup>	< 51 <sup>e</sup>	- <sup>e</sup>	- <sup>e</sup>	> 43 <sup>e</sup>	< 47 <sup>d</sup>	- <sup>e</sup>	- <sup>e</sup>

<sup>a</sup> Density in passenger cars per mile per lane.

<sup>b</sup> Average travel speed in miles per hour.

<sup>c</sup> Maximum volume-to-capacity ratio.

<sup>d</sup> Maximum service flow rate under ideal conditions in passenger cars per hour per lane.

<sup>e</sup> 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 <sup>a</sup>																							
		Level Terrain								Rolling Terrain								Mountainous Terrain							
		% No-Passing Zone								% No-Passing Zone								% No-Passing Zone							
LOS	% Time Delay	Avg. <sup>b</sup> Speed	0	20	40	60	80	100	Avg. <sup>b</sup> Speed	0	20	40	60	80	100	Avg. <sup>b</sup> 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	--	--	--	--	--	--			

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

<sup>b</sup> 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.<sup>1</sup> 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.

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<sup>1</sup>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
<hr/>			
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<sup>a</sup> Based on**  
**Volume-to-Capacity Ratios**

Level of Service	Description	V/C <sup>b</sup>
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

<sup>a</sup> 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.

<sup>b</sup> 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 (vphgpl). 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**

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### **BAAQMD's Deficiency List**

*Final*

## **DEFICIENCY LIST:**

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

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

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

Adopted by the District Board of Directors

November 4, 1992



1                                   BEFORE THE BOARD OF DIRECTORS  
2                                   OF THE  
3                                   BAY AREA AIR QUALITY MANAGEMENT DISTRICT

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

RESOLUTION NO.   2119

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

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

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

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

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

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

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

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

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

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

17        ///

18        ///

19        ///

20        ///

21        ///

22        ///

23        ///

24        ///

25        ///

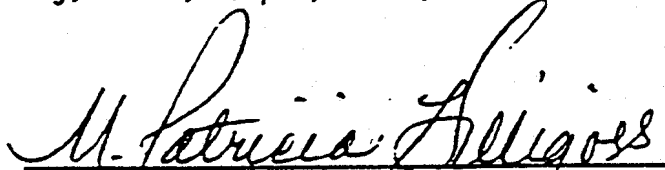
26        ///

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

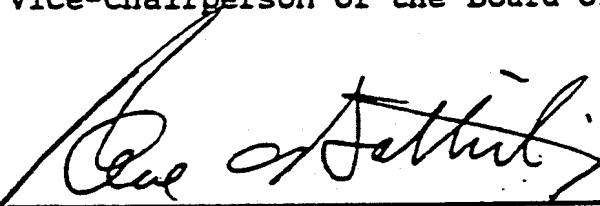
4 AYES: Aramburu, Battisti, Britt, Campbell, Harberson, Harper,  
5 Head, Hilligoss, McKenna, McPeak, Ogawa, Powers.  
6

7  
8  
9 NOES: Hancock.

10  
11  
12  
13 ABSENT: Achtenberg, Bruno, Cooper, Davis, Diridon, Eshoo, Fogarty.

14  
15   
16 M. PATRICIA HILLIGOSS  
17 Vice-Chairperson of the Board of Directors

18 ATTEST:

19   
20 PAUL BATTISTI  
21 Secretary of the Board of Directors



27 Certified as a True Copy

  
28 Clerk of the Boards  
29

## 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.<sup>1</sup> 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<sup>2</sup>, 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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<sup>1</sup> 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.

<sup>2</sup> 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.<sup>3</sup>

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.<sup>4</sup> 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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<sup>3</sup> The Deficiency List does include Parking Management (measure E6) through pricing strategies.

<sup>4</sup> 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/CMA's 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<sup>1</sup> 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.<sup>2</sup> 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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<sup>2</sup> 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.<sup>3</sup> 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.<sup>3</sup> RIDES maintains a database that serves commuters in the nine Bay Area counties and several outlying counties. RIDES'

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

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

#### **D. HIGH OCCUPANCY VEHICLE (HOV) FACILITIES**

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

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

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

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

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

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

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

## **E. OTHER TCMS, RELATED MEASURES.**

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

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



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

The BAAQMD has already begun a public education program for the region. Materials developed as part of the program will be available to cities and counties. RIDES for Bay Area Commuters, Inc., Berkeley TRiP, San Benito Rideshare, Santa Clara County's Commuter Network, Santa Cruz Dial-a-Ride, and Solano Commuter Information each provide a variety of public information and services available to cities, counties, CMAs, transit agencies, employers and other transportation agencies/organizations.<sup>4</sup> 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<sup>5</sup> 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

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<sup>5</sup> "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.<sup>6</sup> 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.<sup>7</sup>

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.<sup>8</sup> 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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<sup>6</sup> 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.

<sup>7</sup> 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.

<sup>8</sup> 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<sup>9</sup>
- 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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<sup>9</sup> 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).<sup>10</sup> This measure would be implemented locally.

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<sup>10</sup> 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.<sup>11</sup> 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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<sup>11</sup> 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.<sup>1</sup> 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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<sup>1</sup> 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/CMA's use is advised (not required by California law)<sup>1</sup>*

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 CMA's can either accept or reject a Deficiency Plan, but may not modify it. The CMA's will be responsible for developing appropriate criteria for determining the adequacy of Deficiency Plans submitted by the communities. To assist the CMA's 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.<sup>2</sup> 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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<sup>1</sup> 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 CMA's to encourage experimentation in alternative methods to match LOS-deficiencies with congestion management and air quality strategies and remedies.

<sup>2</sup> 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.<sup>3</sup> This segment of U.S. 101 is approximately seven miles in length and hypothetically both Marin and Sonoma Counties' transportation models agree its projected northbound traffic volume in the 2000 PM Peak Hour is 4,039.

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

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

## **STEP 3 - Identify Items that Offset the VMT Deficiency**

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

**Option 1: Use Region wide Effectiveness Data.** The data contained in Table 1 reflect region wide effectiveness of various TCMs in the '91 Clean Air Plan.<sup>4</sup> (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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<sup>3</sup> 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.

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

## Examples of Option 1

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

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

1999 VMT (Daily) = 110,856,000

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

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

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

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

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

1999 VMT (Daily) = 110,856,000

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

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

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

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

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

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

1999 VMT (Daily) = 110,856,000

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

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

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

### Summary of Examples

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

### Content of Deficiency Plans

Each Deficiency Plan should show the amount of VMT<sup>5</sup> 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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<sup>5</sup> 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 mlt/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	Pre 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	

<u>Deficiency Measure</u>	<u>Related CAP TCM</u>	<u>Description</u>	<u>Quantity</u>	<u>Percentage Region Wide Daily VMT Reduced</u>	<u>Amount Region Wide Daily VMT Reduced</u>
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	

<u>Deficiency Measure</u>	<u>Related CAP TCM</u>	<u>Description</u>	<u>Quantity</u>	<u>Percentage Region Wide Daily VMT Reduced</u>	<u>Amount Region Wide Daily VMT Reduced</u>
E6	22	Non-work Parking Charges	Min. \$0.60 hr./Empl. 100% transit subsidy	4.20	4,983,929
E7	15, 22	Work Parking Charges/Cash Out		No information available	
E8	16	Indirect Source Cst	\$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 San Francisco Bay Area: Analyses of Effectiveness and Costs, Deakin, Harvey, Skabardonis Inc., July 1991 (revised October 1991). Data adjusted by BAAQMD staff for Deficiency List measures B13 and E1 based on additional information known about project/rule implementation as of October 1992.
- (2) Daily VMT in 1997 for Nine County Bay Area = 118,903,077  
Source: Transportation Improvement Program for the Nine County San Francisco Bay Area, Volume III. Metropolitan Transportation Commission, September 23, 1992, Table A.1, p. III-B-74.
- (3) Use peak hour factor of roadway segment to calculate peak hour VMT reduction associated with each measure. If unknown, assume 10% for arterials and 8% for freeways/expressways.
- (4) Quantities involving a dollar expenditure per year are assumed to have a five year lifespan. For example, if City A wants to spend \$500,000 over 5 years toward the lease of space and staff to operate a transit store as a deficiency plan measure, City A would take credit for implementation of \$500,000/\$15,000,000 (or 3.3%) of that measure. Daily VMT would be reduced  $23,781 \times 0.033$ , or 785 VMT; peak hour VMT would be reduced  $2,378 \times 0.033$ , or 79 VMT. Deficiency plans that include measures involving ongoing operating costs would need to make a guarantee of continued funding as part of plan.



## APPENDIX D

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### 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 resolved by the exclusion of interregional traffic. It is C/CAG's intent to work with CMAs of contributing counties to jointly develop deficiency plans for these locations. The process for cross-county boundary deficiency plans is presented on Figure 7-5.

Figure 7-1

## DEFICIENCY PLAN GENERAL PROCESS

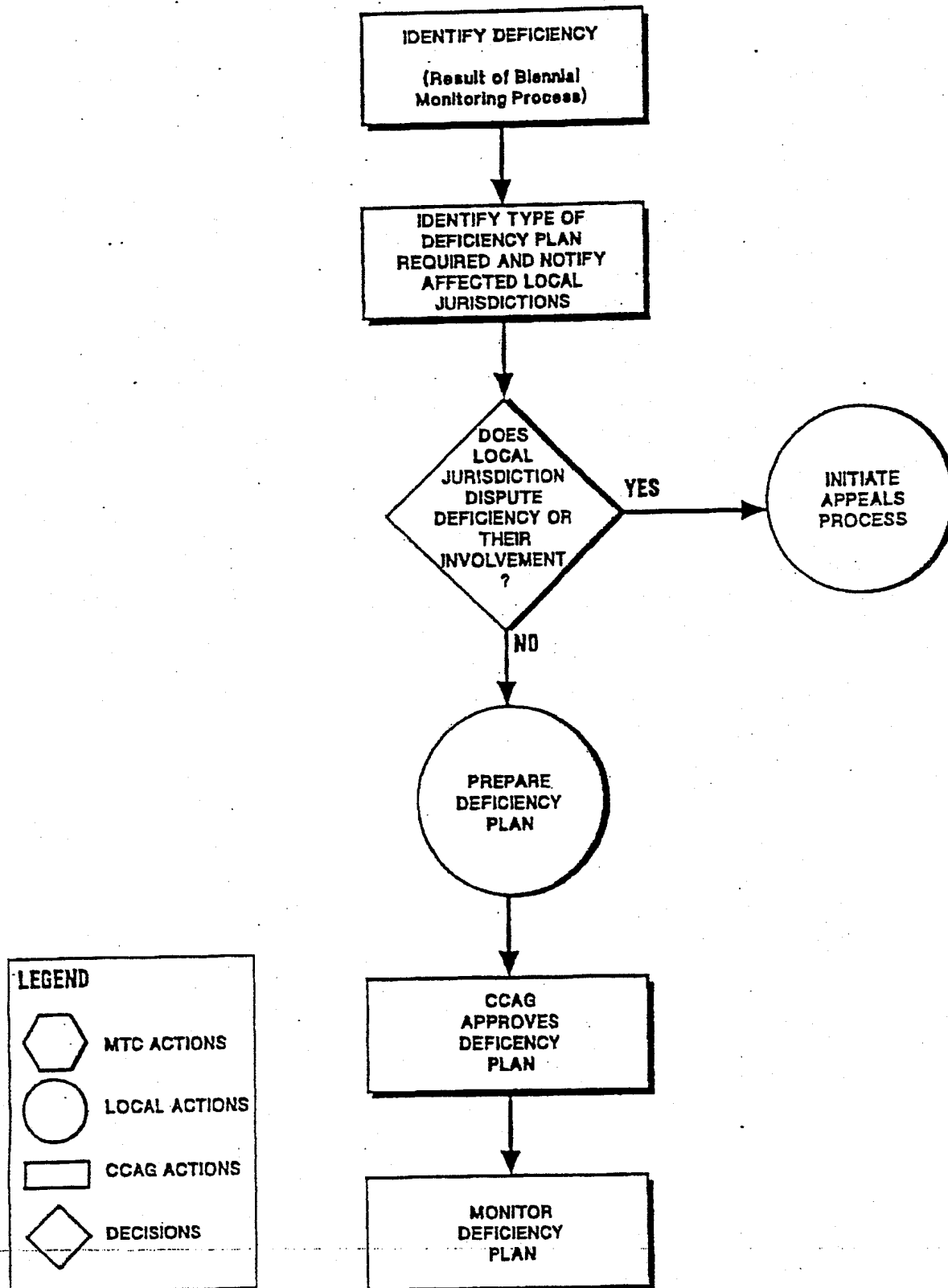


Figure 7-2

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

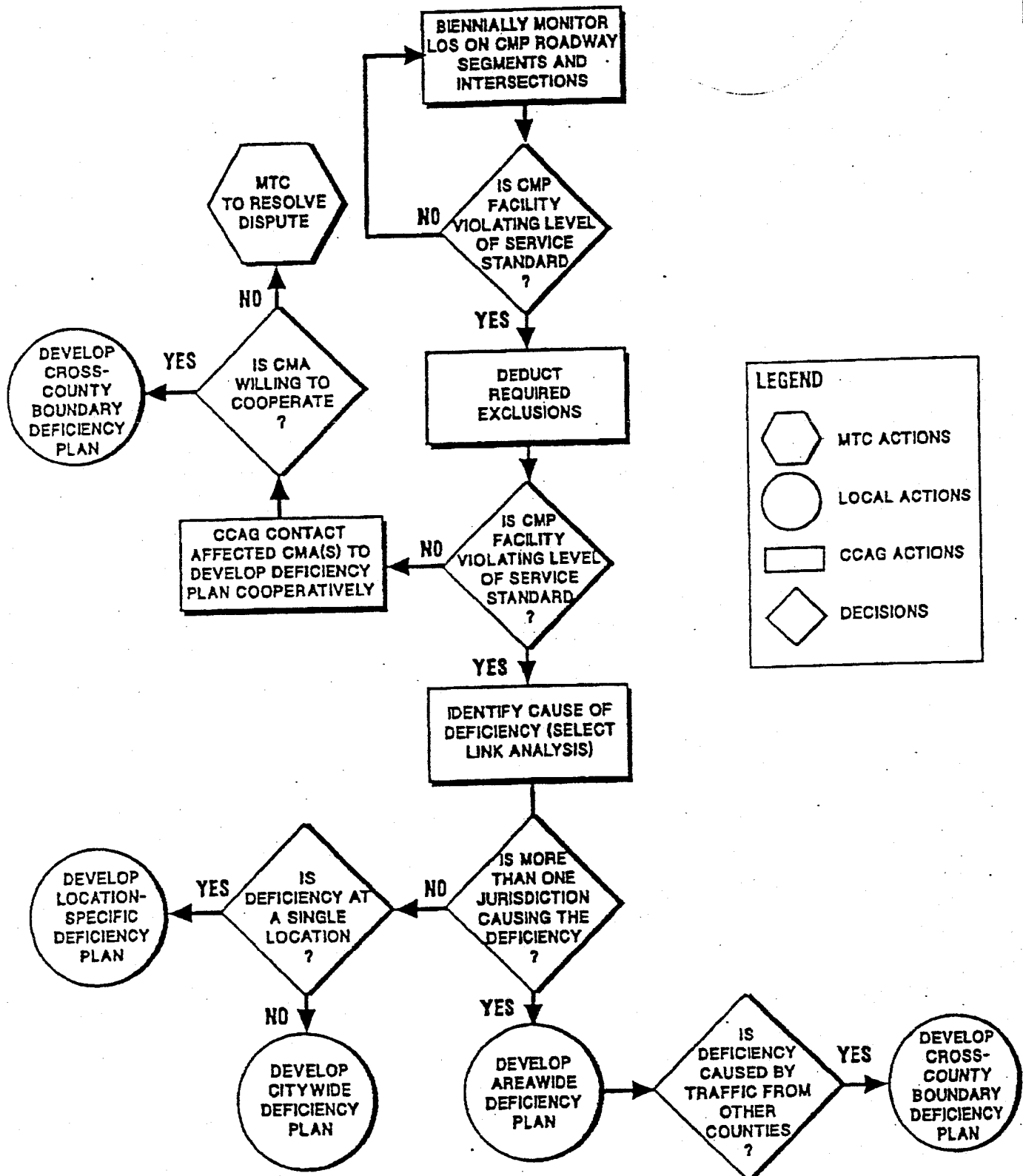
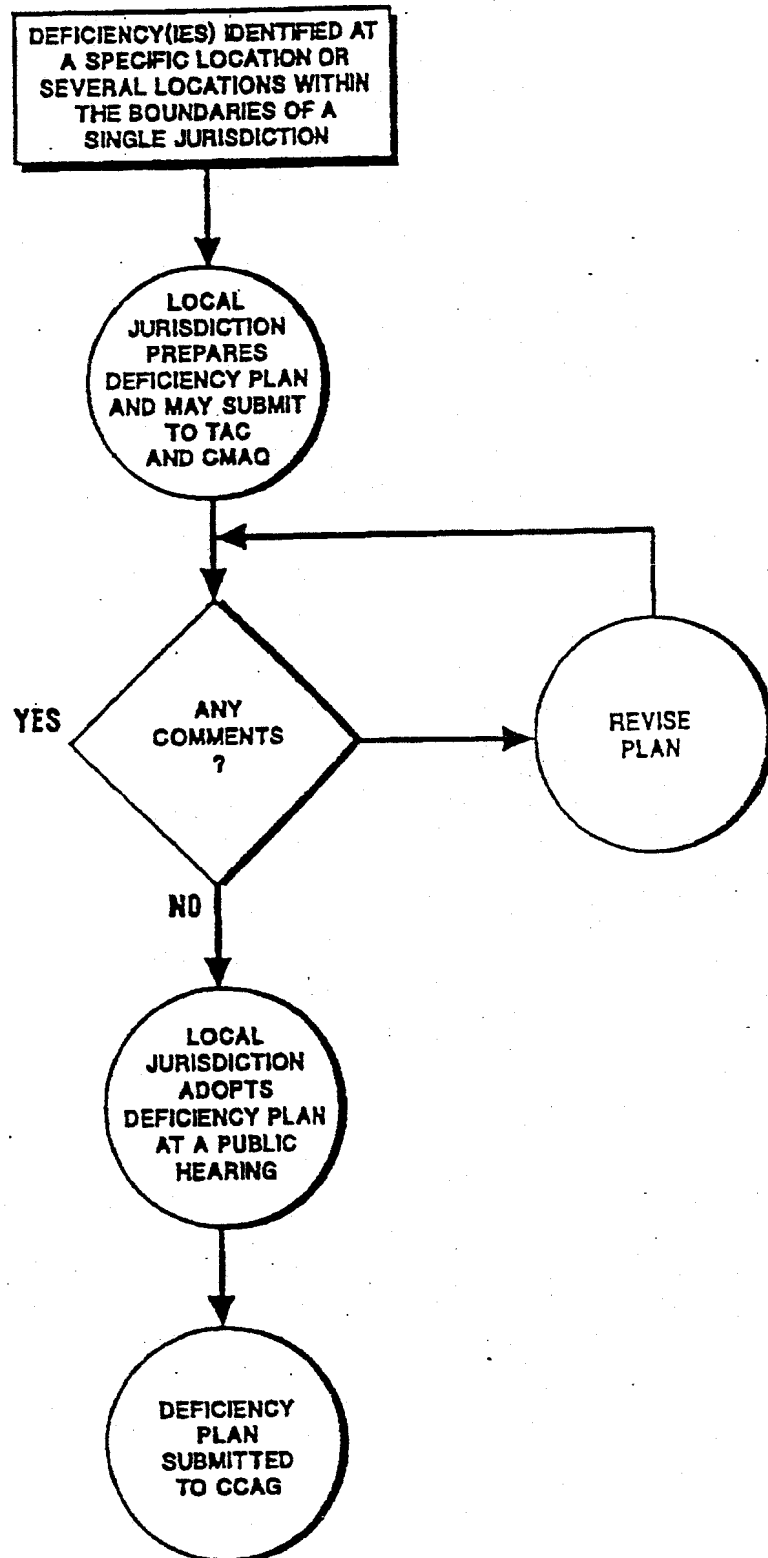


