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July 28, 2005

TO: Transportation Authority of Marin Commissioners

RE: Draft 2005 Congestion Management Plan (CMP) Update–
Agenda Item 8

Dear Commissioners:

Changes from the 2003 CMP Update

The most significant changes incorporated in the 2005 CMP Update are the creation of TAM and the passage of both Measure A and Regional Measure 2 (RM2). When TAM was established, the function of the Congestion Management Agency (CMA) was transferred to the new Authority, consistent with the practice of the majority of the Bay Area counties. Consequently, TAM also assumed responsibility for updating Marin County's CMP and for related performance monitoring.

The passage of Measure A and of RM2 also affected the 2005 CMP Update. Both represent major new funding sources, which influenced the Capital Improvement Program (CIP) element of the CMP. Moreover, both Measure A and RM2 are expected to enhance the multimodal performance of Marin's transportation system, particularly as the Measure A programs are implemented.

Other changes, reflecting the results of the 2005 performance monitoring effort, are discussed in the following section on technical findings.

2005 CMP Update – Technical Findings

The CMP legislation makes the following requirements of a conformance determination for local jurisdictions:

- Maintain the highway LOS standards outlined in the CMP;
- Participate in a program to analyze the impact of land-use decisions;
- Participate in the adoption and implementation of a deficiency plan when LOS standards are not maintained.

Any jurisdiction that is found in nonconformance may risk losing an increment of their gasoline tax subvention funds and not having projects programmed in the Regional Transportation Improvement Program (RTIP). ***No Marin County jurisdiction is considered out of conformance at this time.***

As discussed in **Appendix F** (*Performance Measures Monitoring Report*, Section 3.1.1, "2005 CMP Monitoring Results"), the initial analysis of Novato Boulevard, between Wilson and Diablo, showed this non-grandfathered segment to be failing with a Level of Service (LOS) "F." The consultant then refined the data analysis, specifically targeting the segment's key intersection (Diablo Avenue), in order to validate or refute the initial finding. The subsequent analysis indicated that the segment is operating at an acceptable LOS "D," and is therefore in conformance.

In addition to the monitoring element, the CMP establishes specific performance measures to evaluate current and future system performance. The 2005 CMP Update includes eight performance measures, reflecting TAM's continued commitment to a multimodal transportation system:

1. Highway Level of Service
2. Peak-Hour Travel Time
3. Person Throughput
4. Vehicle Miles Traveled on Congested Highways
5. Jobs/Housing Balance
6. Transit Headways
7. Transit Coordination
8. Pedestrian and Bicycle Investment

The 2005 performance monitoring results suggest that the multimodal aspect of Marin's transportation system could be improved. Staff will review this information and return to the Commission in January 2006 with suggestions as to how this data could be used to better identify and prioritize projects, given the limited funds available.

2005 CIP

The draft 2005 CIP list was presented at the June 28, 2005 TAM Commission meeting. Since the June meeting, staff and the CMP consultant have continued to work with the Public Works Departments to refine the list and to identify potential candidate projects should future funding become available.

At the June 28th meeting, several Commissioners requested clarification concerning questions raised in their review of the draft list:

Reference Fund Sources: The CIP list has been revised to include a column indicating the primary funding for each project.
Pedestrian and Bicycle Projects: All pedestrian and bicycle projects that are included in a local jurisdiction's bicycle/pedestrian plan are incorporated by reference into the CIP, as described in Section 7.7 of the CIP chapter. Because the 2005 CIP remains a financially

constrained list, there is no funding benefit to be gained by detailing these projects in the CIP list.

Golden Gate Bridge and Highway Transit District (GGBHTD) Projects: Several Commissioners expressed concern that the GGBHTD-sponsored projects may not reflect Marin County priorities for its limited funding. As noted above, the 2005 CIP is financially constrained and reflects current programming. These projects are included in the Metropolitan Transportation Commission's (MTC) Transportation Improvement Program (TIP) and have confirmed funding. More importantly, the GGBHTD projects are not competing for funds with other Marin projects. These projects are funded primarily by the Federal Transit Administration, which distributes funds to transit operators on a formulaic basis.

Next Steps

Following TAM approval of the draft 2005 CMP Update, staff and the CMP consultant will address any comments and incorporate needed revisions to the document. Staff will also forward a copy of the draft CMP to MTC staff for their review and use. The final 2005 CMP Update will be brought before TAM at the September 22, 2005 meeting for final approval. At that time, the 2005 Update will be formally transmitted to MTC.

Staff Recommendation

1. Staff requests that the Commissioners conduct a public hearing, review the draft 2005 CMP Update, and provide direction to staff to bring back a final document for approval at the September 22, 2005 meeting.

Respectfully Submitted,

Craig Tackabery
Executive Director

Attachment: 2005 Congestion Management Plan, including appendices

DRAFT

2005 Marin County Congestion Management Program

Prepared by *Wilbur Smith Associates* for the Transportation Authority of Marin

July 2005

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EXECUTIVE SUMMARY

Introduction

Congestion Management Programs (CMPs) are designed to address existing and future transportation problems in urban areas of the State of California. The requirements put forth in this CMP prepared for Marin County and its cities and towns are the result of the voter approval of Propositions 111 and 116 in June 1990. This legislation increased transportation revenues and changed state transportation planning and programming processes. Each urban county in California is required to develop and bi-annually update a CMP. The main components of Congestion Management Programs are the following:

- A Congestion Management Agency (CMA) has been designated in each urban county. The CMA has the responsibility of developing, updating, and monitoring the CMP. Marin County and its cities and towns have designated the Transportation Authority of Marin (TAM) as their CMA. TAM is a 16 member board comprised of the Marin County Board of Supervisors and a representative from each City or Town Council in Marin County.
- Identification of a network of transportation facilities and designation of level of service standards for highways and roadways. Facilities are monitored for congestion levels periodically. (Chapter 1 and Chapter 2)
- Performance measures to evaluate current and future multimodal system performance for the movement of people and goods. (Chapter 3)
- Development of Travel Demand Management (TDM) techniques. Alternatives to the single occupant private automobile are identified and encouraged. (Chapter 4)
- Development of a process to determine the impacts of local development decisions on the regional transportation network. This facilitates integration of decisions about land development, transportation investment, and air quality. (Chapter 5)
- A computer travel model and database to be used for estimating future transportation needs and impacts has been developed. (Chapter 6)
- A 7-year investment strategy (Capital Improvement Program [CIP]) is developed and updated every two years, in order to promote the goals of the CMP. The investment strategy links project eligibility for regional/state funding to the CIP. (Chapter 7)

It is important to note that a CMP is not a long-range policy document. The main thrust of CMP recommendations is short-term. At the regional level, the CMP is guided by the Metropolitan Transportation Commission's (MTC) *Regional Transportation Plan* and the Bay Area Air Quality Management District's (BAAQMD) *Bay Area Clean Air Plan*.