Figure 7-3

## DEVELOPMENT OF LOCATION-SPECIFIC OR CITYWIDE DEFICIENCY PLAN



### LEGEND



MTC ACTIONS



LOCAL ACTIONS



CCAG ACTIONS



DECISIONS

Figure 7-4

## DEVELOPMENT OF AREAWIDE DEFICIENCY PLAN

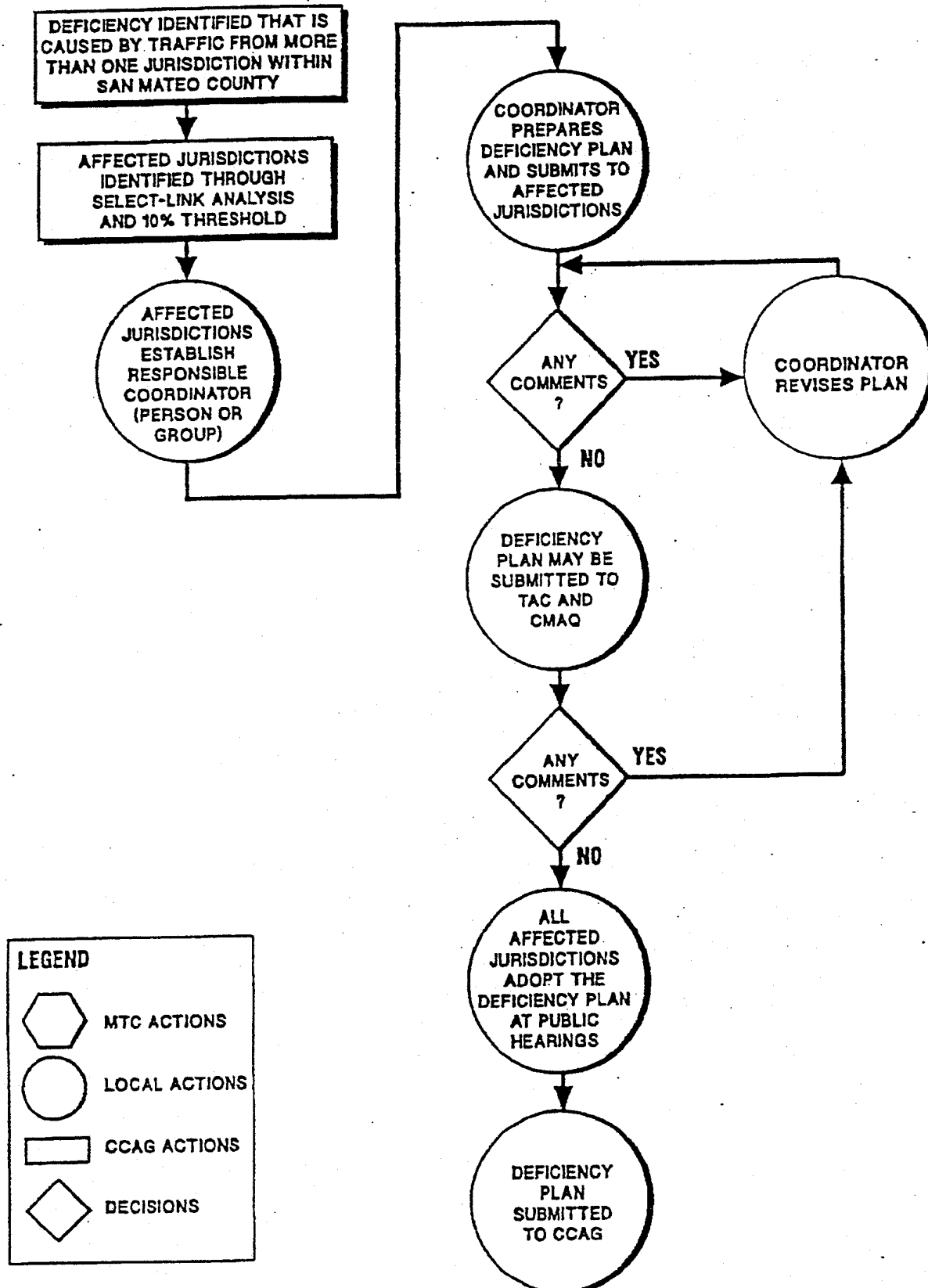


Figure 7-5

## DEVELOPMENT OF CROSS COUNTY BOUNDARY DEFICIENCY PLAN

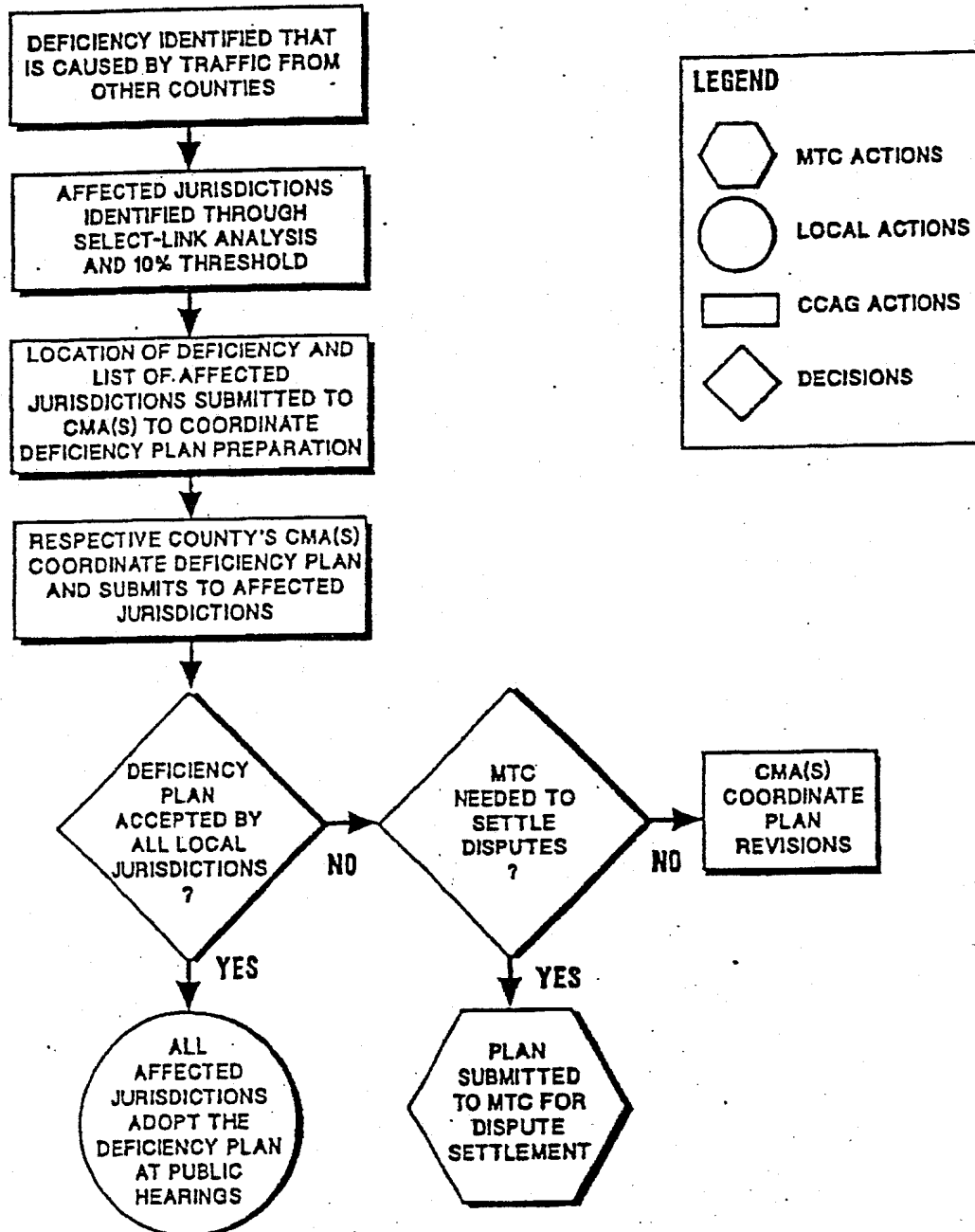


Figure 7-6 shows the process to be followed for C/CAG's approval of deficiency plans. Figure 7-7 presents the process for a local jurisdiction to appeal their involvement in a deficiency plan to C/CAG. Figure 7-8 illustrates the process for monitoring deficiency plans.

### ***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.<sup>1</sup>

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.

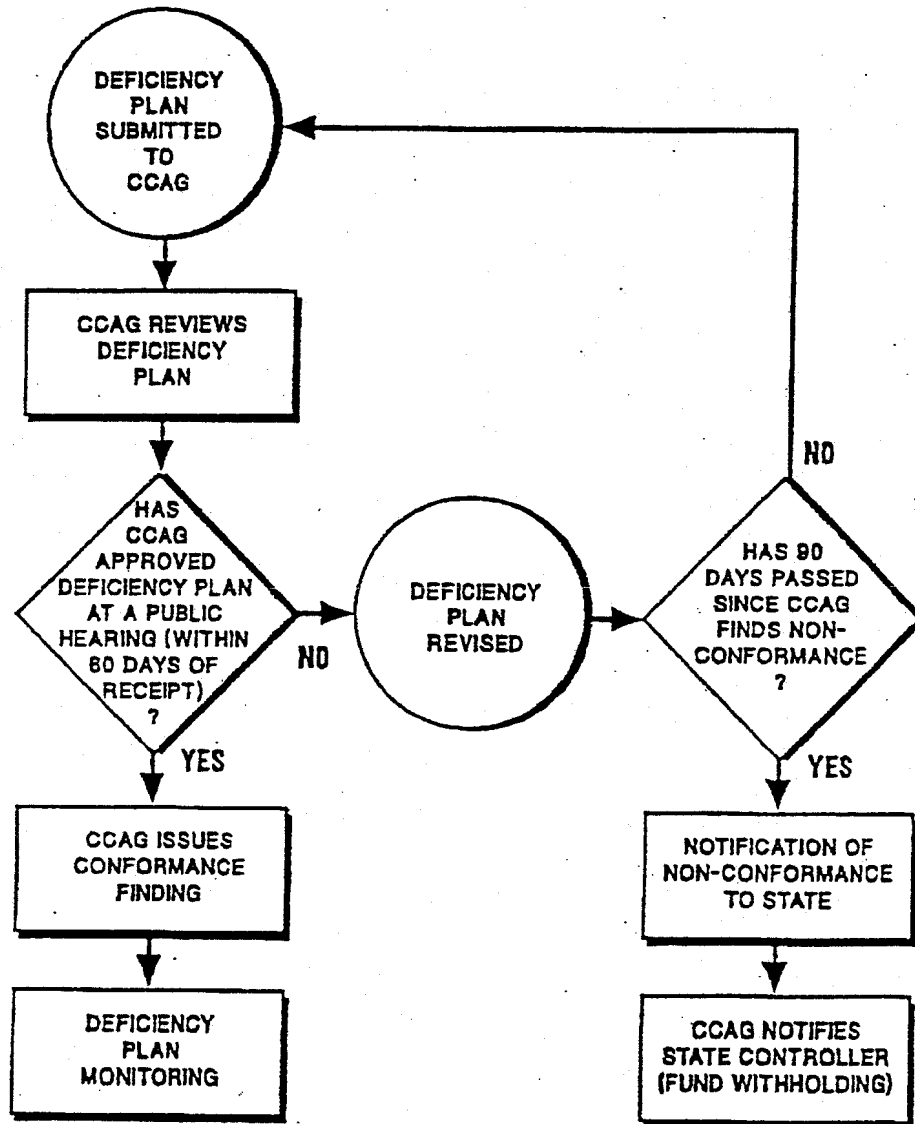
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<sup>1</sup>The 10 percent of capacity threshold represents a Bay Area standard that was developed by the Bay Area CMA Association. It is based on the fact that 10 percent of capacity represents a change of one full level of service value. It was decided 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



### LEGEND



MTC ACTIONS



LOCAL ACTIONS



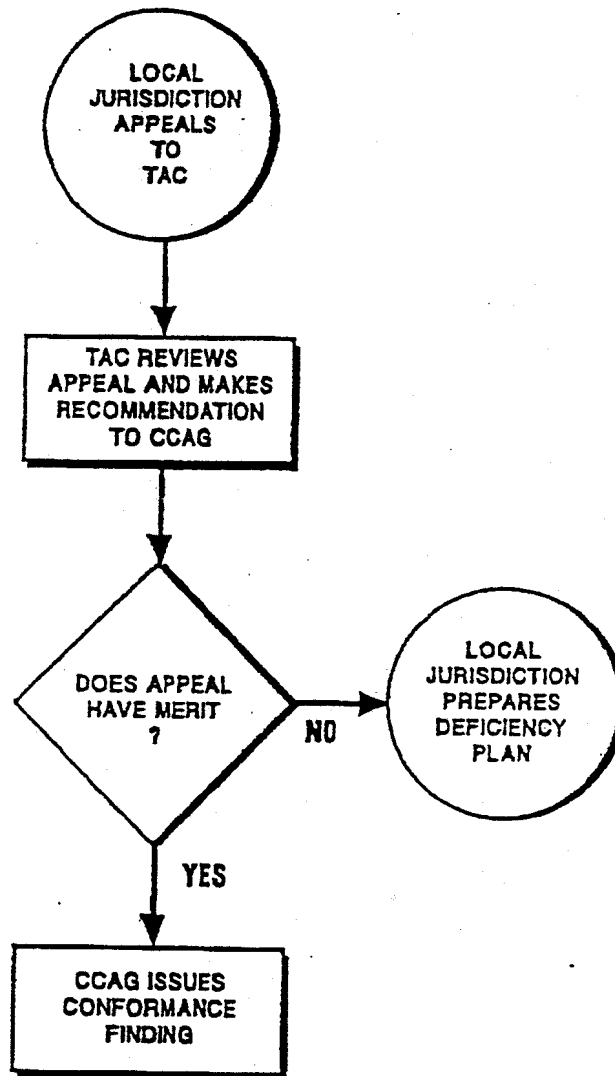
CCAG ACTIONS



DECISIONS

Figure 7-7

## DEFICIENCY PLAN APPEALS PROCESS



### LEGEND



MTC ACTIONS



LOCAL ACTIONS



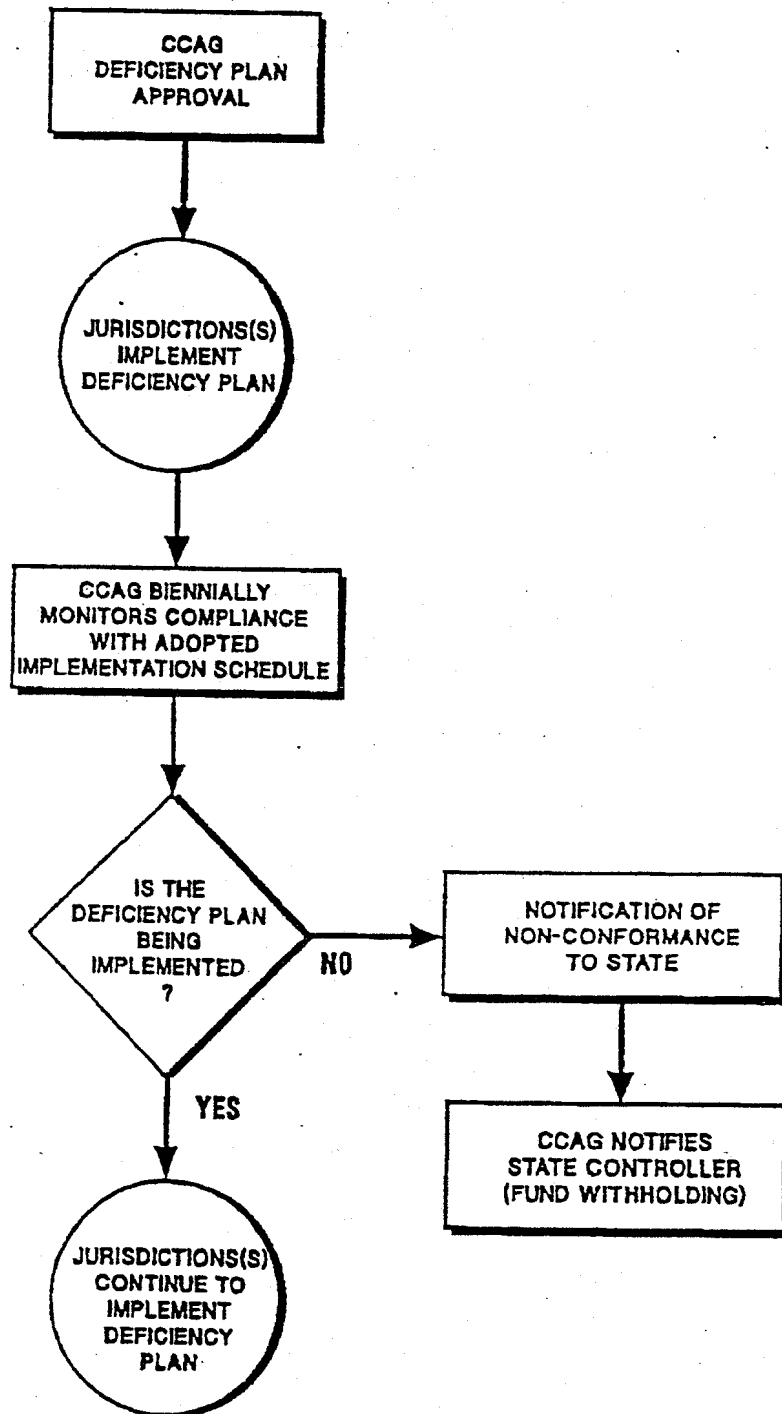
CCAG ACTIONS



DECISIONS

Figure 7-8

## DEFICIENCY PLAN MONITORING



### LEGEND



MTC ACTIONS



LOCAL ACTIONS



CCAG ACTIONS



DECISIONS

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

### ***Deficiency Plan Approval***

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

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

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

### ***Deficiency Plan Appeals Process***

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

### ***Deficiency Plan Monitoring***

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

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

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

## **Methodology**

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

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

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

Deficiency plans should contain the following sections:

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

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

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

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

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

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

# transportation control measures

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

## Federal TCMs in the State Implementation Plan

**TCM Number**      **Federal Transportation Control Measure**

### Original TCMs from 1982 Bay Area Air Quality Plan

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

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

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

(Continues on next page)

\* Deleted by EPA action from 1999 Ozone Attainment Plan

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

## appendix three

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TCM Number	Federal Transportation Control Measure
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TCM 22	Expand Regional Transit Connection ticket distribution
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TCM 23	Employer audits
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TCM 24	Expand signal timing program to new cities
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TCM 25	Maintain existing signal timing programs
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TCM 26	Incident management on Bay Area freeways
--------	--

TCM 27	Update MTC guidance on development of local Transportation Systems Management (TSM) programs
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TCM 28	Local TSM Initiatives
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### New TCMs in 2001 Ozone Attainment Plan (Being Implemented)

TCM A	Regional Express Bus Program
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TCM B	Bicycle/Pedestrian Program
-------	----------------------------

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

## State TCMs Proposed in the Draft 2005 Bay Area Ozone Strategy

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

(Continues on next page)

## appendix three

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

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

(Continues on next page)

## appendix three

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

## **APPENDIX F, G, H**

### **CMP Monitoring Report Status of Capital Improvement Projects Measure A Projects**



FEHR & PEERS  
TRANSPORTATION CONSULTANTS

*Draft Report*

# **San Mateo County Congestion Management Program 2005 Monitoring Report**

*June 2005*

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

*Prepared by:  
Fehr & Peers*

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# 1. INTRODUCTION

This chapter discusses the purpose and organization of this report.

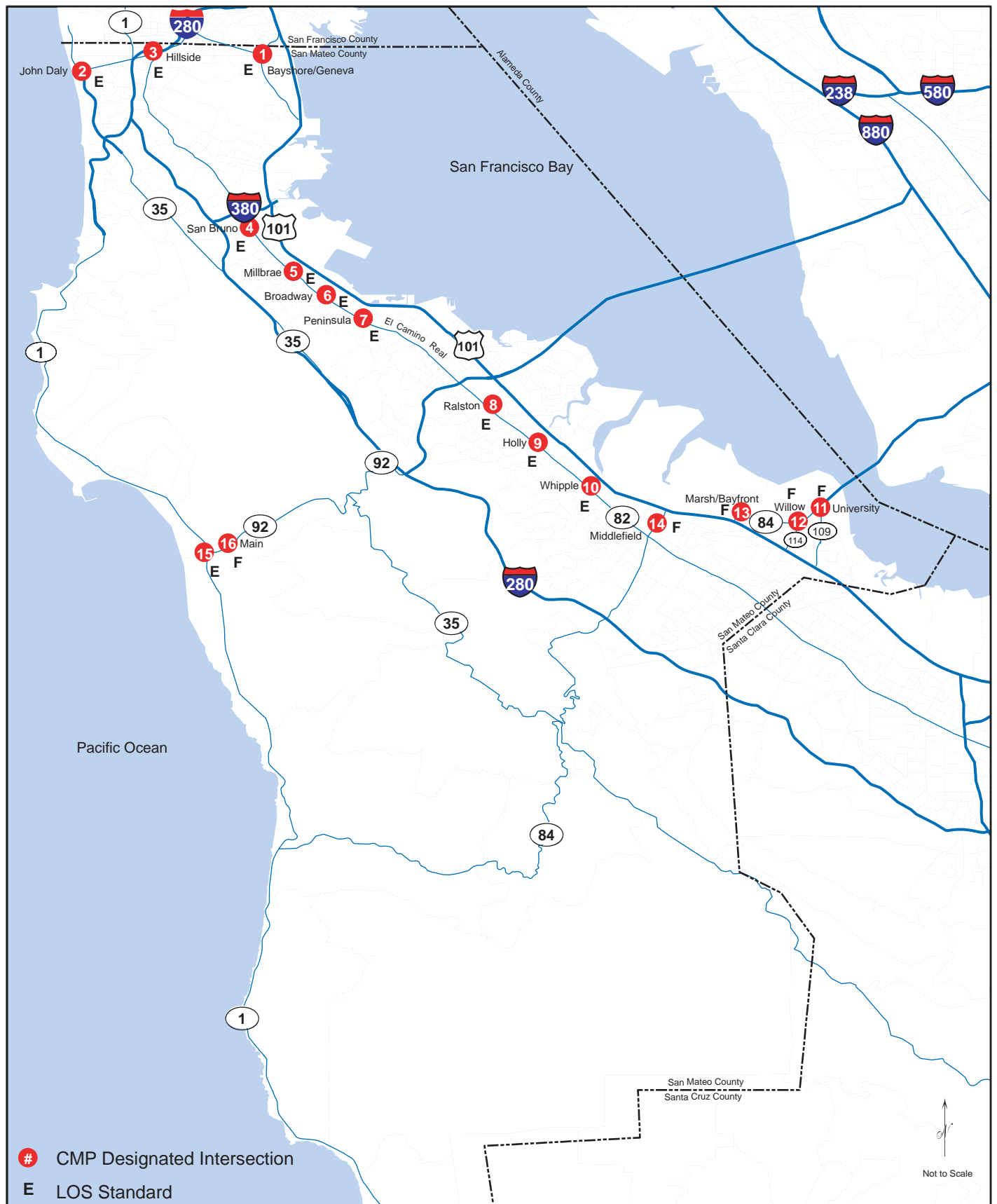
## STUDY PURPOSE

The roadway segments and intersections that comprise the CMP Roadway System in San Mateo County were monitored to determine compliance with the adopted Traffic Level of Service (LOS) Standards. C/CAG has adopted a biennial schedule for monitoring the CMO Roadway System. The locations of the sixteen CMP intersections and fifty-three roadway segments and their LOS standards are shown on Figures 1 and 2, respectively.

## REPORT ORGANIZATION

This report is divided into four chapters as described below:

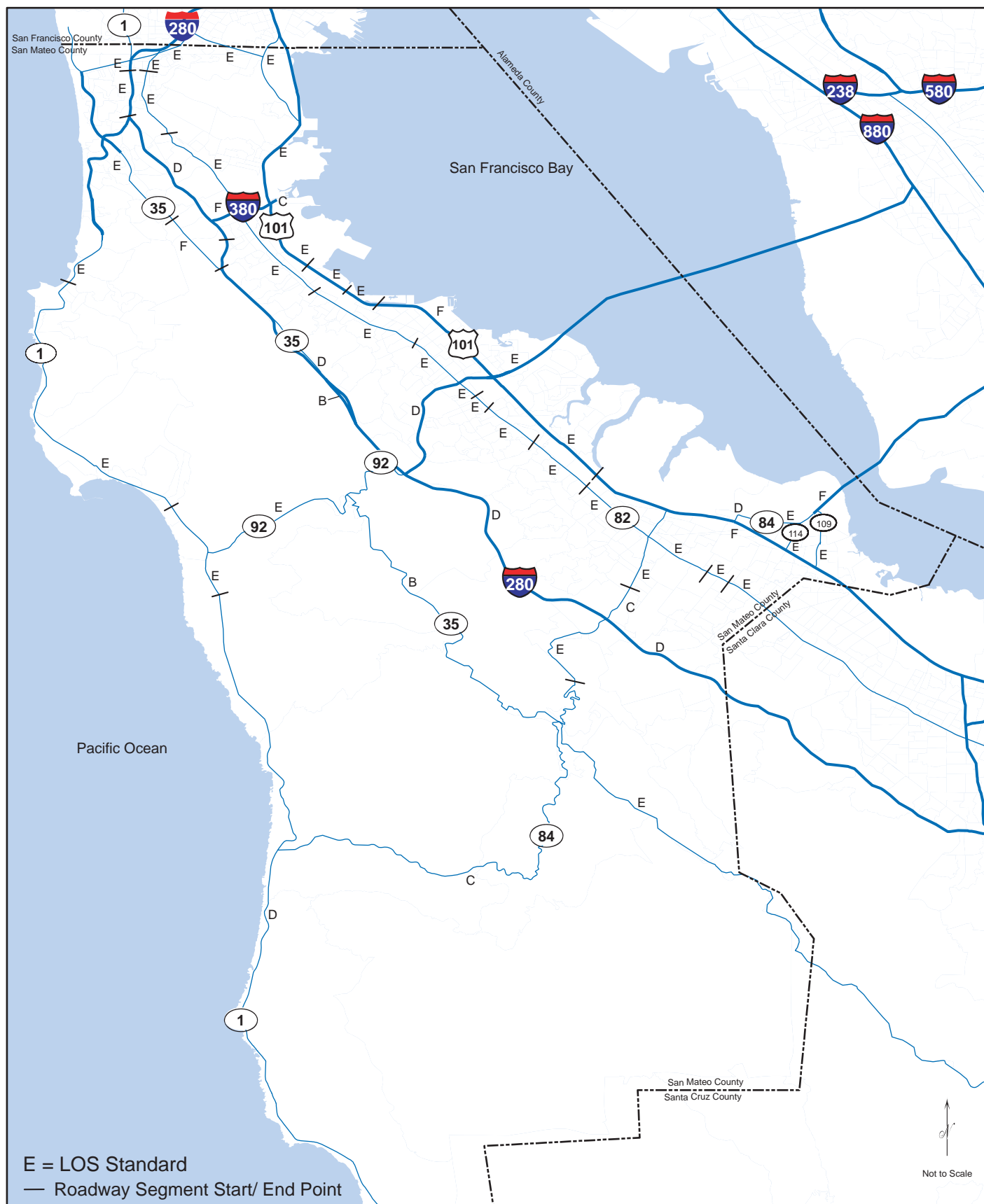
- **Chapter I – Introduction** discusses the purpose and organization of this report.
- **Chapter II – 2005 Monitoring Program** contains the results of the 2005 monitoring program for the study roadway segments and intersections.
- **Chapter III – Performance Measures** presents the results of the Performance Measure Element. Four Performance Measures were monitored: (1) level of service, (2) travel times for single occupant automobiles, carpools, and transit, (3) pedestrian and bicycle improvements, and (4) ridership/person throughput for transit.
- **Chapter IV – Summary** presents a summary of the 2005 monitoring results.



2005 CMP Monitoring Report

## CMP Intersections and LOS Standards

Figure 1



## 2. 2005 MONITORING PROGRAM

The results of the 2005 monitoring effort are presented in this chapter.

### TRAFFIC VOLUMES

Traffic counts and travel time surveys were conducted in March and April for the intersections and roadway segments in the CMP Roadway System. Roadway segment volumes were measured with 3-day (72-hour) machine counts. Travel time surveys were conducted on freeways during the AM (7:00 to 9:00 am) and PM (4:00 to 7:00 pm) peak periods.<sup>1</sup> Manual turning-movement counts were conducted at intersections during the AM (7:00 to 9:00 am) and PM (4:00 to 6:00 pm) peak periods. All surveys were conducted mid-week on Tuesday, Wednesday, or Thursday. The traffic counts and travel time surveys are contained in the Appendix A.

### LEVELS OF SERVICE

Levels of service were calculated for each roadway segment and intersection using the methodologies presented in Appendix B of the San Mateo County CMP. The results are discussed below.

#### *Roadway segments*

The LOS standards for the roadway segments are shown on Figure 2. Level of service calculations were conducted for the roadway segments using the 2005 traffic volumes and average speeds (estimated from the travel time surveys conducted on freeway segments). Different calculation methods are used for different types of facilities. For some facilities, e.g. rural highways, the level of service is based on the operation of the entire segment (both directions combined). On other types of roadways, each direction is evaluated separately. The segment and directional LOS for the AM and PM peak hours are presented in the Appendix B. The worst operation for each segment (in either direction) are presented in Table 1 and illustrated in Figure 3. This table also presents the results of previous monitoring programs (1995, 1997, 1999, 2001, and 2003).

Level of service calculations were first conducted without including any reductions in traffic volumes to account for exemptions required by the CMP legislation. Segments that operate better than the LOS standard without reductions are automatically in compliance. Reductions were applied to the segments whose 2005 level of service exceeded the segment's standard. Reductions are allowed for interregional travel on each segment and were based on the C/CAG travel demand forecasting model's estimation of the percent of Year 2000 traffic volumes originating outside of San Mateo County. At locations that were monitored with traffic counts, these reductions were applied directly to the measured traffic volumes, a new adjusted volume-to-capacity (V/C) ratio was computed, and the level of service was revised accordingly. At locations that were monitored using travel time surveys, the average speeds were first converted to V/C ratios based on the ranges of V/C ratios and speeds for the corresponding level of service range (from the level of service definition tables in Appendix B of the CMP). Interpolation was used to convert the speed to a specific V/C ratio. For LOS F, the maximum V/C ratio was assumed to be 1.10. the reduction for interregional trips was applied to the V/C ratio to determine the level of service without these regional trips. (This methodology is consistent with previous monitoring reports.)

---

<sup>1</sup> Congestion of the freeway segments was observed to still be increasing at 6:00 pm during the travel time surveys conducted for the 1999 Monitoring Program. Therefore, the travel time surveys for the 2001, 2003, and 2005 Monitoring Program were conducted until 7:00 pm.

**TABLE 1**  
**2005 CMP ROADWAY SEGMENT LEVELS OF SERVICE**

Route	Roadway Segment	LOS Standard <sup>1</sup>	2005 LOS		2003 LOS <sup>2</sup>	2001 LOS <sup>2</sup>	1999 LOS <sup>2</sup>	1997 LOS <sup>2</sup>	1995 LOS <sup>2</sup>
			Without Exemptions	With Exemptions					
1	San Francisco County Line to Linda Mar Blvd.	E	F <sup>3</sup>	F <sup>4</sup>	F <sup>3</sup> /F <sup>4</sup>	F <sup>3</sup> /F <sup>4</sup>	F <sup>3</sup> /F <sup>4</sup>	N.M.	C
1	Linda Mar Blvd. to Frenchmans Creek Road	E	D	N/A	D	D	D	C	E
1	Frenchmans Creek Road to Miramontes Road	E	E	N/A	E	F/E	E	B	E
1	Miramontes Road to Santa Cruz County Line	D	C	N/A	C	C	B	B	B
35	San Francisco county Line to Sneath Lane	E	C	N/A	B	B	A	C	A
35	Sneath Lane to I-280	F	F	N/A	F	F	F	N.M.	N.M.
35	I-280 to SR 92	B	C	C	C/B	C/B	C/B	A	A
35	SR 92 to SR 84	B	B	N/A	B	B	B	A	A
35	SR 84 to Santa Clara County Line	E	B	N/A	B	B	B	A	A
82	San Francisco County Line to John Daly Blvd	E	A	N/A	A	A	A	A	A
82	John Daly Boulevard to Hickey Boulevard	E	A	N/A	A	A	A	A	A
82	Hickey Boulevard to I-380	E	A	N/A	A	A	B	B	A
82	I-380 to Trousdale Drive	E	A	N/A	A	A	A	A	A
82	Trousdale Drive to 3 <sup>rd</sup> Avenue	E	A	N/A	A	A	A	B	B
82	3 <sup>rd</sup> Avenue to SR 92	E	A	N/A	A	A	A	A	A
82	SR 92 to Hillside Avenue	E	B	N/A	A	A	B	A	A
82	Hillside Avenue to 42 <sup>nd</sup> Avenue	E	B	N/A	B	B	B	E	A
82	42 <sup>nd</sup> Avenue to Holly Street	E	A	N/A	A	A	A	C	A
82	Holly Street to Whipple Avenue	E	D	N/A	B	B	D	B	A
82	Whipple Avenue to SR 84	E	C	N/A	B	B	C	D	B
82	SR 84 to Glenwood Avenue	E	B	N/A	C	B	B	A	B
82	Glenwood Avenue to Santa Cruz Avenue	E	D	N/A	D	C	C	D	B
82	Santa Cruz Avenue to Santa Clara County Line	E	C	N/A	D	C	C	D	C
84	SR 1 to Portola Road	C	C	N/A	C	D/D	D/C	B	B
84	Portola Road to I-280	E	B	N/A	B	D	B	C	C

TABLE 1 (CONT.)

2005 CMP ROADWAY SEGMENT LEVELS OF SERVICE

Route	Roadway Segment	LOS Standard <sup>1</sup>	2005 LOS		2003 LOS <sup>2</sup>	2001 LOS <sup>2</sup>	1999 LOS <sup>2</sup>	1997 LOS <sup>2</sup>	1995 LOS <sup>2</sup>
			Without Exemptions	With Exemptions					
84	I-280 to Alameda de las Pulgas	C	C	N/A	D/C	D/D	D/D	D	A
84	Alameda de las Pulgas to US 101	E	E	N/A	D	E	F/C	D	C
84	US 101 to Willow Road	D	B	N/A	A	F/E	D	D	F
84	Willow Road to University Avenue	E	F	F	F/F	F/F	F/F	E	E
84	University Avenue to Alameda County Line	F	F	N/A	F	F	F	F	F
92	SR 1 to I-280	E	E	N/A	E	E	E	D	E
92	I-280 to US 101	D	F <sup>3</sup>	E <sup>4</sup>	C <sup>3</sup>	E <sup>3</sup> /E <sup>4</sup>	F <sup>3</sup> /F <sup>4</sup>	E	E
92	US 101 to Alameda County Line	E	A/B <sup>3</sup>	N/A	C <sup>3</sup>	F <sup>3</sup> /F <sup>4</sup>	F <sup>3</sup> /F <sup>4</sup>	F	E
101	San Francisco County Line to I-380	E	D <sup>3</sup>	N/A	D <sup>3</sup>	E <sup>3</sup>	F <sup>3</sup> /F <sup>4</sup>	D	D
101	I-380 to Millbrae Avenue	E	F <sup>3</sup>	D <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	F <sup>3</sup> /C <sup>4</sup>	F <sup>3</sup> /D <sup>4</sup>	C	E
101	Millbrae Avenue to Broadway	E	F <sup>3</sup>	D <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	F	F
101	Broadway to Peninsula Avenue	E	F <sup>3</sup>	D <sup>4</sup>	F <sup>3</sup> /D <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	F <sup>3</sup> /D <sup>4</sup>	F	E
101	Peninsula Avenue to SR 92	F	F <sup>3</sup>	N/A	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>	F	F
101	SR 92 to Whipple Avenue	E	F <sup>3</sup>	E <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	D	D
101	Whipple Avenue to Santa Clara County Line	F	F <sup>3</sup>	N/A	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>	F	F/D
109	Kavanaugh Drive to SR 84 (Bayfront Expwy.)	E	C	N/A	C	E	E	A	A
114	US 101 to SR 84 (Bayfront Expressway)	E	B	N/A	C	D	D	E	E
280	San Francisco County Line to SR 1 (north)	E	E <sup>3</sup>	N/A	F <sup>3</sup> /F <sup>4</sup>	F <sup>3</sup> /F <sup>4</sup>	F <sup>3</sup> /F <sup>4</sup>	D	A
280	SR 1 (north) to SR 1 (south)	E	E <sup>3</sup>	N/A	E <sup>3</sup>	E <sup>3</sup>	F <sup>3</sup> /F <sup>4</sup>	F	B
280	SR 1 (south) to San Bruno Avenue	D	F <sup>3</sup>	E <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	F <sup>3</sup> /E <sup>4</sup>	E	F
280	San Bruno Avenue to SR 92	D	A/B <sup>3</sup>	N/A	(A/B) <sup>3</sup>	A/B <sup>4</sup>	D	D	A
280	SR 92 to SR 84	D	D <sup>3</sup>	N/A	(A/B) <sup>3</sup>	D <sup>4</sup>	E <sup>3</sup> /D <sup>4</sup>	C	C
280	SR 84 to Santa Clara County Line	D	E <sup>3</sup>	C <sup>4</sup>	(A/B) <sup>3</sup>	D <sup>4</sup>	E <sup>3</sup> /E <sup>4</sup>	D	A
380	I-280 to US 101	F	E <sup>3</sup>	N/A	F <sup>3</sup>	F <sup>3</sup>	F <sup>3</sup>	F	E
380	US 101 to Airport Access Road	C	A <sup>3</sup>	N/A	A <sup>3</sup>	C <sup>3</sup>	C <sup>3</sup>	C	A
Mission St	San Francisco County Line to SR 82	E	A	N/A	A	A	A	A	A

TABLE 1 (CONT.)

2005 CMP ROADWAY SEGMENT LEVELS OF SERVICE

Route	Roadway Segment	LOS Standard <sup>1</sup>	2005 LOS		2003 LOS <sup>2</sup>	2001 LOS <sup>2</sup>	1999 LOS <sup>2</sup>	1997 LOS <sup>2</sup>	1995 LOS <sup>2</sup>
			Without Exemptions	With Exemptions					
Geneva Ave.	San Francisco County Line to Bayshore Blvd.	E	A	N/A	A	A	A	A	C
Bayshore Blvd.	San Francisco County Line to Geneva Avenue	E	A	N/A	A	A	A	A	A

Notes:

<sup>1</sup> From "Final Congestion Management Program 1997," Table3-2.

<sup>2</sup> For 1999, 2001, and 2003 LOS, the first value represents LOS without exemptions, and the second value represents LOS with exemptions.

<sup>3</sup> Based on average speed from travel time surveys.

<sup>4</sup> Exemptions applied to V/Cs estimated from average speeds.

N.M = not monitored

N/A = not applicable. LOS standard is not violated. Therefore, exemptions were not applied.

LOS Standard violations (after application of exemptions) are indicated in **bold**.

LOS based on 1994 Highway Capacity Manual Methodology.







### Improvements

The following list describes improvement projects that have been completed or are under construction since the 2003 Monitoring Program:

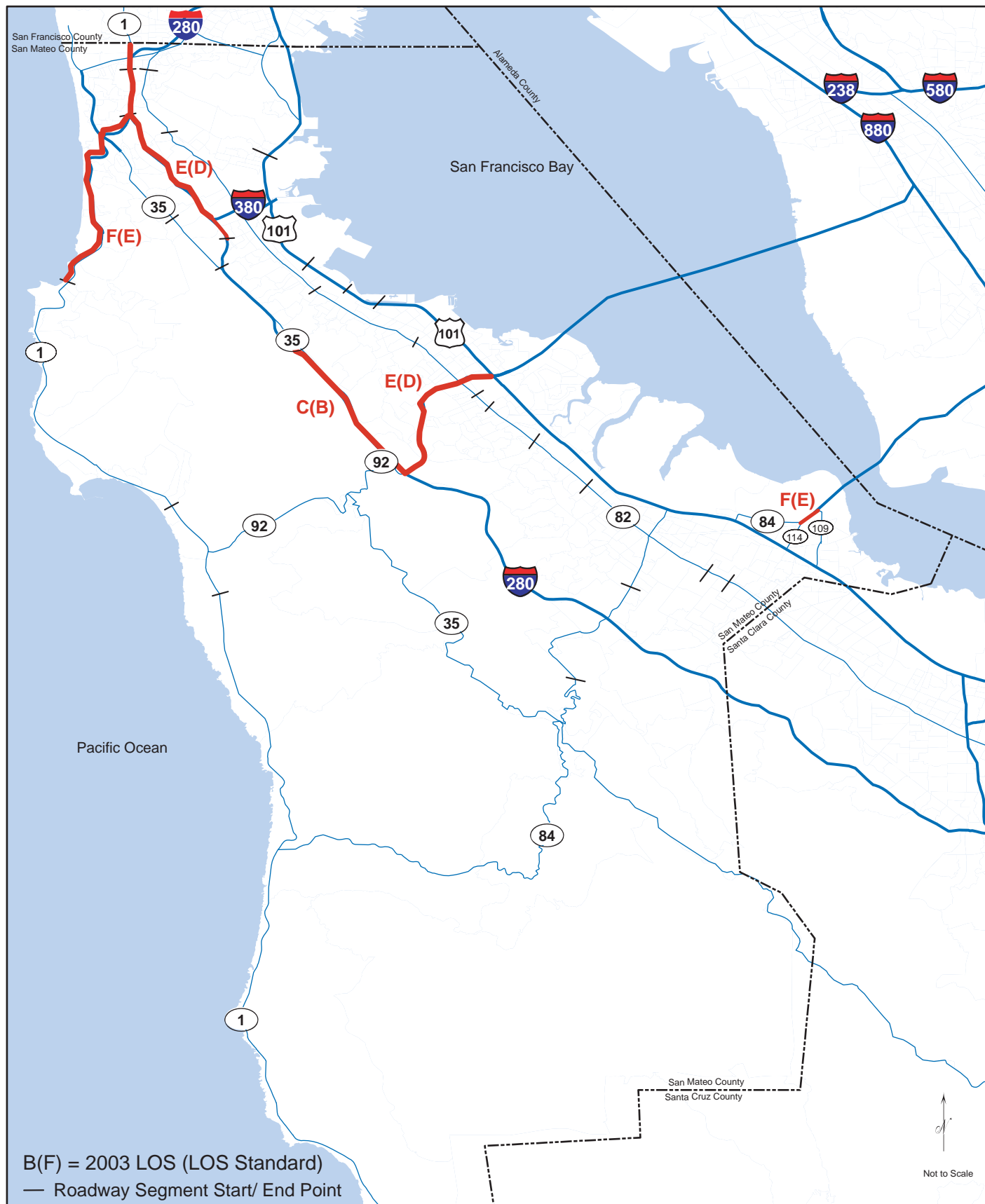
- US 101 southbound flyover ramp to eastern South San Francisco
- U.S. 101 Auxiliary lanes in each direction from Marsh Road to Ralston Avenue
- US 101/Marsh Road modification (elimination of northbound loop off-ramp)
- Widening of Bayfront Expressway (SR 84) between Marsh Road and Dumbarton Bridge to provide three travel lanes in each direction.

### Roadway Segment Results

The results indicate that five of the 53 roadway segments are in violation of the LOS Standard after excluding for interregional traffic. These locations are illustrated on Figure 4 and listed below:

- SR 1, San Francisco County Line to Linda Mar Boulevard
- SR 35, I-280 to SR 92
- SR 84, Willow Street to University Avenue
- SR 92, I-280 to US 101
- I-280, SR 1 (south) to San Bruno Avenue

Three of these five segments exceeded their LOS standard in 2003. The segments of SR 35 (between I-280 and SR 92) and SR 92 (between I-280 and US 101) were operating at or above their CMP standards in 2003.



## **Intersections**

The 2005 traffic volumes, lane configurations, and signal phasings were used as inputs to the intersection level of service calculations. No reductions for interregional travel were applied to the intersection volumes. The results of the LOS calculations are presented in Table 2. This table also presents LOS results from previous monitoring reports for comparison purposes. The 2005 intersection levels of service and LOS standards are illustrated in Figure 5. Appendix C contains the level of service calculation worksheets.

Consistent with previous monitoring programs, the level of service at the intersections were calculated using the Circular 212 methodology. This methodology calculates a critical volume-to-capacity ratio for the intersection. This methodology is typically used as a planning tool to determine whether an intersection is congested based on critical volume compared to available capacity.

Several member agencies have been utilizing the level of service methodology from the *2000 Highway Capacity Manual (2000 HCM)* which calculates the average control delay, expressed in seconds per vehicle. This methodology is an operations tool which takes into account intersection signal timing parameters (i.e. cycle length, loss time, minimum green times, etc.) to evaluate intersection operations. Therefore, the operations of the CMP intersections were also evaluated with the 2000 HCM methodology as shown in Table 2.

## Improvements

### *SR 84 Widening Project*

As indicated previously, widening of SR 84 between Marsh Road and Dumbarton Bridge to three lanes in each direction is completed. This roadway widening project included additional lanes at the following intersections:

#### Bayfront Expressway (SR 84)/University Avenue

The northbound approach has been widened to provide two left-turn lanes and three right-turn lanes. A third eastbound through lane was added. The signal operation was modified so that the triple right-turn is a controlled movement. Previously, it was a free-flow right-turn lane.

#### Bayfront Expressway (SR 84)/Willow Road

A second left-turn lane is provided for the northbound and eastbound approaches. A third through lane is added to the eastbound and westbound approaches and an exclusive eastbound right-turn lane is provided.

#### Bayfront Expressway (SR 84)/Marsh Road

An exclusive through lane will be added to the eastbound approach and a third westbound left-turn lane is provided on the westbound approach.

### *Other Improvements*

A third westbound left-turn lane is provided at the El Camino Real/Millbrae Avenue intersection.