The CMP legislation is aimed at bringing local governments into the decision making process for capital investment in transportation. This serves to make local governments more aware of the real cost of transportation services. In addition, local governments are involved in the development of funding mechanisms for transportation (i.e., impact fees and user fees). Local

agencies need to be prudent in their decisions regarding transportation infrastructure in order to make the most of existing facilities, services, and available improvement and program funds.

In early 2003, the CMA adopted *Moving Forward: A 25-Year Transportation Vision for Marin County*. The CMA developed a Transportation Sales Tax Expenditure Plan for a half cent sales tax increase which was approved by the voters in Marin County in November 2004. In addition, the County of Marin released an updated *Marin Countywide Plan* on February 26, 2004. This CMP update incorporates relevant goals, policies, projects, and programs of these related work efforts.

The CMP document is organized in chapters detailing the individual elements of the CMP. The chapters include the following:

Designated Roadway System (Chapter 1)

The CMP network of transportation facilities is designated so that it can be monitored biannually to determine service levels. Standards for traffic Levels of Service (LOS) on the network have been established, and CMP actions and investments proposed in the CIP must support the attainment of those standards. The CMP legislation requires that all state highways and principal arterials be included in the network.

Level of Service Standards (Chapter 2)

The CMP legislation requires the establishment of a uniform method for monitoring levels of service on roadways. For principal arterials and conventional highways in Marin County, LOS D has been chosen by the Congestion Management Agency as the standard for Urban and Suburban Arterials including highways that serve as arterials (e.g., SR 1, SR 131), and LOS E was selected as the standard for Highway 101, Interstate 580, and State Route 37. The Highway Capacity Manual methodology or accepted alternative is used to calculate levels of service on freeway segments as well as the volume-to-capacity ratios for segments of Urban and Suburban Arterials.

The CMP legislation allows trips not originating in a county, trips passing through a county, or trips generated by low and very low income housing to be excluded from the determination of conformance with LOS standards following consultation with MTC, Caltrans, and the BAAQMD. Even though they must be excluded for deficiency plan determinations, TAM has elected to include these trips for planning purposes. Exclusion of these trips would present a misleading picture of the traffic conditions in the county and could artificially skew the inclusion and/or ranking of projects in the 7-year CIP.

For all roadways included in the portion of the CMP network within their jurisdictions, local governments are required to do the following:

- Adopt LOS standards for all CMP network roadways. LOS E is the minimum countywide standard for Highway 101, Interstate 580, and State Route 37. LOS D is the minimum Countywide standard for all other CMP network roadways. A local jurisdiction may adopt

higher standards. In such a case, TAM will assess conformance with the higher standard, not the countywide minimum.

- Biannually monitor the LOS on the designated network according to the guidelines set forth in Chapter 8.

Performance Measures (Chapter 3)

Eight performance measures are included in the CMP. In addition to the Level of Service performance measures discussed in Chapter 2, three multi-modal performance measures are established, including:

- Peak-hour travel time
- Person throughput
- Vehicle miles of congested highway

One performance measure evaluates the jobs and housing (employed residents) balance within the County. A balance between jobs and housing can help the regional system by reducing trip length and congestion.

Two performance measures focus on transit service, specifically frequency and routing and coordination of service. These measures work in partnership with standards for roadway level of service and the transportation demand management element of the CMP. This will help bring about the desired goals with respect to mobility and air quality.

The performance measures for transit service in Marin County are based on the Golden Gate Bridge, Highway and Transportation District and Marin County Transit District's Short Range Transit Plan. The burden is on TAM to work with local governments and transit agencies to ensure that any transit improvements identified are reasonable and can be funded and implemented in the time frame they are proposed. Also, it may become necessary to require that some performance measure targets be met when transit improvements are identified in a deficiency plan.

The final performance measure looks at pedestrian and bicycle investments to ensure that pedestrian and bicycle travel is being accommodated in the transportation system.

Travel Demand Management (Chapter 4)

California Government Code section 65089(b)(3) requires a travel demand management (TDM) element of a CMP to promote alternative transportation methods, such as carpools, vanpools, transit, bicycles, and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including flexible work hours and parking management programs, that help reduce congestion and air pollution.

TDM is an approach to solving transportation problems by improving the efficiency of the existing transportation system by better managing the demand for transportation facilities. TDM focuses on reducing the number of vehicles on highways during peak periods through ridesharing (carpooling), increased use of transit, and staggered work hours. Such measures can be integrated into the land use planning process with better development review, and incentives to provide designs and facilities that are supportive of a multi-modal transportation system.

The travel demand management element of the CMP has several goals, including a coordinated countywide TDM program and the establishment of an on-going process that promotes local and regional planning to reduce traffic congestion.

Land-Use Analysis Program (Chapter 5)

California Government Code section 65089(b)(4) requires that a CMP contain a program to analyze the impacts of land use decisions made by local jurisdictions on the regional transportation system (both highways and transit). The intent of the Land-Use Analysis Program is to improve the linkage between local land use decisions and regional transportation facility decisions; to better assess the impacts of development in one community on another; and to promote information sharing between local governments when the decisions made by one jurisdiction will have an impact on another.

The Land-Use Analysis Program in Marin County is a process designed to improve upon decisions about land use and the spending of funds on highway and transit improvements in the county. The process is intended to work in a positive, cooperative fashion that supports the needs of local, county, regional and state governments.

Marin County has in place an inventory of proposed development projects, known as "PROPDEV." PROPDEV includes all projects with at least five residential units or at least 5,000 square feet of non-residential use. The PROPDEV database file covers 40 items of information including location, project sponsor, acreage, zoning, square feet of building area and status of development application.

A two-tiered information and analysis process of local land use impacts is instituted. Under "Tier I," local governments forward information on proposed General Plan Amendments to TAM during the period when the local jurisdiction is reviewing the application. "Tier II" includes an annual update of projected land uses in the future to be used for modeling both traffic and transit impacts.

In order to comply with the requirements of Tiers I and II of the Land-Use Analysis Program, all jurisdictions in the County need to:

- Keep the land use information contained in the countywide land use table up to date.
- Submit a complete accounting of residential and commercial projects to the PROPDEV inventory, a data table of proposed development projects.
- Submit information on all General Plan Amendments involving a net change (increase or decrease) of 100 or more P.M. peak hour trips and pay for a CMP modeling of their affects prior to their environmental review.
- Submit information on all highway network and transit system changes in their jurisdiction that result from: (1) project mitigations, (2) ordinance approvals, or (3) changes to the Transportation Element of their General Plan.
- Adopt traffic LOS standards that are consistent with or more restrictive than the LOS standards in the CMP.
- Develop a 7-year Capital Improvement Program designed to meet the adopted LOS Standards and support alternate modes of transportation.
- Submit the local agencies' Capital Improvement Program to TAM by July 1 of odd numbered years.
- Participate in TAM's Travel Demand Management Program.
- Comply with other requirements as outlined in the Monitoring and Conformance Chapter (Chapter 8).

Travel Demand Model (Chapter 6)

California Government Code section 65089(c) requires that every CMA, in consultation with the regional transportation planning agency (Metropolitan Transportation Commission [MTC] in the Bay Area), cities, and the county, develop a uniform database on traffic impacts for use in a countywide transportation computer model. It also requires that the countywide model be the basis for computer models used for county sub-areas and cities, and that all models be consistent with the modeling methodology and databases used by the regional transportation planning agency. TAM should also approve sub-county area traffic models, and models used by local jurisdictions for land use impact analysis, if local jurisdictions decide to perform this work on their own. Appendix G of this report contains the full text of Code section 65089(c).

The purpose of this requirement is to guide TAM's decision making process in identifying the most effective balance of transportation programs and projects that maintain LOS standards. This includes the consideration of the benefits of transit service and transportation demand management programs, as well as the need for projects that improve congestion on the CMP highway and arterial system. The modeling requirement is also intended to assist local agencies in assessing the impact of new development on the transportation system. TAM will need to consider the nature of the analysis, functions of California specific analytic tools, and its available resources when deciding how to fulfill this requirement of the statutes.

The Marin County travel model is routinely updated as part of the consistency determination process with MTC.

Capital Improvement Program (Chapter 7)

Government Code section 65089(b)(5) requires that a CMP contain a 7-year Capital Improvement Program (CIP) to maintain or improve the adopted traffic LOS and to mitigate regional transportation impacts identified through the Land-Use Analysis Program. Capital improvement projects must conform to transportation-related vehicle emissions and air quality mitigation measures. These transportation control measures (or TCMs) are contained in the *Bay Area 2000 Clean Air Plan*.

Since the CMP will ultimately be incorporated into the Regional Transportation Plan (RTP) Action Elements, projects selected for Marin County's CIP will need to be consistent with the assumptions, goals, policies, actions and projects identified in the RTP. The RTP is the basic statement of transportation policy by MTC. Because of the interdependence of transportation planning and land use planning, a major effort was made by MTC to adopt policies that complement and support programs of federal, state, and regional agencies. The list of CIP projects is shown in Table 7, Chapter 7 of this report.

A review of the tables in Chapter 7 illustrates that there are serious deficiencies in funding the highway improvements necessary to upgrade current system deficiencies, as well as to maintain the adopted LOS Standards. Part of this deficiency was addressed during the 2004 ballot passing of "Measure A", a measure approving a half-cent sales tax increase to raise money for transportation improvements. Measure A is expected to generate $332 million dollars over the 20-year life of the measure, with over half of this money dedicated to transit, including local bus service, community shuttles, rural buses, clean fuel vehicles, and discount passes to low-income residents.

Monitoring, Improvement/Deficiency Plans and Conformance (Chapter 8)

California Government Code sections 65089.3, 65089.4, and 65089.5 govern the conformance process. These sections require that, based on the information obtained through monitoring, TAM must at least biennially determine whether or not the County and its cities and towns conform to the requirements of the CMP. If an agency believes that a local government is not conforming to CMP requirements, it must then hold a noticed public hearing to determine areas of nonconformance. If after the public hearing TAM still believes that the local government is not conforming to CMP requirements, it must provide written notice to the local government citing the specific instances of nonconformance. The local government then has 90 days to remedy the instances of nonconformance. If after 90 days the local government has not remedied the nonconformance instances, TAM makes a finding of nonconformance and notifies the State Controller to withhold certain gas tax subvention funds.

The CMP legislation makes the following requirements of a conformance determination:

- Maintaining the highway LOS standards outlined in the CMP.

- Participating in a program to analyze the impact of land use decisions, including the estimate of the costs associated with mitigating these impacts. Specific requirements and recommendations are outlined in the Land-Use Analysis Program Element of the CMP.
- Participating in adoption and implementation of a deficiency plan when highway and roadway LOS standards are not maintained on portions of the designated system.

No Marin County jurisdiction is considered out of conformance at this time.

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CHAPTER 1 – DESIGNATED ROADWAY SYSTEM

1.1 Purpose and Intent of Legislation

The designated roadway system includes all state highways and principal arterials in Marin County. Once a highway or roadway has been designated as part of the system, it cannot be removed from the system.[1] Furthermore, the regional transportation system is to be part of the required land-use program.[2]

The Congestion Management Program (CMP) roadway system is a network that allows monitoring of performance with respect to established level-of-service (LOS) standards. The network must be created at a level whereby impacts can be identified, and a connection can be made between proposed projects and their specific impacts on the network. The network cannot be too small, as impacts would not be identifiable, and at the same time, the network cannot be too large, as logistical problems would arise in monitoring performance.

1.2 Relationship to Regional Plans

The Congestion Management Program is a short-range document. The CMP elements contain a number of actions that further the goals of the Regional Transportation Plan (RTP) maintained by the Metropolitan Transportation Commission (MTC). MTC has determined that the Marin County CMP is consistent with the RTP, last adopted in 2005. This RTP includes goals of mobility, safety, equity, sensitivity to the environment, and economic and community vitality.

The designated roadway system is included within the RTP's Metropolitan Transportation System. This facilitates regional consistency between Marin County's CMP and those of adjoining Contra Costa, San Francisco, and Sonoma counties.

1.3 Designated CMP System

State highways and other principal arterials in this CMP were defined in prior CMPs. MTC has provided a framework that allows for flexibility in defining the principal arterial system. The following criteria were used to establish the designated CMP roadway network:

State Highways. All State highways must be included in the CMP roadway network according to the CMP legislation. If a route is to be removed from the State Highway System, it will be evaluated according to the principal arterial criteria to determine whether it should remain in the CMP network.

Principal Arterials. In 1991, the Marin County Public Works Association met and determined the non-State facilities that should be included in the CMP roadway network. The criteria they used to determine which facilities should be subject to CMP requirements included:

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[1] California Government Code Section 65089(b)(1)(A)
[2] California Government Code Section 60589(b)(4)

- Purpose and function of the roadway
- Land use adjacent to the roadway and proximity to activity centers
- Average Daily Traffic (ADT) volume, generally over 25,000 vehicles a day
- Connectivity to other facilities