### Intersection Results - Circular 212 Methodology

As indicated previously, this methodology evaluates an intersections operations based on a volume-to-capacity ratio of the critical movements. The results of the intersections level of service calculations indicate that the LOS ratings change (improved or worsened) when compared to the Year 2003 levels at the following locations:

- Skyline Boulevard (SR 35)/John Daly Boulevard (AM and PM LOS worsened from LOS A to LOS B)
- Mission Street (SR 82)/John Daly Boulevard/Hillside Boulevard (AM LOS worsened from LOS A to LOS B)
- El Camino Real (SR 82)/Millbrae Avenue (AM and PM LOS worsened from LOS C to LOS E)
- El Camino Real (SR 82)/Ralston Avenue (AM LOS worsened form LOS C to LOS D, PM LOS worsened from LOS C to LOS E)
- El Camino Real (SR 82)/Holly Street (PM LOS worsened from LOS A to LOS B)
- El Camino Real (SR 82)/Whipple Avenue (AM LOS worsened from LOS A to LOS C, PM LOS worsened from LOS C to LOS D)
- Bayfront Expressway (SR 84)/University Avenue (AM LOS improved from LOS D to LOS C)
- Bayfront Expressway (SR 84)/Willow Road (PM LOS improved from LOS E to LOS D)
- Bayfront Expressway (SR 84)/Marsh Road (AM LOS improved from LOS D to LOS B)
- Woodside Road (SR 84)/Middlefield Road (AM LOS worsened from LOS C to LOS D)
- SR 92/SR 1 (PM LOS worsened from LOS C to LOS D)
- SR 92/Main Street (AM LOS improved from LOS E to LOS D)

The following two intersections are operating at their LOS standard:

- El Camino Real (SR 82)/Millbrae Avenue
- El Camino Real (SR 82)/Ralston Avenue

The remaining study intersections are operating at levels of service better than their LOS standard and no LOS Standard violations were identified.

### Intersection Results - 2000 HCM Methodology

This methodology calculates an average control delay, expressed in seconds per vehicle. In general, the LOS ratings using the 2000 HCM methodology are one to two grades lower than the LOS ratings based on the Circular 212 methodology. However, the two intersections identified above are still operating at their LOS standard and no LOS Standard violations were identified.

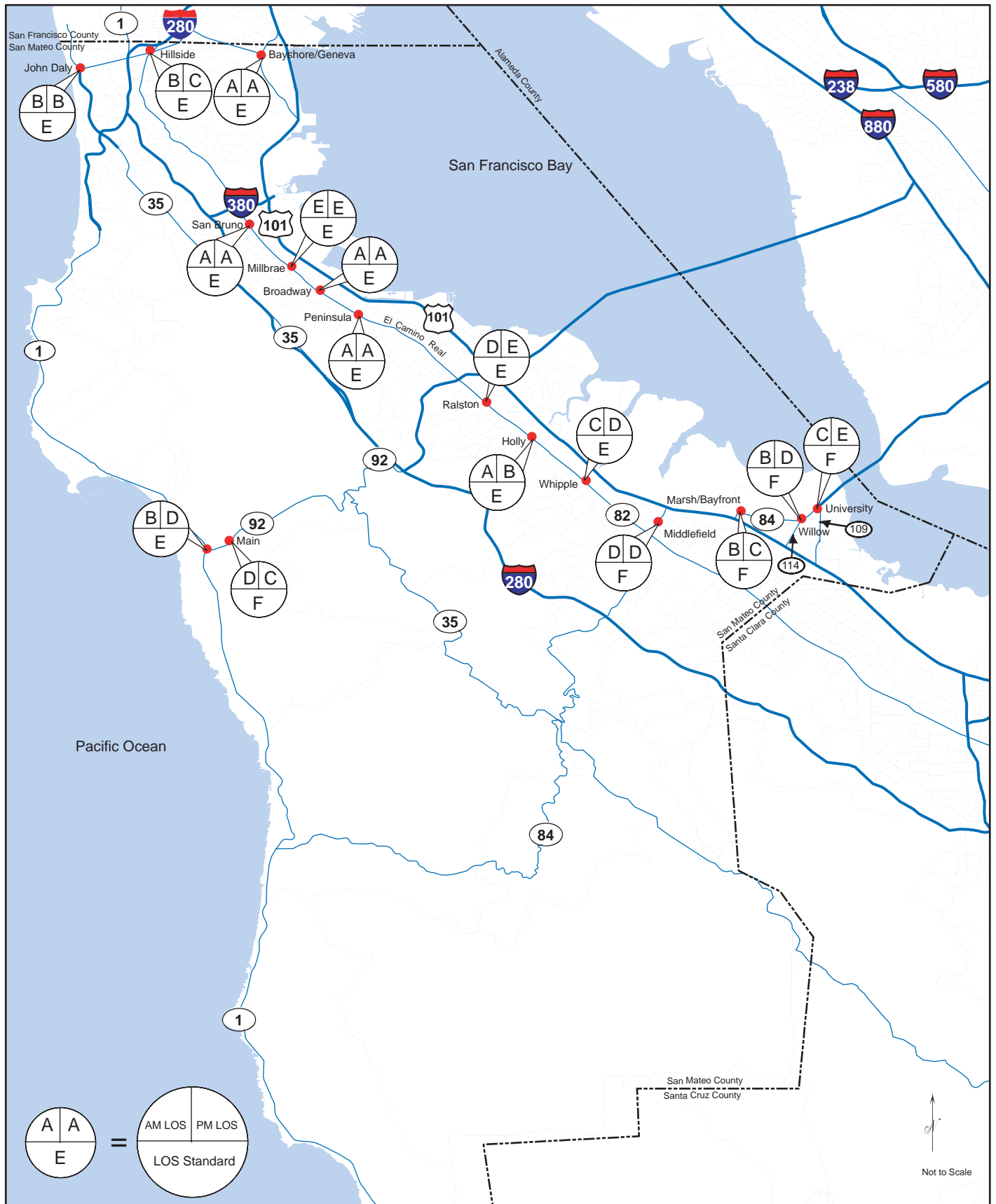
Field observations were conducted at the study intersections to verify the calculated levels of service. In general, most of the CMP intersections are operating at good levels of service. The field observations are more consistent with the calculated LOS ratings using the 2000 HCM methodology than the Circular 212 methodology.

**TABLE 2**  
**2005 CMP INTERSECTION LEVELS OF SERVICE AND STANDARDS**

Intersection	LOS Standard	Peak Hour	2000 HCM Methodology	Circular 212 Methodology						Standard Exceeded?
			2005 LOS	2005 LOS	2003 LOS	2001 LOS	1999 LOS	1997 LOS	1995 LOS	
Geneva Avenue/ Bayshore Boulevard	E	AM PM	C C	A A	A A	A A	A A	A A	A A	No No
Skyline Boulevard (SR 35)/ John Daly Boulevard	E	AM PM	B C	B B	A A	A <sup>2</sup> A <sup>2</sup>	A A	A B	A A	No No
Mission St. (SR 82)/ John Daly Blvd. – Hillside Blvd.	E	AM PM	C D	B C	A C	B <sup>2</sup> B <sup>2</sup>	A A	A A	A A	No No
El Camino Real (SR 82)/ San Bruno Avenue	E	AM PM	C D	A A	A A	A <sup>2</sup> A <sup>2</sup>	A C	B C	C A	No No
El Camino Real (SR 82)/ Millbrae Avenue	E	AM PM	E <sup>2</sup> E <sup>2</sup>	E <sup>2</sup> E <sup>2</sup>	C C	C D	D B	C B	B C	No No
El Camino Real (SR 82)/ Broadway	E	AM PM	B B	A A	A A	B A	B A	B B	A A	No No
El Camino Real (SR 82)/ Park-Peninsula Avenue	E	AM PM	B B	A A	A A	A A	A A	A B	A A	No No
El Camino Real (SR 82)/ Ralston Avenue	E	AM PM	E E	D E	C C	C <sup>2</sup> D <sup>2</sup>	B C	B E	C D	No No
El Camino Real (SR 82)/ Holly Street	E	AM PM	C C	A B	A A	A <sup>2</sup> B <sup>2</sup>	A B	B C	A B	No No
El Camino Real (SR 82)/ Whipple Avenue	E	AM PM	D D	C D	A C	A A	A D	B C	A B	No No
Bayfront Expressway (SR 84)/ University Avenue (SR 109)	F	AM PM	B <sup>2</sup> E <sup>2</sup>	C <sup>2</sup> E <sup>2</sup>	D E	D <sup>2</sup> E <sup>2</sup>	C F	F/D D	D F	No No
Bayfront Expressway (SR 84)/ Willow Road	F	AM PM	C <sup>2</sup> E <sup>2</sup>	B <sup>2</sup> D <sup>2</sup>	B E	B F	C F	F/E F	F C	No No
Bayfront Expressway (SR 84)/ Marsh Road	F	AM PM	C <sup>2</sup> C <sup>2</sup>	B <sup>2</sup> C <sup>2</sup>	D C	E D	D F	F/E F	E F	No No
Woodside Road (SR 84)/ Middlefield Road	F	AM PM	D D	D D	C D	C D	E E	F F	D D	No No
SR 92/ SR 1	E	AM PM	D D	B D	B C	A <sup>2</sup> B <sup>2</sup>	B C	B B	B A	No No
SR 92/ Main Street	F	AM PM	C C	D C	E C	D C	C B	D/C D/C	F D	No No

Notes: <sup>1</sup> For those intersections with two levels of service ratings, the first rating is the published 1997 result and the second rating is the corrected 1997 result.

<sup>2</sup> LOS included lane improvements.

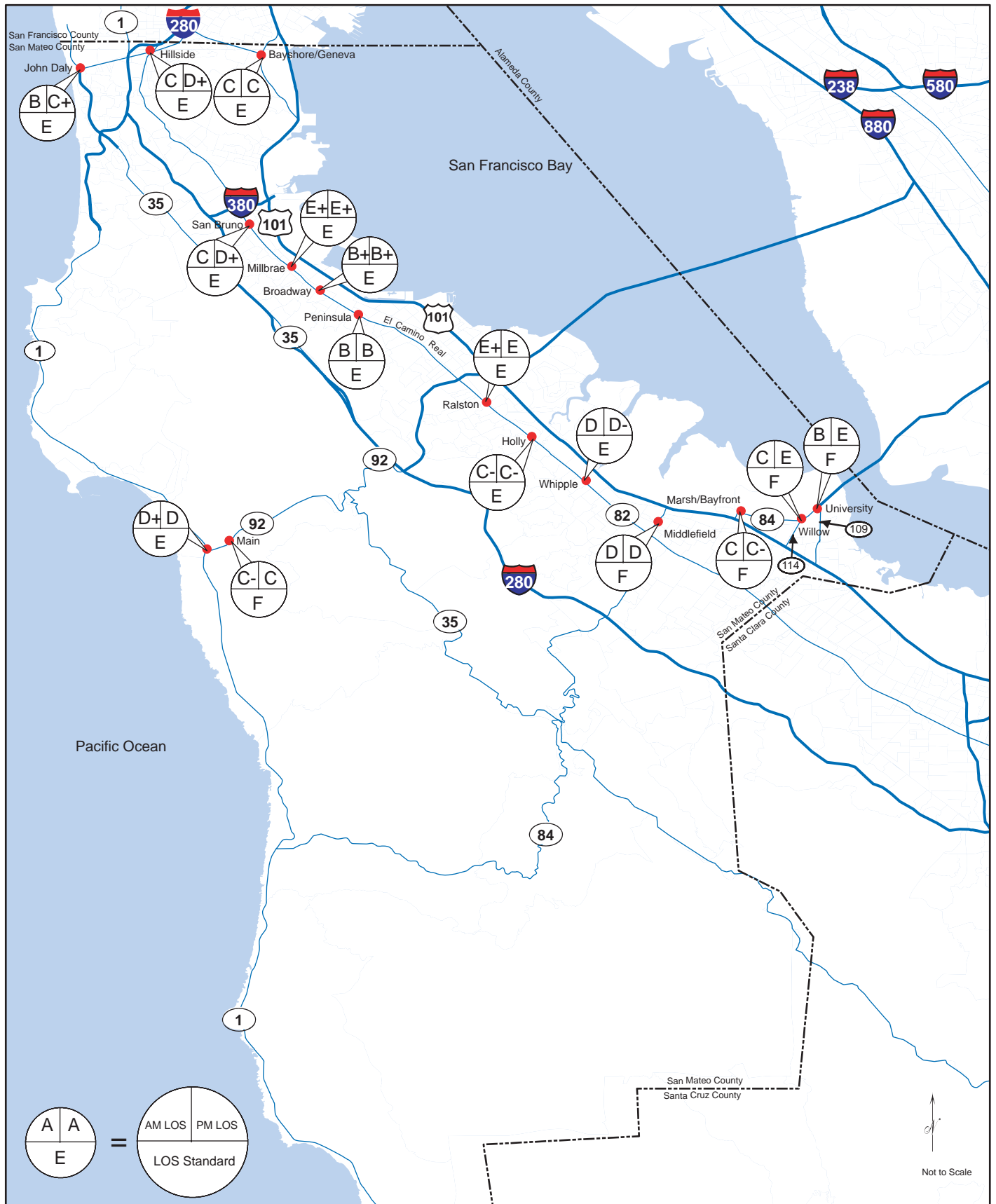


2005 CMP Monitoring Report

## 2005 CMP Intersection Levels of Service (LOS) (Circular 212 Methodology)

Figure 5a





2005 CMP Monitoring Report

## 2005 CMP Intersection Levels of Service (LOS) (2000 HCM Methodology)

Figure 5b



### 3. PERFORMANCE MEASURES

In 1995, the Transit LOS Standard Element was replaced with the Performance Measure Element. Four Performance Measures were selected and refined in the 1997 DMP Update and retained for the 1999, 2001, 2003, and 2005 CMPs. The four measures are: (1) level of service, (2) travel times for single-occupant automobiles, carpools, and transit, (3) pedestrian and bicycle improvements, and (4) ridership/person throughput for transit. This chapter presents 2005 measurements of these performance measures.

#### LEVEL OF SERVICE

The levels of service of the designated CMP roadway system were evaluated as part of the 2005 monitoring effort. The results are presented in Chapter 2. The results show that five roadway segments exceed their LOS standard. All of the intersections are in compliance with their LOS standard.

#### TRAVEL TIMES FOR SINGLE-OCCUPANT AUTOMOBILES, CARPOOLS AND TRANSIT

This performance measure is based on the amount of time required to traverse a selected corridor via the various modes. Travel times were measured for the US 101 corridor between the San Francisco and Santa Clara County Lines. The US 101 corridor was selected because, in addition to mixed-flow lanes, it includes High Occupancy Vehicle (HOV) lanes, bus routes, and passenger rail.

Travel time surveys conducted on US 101 for the CMP traffic level of service monitoring process were used to represent travel times for single-occupant automobiles. Travel time surveys were also conducted for the HOV lanes on US 101, which currently extend from the Santa Clara County Line to Whipple Avenue. (The results are summarized in Appendix A). The total travel time for carpools was estimated by adding the travel time in the HOV lanes between the Santa Clara County line and Whipple Avenue to the travel time in the mixed-flow lanes between Whipple Avenue and the San Francisco County Line.

Travel times for bus and passenger rail modes were estimated based on SamTrans and Caltrain published schedules. SamTrans bus route KX operates in the SU 101 corridor. This route provides service through San Mateo County from San Francisco to Palo Alto. Travel times were based on the average travel time between County lines during the commute hours.<sup>2</sup> Travel time via Caltrain was calculated in a similar manner. The transit travel time calculations are included in Appendix D.

The travel times for each mode, by direction and peak commute period, are presented in Table 3. This table also presents the 1999, 2001, and 2003 travel times. Compared to 2003 travel times, the 2005 travel times for the single-occupant auto and carpool increased by one or two minutes during the AM peak. During the PM peak hour, the travel times decreased by six minutes from the 2003 times for the single-occupant auto in the northbound direction and increased by five minutes in the southbound direction. Similarly, the travel times for the carpool lane decreased by two minutes in the northbound direction and decreased by seven minutes in the southbound direction. The travel time runs for Caltrain decreased by up to seven minutes during either peak hour. This reduction is due primarily to the introduction of the Baby Bullet express service which significantly reduce the travel time between San Francisco County and San Mateo County. The SamTrans travel time runs are within four minutes of the 2003 travel times.

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<sup>2</sup> Defined as 7:00 am to 9:00 am and 4:00 pm to 7:00 pm.

**TABLE 3**

**AVERAGE TRAVEL TIME IN US 101 CORRIDOR (IN MINUTES)<sup>1</sup>**

Mode	AM <sup>2</sup>								PM <sup>3</sup>							
	Northbound				Southbound				Northbound				Southbound			
	1999	2001	2003	2005	1999	2001	2003	2005	1999	2001	2003	2005	1999	2001	2003	2005
Single-Occupant Auto	29	27	29	31	45	49	37	38	38	31	39	33	31	26	30	35
Carpool	29	25	28	30	40	38	29	31	36	31	34	32	28	25	25	32
Caltrain (local & express)	42	44	43	42	45	48	49	42	46	49	49	42	42	45	46	42
SamTrans Route KX	61	66	68	72	68	76	74	72	71	75	75	79	63	71	72	75

**Notes:**

1 Between San Francisco and Santa Clara County Lines.

2 Morning commute period.

3 Evening commute period.

## PEDESTRIAN AND BICYCLE IMPROVEMENTS

The purpose of this measure is to ensure that pedestrian and bicycle travel is being accommodated in new transportation improvement projects. 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.

CIP projects that include pedestrian and bicycle improvements should receive higher priority over those that do not. In addition, projects that create a barrier to pedestrian or bicycle travel should receive a penalty in the evaluation process. (Barriers would include grade separations without pedestrian or bicycle facilities.) This can be accomplished by adding pedestrian/bicycle transportation issues to the evaluation criteria. For example:

Does the CIP project include sidewalks or pedestrian paths? (add points)

Do the CIP project's sidewalks or paths connect with other pedestrian facilities? (add points)

Do the CIP project's sidewalks or paths close a gap in the pedestrian system? (add points)

Does the CIP project cause a barrier to pedestrian travel (subtract points)

Does the CIP project include bike lanes or bike paths? (add points)

Do the CIP project's bicycle facilities connect with other bicycle facilities? (add points)

Do the CIP project's bicycle facilities close a gap in the regional bicycle system? (add points)

Does the CIP project cause a barrier to bicycle travel? (subtract points)

The actual number of added or subtracted points is dependent on the points given for other criteria. San Mateo County publishes the Bicycle Transportation Map which identifies existing bicycle facilities in San Mateo County. This map would be helpful in identifying gaps in the bicycle system. According to County staff, the next CIP program will use bicycle and pedestrian accommodations in the evaluation criteria.

## RIDERSHIP/PERSON THROUGHPUT FOR TRANSIT

The purpose of this performance measure is to measure the number of individuals that use transit. Available SamTrans, Caltrain, and BART ridership data was collected and is presented in Table 4. Table 4 presents ridership data for the BART SFO Airport extension which was opened in late 2003. These average weekday ridership numbers were compared to 1999, 2001, 2003, and 2005 conditions.

The 2005 transit ridership data (projections were developed for the last quarter of the fiscal year since the fiscal year does not end until June 2005) indicate that Samtrans and BART total ridership has decreased when compared to 2003 levels. With the exception of Caltrain, average daily ridership for SamTrans and BART have also decreased. The introduction of the Baby Bullet express has increased total and average weekday ridership for Caltrain.

As a performance measure, average weekday ridership could be compared to the capacity of each mode. Capacity would be estimated by determining the average number of train cars and buses per weekday and the number of seats on each, the capacity for each mode would then be calculated by multiplying the person-capacity of each vehicle (number of seats for each bus or train car) by the number of vehicles per weekday. The crush load capacity would be calculated by adding the standees, typically estimated as 50 percent of the seats.

<b>TABLE 4</b> <b>TRANSIT RIDERSHIP<sup>1</sup></b>								
Mode	Total				Average Weekday			
	1999 <sup>2</sup>	2001 <sup>3</sup>	2003 <sup>4</sup>	2005 <sup>5</sup>	1999 <sup>2</sup>	2001 <sup>3</sup>	2003 <sup>4</sup>	2005 <sup>5</sup>
SamTrans	17,885,754	17,958,419	16,203,500	13,591,931	60,323	60,040	52,845	46,450
Caltrain	8,621,841	10,509,567	8,283,062	8,814,871	26,861	32,865	27,785	29,270
BART (Colma & Daly City)	7,258,562	8,807,348	8,192,364	5,985,526	25,787	29,503	27,323	20,948
BART (SFO Ext. Stations) <sup>6</sup>	n/a	n/a	n/a	6,429,302	n/a	n/a	n/a	21,888
Notes: <sup>1</sup> Ridership information provided by SamTrans <sup>2</sup> Based on Fiscal Year ending June 30, 1999. <sup>3</sup> Based on Fiscal Year ending June 30, 2001. <sup>4</sup> Based on Fiscal Year ending June 30, 2003. <sup>5</sup> Includes projections for last quarter of Fiscal Year ending June 30, 2005. <sup>6</sup> SFO extension began service June 22, 2003 to South San Francisco, San Bruno, San Francisco International Airport, and Millbrae stations. Source: Ridership information provided by BART and SamTrans staff.								

## 4. SUMMARY

### ROADWAY SEGMENTS

Level of service calculations were conducted for the roadway segments using the 2005 traffic volumes and average speeds (estimated from the travel time surveys conducted on freeway segments). The results indicate that five of the 53 roadway segments exceed their LOS Standard in 2005.

### INTERSECTIONS

The results of the intersection LOS calculations (based on Circular 212 methodology) indicated that the level of service ratings improved or decreased at twelve (12) locations in comparison to the 2003 results. Two intersections are operating at their LOS standard. The remaining study intersections are operating at levels of service better than their LOS standard and no LOS Standard violations were identified.

Since the Circular 212 methodology is used as a planning tool to evaluate intersection capacity, intersection operations were evaluated with the *2000 Highway Capacity Manual* (HCM) methodology. This methodology uses signal timing inputs in conjunction with the volumes and lane configuration to determine a level of service which is based on average control delay expressed in seconds per vehicle. Two intersections are operating at their LOS standard based on the 2000 HCM methodology and no LOS Standard violations were identified.

### PERFORMANCE MEASURES

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

Travel times were measured for the US 101 corridor between the San Francisco and Santa Clara County Lines for single-occupant automobiles, carpools, and transit and compared to 2003 travel times. The 2005 travel times for the single-occupant auto and carpool increased by one-to-two minutes during the morning period and decreased by several minutes during the evening period. Caltrain travel time runs decreased due to the introduction of the Baby Bullet express trains and travel times for SamTrans Bus Route KX increased by several minutes.

#### ***Pedestrian and Bicycle Improvements***

The next CIP program will incorporate bicycle and pedestrian issues in the evaluation criteria

#### ***Ridership/Person Throughput for Transit***

Total annual and weekday average ridership information was collected for SamTrans, Caltrain, and BART (Colma and Daly City station). These average weekday ridership numbers were compared to 2003 conditions.