1.4 The CMP Network

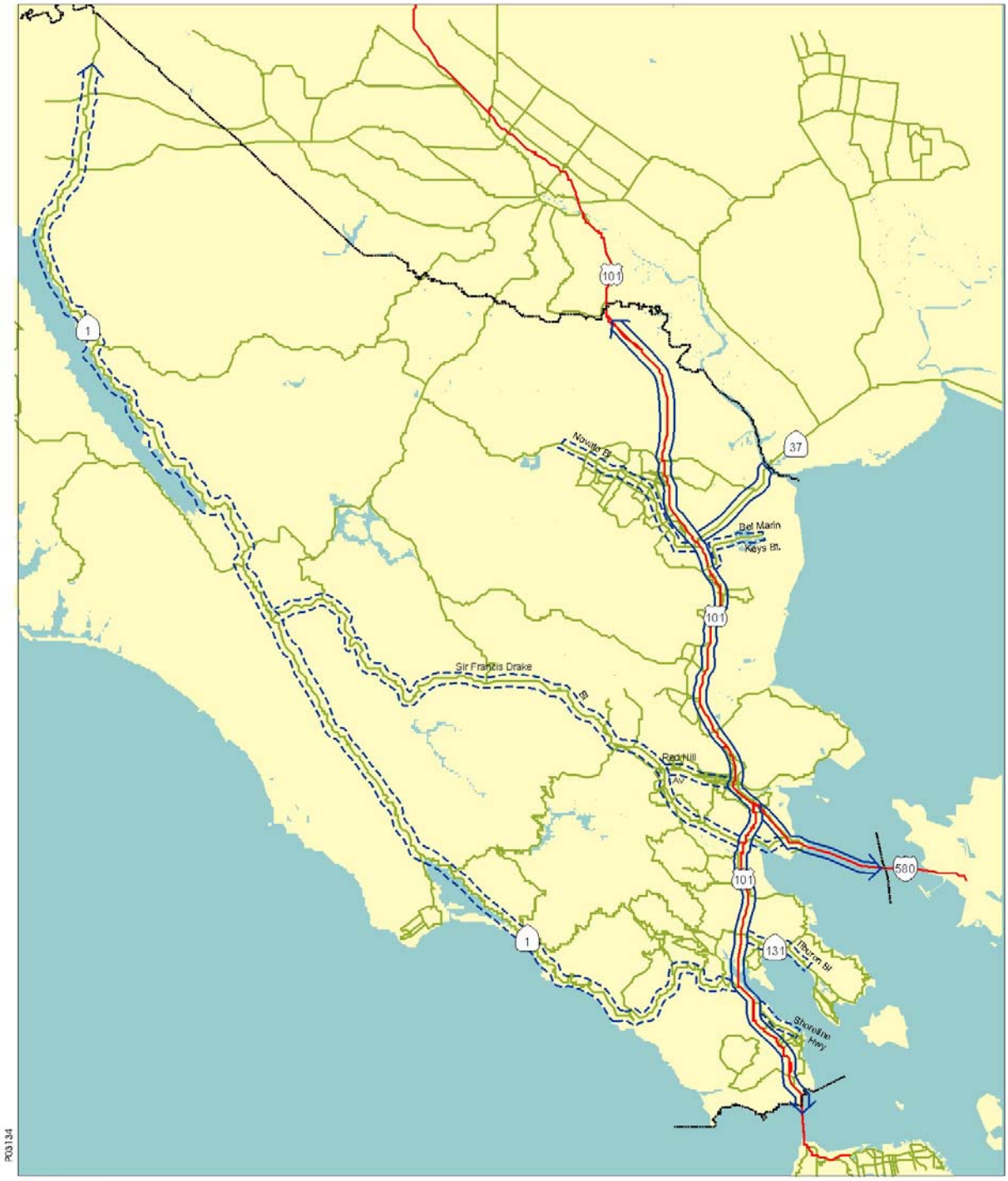
The following routes, shown on Figure 1, are designated as the State Highway portion of the Marin County CMP network:

- Interstate 580 – from U.S. 101 to Contra Costa County line
- U.S. 101 – from San Francisco County Line to Sonoma County Line
- State Route 1 – from U.S. 101 to Sonoma County line
- State Route 37 – from U.S. 101 to Sonoma County line
- State Route 131 – from U.S. 101 to Main Street in Tiburon

The following routes (also shown on Figure 1) are designated as the principal arterial portion of the Marin County CMP network:

- Bel Marin Keys Boulevard – from U.S.101 southbound ramps to Arroyo San Jose
- Bridgeway/Richardson Street/Second Street/Alexander Avenue in Sausalito – from U.S. 101 to U.S. 101
- Fourth Street in San Rafael – from Ross Valley Drive to Marquard Avenue
- Novato Boulevard in Novato –from Sutro Avenue/San Marin Drive to Diablo Avenue
- Red Hill Avenue in San Anselmo – from Sir Francis Drake Boulevard to Ross Valley Drive
- Rowland Boulevard in Novato – from South Novato Boulevard to U.S. 101
- Second Street in San Rafael – from Marquard Avenue to U.S. 101
- Sir Francis Drake Boulevard in Larkspur and unincorporated Marin County – from U.S. 101 to Interstate 580
- Sir Francis Drake Boulevard in Larkspur, Kentfield, Ross, San Anselmo, and Fairfax – from State Route 1 to U.S. 101
- South Novato Boulevard in Novato – from Novato Boulevard to U.S. 101
- Third Street in San Rafael – from Marquard Avenue to U.S. 101
- In total, the 123-mile CMP designated roadway network contains 91 miles of state highways and 32 miles of principal arterials.

Figure 1: Marin County 2005 Congestion Management Program



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CHAPTER 2 – LEVEL-OF-SERVICE STANDARDS

2.1 Purpose and Intent of Legislation

Levels-of-service (LOS) standards are to be established as part of the CMP[3], and are defined consistent with the Transportation Research Board, Highway Capacity Manual, 2000, or accepted alternative.

2.1.1 Objective

Traffic LOS definitions describe conditions in terms of speed and travel time, volume, capacity, ease of maneuverability, traffic interruptions, comfort, convenience, and safety. There are five gradations of LOS, from A to F. LOS A reflects free flow conditions, with vehicles traveling at the maximum posted speed. LOS F reflects congested conditions, with vehicles traveling bumper-to-bumper.

The LOS designation provides a quantitative tool that can be used to analyze the impacts of land-use changes on the CMP network. Traffic LOS also is used as a measure of system performance (e.g., congestion). Biannually, at the first meeting after receiving the monitoring data and local agency follow-up, TAM is to determine whether local governments have been conforming to the CMP, including attainment of LOS standards. This will be achieved through a self-certification process whereby monitoring and reporting of the LOS conditions are conducted by TAM or by local jurisdictions. The CMA will then, upon receiving the local monitoring reports, determine whether the local government is in conformance with the CMP. Additional detail on monitoring requirements is included in Chapter 8.

Local governments must consider the impacts that land-use decisions will have on the LOS on the designated CMP network. Therefore, a systems approach may have to be examined when considering the LOS on the entire system. Cities and counties may be responsible for improvements and funding of programs that will affect the system as a whole.

2.2 Highway Level-of-Service Standards

2.2.1 Goals and Objectives

The LOS technique should allow for the measurement of traffic growth trends through volumes, capacity, and measures of delay. The objectives are to develop an approach that is consistent, easy to use, non-duplicative, and compatible with local government data and travel demand models. The following represents the approach used for each issue.

Issue	**Approach**
Inter-County Trips	In accordance with MTC guidelines, trips with no trip end in Marin County (through trips) will not be subtracted.

[3] California Government Code 65089(b)(1)(A)

LOS Standards	D for Urban and Suburban Arterials, E for Freeways and Rural Expressways (U.S. 101, Interstate 580, and State Route 37)
Methods of Analysis	**Freeway and Rural Expressway Segments** – The analysis technique for freeway segments, based on segment weekday P.M. peak-hour volume to capacity ratios is from Chapter 23 and 24 of the *Highway Capacity Manual.* (The P.M. peak hour is the highest consecutive 60 minutes of traffic in the afternoon, typically between 5 P.M. and 6 P.M.) **Urban and Suburban Arterial Segments** – Volume-to-capacity ratios will be the analysis technique for arterial sequences, utilizing capacities provided in Chapter 15 and 16 of the *Highway Capacity Manual*, and based on weekday P.M. peak-hour traffic volumes. (The P.M. peak hour is the highest consecutive 60 minutes of traffic in the afternoon, typically between 5 P.M. and 6 P.M.) **Rural Roadways** – Chapter 20 of the *Highway Capacity Manual* will be the analysis technique for rural roadways, based on weekday P.M. peak-hour traffic volumes. (The P.M. peak hour is the highest consecutive 60 minutes of traffic in the afternoon, typically between 5 P.M. and 6 P.M.)
Monitoring	The local agency (e.g., city and county) or the CMA will do the LOS monitoring. Count frequency will be bi-annual (with certain exceptions outlined in Chapter 8), recognizing that more frequent counting could be done as part of development impact study requirements.
Deficiency Analyses	More refined analyses may be required when determining if a roadway segment is deficient. If appropriate, the operational analysis methodology described in the *Highway Capacity Manual* may be used to determine LOS.

The CMP legislation allows trips not originating in a county, trips passing through a county, or trips generated by low- and very low-income housing to be excluded from the determination of conformance with LOS standards following consultation with MTC, Caltrans, and the Bay Area Air Quality Management District. TAM decided to include these trips, however, when determining conformance with LOS standards for local planning purposes, as exclusion of these trips would present a misleading picture of the traffic conditions in the county and could artificially skew the inclusion and/or ranking of projects in the 7-year Capital Improvement Program.

In September 2002, the California Legislature passed SB 1636, which is intended to "remove regulatory barriers around the development of infill housing, transit-oriented development, and

mixed use commercial development" by enabling local jurisdictions to designate "infill opportunity zones." These zones are defined as areas designated for compact, transit-oriented housing and mixed use within 1/3 mile of major transit stops. The CMP network segments within the IOZ will be exempt from CMP traffic LOS standards. In their place, a city must include these streets under an alternative area-wide LOS standard or multimodal composite or personal LOS standard, or approve a list of flexible mitigation options that includes investments in alternative modes of transportation. Marin County has not designated any zones at this time.

2.2.2 Facility Classifications

The *Highway Capacity Manual* provides methods for determining LOS on several types of facilities. These facilities are grouped into interrupted- and uninterrupted-flow facilities. Interrupted-flow facilities include city streets and surface highways (like Highway 1) that are part of the State Highway System. For purposes of LOS analysis, the CMP network can be classified into two functional types of facilities:

Basic Freeway Segments. These are uninterrupted-flow facilities with multiple lanes available in each direction since traffic only stops during the most congested periods or when breakdowns occur.

Urban and Suburban Arterials. These are multi-lane streets that have traffic signals less than two miles apart on average. Volume-to-capacity ratios are used to estimate level of service. The advantage of this approach is that volume-to-capacity ratios are easily determined.

2.2.3 Definition of Roadway Segments

The segments of the CMP network that will be analyzed are included in Appendix A. For the principal arterials, a "responsible jurisdiction" has been designated. The jurisdiction named is the one with the greatest segment mileage. This jurisdiction is responsible for preparing any deficiency plans that may be required, as well as complying with all other requirements of the CMP legislation related to that segment. Other jurisdictions through which the segment travels are expected to work in a cooperative fashion with the responsible jurisdiction, and bear a pro-rata share of the cost of any improvement to the facility based on the approximate cost of improvements in their jurisdiction. In the event that funding is needed for a program, each jurisdiction would contribute its fair share of the cost based on segment mileage within the jurisdiction.

2.2.4 Identification of "Grandfathered" Roadway Segments

Roadway segments that operated at a lower LOS than the standard, which was established in 1991, are "grandfathered" and allowed to continue to operate at a lower LOS standard level until such time as they are improved or the traffic load is diverted. Freeway segments that operated at LOS F or arterial segments that operate at LOS E or F in the 1991 CMP qualify as "grandfathered" segments. The status of each segment in Marin County is listed in Table 1. The grandfathered segments are illustrated in Figure 2.

TAM, in its decision to grandfather the LOS F facilities, is recommending that an improvement plan be developed to address congestion on U.S. 101 and for grandfathered segments of other

roadways. An improvement plan consists of a description of the actions required to improve the LOS on the facility, either by increasing capacity or managing the demand for travel in a manner that effectively improves LOS.

2.2.5 2005 Monitoring Results

The results of the survey suggest different actions in monitoring for four different categories of roadways. Table 2 illustrates the actions that should be taken on each segment.

The first category includes the non-grandfathered roadway segments with satisfactory status for now and for which no action is needed. These are nine of these segments.

The second category includes those roadways that currently operate worse than the LOS standards (as defined by general lane capacities for arterial streets) but were not grandfathered in the CMP. Any roadway segments in this category should be highlighted for future evaluation, and then TAM should decide whether deficiency plans or improvement plans are required. One segment fell under this category, Novato Blvd, Wilson to Diablo. A more detailed intersection level analysis of the segment found that it currently operates at LOS D (acceptable). See Appendix F for additional information.

The third category includes those roadway segments that operate at acceptable levels of service but were originally included in the grandfathered segments in the CMP. These roadway segments should continue to be monitored bi-annually and made subject to the requirements of the CMP. Improvement plans may not be necessary at this time but may be required in the future. Five roadway segments fall under this category.

The fourth category includes nine locations that were grandfathered roadway segments in the CMP and were found to currently operate worse than the LOS standard. The segments that are grandfathered and operate worse than the LOS standard are recommended to have an improvement plan developed.

It is recognized that certain cities and towns have made policy decisions to not widen certain roadways in their jurisdiction. These cities' and towns' improvement plans could consist of appropriate Transportation Demand Management (TDM) and Traffic/Transportation System Management (TSM) options, selected to improve levels of service or reduce the future worsening of levels of service, on the CMP designated facility that operates worse than the LOS standard.

After screening for "grandfathered" facilities, no Marin County jurisdiction is considered out of conformance at this time.