The 2005 transit ridership data (projections were developed for the last quarter of the fiscal year since the fiscal year does not end until June 2005) indicate that Samtrans and BART total ridership has decreased when compared to 2003 levels. With the exception of Caltrain, average daily ridership for SamTrans and BART have also decreased. The introduction of the Baby Bullet express has increased total and average weekday ridership for Caltrain.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>1993 CMP CIP Projects</b>					
<b>Bicycle and Pedestrian Facilities</b>					
San Carlos Industrial Road rehab for bikes and pedestrians (East San Carlos Avenue – Bing Street) - \$1,187,000				X	
<b>1997 CMP CIP Projects Approved for 1997-1999 Funding</b>					
<b>Transit Improvements</b>					
Joint Powers Board CALTRAIN Hillsdale Station parking rehabilitation (\$500,000)				X	
Joint Powers Board CALTRAIN track rehabilitation (\$500,000)				X	Part of JPB CTX project.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>1998 CMP CIP Projects Approved for STIP Funding (in 1997 dollars)</b>					
<b>Freeway/Highway Improvements</b>					
CALTRANS Route 1 Devil's Slide tunnel (\$3.6 million)			X		Partial funding only. Expected completion June 2011.
Transportation Authority Route 101 Auxiliary Lanes: Route 92 to Marsh Road (\$20.6 million)			X		Includes \$709,000 in landscaping. Expected completion Sept 2008.
CALTRANS Route 92 slow vehicle lane improvements (\$21.1 million)	X				
Half Moon Bay Route 92 and Main Street intersection improvements: Route 92 widening and realignment (\$2.8 million)		X			Partially funded locally by Transportation Authority in amount \$1.5 million.
<b>Transit Improvements</b>					
Joint Powers Board CALTRAIN centralized control system (\$5.6 million)				X	Part of JPB CTX project.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>1998 Demonstration Projects</b>					
Pacifica San Pedro Creek Bridge project at Route 1 (\$1.1 million)	X				
San Mateo Route 92 and El Camino Real interchange improvements (\$2.8 million)	X				
CALTRANS I-380 connector at Sneath Lane (\$2.1 million)	X				
<b>1999 Federal 25% Funding</b>					
<b>Operational Improvements</b>					
San Bruno Sneath Lane signal interconnect (\$620,000)				X	
<b>Transit Improvements</b>					
Joint Powers Board CALTRAIN signal improvements (\$890,000)				X	Part of JPB CTX project.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>1999 Federal 75% Funding</b>					
<b>Other Roadway Improvements</b>					
Redwood City Ralston Avenue reconstruction (Granada Street - US 101 overcrossing) - \$105,000			X		Expected completion Sept 2005. Combined with 2000 STIP Ralston Ave/US 101 interchange modification.
Belmont Ralston Avenue repaving (\$80,750)				X	Combined with 1999 75% Alameda de las Pulgas repaving project.
San Bruno Sneath Lane repaving (Skyline Boulevard - I-280) - \$247,000				X	
San Bruno Sneath Lane repaving (El Camino Real - I-280) - \$313,000				X	
Belmont Alameda de las Pulgas repaving (\$64,000)				X	Combined with 1999 75% Ralston Avenue repaving project.
Belmont Ralston Avenue reconstruction (Cipriani Boulevard to Alameda de las Pulgas) - \$375,000				X	



**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
Joint Powers Board CALTRAIN track rehabilitation (\$3.8 million)				X	Part of JPB CTX project.
Joint Powers Board CALTRAIN Express Third Track (CTX) project (\$327,500)				X	
<b>1999 Federal Safe Routes to School Program</b>					
Belmont Nesbit School bikeway installation (\$315,000)				X	
<b>2000 Federal Congestion Mitigation and Air Quality (CMAQ) Projects</b>					
<b>Operational Improvements</b>					
Belmont Ralston Avenue signal interconnect (\$132,750)		X (Sept 02)			
Colma Junipero Serra Boulevard signal interconnect (\$532,000)				X	

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>Safety Improvements</b>					
Belmont El Camino Real and Fifth Avenue safety improvements (\$40,000)					\$40,000 in funding LOST because of inactivity by Belmont.
Millbrae Millbrae Avenue and El Camino Real safety improvements (\$200,000)				X	
San Bruno El Camino Real and Sneath Lane intersection improvement (\$1,000,000)			X		Expected completion Sept 2005. Combined w/ 2000 HIP El Camino Real pedestrian improvements.
San Carlos Industrial Road sidewalk construction (\$1,231,750)				X	Supplemental funding for original 1993 CMP project.
<b>Pedestrian and Bicycle Facilities</b>					
San Mateo County Mirada Road pedestrian/bicycle bridge (\$147,750)				X	Transportation Enhancements Activities project.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
San Mateo Main Street pedestrian corridor and Transit Center links (\$1,985,000 + \$813,610)				X	Transportation Enhancements Activities Project; additional \$813,610 shifted from Half Moon Bay TEA project.
<b>Transit Improvements</b>					
Joint Powers Board CALTRAIN Hillsdale Station parking lot improvements (\$1,000,000)			X		Expected completion Nov 2005.
Joint Powers Board CALTRAIN track and signal rehabilitation (\$938,000)				X	Part of JPB CTX project. JPB991001
SAMTRANS Bus communication system upgrade (\$885,000)				X	
<b>2000 Federal Surface Transportation Program (STP) Projects</b>					
<b>Other Roadway Improvements</b>					
Daly City Geneva Avenue pavement rehabilitation				X	

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
(\$345,000)					
San Carlos Industrial Road pavement rehabilitation (\$406,000)				X	Supplemental funding for original 1993 CMP project.
San Mateo County Polhemus Road repaving (\$238,000)				X	
<b>Transit Improvements</b>					
Joint Powers Board CALTRAIN maintenance facility (\$1,062,000)			X		Expected completion June 2006. JPB950001
SAMTRANS Bus maintenance facility rehabilitation (\$253,000)				X	
BART Daly City yard and shop improvements (\$849,600)			X		Expected completion June 2005.
<b>2000 CMP CIP Projects Approved for STIP Funding</b>					

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>Freeway/Highway Improvements</b>					
Half Moon Bay Route 92 and Main Street intersection improvements: Route 92 widening and realignment (\$1,000,000)	X				Supplemental funding for original 1998 CMP project.
Transportation Authority Route 92 curve correction east of Half Moon Bay (\$2,619,000)	X				Transferred \$119,000 from Half Moon Bay Route 92 pavement rehabilitation project.
Redwood City Ralston Avenue/US 101 interchange modification (\$3,100,000)			X		Expected completion Sept 2005. Combined with 1999 75% Ralston Avenue reconstruction (Granada Street-US101 overcrossing).
CALTRANS Route 101 Harbor Boulevard off ramp soundwall (\$666,000)				X	
<b>Transit Improvements</b>					
BART Colma Station/San Francisco Intl Airport bike trail (\$2,500,000)	X				
Joint Powers Board CALTRAIN track, station, and signal rehabilitation (\$366,667)				X	Part of JPB CTX project.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
SAMTRANS Bus stop rehabilitation (\$576,000)				X	
SAMTRANS Bus maintenance facility rehabilitation (\$540,000)				X	Part of SAMTRANS STP rehabilitation project.
<b>2000 Transportation Development Act (TDA) Article #3 Projects: Bicycle and Pedestrian Facilities</b>					
Half Moon Bay Route 92 bicycle lanes and sidewalks (\$485,146)	X				Extension granted to 30 Sept 2005.
<b>2000 CMP CIP Projects</b>					
<b>Community Improvements</b>					
Daly City Landmark Development Project					Housing Incentive Program Project. Groundbreaking did not occur before deadline expired. Money lost for HIP Transportation Project.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
Daly City Lake Merced Boulevard pedestrian/bicycle path (\$394,000)					HIP Transportation Project cancelled. Funding lost.
East Palo Alto Nugent Square Development Project (\$123,000)				X	Housing Incentive Program Project; combined with University Avenue Apartments Development.
East Palo Alto University Avenue Apartments Development Project (\$135,500)			X		Housing Incentive Program Project; combined with Nugent Square Development. Housing construction expected to be completed Dec 2005.
East Palo Alto Bay Road Streetscape and Traffic Calming Improvements (\$258,500)		X (Aug 04)			HIP Transportation Project. Combined w/ 2002 Transportation for Livable Communities Project.
San Bruno Navy Site Development Project			X		Housing Incentive Program Project. Housing construction expected to be completed Oct 2005.
San Bruno El Camino Real pedestrian improvements (\$936,500)			X		HIP Transportation Project. Combined w/ 2000 CMAQ El Camino Real and Sneath Lane Intersection improvement.
San Mateo 3 <sup>rd</sup> and 4 <sup>th</sup> Avenues pedestrian and streetscape improvements (\$682,500)			X		HIP Transportation Project. Expected completion Nov 2005.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>2001 Bus/Streets Rehabilitation Program</b>					
Belmont Various streets resurfacing (\$200,000)				X	\$200,000 paid.
Colma Various streets resurfacing (\$35,200)				X	\$35,200 paid.
East Palo Alto Various streets resurfacing (\$200,000)				X	\$182,444 paid.
San Bruno Various streets resurfacing (\$200,000)				X	\$168,000 paid.
<b>2001 Hazard Elimination Safety (HES) Program</b>					
Belmont El Camino Real and Fifth Avenue safety improvements (\$80,000)					Supplemental funding for original 2000 CMAQ project. \$80,000 in funding LOST because of inactivity by Belmont.
<b>2001 Federal Safe Routes to School Program</b>					



**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
Foster City Foster City and Bowditch Schools beacons and signs (\$74,943)				X	Only \$33,460 actually spent. Balance cannot be transferred to another project.
San Mateo County Fair Oaks School sidewalks and traffic signs (\$151,470)		X (Sept 03)			

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>2001 Transportation Development Act (TDA) Article #3 Projects: Bicycle and Pedestrian Facilities</b>					
Menlo Park Willow Place bicycle bridge (\$240,000)				X	
Menlo Park Alma Street bicycle lanes (\$18,850)				X	
Belmont US 101 bicycle and pedestrian bridge (\$300,000)				X	
San Mateo Hayward Park Station bicycle lockers (\$12,000)					Project funding cancelled: money returned to MTC.
<b>2002 Federal Congestion Mitigation and Air Quality (CMAQ) Projects</b>					
<b>Community Improvements</b>					
East Palo Alto Bay Road Streetscape and Traffic Calming Improvements (\$700,000)		X (Sept 04)			Transportation for Livable Communities Project.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>Planning Grants</b>					
Colma Mission Street Pedestrian and Streetscape Plan (\$22,000)			X		Expected completion Sept 2005. Transportation for Livable Communities Project.
Millbrae BART Extension Bikeway Alignment Plan (\$60,000)				X	Transportation for Livable Communities Project.
<b>2002 CMP CIP Projects Approved for STIP Funding</b>					
<b>Freeway/Highway Improvements</b>					
Transportation Authority Menlo Park Willow Road/US 101 interchange reconstruction (\$12 million)	X				
Transportation Authority Route 101 Auxiliary Lanes: Marsh Road to Santa Clara County (\$19.6 million)	X				
Transportation Authority Route 101 Auxiliary Lanes: San Mateo Third Avenue to Millbrae Avenue (\$43.7 million)	X				

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>2002 Transportation Development Act (TDA) Article #3 Projects: Bicycle and Pedestrian Facilities</b>					
Pacifica Route 1 multi-purpose trail (\$500,000)				X	
San Mateo Crystal Springs Road bicycle improvements (\$81,200)				X	
San Mateo Fashion Island Bridge bicycle lane (\$22,500)				X	
<b>2002 Transit Oriented Development (TOD) Projects</b>					
<b>Community Improvements</b>					
San Bruno Various streets rehabilitation (\$529,000)	X				TOD transportation project. Supplemental funding for 2006 STP project.
San Mateo County Pescadero Creek Road repaving (\$310,000)		X			TOD transportation project.
Millbrae Hillcrest Boulevard and surrounding streets repaving (\$236,000)	X				TOD transportation project. OBL deadline

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
					30 June 2006.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
South San Francisco BART Linear Park multi-use path and landscaping (\$590,280)	X				TOD transportation project. Supplemental funding for 2004 TLC project.
<b>2003 Hazard Elimination Safety (HES) Program: Award deadline 30 Sept 2004</b>					
San Bruno El Camino Real emergency vehicle priority system (\$300,600)		X (Sept 04)			
Pacifica Milagra Drive Overcrossing bicycle and pedestrian rehabilitation (\$360,000)			X		Expected completion July 2005.
<b>2003 Federal Safe Routes to School Program : Award deadline 30 Sept 2004</b>					
Belmont School zone signs and lighted crosswalks (\$372,690)			X		Expected completion Sept 2005.
<b>2003 Transportation Development Act (TDA) Article #3 Projects: Bicycle and Pedestrian Facilities</b>					

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
South San Francisco Orange Avenue intersection improvements (\$100,000)				X	
San Mateo Regional Bayfront Trail upgrade (\$150,000)				X	
San Bruno Crystal Springs Road traffic signal modification (\$20,000)				X	
Pacifica Milagra Drive Overcrossing at State Route 1 repair project (\$240,000)			X		Supplemental funding for original 2003 HES project.
San Mateo Bikeway detection units (\$30,000)	X				
<b>2003 Pavement Management Technical Assistance Program (P-TAP) Round 6</b>					
San Mateo County Pavement Mgt System reinspection (\$25,000)				X	
<b>Brisbane</b> Rehabilitation of Beatty Road topographic survey (\$7500)			X		Expected completion June 2005.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>South San Francisco</b> Pavement Mgt System reinspection (\$25,000)				X	
<b>Woodside</b> Pavement Mgt System reinspection (\$14,100)				X	
<b>Half Moon Bay</b> Pavement Mgt System reinspection (\$8400)				X	
<b>Redwood City</b> Pavement Mgt System reinspection (\$25,000)				X	
<b>2004 Transportation Enhancements Activities (TEA) Projects</b>					
San Mateo 3 <sup>rd</sup> and 4 <sup>th</sup> Avenues pedestrian and streetscape improvements (\$410,000)			X		Supplemental funding for original 2000 HIP transportation project.
<b>2004 Transportation for Livable Communities (TLC) Projects</b>					
South San Francisco BART Linear Park bikeway and intersection improvements (\$1,932,900)	X				OBL deadline 30 June 2006. Combined with 202 Transit Oriented Development project.
<b>2004 Hazard Elimination Safety (HES) Program: Award deadline 30 Sept 2005</b>					



**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
San Mateo Poplar Avenue median (\$207,900)	X				
Daly City Lake Merced Boulevard flashing beacons and warning signs (\$111,870)	X				
Menlo Park Willow Road emergency vehicle priority systems (\$180,000)	X				
<b>2005 Federal Surface Transportation Program (STP) Projects</b>					
<b>Other Roadway Improvements</b>					
<b>Daly City</b> Various streets rehabilitation (\$550,000) TIP ID: SM-050031	X				OBL deadline 30 June 2005.
<b>San Mateo County</b> Guadalupe Canyon Parkway resurfacing (\$400,000) TIP ID: SM-050032	X				OBL deadline 30 June 2005.
<b>Brisbane</b> Northbound Bayshore Boulevard rehabilitation (\$300,000) TIP ID: SM-050033	X				OBL deadline 30 June 2005.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
<b>San Mateo</b> Various streets rehabilitation (\$550,000) TIP ID: SM-050034	X				OBL deadline 30 June 2005.
<b>Transit Improvements</b>					
<b>Joint Powers Board</b> CalTrain systemwide track and related structure rehabilitation (\$8,510,000) TIP ID: SM-030006	X				OBL deadline 30 June 2005.
<b>Joint Powers Board</b> CalTrain rail car replacement (\$195,000) TIP ID: SM-030028	X				OBL deadline 30 June 2005.
<b>Joint Powers Board</b> CalTrain fare equipment replacement (\$575,000) TIP ID: SM-030029	X				OBL deadline 30 June 2005.
<b>2006 Federal Surface Transportation Program (STP) Projects</b>					
<b>Other Roadway Improvements</b>					
Atherton Valparaiso Avenue rehabilitation (\$72,000)	X				
Burlingame Airport Boulevard rehabilitation (\$160,000)	X				
East Palo Alto Bay Road rehabilitation (\$122,000)	X				OBL deadline 30 June 2005.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
Hillsborough Crystal Springs Road rehabilitation (\$ 114,000)	X				
Pacifica Palmetto Avenue rehabilitation (\$196,000)	X				
Redwood City Various streets rehabilitation (\$365,000)	X				
San Bruno Various streets rehabilitation (\$294,000)	X				Combined with 2002 Transit Oriented Development project.
San Mateo Alameda de las Pulgas rehabilitation (\$448,000)	X				
Woodside Tripp Road rehabilitation (\$64,000)		X			
<b>2007 Federal Surface Transportation Program (STP) Projects</b>					
<b>Other Roadway Improvements</b>					
Belmont Old County Road rehabilitation (\$134,000)	X				
Daly City Mission Street rehabilitation (\$395,000)	X				OBL deadline 30 June 2006.
Foster City Chess Drive rehabilitation (\$128,000)	X				OBL deadline 30 June 2006.

**Table F-3**  
**Status of CIP Projects**

Project Description	Funding not yet Obligated	Funding Fully Obligated	Under Construction	Completed	Remarks
Menlo Park Sand Hill Road rehabilitation (\$184,000)	X				
Millbrae Millbrae Avenue rehabilitation (\$110,000)	X				
San Carlos Alameda de las Pulgas rehabilitation (\$162,000)	X				OBL deadline 30 June 2006.
South San Francisco Grand Avenue rehabilitation (\$290,000)	X				
San Mateo County Various streets rehabilitation (\$500,000)	X				\$50,000 PE in FY 2005/2006.

### III. TRANSPORTATION EXPENDITURE PLAN SUMMARY

The Transportation Expenditure Plan contains six transportation program categories providing a balanced approach to meeting the mobility needs of San Mateo County. This summary lists the six program categories along with the major projects within each category. The percentage distribution of Measure A sales tax funding for each program category and project is listed along with the estimated dollars of Measure A, other funding and total cost. All dollar estimates are in 2004 dollars.

	Percent Share	Estimated Measure A Funding	Estimated Other Funding	Estimated Total Cost
<b>A. <u>Transit</u></b>				
1. Improve Caltrain service through a combination of capital investments and operational expenditures.	16%	\$240M	\$250M	\$490M
2. Provide local shuttle services to meet local mobility needs and access to regional transit services.	4%	\$60M	\$60M	\$120M
3. Annually, 4 percent of the total revenue will be allocated to meet the special mobility needs of county residents through paratransit and other accessible services.	4%	\$60M	\$228M	\$288M
4. Provide financial assistance as local match funds for cost-effective ferry service to South San Francisco and Redwood City.	2%	\$30M	\$92M	\$122M
5. Provide financial assistance as SamTrans' local match for capital investments and operating expenditures associated with the existing San Mateo County/SFO BART Extension.	2%	\$30M	\$120M	\$150M
6. Provide station facilities and enhancements for the Dumbarton rail corridor through East Palo Alto, Menlo Park and Redwood City.	2%	\$30M	\$415M	\$445M
<b>Transit Total</b>	<b>30%</b>	<b>\$450M</b>	<b>\$1,165M</b>	<b>\$1,615M</b>

<b>B. <u>Highways</u></b>		<b>Percent Share</b>	<b>Estimated Measure A Funding</b>	<b>Estimated Other Funding</b>	<b>Estimated Total Cost</b>
1.	Funding for projects in key congested corridors throughout the County.	17.3%	\$260M	\$260M	\$520M
2.	Funding for supplemental roadway projects throughout the County.	10.2%	\$153M	\$65M	\$218M
<b>Highway Total</b>		<b>27.5%</b>	<b>\$413M</b>	<b>\$325M</b>	<b>\$738M</b>
<b>C. <u>Local Streets/Transportation</u></b>					
1.	Annually, 22.5 percent of the total revenue will be allocated to the 20 Cities and the County for the improvement and maintenance of local transportation, including streets and roads.	22.5%	\$338M	\$527M	\$865M
<b>D. <u>Grade Separations</u></b>					
1.	Construction or upgrade of underpasses or overpasses at key road crossings along the Caltrain and Dumbarton rail lines.	15%	\$225M	\$125M	\$350M
<b>E. <u>Pedestrian and Bicycle</u></b>					
1.	Provide safe paths for bicyclists and pedestrians.	3%	\$45M	\$25M	\$70M
<b>F. <u>Alternative Congestion Relief Programs</u></b>					
1.	One percent of the total revenue will be allocated to fund traffic management projects and creative congestion relief programs.	1%	\$15M	\$15M	\$30M
<b>TOTAL</b>			<b>\$1,486M</b>	<b>\$2,182M</b>	<b>\$3,668M</b>

## **APPENDIX I**

### **Land Use Guidelines and Compliance Monitoring**

# 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*

September 21, 2004

**TO:** City Managers, Planning Directors, and Public Works Directors

**FROM:** Tom Madalena, Planner II, City/County Association of Governments

**SUBJECT:** REVISED C/CAG GUIDELINES FOR THE IMPLEMENTATION OF THE  
LAND USE COMPONENT OF THE CONGESTION MANAGEMENT  
PROGRAM

At the C/CAG meeting on September 9, 2004, the Board adopted revised guidelines for the land use component of the Congestion Management Program. We would like to keep you informed of all changes to this policy. The purpose of this revision is to increase the number of options for reducing the impacts of traffic, to provide clarity for the stakeholders involved in the implementation of this policy, and to reallocate the credits associated with some of the transportation demand management measures. All of the revisions to the guidelines are noted in **bold** text. These revisions will take effect immediately.

As a reminder, the Congestion Management Program policy and guidelines must be followed for all projects that meet the following criteria:

1. The project will generate a net 100 or more peak hour trips on the Congestion Management Program roadway network.
2. The project is subject to CEQA review.

If you have a project that meets these criteria, you should follow these steps:

1. Review the guidelines with the project applicant and determine if a combination of the acceptable options/measures will fully reduce the net number of trips that this project is anticipated to generate on the CMP roadway network.
2. If yes, include this information as part of the environmental documents that are circulated and adopted by the local jurisdiction Board.
3. If no, or if new or revised measures are being proposed, contact Tom Madalena for C/CAG review and approval as early in the process as possible so that the agreed upon plan can be included in the environmental documents placed in circulation.



4. If agreement is not reached with C/CAG staff on the plan, an immediate review by the C/CAG Board will be scheduled so that the local jurisdiction project approval process will not be delayed.

As an ongoing and living document, we welcome any suggestions that you may have for the guidelines. Please contact Tom Madalena at 650/363-1867 ([tmadalena@co.sanmateo.ca.us](mailto:tmadalena@co.sanmateo.ca.us)) if you have any questions or comments.