Table 1 – "Grandfathered" Status of Segments

Segment Number	Type	Location Name	From	To	Grandfathered?
1	Principal Arterial	Shoreline Highway (State Route 1)	Flamingo Road	Sonoma County Line	No
2	Basic Freeway	U.S. 101	State Route 37	Sonoma County Line	Yes
3	Principal Arterial	Novato Blvd	San Marin Dr/Sutro Ave	Wilson Avenue	No
4	Principal Arterial	South Novato Blvd	U.S. 101	Novato Blvd	No
5	Basic Freeway	State Route 37	Sonoma County Line	U.S. 101	No
6	Principal Arterial	Bel Marin Keys	Arroyo San Jose	State Route 101	Yes
7	Basic Freeway	U.S. 101	N. San Pedro Road	State Route 37	Yes
8	Basic Freeway	U.S. 101	Mission Ave	N. San Pedro Road	Yes
9	Principal Arterial	Sir Francis Drake Blvd	Red Hill Ave	Butterfield Rd	Yes
10	Principal Arterial	Red Hill Ave	Ross Valley Drive	Sir Francis Drake Blvd	No
11	Basic Freeway	U.S. 101	Interstate 580	Mission Ave	Yes
12	Principal Arterial	Sir Francis Drake Blvd	U.S. 101	College Ave	Yes
13	Basic Freeway	U.S. 101	Tiburon Blvd (SR 131)	Interstate 580	Yes
14	Basic Freeway	Interstate 580	U.S. 101	Sir Francis Drake Blvd	Yes
15	Basic Freeway	Interstate 580	Sir Francis Drake Blvd	Contra Costa County Line	No
16	Principal Arterial	E. Sir Francis Drake Blvd	Interstate 580	U.S. 101	Yes
17	Basic Freeway	U.S. 101	Shoreline Highway (SR 1)	Tiburon Blvd (SR 131)	Yes
18	Principal Arterial	Tiburon Blvd (State Route 131)	Main Street	U.S. 101	No
19	Principal Arterial	Shoreline Highway (State Route 1)	U.S. 101	Flamingo Road	Yes
20	Principal Arterial	Bridgeway Blvd, Alexander Avenue	U.S. 101	U.S. 101	No
21	Basic Freeway	U.S. 101	San Francisco County Line	Shoreline Highway (SR 1)	No
22	Principal Arterial	Sir Francis Drake Blvd	Butterfield Rd	State Route 1	Yes
23	Principal Arterial	Sir Francis Drake Blvd	College Ave	Red Hill Ave	Yes
24	Principal Arterial	Novato Blvd	Wilson Avenue	Diablo Ave	No