Attachment

## **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

<u>Demand Management Measure</u>	<u>Number of Trips Credited</u>	<u>Rationale</u>
Secure bicycle storage	One peak hour trip will be credited for every 3 new bike lockers/racks installed and maintained. <b>Lockers/racks must be installed within 100 feet of the building.</b>	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.	<b>Ten</b> peak hour trips will be credited for each new combination shower and changing room installed. <b>An additional 5 peak hour trips will be credited when installed in combination with at least 5 bike lockers</b>	<b>10 to 1 ratio based on cost to build and the likelihood that bicycle utilization will increase.</b>
Operation of a dedicated shuttle service during the peak period to a rail station or an urban residential area. <b>Alternatively the development could buy into a shuttle consortium.</b>	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.	<b>Two</b> peak hour trips will be credited for each parking spot charged out at \$20 per month for one year. <b>Money shall be used for TDM measures such as shuttles or subsidized transit tickets.</b>	Yields a <b>two</b> -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	<b>One peak hour trip will be credited for every three connections installed. This measure is not available as credit for a residential development.</b>	Yields a one-to- <b>three</b> ratio.
Installation of video conferencing centers that are available for use by the tenants of the facility.	<b>Five</b> peak hour trips will be credited for a center installed at the facility.	<b>This is based on staff's best estimate.</b>
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 <sup>th</sup> day.
<b>Flextime: Implementation of an alternate hours workweek program.</b>	<b>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.</b>	<b>This is based on staff's best estimate.</b>
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).	<b>This is based on staff's best estimate.</b>
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

### Land Use Impact Analysis Program Compliance

Jurisdiction	Date of Document	Type of Document	Project	Jurisdictional Status	Measures Taken	C/CAG Compliance
Daly City	April 2004	Final EIR	Landmark Plaza Project	Approved	TDM plan incorporated into Draft EIR	TDM Plan approved by C/CAG
Redwood City	October 2003	Draft EIR	Abbott Labs	Approved, but on hold	TDM plan incorporated into Draft EIR	TDM Plan approved by C/CAG
East Palo Alto	October 2002	Mitigated Negative Declaration	YMCA	Approved	TDM plan submitted to C/CAG for review	TDM plan approved by C/CAG
Burlingame	September 2004	Final EIR	Peninsula Medical Center Replacement Project	Approved	TDM is included as a condition of approval	TDM plan will be provided to C/CAG prior to issuance of building permit
Brisbane	November 2003	Final EIR	One Quarry Road	Pending	None yet	None yet
Pacifica	March 2005	Draft EIR	Cypress Walk Residential Project	Pending	None yet	None yet
Redwood City	November 2004	Final EIR	Bayside Gardens	Pending	Final EIR states TDM plan will be submitted to C/CAG prior to final project approval	TDM plan to be sent to C/CAG for review
Redwood City	March 2005	TDM Plan	High Tech High Bayshore	Approved, but in appeal	TDM provided by the project sponsor	TDM plan approved
Half Moon Bay	none yet	Draft EIR pending public release	Cabrillo Corners Commercial Project	Pending	None yet	None yet
Menlo Park	August 2004	Traffic Study	Safeway	Pending	TDM plan submitted to C/CAG by consultant	TDM plan will be approved by C/CAG as long as it is included as a condition of approval that is to be met prior to occupancy

Daly City	April 2005	Final EIR	Westlake Shopping Center	Approved	TDM plan is required as a condition of approval to be met prior to occupancy	TDM plan to be submitted to C/CAG for review
South San Francisco	December 2003	Initial Study & Proposed Mitigated Negative Declaration	Genentech B 33 & B 37	Approved	TDM Plan incorporated into Genentech Corporate Facilities Master Plan	South San Francisco's TDM Ordinance exceeds C/CAG's requirements
South San Francisco	March 2005	Final EIR	333 Oyster Point Blvd.	Approved	TDM plan was incorporated with a requirement to achieve 35% mode shift and was included as a condition of approval	South San Francisco's TDM Ordinance exceeds C/CAG's requirements
South San Francisco	March 2005	Initial Study/Mitigated Negative Declaration	Genentech B 31	Pending	TDM Plan to be incorporated into Genentech Corporate Facilities Master Plan	South San Francisco's TDM Ordinance exceeds C/CAG's requirements

## **APPENDIX J**

### **Regional Transportation Plan Projects**

## San Mateo County

Reference Number	Project/Program	Total Project Cost	Financially Constrained Element <sup>1</sup>	Vision Element <sup>2</sup>	Notes
In millions of 2004 dollars					
<b>Adequate Maintenance</b>					
94662	Local streets and roads pavement and non-pavement maintenance	\$1,354.6	\$1,354.6		
94093	Metropolitan Transportation System (MTS) streets and roads pavement and non-pavement rehabilitation shortfall	\$29.0	\$29.0		
22408	Non-Metropolitan Transportation Systems (MTS) streets and roads pavement and non-pavement rehabilitation shortfall	\$178.0		\$178.0	
94656	Devil's Slide bypass	\$280.0	\$280.0		
94664	Caltrain (San Mateo County share) — transit operating and capital improvement program (including replacement, rehabilitation and system enhancements for rolling stock, equipment, fixed facilities and other capital assets). Station improvements (e.g., platforms) are included.	\$1,254.7	\$1,076.7	\$178.0	
94666	SamTrans — transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements for rolling stock, equipment, fixed facilities and other capital assets; does not include system expansion)	\$3,081.6	\$3,021.6	\$60.0	
21876	BART (San Mateo County share) — transit operating and capital improvement program (including replacement, rehabilitation and minor enhancements, equipment, fixed facilities and other capital assets; does not include expansion except BART-to-SFO extension)	\$1,384.1	\$1,283.8	\$100.3	
21630	Continuation of SamTrans express service	\$3.0	\$3.0		Regional Measure 2 Toll Bridge Program
21867	Local bridge maintenance	\$31.3	\$31.3		
22261	Route 1/San Pedro Creek Bridge replacement project (initial phase)	\$6.2	\$6.2		
94667	SamTrans Americans With Disabilities Act (ADA) services	\$60.0	\$30.0	\$30.0	2004 Measure A sales tax project
<b>System Efficiency</b>					
94100	U.S. 101 auxiliary lanes from Marsh Road to Route 92	\$59.9	\$59.9		1988 Measure A sales tax project; under construction
94644	Route 92 westbound slow vehicle lane between Route 35 and I-280	\$58.0	\$12.5	\$45.5	
98176	U.S. 101 auxiliary lanes from 3rd Avenue to Millbrae and U.S. 101/Peninsula Avenue interchange reconstruction	\$81.7	\$81.7		
21349	U.S. 101/Ralston Avenue interchange improvement	\$14.4	\$14.4		
21602	U.S. 101/Broadway interchange reconstruction	\$56.0	\$56.0		
21603	U.S. 101/Woodside Road interchange improvements	\$50.0	\$50.0		
21606	U.S. 101/Willow Road interchange reconstruction	\$49.5	\$49.5		
21607	U.S. 101/University Avenue interchange reconstruction	\$4.9	\$4.9		

(Continues on next page)



## San Mateo County

Reference Number	Project/Program	Total Project Cost	Financially Constrained Element <sup>1</sup>	Vision Element <sup>2</sup>	Notes
In millions of 2004 dollars					
<b>System Efficiency</b> (continued from previous page)					
21608	U.S. 101 northbound and southbound auxiliary lanes from Marsh Road to Santa Clara County line	\$91.2	\$91.2		
21615	I-280/Route 1 interchange safety improvements	\$54.0	\$54.0		1988 and 2004 Measure A sales tax project
21623	Caltrain local station improvements in San Mateo County	\$67.0	\$67.0		1988 Measure A sales tax project
21624	Transit-Oriented Development Incentives Program	\$30.0	\$30.0		
21626	Caltrain grade separation program (San Mateo County)	\$297.0	\$297.0		1988 and 2004 Measure A sales tax project
22223	U.S. 101/Peninsula Avenue southbound ramps	\$32.0	\$32.0		2004 Measure A sales tax project
22230	I-280 auxiliary lanes from I-380 to Hickey Boulevard	\$100.0	\$100.0		2004 Measure A sales tax project
22262	U.S. 101 and Route 92 ramp metering, Traffic Operations System (TOS) and fiber communications project	\$9.6	\$2.0	\$7.6	
22264	I-280 North and I-380 ramp metering, Traffic Operations System (TOS), fiber communications project	\$9.4	\$2.0	\$7.4	
22265	I-280 South and Route 92 ramp metering, Traffic Operations System (TOS) and fiber communications project	\$6.1	\$2.0	\$4.1	
22274	Intelligent Transportation System (ITS) improvements in San Mateo County	\$20.0	\$20.0		2004 Measure A sales tax project
22424	BART Advanced Automatic Train Control (AATC) Phase V — Daly City to Millbrae/SFO	\$53.0	\$53.0		
22756	U.S. 101/Candlestick interchange reconstruction	\$47.7	\$47.7		
21604	U.S. 101 auxiliary lanes from Sierra Point to San Francisco County line	\$6.0		\$6.0	
21610	U.S. 101 auxiliary lanes from San Bruno Avenue to Grand Avenue	\$26.3		\$26.3	
21893	Route 92 between Half Moon Bay city limits and Pilarcitos Creek alignment and shoulder improvements	\$30.0		\$30.0	
22224	Caltrain and California High-Speed Rail grade separations and station in Atherton	\$66.1		\$66.1	
22229	U.S. 101/Sierra Point Parkway interchange replacement	\$14.0		\$14.0	

<sup>1</sup> Financially Constrained Element refers to programmed local, regional, state, federal funds as well as discretionary state and federal funds anticipated to be available over the long term of the Transportation 2030 Plan.

<sup>2</sup> Vision Element refers to new local, regional, state and federal funds that may become available over the near to mid-term of the Transportation 2030 Plan through voter approval or legislative authorization.

## San Mateo County

Reference Number	Project/Program	Total Project Cost	Financially Constrained Element <sup>1</sup>	Vision Element <sup>2</sup>	Notes
In millions of 2004 dollars					
<b>System Efficiency</b>					
22231	Widen north side of John Daly Boulevard/I-280 overcrossing for additional westbound traffic lane and dedicated right-turn lane for southbound I-280 off-ramp	\$9.0		\$9.0	
22232	Construct streetscape improvements on Mission Street from San Pedro Road to John Daly Boulevard	\$12.4		\$12.4	
22751	Route 1 operational and safety improvements in Half Moon Bay area	\$30.0	\$30.0		2004 Measure A sales tax project
<b>Strategic Expansion</b>					
94643	Widen Route 92 between Route 1 and Half Moon Bay city limits	\$13.9	\$13.9		
98204	Construct Route 1 northbound and southbound lanes from Fassler Avenue to Westport Drive in Pacifica	\$15.5	\$15.5		
21605	U.S. 101/Oyster Point Boulevard interchange improvements (Phases 2 and 3)	\$40.0	\$40.0		
22125	Ferry service from South San Francisco to San Francisco	\$30.0	\$30.0		Resolution 3434 Regional Transit Expansion Program; Regional Measure 2 Toll Bridge Program
22236	Study of Hillsdale Transit Center relocation	\$3.0	\$3.0		
22239	Manor Drive/Route 1 overcrossing widening and improvement project	\$12.0	\$12.0		2004 Measure A sales tax project
22268	Countywide shuttle service programs	\$68.0	\$38.0	\$30.0	2004 Measure A sales tax project
22282	U.S. 101 operational improvements near Route 92	\$10.0	\$10.0		2004 Measure A sales tax project
21609	I-280/I-380 local access improvements from Sneath Lane and San Bruno Avenue to I-380	\$13.5		\$13.5	
21892	Widen Route 84 from 4 lanes to 6 lanes from El Camino Real to Broadway	\$11.0		\$11.0	
22120	Ferry service from Redwood City to San Francisco to Alameda (capital reserve only; full project not included in Financially Constrained Element)	\$23.0	\$23.0		Resolution 3434 Regional Transit Expansion Program; no operating funds identified
22227	Extend Geneva Avenue from Bayshore Boulevard to U.S. 101/Harney ramps from 4 lanes to 6 lanes (includes grade separation with Caltrain tracks and Tunnel Avenue)	\$64.8		\$64.8	Expect 50% of the project to be funded through developer fees
22228	Extend Lagoon Way to connect to U.S. 101, Bayshore Boulevard and Guadalupe Canyon Parkway	\$16.5		\$16.5	Expect 25% of the project to be funded through developer fees
22267	Union Pacific Railroad right-of-way acquisition for transit, bicycle and pedestrian use	\$8.0		\$8.0	
22271	Widen Skyline Boulevard (Route 35) to 4-lane roadway from I-280 to Sneath Lane	\$40.0		\$40.0	

(Continues on next page)

## San Mateo County

Reference Number	Project/Program	Total Project Cost	Financially Constrained Element <sup>1</sup>	Vision Element <sup>2</sup>	Notes
In millions of 2004 dollars					
<b>Strategic Expansion</b> (continued from previous page)					
22279	U.S. 101/Produce Avenue interchange project	\$77.3		\$77.3	
22615	Dumbarton rail corridor and station improvements	\$30.0	\$30.0		2004 Measure A sales tax project
21612	Improve Dumbarton Bridge access to U.S. 101	\$70.0	\$70.0		2004 Measure A sales tax project
21613	Route 92 improvements from San Mateo-Hayward Bridge to I-280, includes uphill passing lane from U.S. 101 to I-280	\$100.0	\$100.0		2004 Measure A sales tax project
22726	South San Francisco to Alameda ferry service	\$5.0	\$5.0		Resolution 3434 Regional Transit Expansion Program
22226	Caltrain Bayshore intermodal station: cross platform transfers with Third Street LRT and improve bus connections	\$36.8	\$36.8		
22732	Hillsdale Transit Center relocation	\$34.0		\$34.0	

<sup>1</sup> Financially Constrained Element refers to programmed local, regional, state, federal funds as well as discretionary state and federal funds anticipated to be available over the long term of the Transportation 2030 Plan.

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# projects by county

## Bay Area Region/Multi-County

Reference Number	Project/Program	Total Project Cost	Financially Constrained Element <sup>1</sup>	Vision Element <sup>2</sup>	Notes
In millions of 2004 dollars					
<b>Adequate Maintenance</b>					
94540	Carquinez Bridge replacement: construct new suspension bridge west of existing bridges (4 westbound lanes, including a high-occupancy-vehicle (HOV) lane, plus new bicycle/pedestrian pathway) and modify Crockett interchange	\$479.8	\$479.8		Regional Measure 1 Toll Bridge Program; open to traffic; demolition of original bridge remains
94541	New Benicia-Martinez Bridge: construct new bridge span east of existing span (4 mixed-flow lanes and 1 slow-vehicle lane). Includes new toll plaza and upgrades to I-680/I-780 interchange and I-680/Marina Vista Road interchange, and reconstruction of the existing bridge for 4 mixed-flow lanes and bicycle and pedestrian lane.	\$1,057.8	\$1,057.8		Regional Measure 1 & 2 Toll Bridge programs
21012	Golden Gate Bridge seismic retrofit (completes Phases 2 and 3)	\$392.0	\$392.0		Phase 2 is under way
22654	Golden Gate Bridge rehabilitation projects	\$99.4		\$99.4	
98102	South Access to the Golden Gate Bridge: Doyle Drive environmental study	\$16.2	\$16.2		2003 Proposition K sales tax project
94089	Reconstruct South Access to the Golden Gate Bridge: Doyle Drive to Broderick Street	\$446.7	\$446.7		
21013	Rehabilitation of Bay Area state-owned toll bridges	\$238.0	\$238.0		
21014	Richmond-San Rafael Bridge deck replacement	\$53.4	\$53.4		
21015	Seismic retrofit of Bay Area state-owned toll bridges, including San Francisco-Oakland Bay Bridge east span and west span/approach, and Benicia-Martinez, Carquinez and Richmond-San Rafael bridges	\$8,300.0	\$5,085.0	\$3,215.0	
22038	San Francisco-Oakland Bay Bridge toll plaza HOV bypass lanes	\$4.0	\$4.0		
21017	Small transit operators in Alameda, Contra Costa, Napa, Solano and Sonoma counties — transit operating and capital improvement program (including replacement, rehabilitation, and minor enhancements for rolling stock, equipment, fixed facilities other capital assets; does not include system expansion)	\$2,513.8	\$2,497.4	\$16.4	
22636	BART transbay tube earthquake safety (Phase 1)	\$156.0	\$156.0		Regional Measure 2 Toll Bridge Program
22520	BART earthquake safety program (excludes Phase 1 of transbay tube earthquake safety project)	\$1,307.0	\$1,307.0	\$0.0	
<b>System Efficiency</b>					
21001	Freeway Traffic Operations (includes Traffic Operations System/ Transportation Management Center enhancements, Freeway Service Patrol, incident management and technical assistance)	\$466.2	\$109.5	\$356.7	
21005	TransLink®	\$363.8	\$338.1	\$25.7	Initial phase funded in Regional Measure 2 Toll Bridge Program
21006	511/Transit (regional transit information systems) and transportation marketing	\$75.9	\$40.7	\$35.2	Initial phase funded in Regional Measure 2 Toll Bridge Program
21008	511/Traffic	\$142.8	\$121.3	\$21.5	

<sup>1</sup> Financially Constrained Element refers to programmed local, regional, state, federal funds as well as discretionary state and federal funds anticipated to be available over the long term of the Transportation 2030 Plan.

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## Bay Area Region/Multi-County

Reference Number	Project/Program	Total Project Cost	Financially Constrained Element <sup>1</sup>	Vision Element <sup>2</sup>	Notes
In millions of 2004 dollars					
<b>System Efficiency</b>					
21007	Rideshare Program	\$54.0	\$54.0		
21010	Performance monitoring	\$3.5	\$3.5		
21011	Transportation for Livable Communities (TLC)/Housing Incentive Program (HIP) — regional and county programs	\$454.0	\$454.0		
21320	Golden Gate Bridge moveable median barrier	\$23.8	\$23.8		
21627	Caltrain electrification from San Francisco to Gilroy	\$602.0	\$602.0		Resolution 3434 Regional Transit Expansion Program; cost shown is the three-county combined cost
22241	Regional Measure 2 Studies (includes regional rail study, transit connectivity study, Water Transit Authority environmental studies, I-680/Pleasant Hill BART connector study and Caldecott Tunnel transit ridership study)	\$19.0	\$19.0		Regional Measure 2 Toll Bridge Program
22242	Real-Time Transit Grant Program	\$20.0	\$20.0		Regional Measure 2 Toll Bridge Program
22244	City CarShare	\$2.5	\$2.5		Regional Measure 2 Toll Bridge Program
22245	Safe Routes to Transit	\$20.0	\$20.0		Regional Measure 2 Toll Bridge Program
22247	Regional Bicycle and Pedestrian Program	\$200.0	\$200.0		
22421	Clean Air Program	\$255.5	\$255.5		
22423	Lifeline Transportation Program	\$216.0	\$216.0		
22425	Surface Transportation Program (STP) and 10-year support for Transportation Planning and Land Use Solutions (T-PLUS) planning funds for counties	\$95.0	\$95.0		
22674	BART Core Capacity Program — system capacity	\$205.0	\$19.4	\$185.6	
22675	BART Core Capacity Program — station access	\$762.6	\$32.0	\$730.6	Includes funding from Regional Measure 2 Toll Bridge Program
22676	BART Core Capacity Program — station capacity	\$625.1	\$47.4	\$577.7	
22677	BART Core Capacity Program — vehicles	\$848.0		\$848.0	
22090	California Interregional Intermodal Study (CIRIS) — rail freight service between Port of Oakland and Central Valley	TBD		TBD	
<b>Strategic Expansion</b>					
94514	I-880/Route 92 interchange improvements	\$133.8	\$133.8		Regional Measure 1 Toll Bridge Program
21066	California High-Speed Rail with terminal in San Francisco	TBD		TBD	
21618	Dumbarton rail corridor (Phase 1)	\$300.0	\$300.0		Resolution 3434 Regional Transit Expansion Program; Regional Measure 2 Toll Bridge Program
22719	Dumbarton rail corridor (Phase 2)	\$15.6		\$15.6	

(Continues on next page)

# appendix one

## Bay Area Region/Multi-County

Reference Number	Project/Program	Total Project Cost	Financially Constrained Element <sup>1</sup>	Vision Element <sup>2</sup>	Notes
In millions of 2004 dollars					
<b>Strategic Expansion</b> (continued from previous page)					
21619	Caltrain express tracks (Phase 2)	\$482.0	\$390.0	\$92.0	Resolution 3434 Regional Transit Expansion Program. Grade separation and passing track elements in San Mateo County are fully funded. No increase in service level assumed.
22009	Capitol Corridor: Phase 1 intercity rail service (track capacity/frequency improvements from Oakland to San Jose designed to allow 16 daily round trips between Oakland and Sacramento/San Jose)	\$158.0	\$158.0		Resolution 3434 Regional Transit Expansion Program
22003	Capitol Corridor: Phase 2 enhancements	\$96.0	\$96.0		Resolution 3434 Regional Transit Expansion Program
22006	Downtown Ferry Terminal improvements and spare ferry vessels	\$36.0	\$36.0		Resolution 3434 Regional Transit Expansion Program (includes Regional Measure 2 Toll Bridge Program funds)
22243	Regional Measure 2 Express Bus North improvements (includes park-and-ride lots and rolling stock)	\$10.5	\$10.5		Regional Measure 2 Toll Bridge Program
22240	Regional Measure 2 Express Bus South improvements (includes park-and-ride lots, HOV access improvements, and rolling stock)	\$9.0	\$9.0		Regional Measure 2 Toll Bridge Program
22005	ACE service expansion to eight trains	\$128.0	\$50.0	\$78.0	Resolution 3434 Regional Transit Expansion Program
22016	Improvements to high-occupancy-vehicle (HOV) network (including HOV lane gap closures and express bus services); convert HOV network to high-occupancy/toll (HOT) network	\$3,000.0		\$3,000.0	
22001	Sonoma Marin Area Rail Transit District (SMART) commuter rail project (environmental, preliminary engineering and right-of-way)	\$62.0	\$62.0		Resolution 3434 Regional Transit Expansion Program (includes Regional Measure 2 Toll Bridge Program funds)
22513	Sonoma Marin Area Rail Transit District (SMART) commuter rail project (construction reserve only; full project not included in Financially Constrained Element)	\$277.0	\$63.0	\$214.0	Resolution 3434 Regional Transit Expansion Program; no operating funds identified
21342	Caltrain downtown extension/Transbay Terminal replacement (environmental, preliminary engineering and right-of-way acquisition)	\$274.0	\$274.0		Resolution 3434 Regional Transit Expansion Program (includes Regional Measure 2 Toll Bridge Program funds)
22008	Caltrain downtown extension/TransBay Terminal replacement (construction reserve only; full project not included in Financially Constrained Element)	\$1,543.0	\$946.0	\$597.0	Resolution 3434 Regional Transit Expansion Program (includes Regional Measure 2 Toll Bridge Program funds and 2003 Proposition K sales tax funds); under construction

<sup>1</sup> Financially Constrained Element refers to programmed local, regional, state, federal funds as well as discretionary state and federal funds anticipated to be available over the long term of the Transportation 2030 Plan.