Figure 2: Marin County 2005 Congestion Management Program Grandfathered Roadways

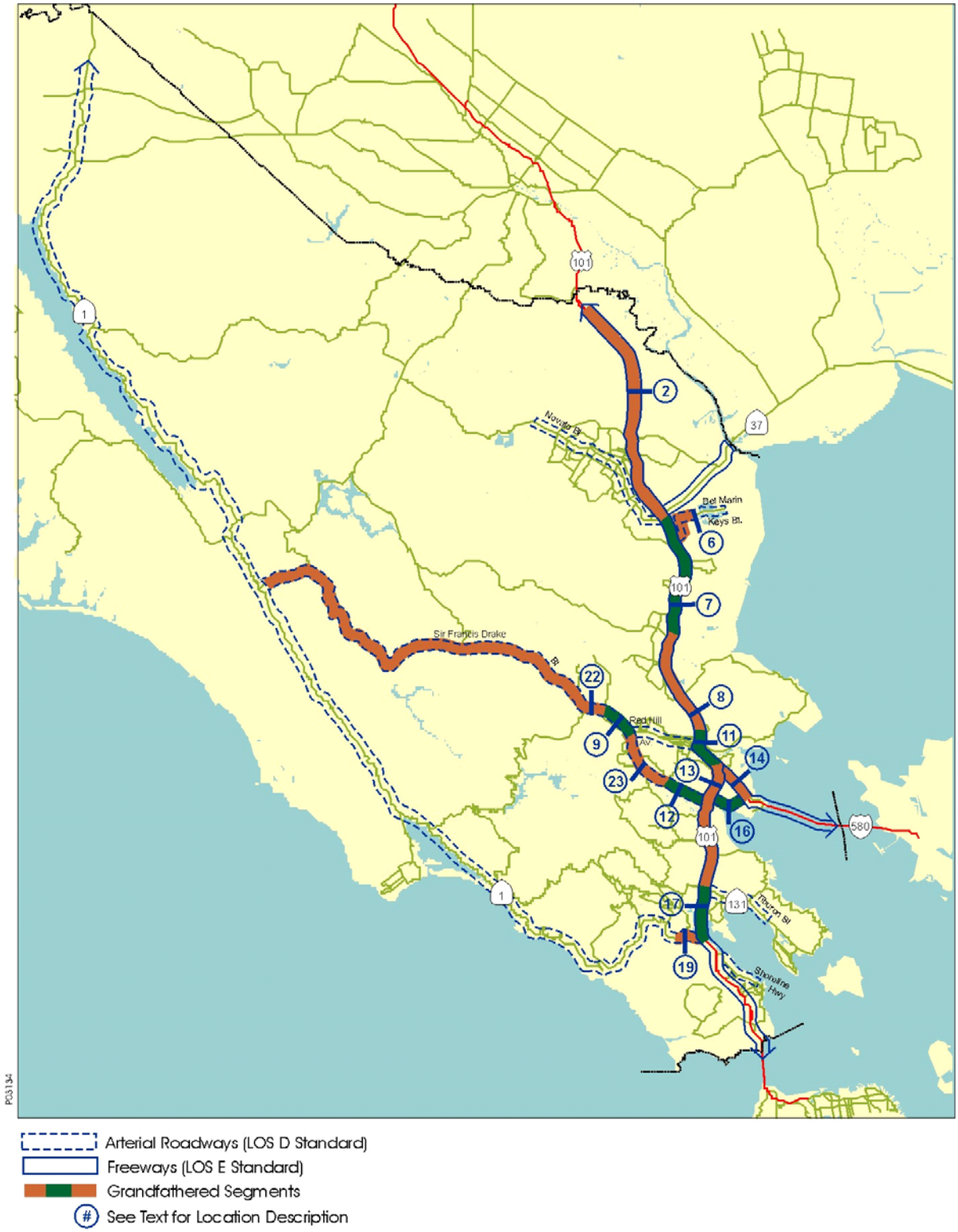

Table 2 – Actions Recommended by Segment

1	Shoreline Highway (State Route 1), from Flamingo Rd. to Sonoma County Line	NB	A	Within LOS Standard; No Action
3	Novato Blvd. from San Marin Dr./Sutro Ave to Wilson Ave.	NB	A	Within LOS Standard; No Action
4	South Novato Blvd. from U.S. 101 to Novato Blvd.	NB	A	Within LOS Standard; No Action
5	State Route 37, from Sonoma County Line to U.S. 101	EB	C	Within LOS Standard; No Action
10	Red Hill Ave. from Ross Valley Drive to Sir Francis Drake Blvd.	WB	C	Within LOS Standard; No Action
18	Tiburon Blvd. (State Route 131) from Main St. to U.S. 101	EB	C	Within LOS Standard; No Action
20	Bridgeway Blvd., Alexander Ave., and Sausalito Lateral Rd.,from U.S. 101 to U.S. 101	NB	B	Within LOS Standard; No Action
21	U.S. 101 from San Francisco County Line to Shoreline Highway (SR1)	NB	C	Within LOS Standard; No Action
		SB	B	Within LOS Standard; No Action
15	Interstate 580, from west of Sir Francis Drake Blvd. to Contra Costa Co. Line	WB	C	Within LOS Standard; No Action
		EB	D	Within LOS Standard; No Action
Non-Grandfathered, Improvement Plan Recommended				
24	Novato Blvd., from Wilson Ave. to Diablo Ave.	NB	E1	Improvement Plan or Deficiency Plan Recommended
Grandfathered, Satisfactory				
6	Bel Marin Keys, from Arroyo San Jose to State Route 101	WB	C	Grandfathered; No Action
7	U.S. 101, from N. San Pedro Rd. to State Route 37	NB	E	Grandfathered; No Action
12	Sir Francis Drake Blvd., from U.S. 101 to College Ave.	WB	B	Grandfathered; No Action
16	E. Sir Francis Drake Blvd., from Interstate 580 to U.S. 101	EB	C	Grandfathered; No Action
2	U.S. 101, from State Route 37 to Sonoma County Line	NB	D	Grandfathered; No Action
Grandfathered, Improvement Plan Recommended				
17	U.S. 101, from Shoreline Highway (SR 1) to Tiburon Blvd. (SR 131)	NB	F	Grandfathered; Improvement Plan Recommended
8	U.S. 101, from Mission Ave. to N. San Pedro Rd.	NB	F	Grandfathered; Improvement Plan Recommended. PSR complete, HOV lane to be constructed 2006-2008
9	Sir Francis Drake Blvd., from Red Hill Ave. to Butterfield Rd.	WB	E	Grandfathered; Improvement Plan Recommended
11	U.S. 101, from Interstate 580 to Mission Ave.	NB	F	Grandfathered; Improvement Plan Recommended. PSR complete, HOV lane to be constructed 2006-2008
13	U.S. 101 from Tiburon Blvd. (SR 131) to Interstate 580	NB	F	Grandfathered; Improvement Plan Recommended. PSR completed, southbound offramp project to be constructed in 2006.
19	Shoreline Highway (State Route 1), from U.S. 101 to Flamingo Rd.	NB	F	Grandfathered; Improvement Plan Recommended
14	Interstate 580, from U.S. 101 to west of Sir Francis Drake Blvd.	EB	F	Grandfathered; Improvement Plan Recommended
22	Sir Francis Drake Blvd.from Butterfield Rd. to State Route 1	WB	E	Grandfathered; Improvement Plan Recommended
23	Sir Francis Drake Blvd. from College Ave. to Red Hill Ave.	WB	F	Grandfathered; Improvement Plan Recommended

1 More detailed intersetion level analysis indicated that this segment opperates at LOS D (accepetable).

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CHAPTER 3 – PERFORMANCE MEASURES ELEMENT

3.1 Purpose and Intent of Legislation

The California Government Code requires TAM to establish performance measures to evaluate current and future multimodal system performance for the movement of people and goods.[4] Consistent with the 2003 Marin County CMP, eight performance measures were included in this CMP and are described in this chapter. The measures in this chapter should not be confused with "standards," as no level of performance is required. Rather, a measure simply indicates the level of performance at a given time.

This first part of this section describes the current transit system in Marin. The next section describes the eight performance measures. The eight performance measures that are analyzed are:

1. Highway Level of Service
2. Peak-Hour Travel Time
3. Person Throughput
4. Vehicle Miles Traveled on Congested Highways
5. Jobs/Housing Balance
6. Transit Headways
7. Transit Coordination
8. Pedestrian and Bicycle Investment

The performance measures help determine whether the goals of the CMP are being met: supporting mobility, air quality, land-use, and economic objectives. The measures shall be used in the development of the Capital Improvement Program, deficiency plans, and the land-use analysis program. A *Performance Measures Monitoring Report* prepared in July 2005 contains detailed information on these measures. This report can be found in Appendix F of this document.

3.2 Existing Transit Operations in Marin County

The transit network is comprised of a variety of services within Marin County. These include:

- General public transit bus service for both inter- and intra-county trips;
- General public ferry service, provided by two operators, serving trips between Marin County and San Francisco;
- Specialized transit services aimed at serving the needs of the elderly and disabled populations in the County; and
- Privately operated services, providing targeted service between specific locations, such as the service between Marin County and San Francisco International Airport.

[4] California Government Code Section 65089(b)(2)

The criteria used to establish CMP routes are:

- One-way, monthly ridership is greater than 5,000.
- Inter-county transit service using modes other than buses.

The following sections provide a brief description of the transit services offered in Marin County.

3.2.1 General Public Transit Services

3.2.1.1 Golden Gate Transit

Golden Gate Transit (GGT) is the primary operator of public transit services in the county, serving intra-county trips between Marin County and Sonoma, San Francisco, and Contra Costa Counties. GGT services are operated by the Golden Gate Bridge, Highway and Transportation District. The District provides three major types of service: basic, local and commute.

The primary categories of bus service provided by GGT include:

- **Basic Service.** There are six "basic service" routes operating in Marin County. Basic service routes operate all day, seven days per week, providing wheelchair accessible trunkline service between the Transbay Terminal and Civic Center in San Francisco and various suburban centers within Marin and Sonoma Counties. Seven of these routes are included in the transit network for the CMP. They provide the "Backbone" of serve both within Marin County, and between Marin and neighboring counties. The six routes are 10,40,42,70,71, and 80.
- **Commute Service.** This service provides twenty-one routes that operate on weekdays except holidays, between the residential neighborhoods within Marin County and the San Francisco Financial District and Civic Center employment centers during the A.M. and P.M. commute periods. Commute service is generally operated in one direction only during commute hours and is not run at all during the midday and off-peak hours.
- **Local Service.** Fourteen routes operate entirely within Marin County on weekdays with limited weekend service, under contract with the Marin County Transit District (MCTD).

In addition to these primary bus services, GGT operates four additional services that have not been included in the CMP transit network. These are:

- **Recreational Service.** Two routes traveling between suburban centers located at basic trunkline bus connecting points and several of the principal parks and recreation areas in West Marin County. Schedules on these routes are adapted to the weekend and seasonal characteristics of the recreational travel demand.
- **School Service.** Routes 107, 113, 115, 117, 123, 125, 126, 127, 131, 132, 139, 143, and 153 provide limited service on school days within Marin County.

- **Special Service.** These routes are provided to the general public for certain special events throughout the year, such as the special express service to 49ers games at Candlestick Point. These routes are not part of the permanent schedule and are not included in the transit network.
- **Golden Gate Ferry Service.** Operates ferry services from Larkspur to San Francisco and from Sausalito to San Francisco.

3.2.1.2 Other General Public Transit Services

- **Stagecoach Shuttle.** The Marin County Transit District operates the successful, weekday "Stagecoach" shuttle service in West Marin . The Stagecoach also serves as a partial paratransit service, offering free pickup service to ADA certified passengers who live within ¾ of a mile from the Stagecoach route.
- **County Shuttle.** Operated by Marin County Division of Health and Human Services (HSS). Provides service from San Rafael Transit Center to the county social services building.
- **Sonoma County Transit.** Operates one commuter route (one outbound A.M bus and one inbound P.M. bus) from the Sonoma Valley to San Francisco.
- **Greyhound.** Runs interregional service routes down the 101 corridor. This includes 3 routes daily departing from the San Rafael Transit center to downtown San Francisco.
- Other general public shuttle transit services operating are the "EZ Rider" in Novato and the "Sally" in Sausalito.