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**APPENDIX K**  
**2005 CMP Consistency Checklist**  
**C/CAG Travel Demand Model Results for**  
**Year 2000 Calibration compared to MTC Year 2000 Calibration**

*Prepared For:*

*The City/County Association of Governments of  
San Mateo County*

*Prepared By:*



HEXAGON TRANSPORTATION CONSULTANTS, INC.

**August 17, 2005**

## Trip Generation: Comparison of Trip Productions by County

Trip Generation for County:	Home-Based Work				Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Trip Productions		Difference		1% of	10,000		
	Modeled	Desired	Percent	Numeric	Desired	Trips		
San Francisco	70,964	71,123	-0.2%	-159	711	10,000	10,000	no
San Mateo	316,509	314,146	0.8%	2,363	3,141	10,000	10,000	no
Santa Clara	53,913	61,892	-12.9%	-7,979	619	10,000	10,000	no
Alameda	59,527	50,007	19.0%	9,520	500	10,000	10,000	no
Contra Costa	12,741	14,303	-10.9%	-1,562	143	10,000	10,000	no
Solano	3,204	4,062	-21.1%	-858	41	10,000	10,000	no
Napa	556	892	-37.7%	-336	9	10,000	10,000	no
Sonoma	7,580	5,280	43.6%	2,300	53	10,000	10,000	no
Marin	3,244	6,426	-49.5%	-3,182	64	10,000	10,000	no
Total Bay Area	528,238	528,131	0.0%	107	26,407	10,000	26,407	no

Trip Generation for County:	Home-Based Shop/Other				Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Trip Productions		Difference		1% of	10,000		
	Modeled	Desired	Percent	Numeric	Desired	Trips		
San Francisco	41,657	40,084	3.9%	1,573	401	10,000	10,000	no
San Mateo	422,185	424,041	-0.4%	-1,856	4,240	10,000	10,000	no
Santa Clara	42,132	41,188	2.3%	944	412	10,000	10,000	no
Alameda	10,992	11,371	-3.3%	-379	114	10,000	10,000	no
Contra Costa	755	807	-6.5%	-52	8	10,000	10,000	no
Solano	123	133	-7.6%	-10	1	10,000	10,000	no
Napa	53	62	-14.0%	-9	1	10,000	10,000	no
Sonoma	321	389	-17.5%	-68	4	10,000	10,000	no
Marin	331	352	-6.0%	-21	4	10,000	10,000	no
Total Bay Area	518,548	518,427	0.0%	122	25,921	10,000	25,921	no

Trip Generation for County:	Home-Based Social/Recreational				Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Trip Productions		Difference		1% of	10,000		
	Modeled	Desired	Percent	Numeric	Desired	Trips		
San Francisco	36,484	35,258	3.5%	1,226	353	10,000	10,000	no
San Mateo	207,637	210,751	-1.5%	-3,114	2,108	10,000	10,000	no
Santa Clara	30,248	29,057	4.1%	1,192	291	10,000	10,000	no
Alameda	10,450	10,139	3.1%	311	101	10,000	10,000	no
Contra Costa	1,591	1,316	20.9%	275	13	10,000	10,000	no
Solano	148	109	35.1%	38	1	10,000	10,000	no
Napa	16	10	66.1%	6	0	10,000	10,000	no
Sonoma	47	24	99.0%	23	0	10,000	10,000	no
Marin	1,176	987	19.1%	189	10	10,000	10,000	no
Total Bay Area	287,796	287,651	0.1%	145	14,383	10,000	14,383	no

Trip Generation for County:	Non Home Based				Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Trip Productions		Difference		1% of	10,000		
	Modeled	Desired	Percent	Numeric	Desired	Trips		
San Francisco	83,169	82,909	0.3%	260	829	10,000	10,000	no
San Mateo	485,423	486,960	-0.3%	-1,537	4,870	10,000	10,000	no
Santa Clara	64,198	63,636	0.9%	562	636	10,000	10,000	no
Alameda	15,167	15,077	0.6%	90	151	10,000	10,000	no
Contra Costa	3,855	3,634	6.1%	221	36	10,000	10,000	no
Solano	886	833	6.3%	53	8	10,000	10,000	no
Napa	459	434	5.9%	25	4	10,000	10,000	no
Sonoma	1,605	1,504	6.7%	101	15	10,000	10,000	no
Marin	2,742	2,579	6.3%	163	26	10,000	10,000	no
Total Bay Area	657,503	657,566	0.0%	-63	32,878	10,000	32,878	no



## Trip Generation: Comparison of Trip Attractions by County

Trip Generation for County:	Home-Based Work				Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Trip Attractions		Difference		1% of	10,000		
	Modeled	Desired	Percent	Numeric	Desired	Trips		
San Francisco	126,542	123,977	2.1%	2,565	1,240	10,000	10,000	no
San Mateo	316,509	314,146	0.8%	2,363	3,141	10,000	10,000	no
Santa Clara	100,612	105,718	-4.8%	-5,106	1,057	10,000	10,000	no
Alameda	23,370	27,609	-15.4%	-4,239	276	10,000	10,000	no
Contra Costa	6,525	3,136	108.1%	3,389	31	10,000	10,000	no
Solano	758	402	88.4%	356	4	10,000	10,000	no
Napa	119	101	18.3%	18	1	10,000	10,000	no
Sonoma	318	768	-58.6%	-450	8	10,000	10,000	no
Marin	1,215	1,328	-8.5%	-113	13	10,000	10,000	no
Total Bay Area	575,968	577,185	-0.2%	-1,217	28,859	10,000	28,859	no

Trip Generation for County:	Home-Based Shop/Other				Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Trip Attractions		Difference		1% of	10,000		
	Modeled	Desired	Percent	Numeric	Desired	Trips		
San Francisco	70,429	72,779	-3.2%	-2,349	728	10,000	10,000	no
San Mateo	422,185	424,041	-0.4%	-1,856	4,240	10,000	10,000	no
Santa Clara	36,363	32,224	12.8%	4,139	322	10,000	10,000	no
Alameda	1,227	1,081	13.5%	146	11	10,000	10,000	no
Contra Costa	273	246	10.9%	27	2	10,000	10,000	no
Solano	15	12	21.2%	3	0	10,000	10,000	no
Napa	7	5	29.2%	1	0	10,000	10,000	no
Sonoma	16	10	53.3%	6	0	10,000	10,000	no
Marin	347	307	12.9%	40	3	10,000	10,000	no
Total Bay Area	530,860	530,704	0.0%	156	26,535	10,000	26,535	no

Trip Generation for County:	Home-Based Social/Recreational				Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Trip Attractions		Difference		1% of	10,000		
	Modeled	Desired	Percent	Numeric	Desired	Trips		
San Francisco	40,241	40,303	-0.2%	-62	403	10,000	10,000	no
San Mateo	207,637	210,751	-1.5%	-3,114	2,108	10,000	10,000	no
Santa Clara	29,297	27,728	5.7%	1,569	277	10,000	10,000	no
Alameda	8,211	6,798	20.8%	1,413	68	10,000	10,000	no
Contra Costa	1,612	1,522	5.9%	90	15	10,000	10,000	no
Solano	148	124	19.3%	24	1	10,000	10,000	no
Napa	25	18	39.6%	7	0	10,000	10,000	no
Sonoma	39	29	34.2%	10	0	10,000	10,000	no
Marin	1,196	1,119	6.9%	77	11	10,000	10,000	no
Total Bay Area	288,405	288,392	0.0%	14	14,420	10,000	14,420	no

Trip Generation for County:	Non Home Based				Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Trip Attractions		Difference		1% of	10,000		
	Modeled	Desired	Percent	Numeric	Desired	Trips		
San Francisco	86,156	86,302	-0.2%	-146	863	10,000	10,000	no
San Mateo	485,423	486,960	-0.3%	-1,537	4,870	10,000	10,000	no
Santa Clara	60,177	58,904	2.2%	1,273	589	10,000	10,000	no
Alameda	15,742	15,321	2.7%	420	153	10,000	10,000	no
Contra Costa	3,069	3,188	-3.7%	-119	32	10,000	10,000	no
Solano	506	528	-4.3%	-23	5	10,000	10,000	no
Napa	277	293	-5.6%	-16	3	10,000	10,000	no
Sonoma	841	886	-5.1%	-45	9	10,000	10,000	no
Marin	2,115	2,173	-2.7%	-58	22	10,000	10,000	no
Total Bay Area	654,304	654,556	0.0%	-252	32,728	10,000	32,728	no

## 2000 Distribution of San Mateo County Home-Based Work Productions

County of Attraction	Trips		Difference		Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Percent	Numeric	5% of	10,000		
					Desired	Trips		
San Francisco	126,542	123,977	2.1%	2,565	6,199	10,000	10,000	no
San Mateo	316,509	314,146	0.8%	2,363	15,707	10,000	15,707	no
Santa Clara	100,612	105,718	-4.8%	-5,106	5,286	10,000	10,000	no
Alameda	23,370	27,609	-15.4%	-4,239	1,380	10,000	10,000	no
Contra Costa	6,525	3,136	108.1%	3,389	157	10,000	10,000	no
Solano	758	402	88.4%	356	20	10,000	10,000	no
Napa	119	101	18.3%	18	5	10,000	10,000	no
Sonoma	318	768	-58.6%	-450	38	10,000	10,000	no
Marin	1,215	1,328	-8.5%	-113	66	10,000	10,000	no
Total Bay Area	575,968	577,185	-0.2%	-1,217	28,859	10,000	28,859	no

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "5% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Numeric Difference" is greater than the "Governing Threshold"

## 2000 Distribution of San Mateo County Home-Based Work Attractions

County of Production	Trips		Difference		Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Percent	Numeric	5% of	10,000		
					Desired	Trips		
San Francisco	70,964	71,123	-0.2%	-159	3,556	10,000	10,000	no
San Mateo	316,509	314,146	0.8%	2,363	15,707	10,000	15,707	no
Santa Clara	53,913	61,892	-12.9%	-7,979	3,095	10,000	10,000	no
Alameda	59,527	50,007	19.0%	9,520	2,500	10,000	10,000	no
Contra Costa	12,741	14,303	-10.9%	-1,562	715	10,000	10,000	no
Solano	3,204	4,062	-21.1%	-858	203	10,000	10,000	no
Napa	556	892	-37.7%	-336	45	10,000	10,000	no
Sonoma	7,580	5,280	43.6%	2,300	264	10,000	10,000	no
Marin	3,244	6,426	-49.5%	-3,182	321	10,000	10,000	no
Total Bay Area	528,238	528,131	0.0%	107	26,407	10,000	26,407	no

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "5% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Numeric Difference" is greater than the "Governing Threshold"

## 2000 Distribution of San Mateo County Home-Based Shop/Other Productions

County of Attraction	Trips		Difference		Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Percent	Numeric	5% of Desired	10,000 Trips		
San Francisco	70,429	72,779	-3.2%	-2,349	3,639	10,000	10,000	no
San Mateo	422,185	424,041	-0.4%	-1,856	21,202	10,000	21,202	no
Santa Clara	36,363	32,224	12.8%	4,139	1,611	10,000	10,000	no
Alameda	1,227	1,081	13.5%	146	54	10,000	10,000	no
Contra Costa	273	246	10.9%	27	12	10,000	10,000	no
Solano	15	12	21.2%	3	1	10,000	10,000	no
Napa	7	5	29.2%	1	0	10,000	10,000	no
Sonoma	16	10	53.3%	6	1	10,000	10,000	no
Marin	347	307	12.9%	40	15	10,000	10,000	no
Total Bay Area	530,860	530,704	0.0%	156	26,535	10,000	26,535	no

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "5% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Numeric Difference" is greater than the "Governing Threshold"

## 2000 Distribution of San Mateo County Home-Based Shop/Other Attractions

County of Production	Trips		Difference		Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Percent	Numeric	5% of Desired	10,000 Trips		
San Francisco	41,657	40,084	3.9%	1,573	2,004	10,000	10,000	no
San Mateo	422,185	424,041	-0.4%	-1,856	21,202	10,000	21,202	no
Santa Clara	42,132	41,188	2.3%	944	2,059	10,000	10,000	no
Alameda	10,992	11,371	-3.3%	-379	569	10,000	10,000	no
Contra Costa	755	807	-6.5%	-52	40	10,000	10,000	no
Solano	123	133	-7.6%	-10	7	10,000	10,000	no
Napa	53	62	-14.0%	-9	3	10,000	10,000	no
Sonoma	321	389	-17.5%	-68	19	10,000	10,000	no
Marin	331	352	-6.0%	-21	18	10,000	10,000	no
Total Bay Area	518,548	518,427	0.0%	122	25,921	10,000	25,921	no

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "5% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Numeric Difference" is greater than the "Governing Threshold"

## 2000 Distribution of San Mateo County Home-Based Soc/Rec Productions

County of Attraction	Trips		Difference		Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Percent	Numeric	5% of Desired	10,000 Trips		
San Francisco	40,241	40,303	-0.2%	-62	2,015	10,000	10,000	no
San Mateo	207,637	210,751	-1.5%	-3,114	10,538	10,000	10,538	no
Santa Clara	29,297	27,728	5.7%	1,569	1,386	10,000	10,000	no
Alameda	8,211	6,798	20.8%	1,413	340	10,000	10,000	no
Contra Costa	1,612	1,522	5.9%	90	76	10,000	10,000	no
Solano	148	124	19.3%	24	6	10,000	10,000	no
Napa	25	18	39.6%	7	1	10,000	10,000	no
Sonoma	39	29	34.2%	10	1	10,000	10,000	no
Marin	1,196	1,119	6.9%	77	56	10,000	10,000	no
Total Bay Area	288,405	288,392	0.0%	14	14,420	10,000	14,420	no

**Notes:**

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "5% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Numeric Difference" is greater than the "Governing Threshold"

## 2000 Distribution of San Mateo County Home-Based Soc/Rec Attractions

County of Production	Trips		Difference		Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Percent	Numeric	5% of Desired	10,000 Trips		
San Francisco	36,484	35,258	3.5%	1,226	1,763	10,000	10,000	no
San Mateo	207,637	210,751	-1.5%	-3,114	10,538	10,000	10,538	no
Santa Clara	30,248	29,057	4.1%	1,192	1,453	10,000	10,000	no
Alameda	10,450	10,139	3.1%	311	507	10,000	10,000	no
Contra Costa	1,591	1,316	20.9%	275	66	10,000	10,000	no
Solano	148	109	35.1%	38	5	10,000	10,000	no
Napa	16	10	66.1%	6	0	10,000	10,000	no
Sonoma	47	24	99.0%	23	1	10,000	10,000	no
Marin	1,176	987	19.1%	189	49	10,000	10,000	no
Total Bay Area	287,796	287,651	0.1%	145	14,383	10,000	14,383	no

**Notes:**

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "5% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Numeric Difference" is greater than the "Governing Threshold"

## 2000 Distribution of San Mateo County Non Home-Based Productions

County of Attraction	Trips		Difference		Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Percent	Numeric	5% of Desired	10,000 Trips		
San Francisco	86,156	86,302	-0.2%	-146	4,315	10,000	10,000	no
San Mateo	485,423	486,960	-0.3%	-1,537	24,348	10,000	24,348	no
Santa Clara	60,177	58,904	2.2%	1,273	2,945	10,000	10,000	no
Alameda	15,742	15,321	2.7%	420	766	10,000	10,000	no
Contra Costa	3,069	3,188	-3.7%	-119	159	10,000	10,000	no
Solano	506	528	-4.3%	-23	26	10,000	10,000	no
Napa	277	293	-5.6%	-16	15	10,000	10,000	no
Sonoma	841	886	-5.1%	-45	44	10,000	10,000	no
Marin	2,115	2,173	-2.7%	-58	109	10,000	10,000	no
Total Bay Area	654,304	654,556	0.0%	-252	32,728	10,000	32,728	no

**Notes:**

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "5% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Numeric Difference" is greater than the "Governing Threshold"

## 2000 Distribution of San Mateo County Non Home-Based Attractions

County of Production	Trips		Difference		Threshold A:	Threshold B:	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Percent	Numeric	5% of Desired	10,000 Trips		
San Francisco	83,169	82,909	0.3%	260	4,145	10,000	10,000	no
San Mateo	485,423	486,960	-0.3%	-1,537	24,348	10,000	24,348	no
Santa Clara	64,198	63,636	0.9%	562	3,182	10,000	10,000	no
Alameda	15,167	15,077	0.6%	90	754	10,000	10,000	no
Contra Costa	3,855	3,634	6.1%	221	182	10,000	10,000	no
Solano	886	833	6.3%	53	42	10,000	10,000	no
Napa	459	434	5.9%	25	22	10,000	10,000	no
Sonoma	1,605	1,504	6.7%	101	75	10,000	10,000	no
Marin	2,742	2,579	6.3%	163	129	10,000	10,000	no
Total Bay Area	657,503	657,566	0.0%	-63	32,878	10,000	32,878	no

**Notes:**

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "5% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Numeric Difference" is greater than the "Governing Threshold"

## San Mateo County 2000 Home-Based Work Trips by Mode (Productions)

County of Attraction	Transit Trips					Shared-Ride 3+ Trips				
	TransitTrips			Governing Threshold	Threshold Exceeded?	Shared-Ride 3+ Trips			Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference		
San Francisco	37,911	38,621	-710	10,000	no	5,214	5,165	49	10,000	no
San Mateo	7,063	7,531	-468	10,000	no	9,594	9,772	-178	10,000	no
Santa Clara	4,191	4,739	-548	10,000	no	2,268	2,250	18	10,000	no
Alameda	2,975	1,419	1,556	10,000	no	811	1,089	-278	10,000	no
Contra Costa	30	16	14	10,000	no	8	11	-3	10,000	no
Solano	0	0	0	10,000	no	5	35	-30	10,000	no
Napa	0	0	0	10,000	no	0	4	-4	10,000	no
Sonoma	0	0	0	10,000	no	1	216	-215	10,000	no
Marin	0	37	-37	10,000	no	3	81	-78	10,000	no
Total Bay Area	52,170	52,363	-193	10,000	no	17,904	18,623	-719	10,000	no

County of Attraction	Shared-Ride 2 Trips					Drive-Alone Trips						
	Shared-Ride 2 Trips			Governing Threshold	Threshold Exceeded?	Drive-Alone Trips			Threshold A: Threshold B:		Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference	10% of Desired	10,000 Trips		
San Francisco	12,652	12,579	73	10,000	no	61,322	60,735	587	3,037	10,000	10,000	no
San Mateo	31,897	32,579	-682	10,000	no	273,699	272,371	1,328	13,619	10,000	13,619	no
Santa Clara	10,403	10,337	66	10,000	no	95,143	94,678	465	4,734	10,000	10,000	no
Alameda	1,835	2,446	-611	10,000	no	18,663	19,330	-667	967	10,000	10,000	no
Contra Costa	17	22	-5	10,000	no	235	241	-6	12	10,000	10,000	no
Solano	2	88	-86	10,000	no	6	280	-274	14	10,000	10,000	no
Napa	0	2	-2	10,000	no	3	94	-91	5	10,000	10,000	no
Sonoma	0	151	-151	10,000	no	10	402	-392	20	10,000	10,000	no
Marin	8	271	-263	10,000	no	39	939	-900	47	10,000	10,000	no
Total Bay Area	56,814	58,475	-1,661	10,000	no	449,120	449,070	50	22,454	10,000	22,454	no

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Drive-Alone Trips", "Desired Transit Trips", and "Desired shared ride trips" all represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## San Mateo County 2000 Home-Based Work Trips by Mode (Attractions)

County of Production	Transit Trips					Shared-Ride 3+ Trips				
	Transit Trips			Governing Threshold	Threshold Exceeded?	Shared-Ride 3+ Trips			Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference		
San Francisco	4,238	4,074	164	10,000	no	1,901	1,947	-46	10,000	no
San Mateo	7,063	7,531	-468	10,000	no	9,594	9,772	-178	10,000	no
Santa Clara	2,556	2,936	-380	10,000	no	935	947	-12	10,000	no
Alameda	3,477	1,879	1,598	10,000	no	3,298	3,566	-268	10,000	no
Contra Costa	1,157	828	329	10,000	no	1,324	1,450	-126	10,000	no
Solano	0	178	-178	10,000	no	1,610	962	648	10,000	no
Napa	0	0	0	10,000	no	69	89	-20	10,000	no
Sonoma	0	286	-286	10,000	no	110	411	-301	10,000	no
Marin	0	162	-162	10,000	no	24	137	-113	10,000	no
Total Bay Area	18,491	17,874	617	10,000	no	18,865	19,280	-415	10,000	no

County of Production	Shared-Ride 2 Trips					Drive-Alone Trips						
	Shared-Ride 2 Trips			Governing Threshold	Threshold Exceeded?	Drive-Alone Trips			Threshold A: Threshold B:		Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference	10% of Desired	10,000 Trips		
San Francisco	6,413	6,544	-131	10,000	no	48,617	48,604	13	2,430	10,000	10,000	no
San Mateo	31,897	32,579	-682	10,000	no	273,699	272,371	1,328	13,619	10,000	13,619	no
Santa Clara	935	947	-12	10,000	no	53,466	52,976	490	2,649	10,000	10,000	no
Alameda	3,298	3,566	-268	10,000	no	37,578	38,257	-679	1,913	10,000	10,000	no
Contra Costa	1,324	1,450	-126	10,000	no	10,402	10,462	-60	523	10,000	10,000	no
Solano	1,441	529	912	10,000	no	4,492	2,393	2,099	120	10,000	10,000	no
Napa	326	203	123	10,000	no	1,235	600	635	30	10,000	10,000	no
Sonoma	275	413	-138	10,000	no	1,284	4,170	-2,886	209	10,000	10,000	no
Marin	167	952	-785	10,000	no	954	5,177	-4,223	259	10,000	10,000	no
Total Bay Area	46,076	47,182	-1,106	10,000	no	431,727	435,010	-3,283	21,750	10,000	21,750	no

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Drive-Alone Trips", "Desired Transit Trips", and "Desired shared ride trips" all represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## San Mateo County 2000 Home-Based Shop/Other Trips by Mode (Productions)

County of Attraction	Transit Trips					Shared-Ride 3+ Trips				
	Transit Trips			Governing Threshold	Threshold Exceeded?	Shared-Ride 3+ Trips			Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference		
San Francisco	6,276	6,403	-127	10,000	no	3,422	3,767	346	10,000	no
San Mateo	3,790	3,423	367	10,000	no	15,009	18,686	3,677	10,000	no
Santa Clara	0	261	-261	10,000	no	1,965	1,824	-141	10,000	no
Alameda	0	2	-2	10,000	no	104	39	-65	10,000	no
Contra Costa	0	0	0	10,000	no	16	5	-10	10,000	no
Solano	0	0	0	10,000	no	1	0	1	10,000	no
Napa	0	0	0	10,000	no	0	0	0	10,000	no
Sonoma	0	0	0	10,000	no	1	0	1	10,000	no
Marin	0	0	0	10,000	no	19	43	-24	10,000	no
Total Bay Area	10,066	10,089	-23	10,000	no	20,536	24,364	-3,828	10,000	no

County of Attraction	Shared-Ride 2 Trips					Drive-Alone Trips						
	Shared-Ride 2 Trips			Governing Threshold	Threshold Exceeded?	Drive-Alone Trips			Threshold A: Threshold B:		Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference	10% of Desired	10,000 Trips		
San Francisco	10,575	9,089	-1,487	10,000	no	23,074	24,727	1,653	1,154	10,000	10,000	no
San Mateo	53,912	55,825	1,914	10,000	no	180,357	172,011	-8,346	9,018	10,000	10,000	no
Santa Clara	5,963	4,261	-1,703	10,000	no	12,557	12,054	-502	628	10,000	10,000	no
Alameda	315	137	-178	10,000	no	663	474	-189	33	10,000	10,000	no
Contra Costa	47	31	-17	10,000	no	100	117	17	5	10,000	10,000	no
Solano	3	2	1	10,000	no	5	10	-5	1	10,000	10,000	no
Napa	1	1	0	10,000	no	2	4	-2	0	10,000	10,000	no
Sonoma	3	1	2	10,000	no	6	9	-3	0	10,000	10,000	no
Marin	57	81	-24	10,000	no	120	183	-63	9	10,000	10,000	no
Total Bay Area	70,876	69,426	1,450	10,000	no	216,884	209,589	7,294	10,479	10,000	10,479	no

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Drive-Alone Trips", "Desired Transit Trips", and "Desired shared ride trips" all represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## San Mateo County 2000 Home-Based Shop/Other Trips by Mode (Attractions)

County of Production	Transit Trips					Shared-Ride 3+ Trips				
	Transit Trips			Governing Threshold	Threshold Exceeded?	Shared-Ride 3+ Trips			Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference		
San Francisco	2,029	2,040	-12	10,000	no	2,174	2,019	155	10,000	no
San Mateo	3,790	3,423	367	10,000	no	15,009	18,686	-3,677	10,000	no
Santa Clara	0	590	-590	10,000	no	2,309	1,817	492	10,000	no
Alameda	0	5	-5	10,000	no	600	662	-61	10,000	no
Contra Costa	0	0	0	10,000	no	36	39	-2	10,000	no
Solano	0	0	0	10,000	no	6	44	-38	10,000	no
Napa	0	0	0	10,000	no	3	18	-15	10,000	no
Sonoma	0	0	0	10,000	no	16	34	-18	10,000	no
Marin	0	0	0	10,000	no	17	20	-3	10,000	no
Total Bay Area	5,819	6,058	-239	10,000	no	20,170	23,337	-3,168	10,000	no

County of Production	Shared-Ride 2 Trips					Drive-Alone Trips						
	Shared-Ride 2 Trips			Governing Threshold	Threshold Exceeded?	Drive-Alone Trips			Threshold A: Threshold B:		Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference	10% of Desired	10,000 Trips		
San Francisco	6,792	5,841	951	10,000	no	14,140	13,628	512	681	10,000	10,000	no
San Mateo	53,912	55,825	-1,914	10,000	no	180,357	172,011	8,346	8,601	10,000	10,000	no
Santa Clara	7,006	6,425	581	10,000	no	14,753	15,105	-352	755	10,000	10,000	no
Alameda	1,822	2,026	-204	10,000	no	3,836	3,530	306	177	10,000	10,000	no
Contra Costa	110	118	-8	10,000	no	232	308	-76	15	10,000	10,000	no
Solano	18	42	-24	10,000	no	38	47	-9	2	10,000	10,000	no
Napa	8	17	-9	10,000	no	17	27	-10	1	10,000	10,000	no
Sonoma	48	144	-96	10,000	no	102	210	-108	11	10,000	10,000	no
Marin	52	107	-55	10,000	no	110	226	-116	11	10,000	10,000	no
Total Bay Area	69,768	70,545	-776	10,000	no	213,585	205,092	8,493	10,255	10,000	10,255	no

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Drive-Alone Trips", "Desired Transit Trips", and "Desired shared ride trips" all represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## San Mateo County 2000 Home-Based Social/Recreation Trips by Mode (Productions)

County of Attraction	Transit Trips					Shared-Ride 3+ Trips				
	Transit Trips			Governing Threshold	Threshold Exceeded?	Shared-Ride 3+ Trips			Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference		
San Francisco	1,261	1,033	228	10,000	no	12,670	11,719	951	10,000	no
San Mateo	1,229	1,282	-53	10,000	no	53,312	54,274	-962	10,000	no
Santa Clara	514	413	101	10,000	no	8,631	7,297	1,334	10,000	no
Alameda	0	6	-6	10,000	no	2,340	1,864	476	10,000	no
Contra Costa	0	0	0	10,000	no	460	382	78	10,000	no
Solano	0	0	0	10,000	no	12	17	-5	10,000	no
Napa	0	0	0	10,000	no	2	3	-1	10,000	no
Sonoma	0	0	0	10,000	no	3	3	0	10,000	no
Marin	0	1	-1	10,000	no	97	332	-235	10,000	no
Total Bay Area	3,004	2,735	269	10,000	no	77,527	75,891	1,636	10,000	no

County of Attraction	Shared-Ride 2 Trips					Drive-Alone Trips						
	Shared-Ride 2 Trips			Governing Threshold	Threshold Exceeded?	Drive-Alone Trips			Threshold A: Threshold B:		Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference	10% of Desired	10,000 Trips		
San Francisco	10,120	11,361	-1,241	10,000	no	16,190	16,190	0	810	10,000	10,000	no
San Mateo	64,000	66,136	-2,136	10,000	no	89,095	89,054	41	4,453	10,000	10,000	no
Santa Clara	9,155	9,023	132	10,000	no	10,997	10,995	2	550	10,000	10,000	no
Alameda	2,701	2,394	307	10,000	no	3,169	2,534	635	127	10,000	10,000	no
Contra Costa	530	634	-104	10,000	no	622	506	116	25	10,000	10,000	no
Solano	24	90	-66	10,000	no	36	18	18	1	10,000	10,000	no
Napa	4	12	-8	10,000	no	6	3	3	0	10,000	10,000	no
Sonoma	6	23	-17	10,000	no	10	3	7	0	10,000	10,000	no
Marin	197	366	-169	10,000	no	292	420	-128	21	10,000	10,000	no
Total Bay Area	86,738	90,039	-3,301	10,000	no	120,417	119,723	694	5,986	10,000	10,000	no

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Drive-Alone Trips", "Desired Transit Trips", and "Desired shared ride trips" all represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## San Mateo County 2000 Home-Based Social/Recreation Trips by Mode (Attractions)

	Transit Trips					Shared-Ride 3+ Trips				
	Transit Trips			Governing Threshold	Threshold Exceeded?	Shared-Ride 3+ Trips			Governing Threshold	Threshold Exceeded?
County of Production	Modeled	Desired	Difference			Modeled	Desired	Difference		
San Francisco	849	1,112	-263	10,000	no	7,963	5,759	2,204	10,000	no
San Mateo	1,229	1,282	-53	10,000	no	53,312	54,274	-962	10,000	no
Santa Clara	358	331	27	10,000	no	10,144	7,785	2,359	10,000	no
Alameda	0	18	-18	10,000	no	2,979	2,639	340	10,000	no
Contra Costa	0	12	-12	10,000	no	454	429	25	10,000	no
Solano	0	0	0	10,000	no	12	38	-26	10,000	no
Napa	0	0	0	10,000	no	1	3	-2	10,000	no
Sonoma	0	0	0	10,000	no	4	3	1	10,000	no
Marin	0	1	-1	10,000	no	96	190	-94	10,000	no
Total Bay Area	2,436	2,756	-320	10,000	no	74,965	71,120	3,845	10,000	no

	Shared-Ride 2 Trips					Drive-Alone Trips						
	Shared-Ride 2 Trips			Governing Threshold	Threshold Exceeded?	Drive-Alone Trips			Threshold A: Threshold B:		Governing Threshold	Threshold Exceeded?
County of Production	Modeled	Desired	Difference			Modeled	Desired	Difference	10% of Desired	10,000 Trips		
San Francisco	12,047	12,762	-715	10,000	no	15,624	15,625	-1	781	10,000	10,000	no
San Mateo	64,000	66,136	-2,136	10,000	no	89,095	89,054	41	4,453	10,000	10,000	no
Santa Clara	9,550	10,743	-1,193	10,000	no	10,197	10,198	-1	510	10,000	10,000	no
Alameda	3,438	3,518	-80	10,000	no	4,034	3,964	70	198	10,000	10,000	no
Contra Costa	524	473	51	10,000	no	614	403	211	20	10,000	10,000	no
Solano	24	46	-22	10,000	no	36	25	11	1	10,000	10,000	no
Napa	3	3	0	10,000	no	4	4	0	0	10,000	10,000	no
Sonoma	8	14	-6	10,000	no	11	6	5	0	10,000	10,000	no
Marin	193	397	-204	10,000	no	286	400	-114	20	10,000	10,000	no
Total Bay Area	89,787	94,092	-4,305	10,000	no	119,901	119,679	222	5,984	10,000	10,000	no

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Drive-Alone Trips", "Desired Transit Trips", and "Desired shared ride trips" all represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)



## San Mateo County 2000 Non Home-Based Trips by Mode (Productions)

County of Attraction	Transit Trips					Vehicle Driver (Vehicle) Trips						
	Transit Trips			Governing Threshold	Threshold Exceeded?	Threshold A: Threshold B:			10% of Desired	10,000 Trips	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference				
San Francisco	1,241	1,206	35	10,000	no	56,502	55,774	728	2,789	10,000	10,000	no
San Mateo	974	975	-1	10,000	no	318,234	318,703	-469	15,935	10,000	15,935	no
Santa Clara	452	327	125	10,000	no	38,423	38,407	16	1,920	10,000	10,000	no
Alameda	0	7	-7	10,000	no	10,394	10,036	358	502	10,000	10,000	no
Contra Costa	0	0	0	10,000	no	2,027	2,106	-80	105	10,000	10,000	no
Solano	0	0	0	10,000	no	334	452	-118	23	10,000	10,000	no
Napa	0	0	0	10,000	no	183	246	-63	12	10,000	10,000	no
Sonoma	0	0	0	10,000	no	555	746	-191	37	10,000	10,000	no
Marin	0	0	0	10,000	no	1,396	1,786	-390	89	10,000	10,000	no
Total Bay Area	2,667	2,515	152	10,000	no	428,048	428,256	-208	21,413	10,000	21,413	no

### Vehicle Passenger (Vehicle) Trips

County of Attraction	Modeled	Desired	Difference	Governing Threshold	Threshold Exceeded?
San Francisco	7,031	7,578	-547	10,000	no
San Mateo	42,692	43,166	-474	10,000	no
Santa Clara	5,771	5,207	564	10,000	no
Alameda	1,354	1,365	-11	10,000	no
Contra Costa	264	274	-10	10,000	no
Solano	43	76	-33	10,000	no
Napa	24	47	-23	10,000	no
Sonoma	72	140	-68	10,000	no
Marin	182	387	-205	10,000	no
Total Bay Area	57,433	58,239	-806	10,000	no

#### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## San Mateo County 2000 Non Home-Based Trips by Mode (Attractions)

County of Production	Transit Trips					Vehicle Driver (Vehicle) Trips						
	Transit Trips			Governing Threshold	Threshold Exceeded?	Threshold A: Threshold B:			10% of Desired	10,000 Trips	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference				
San Francisco	2,068	2,174	-106	10,000	no	51,239	51,145	94	2,557	10,000	10,000	no
San Mateo	974	975	-1	10,000	no	318,234	318,703	-469	15,935	10,000	15,935	no
Santa Clara	1,972	1,286	686	10,000	no	40,651	40,795	-144	2,040	10,000	10,000	no
Alameda	0	70	-70	10,000	no	10,015	9,821	194	491	10,000	10,000	no
Contra Costa	0	17	-17	10,000	no	2,545	2,314	231	116	10,000	10,000	no
Solano	0	0	0	10,000	no	585	685	-100	34	10,000	10,000	no
Napa	0	0	0	10,000	no	303	356	-53	18	10,000	10,000	no
Sonoma	0	0	0	10,000	no	1,060	1,194	-134	60	10,000	10,000	no
Marin	0	2	-2	10,000	no	1,811	2,196	-385	110	10,000	10,000	no
Total Bay Area	5,014	4,524	490	10,000	no	426,443	427,209	-766	21,360	10,000	21,360	no

### Vehicle Passenger (Vehicle) Trips

County of Attraction	Modeled	Desired	Difference	Governing Threshold	Threshold Exceeded?
San Francisco	8,423	8,300	124	10,000	no
San Mateo	42,692	43,166	-474	10,000	no
Santa Clara	5,625	5,597	28	10,000	no
Alameda	1,304	1,346	-42	10,000	no
Contra Costa	332	358	-27	10,000	no
Solano	76	147	-71	10,000	no
Napa	39	78	-39	10,000	no
Sonoma	138	310	-172	10,000	no
Marin	236	382	-146	10,000	no
Total Bay Area	58,865	59,684	-818	10,000	no

#### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## San Mateo County 2000 Home-Based Secondary School Trips by Mode (Productions)

County of Attraction	Transit Trips					Vehicle Trips						
	Trips			Governing Threshold	Threshold Exceeded?	Vehicle Trips			Threshold A: Threshold B:			
	Modeled	Desired	Difference			Modeled	Desired	Difference	10% of Desired	10,000 Trips	Governing Threshold	Threshold Exceeded?
San Francisco	4,964	70	4,894	10,000	no	39,657	742	38,915	37	10,000	10,000	yes
San Mateo	4,972	4,434	538	10,000	no	204,503	113,141	91,362	5,657	10,000	10,000	yes
Santa Clara	0	5	-5	10,000	no	20,363	490	19,873	25	10,000	10,000	yes
Alameda	0	6	-6	10,000	no	687	359	328	18	10,000	10,000	no
Contra Costa	0	1	-1	10,000	no	153	33	120	2	10,000	10,000	no
Solano	0	0	0	10,000	no	8	2	6	0	10,000	10,000	no
Napa	0	0	0	10,000	no	3	0	3	0	10,000	10,000	no
Sonoma	0	0	0	10,000	no	8	0	8	0	10,000	10,000	no
Marin	0	0	0	10,000	no	194	11	183	1	10,000	10,000	no
Total Bay Area	9,936	4,516	5,420	10,000	no	265,576	114,778	150,798	5,739	10,000	10,000	yes

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## San Mateo County 2000 Home-Based Secondary School Trips by Mode (Attractions)

County of Production	Transit Trips					Vehicle Passenger (Vehicle) Trips						
	Trips			Governing Threshold	Threshold Exceeded?	Vehicle Trips			Governing Threshold	Threshold Exceeded?		
	Modeled	Desired	Difference			Modeled	Desired	Difference				
San Francisco	1,447	482	965	10,000	no	22,903	336	22,567	10,000	yes		
San Mateo	4,972	7,233	-2,261	10,000	no	204,503	113,141	91,362	10,000	yes		
Santa Clara	0	31	-31	10,000	no	23,635	405	23,230	10,000	yes		
Alameda	0	0	0	10,000	no	6,155	62	6,093	10,000	no		
Contra Costa	0	0	0	10,000	no	423	0	423	10,000	no		
Solano	0	0	0	10,000	no	69	0	69	10,000	no		
Napa	0	0	0	10,000	no	29	0	29	10,000	no		
Sonoma	0	0	0	10,000	no	180	0	180	10,000	no		
Marin	0	0	0	10,000	no	186	6	180	10,000	no		
Total Bay Area	6,419	7,746	-1,327	10,000	no	258,083	113,950	144,133	10,000	yes		

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## San Mateo County 2000 Home-Based College Trips by Mode (Productions)

County of Attraction	Transit Trips					Vehicle Trips						
	Transit Trips			Governing Threshold	Threshold Exceeded?	Vehicle Driver (Vehicle) Trips			10% of Desired	10,000 Trips	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference				
San Francisco	385	516	-131	10,000	no	5,395	12,751	-7,356	638	10,000	10,000	no
San Mateo	267	531	-264	10,000	no	13,621	27,104	-13,483	1,355	10,000	10,000	yes
Santa Clara	67	95	-28	10,000	no	1,125	4,452	-3,327	223	10,000	10,000	no
Alameda	0	5	-5	10,000	no	0	557	-557	28	10,000	10,000	no
Contra Costa	0	0	0	10,000	no	0	23	-23	1	10,000	10,000	no
Solano	0	0	0	10,000	no	0	0	0	0	10,000	10,000	no
Napa	0	0	0	10,000	no	0	13	-13	1	10,000	10,000	no
Sonoma	0	0	0	10,000	no	0	139	-139	7	10,000	10,000	no
Marin	0	0	0	10,000	no	0	14	-14	1	10,000	10,000	no
Total Bay Area	719	1,147	-428	10,000	no	20,141	45,053	-24,912	2,253	10,000	10,000	yes

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## San Mateo County 2000 Home-Based College Trips by Mode (Attractions)

County of Production	Transit Trips					Vehicle Trips						
	Transit Trips			Governing Threshold	Threshold Exceeded?	Vehicle Driver (Vehicle) Trips			10% of Desired	10,000 Trips	Governing Threshold	Threshold Exceeded?
	Modeled	Desired	Difference			Modeled	Desired	Difference				
San Francisco	312	246	66	10,000	no	2,280	949	1,331	47	10,000	10,000	no
San Mateo	267	531	-264	10,000	no	13,621	27,104	-13,483	1,355	10,000	10,000	yes
Santa Clara	767	13	754	10,000	no	3,770	1,129	2,641	56	10,000	10,000	no
Alameda	16	3	13	10,000	no	87	818	-731	41	10,000	10,000	no
Contra Costa	0	1	-1	10,000	no	0	389	-389	19	10,000	10,000	no
Solano	0	0	0	10,000	no	0	186	-186	9	10,000	10,000	no
Napa	0	0	0	10,000	no	0	26	-26	1	10,000	10,000	no
Sonoma	0	0	0	10,000	no	0	86	-86	4	10,000	10,000	no
Marin	0	0	0	10,000	no	0	9	-9	0	10,000	10,000	no
Total Bay Area	1,362	794	568	10,000	no	19,758	30,696	-10,938	1,535	10,000	10,000	yes

### Notes:

1. "Modeled Trips" represent trips estimated by the CMA Model for San Mateo County 2000; "Desired Trips" represent the 2000 Census Journey-to-Work commuter matrices
2. The "Governing Threshold" is determined by the greater difference between "10,000 trips" or "10% of the Desired Trips".
3. The threshold is exceeded if the absolute value of the "Difference" is greater than the "Governing Threshold"
4. "Desired" trips for Counties 1 through 5 have been factored by the ratio of estimated/observed person trips (from distribution model)

## Distribution of Intra-County San Mateo Home-Based Work Trips

From Superdistrict:	Estimated (San Mateo CMA) Trips to Superdistrict:			
	North County	Mid County	South County	Total County
North County	92,911	10,442	3,580	106,933
Mid County	24,348	68,735	6,963	100,046
South County	9,396	17,746	88,132	115,274
<b>Total County</b>	<b>126,655</b>	<b>96,923</b>	<b>98,675</b>	<b>322,253</b>

Notes:

1. "Superdistricts" refer to the 34 geographic subdivisions of the nine-county Bay Area
2. "North County", "Mid County", and "South County" are descriptions for Superdistricts 5, 6, and 7

## Distribution of Intra-County San Mateo Home-Based Shop Trips

From Superdistrict:	Estimated (San Mateo CMA) Trips to Superdistrict:			
	North County	Mid County	South County	Total County
North County	167,392	4,826	396	172,614
Mid County	18,864	116,420	6,127	141,411
South County	3,479	8,855	93,169	105,503
<b>Total County</b>	<b>189,735</b>	<b>130,101</b>	<b>99,692</b>	<b>419,528</b>

Notes:

1. "Superdistricts" refer to the 34 geographic subdivisions of the nine-county Bay Area
2. "North County", "Mid County", and "South County" are descriptions for Superdistricts 5, 6, and 7

## Distribution of Intra-County San Mateo Home-Based Social/Recreation Trips

From Superdistrict:	Estimated (San Mateo CMA) Trips to Superdistrict:			
	North County	Mid County	South County	Total County
North County	63,370	5,048	1,217	69,635
Mid County	8,773	57,404	6,038	72,215
South County	2,806	7,736	55,245	65,787
Total County	74,949	70,188	62,500	207,637

**Notes:**

1. "Superdistricts" refer to the 34 geographic subdivisions of the nine-county Bay Area
2. "North County", "Mid County", and "South County" are descriptions for Superdistricts 5, 6, and 7

## Distribution of Intra-County San Mateo Non Home-Based Trips

From Superdistrict:	Estimated (San Mateo CMA) Trips to Superdistrict:			
	North County	Mid County	South County	Total County
North County	177,083	13,859	2,681	193,623
Mid County	13,117	136,434	12,691	162,242
South County	2,710	13,202	113,645	129,557
Total County	192,910	163,495	129,017	485,422

**Notes:**

1. "Superdistricts" refer to the 34 geographic subdivisions of the nine-county Bay Area
2. "North County", "Mid County", and "South County" are descriptions for Superdistricts 5, 6, and 7