3.2.2 Specialized Transit Services

3.2.2.1 Whistlestop Wheels

The Marin County Transit District contracts with the Marin Senior Coordinating Council to provide a local paratransit service known as "Whistlestop Wheels." Service is provided within the county seven days a week. About 85,000 patrons use the service annually.

Inter-county paratransit service is provided seven days a week, under an agreement with Golden Gate Transit and Marin County Transit District. The inter-county service area includes Sonoma, San Francisco, and Contra Costa counties in addition to Marin County.

Services are available from 6 A.M. to 1 A.M., seven days a week. Approximately 40 lift-equipped vehicles are used to provide service, which is a door-to-door ridesharing program.

3.2.2.2 Other Specialized Providers

There are a number of other agencies that provide specialized transportation in Marin County. The vast majority of these services is provided as access to specific programs and is not used for general-purpose trips. These latter services are operated primarily by non-profit and volunteer organizations, and their eligibility criteria, cost, and availability vary widely.

3.2.3 Private Transportation Operators

3.2.3.1 Marin Airporter

Marin Airporter is the largest private provider of transit services in Marin County. Their service area includes Novato, Ignacio, Larkspur, Mill Valley and Sausalito. Airport service to San Francisco International Airport is provided on a fixed schedule every 1/2 hour from 4:30 A.M. until 11:00 P.M. every day. In addition to the airport service, Marin Airporter manages a charter operation.

3.2.3.2 Blue and Gold Fleet

Blue and Gold Fleet provides ferry services between Tiburon and the San Francisco Ferry Terminal and also between Sausalito and Fisherman's Wharf.

3.3 Performance Measures

The eight performance measures described below allow TAM to measure the transportation system performance in Marin County.

3.3.1 Roadway Level of Service

This performance measure provides an overview of the operating level of the roadway system in Marin County. It is described in detail in Chapter 2.

3.3.2 Aggregate Peak Hour Travel Time

This performance measure will determine the amount of time required to travel through selected corridors on a variety of modes. Because single-occupant, high-occupant, and transit vehicles travel at different speeds, aggregate travel time between two points for all modes effectively describes the systems performance. To determine peak-hour travel times by single-occupant and high-occupant vehicles, travel time runs would be required for two given days at the peak hour in the peak direction. Transit schedules were used to determine travel times via buses. In Marin County, aggregate travel times were developed for four segments:

1. U.S. 101 between the Sonoma County line and San Rafael Transit Center
2. U.S. 101 between San Rafael Transit Center and the Golden Gate Bridge
3. Sir Francis Drake Boulevard between Butterfield Road and U.S. 101
4. Red Hill Avenue, Second and Third streets between Sir Francis Drake Boulevard and San Rafael Transit Center

3.3.3 Person Throughput

This performance measure identifies the number of people, not vehicles, who are able to move over a given facility in the peak period. As a combination of vehicle occupancy and level of service, this measure allows for recognition that transit service and HOV lanes can benefit corridor capacity. Roadways were defined in terms of vehicles per hour, and HOV lanes would be assumed to carry more persons per lane than a mixed-flow lane. Finally, buses would be defined as additional roadway capacity. This measure can be estimated for future years by analyzing Marin Travel Model outputs.

Existing conditions for this measure can be obtained through a monitoring process. Monitoring of this measure would require that the number of riders and the seats on buses in a peak hour in each direction be defined. It would require observing travel volumes, as well as the average vehicle occupancy on a given mixed-flow or HOV lane. These locations are on CMP facilities that are representative congestion points, including:

- U.S. 101 between Interstate 580 and Central San Rafael
- U.S. 101 between Paradise Drive and the Tiburon Boulevard
- U.S. 101 north of Atherton Avenue
- Sir Francis Drake Boulevard west of U.S. 101
- Sir Francis Drake Boulevard north of Red Hill Avenue
- Red Hill Avenue east of Sir Francis Drake Boulevard

3.3.4 Vehicle Miles of Congested Highway

This performance measure, derived from the Marin Travel Model, measures vehicle miles traveled on congested segments of the freeway system in Marin County. Congested segments are highway segments at LOS E or worse (volume-to-capacity ratio greater than one). This measure provides an understanding of the relative extent of congestion on the freeway portion of the CMP roadway system.

3.3.5 Jobs/Housing (Employed Residents) Balance

This performance measure considers the balance between projected employed residents and projected jobs within different planning areas of the county. Achieving a balance between jobs and housing within a community or area can help the regional transportation system by reducing the length of trips and traffic congestion. This measure is discussed in more detail in Chapter 4.

3.3.6 Transit Headway

This performance measure presents the time intervals, or headways, between transit vehicles. Proper headways ensure that individual routes operate at frequencies that are appropriate to the type of service they provide and adequately address both existing and potential ridership demand.

3.3.6.1 Golden Gate Bus Service

Golden Gate Transit Bus Service was reduced significantly between March and December of 2003. Since Decemebr 2003, the amount of routes in service has remained roughly constant, though some headways have been reduced. Table 3 details the service alterations between December 2003 and As of March 2005. Detailed information on current schedules may be viewed on the Golden Gate Bridge, Highway & Transportation District website at http://www.goldengate.org.

The response to budget cuts since 2003 has also included organizational downsizing (reducing the size of the organization by 20%) and several fare increases. The most current fare increase is a 5% fare increase effective July 1, 2005. This increase is expected to generate about $600,000 in added annual revenue to assist in meeting the agency's operating expenses for fiscal year 2006 and beyond.

Table 3 – Golden Gate Transit Bus Service Changes Since 2003

After December 2003			As of March 2005			
Route	Route Type Description	Approx Minimum Headway	Route	Route Type Description	Approx Minimum Headway	Change
1	Cancelled (See Routes 29, 55, 57 & 59)		1	Remain Cancelled		No
2	Commute: Headlands to San Francisco	26 Min.	2	Commute: Headlands to San Francisco	21 Min.	Yes
3	Commute: Sausalito Ferry to Tamalpais Valley		3	Cancelled		Yes
4	Commute: Mill Valley to San Francisco	10 Min.	4	Commute: Mill Valley to San Francisco	10 Min.	No
5	Cancelled (See Route 10)		5	Remain Cancelled		No
8	Commute: Tiburon to San Francisco	34 Min.	8	Commute: Tiburon to San Francisco	36 Min.	No
9	Commute: Tiburon Ferry to Strawberry	50 Min.	9	Commute: Tiburon Ferry to Strawberry	50 Min.	No
10	Basic: Sausalito to Tiburon	60 Min.	10	Basic: Sausalito to Tiburon	60 Min.	No
11	Cancelled (See Route 9)		11	Remain Cancelled		No
13	Cancelled (See Route 10)		13	Remain Cancelled		No
15	Local: Strawberry to San Francisco	60 Min.	15	Local: Marin to Tiburon	55 Min	Yes
117	East Corte Madera to Neil Cummins School: to Hall Middle School	11 Min.	117	East Corte Madera to Neil Cummins School: to Hall Middle School	11 Min.	No
18	Commute: College of Marin to San Francisco	20 Min.	18	Commute: College of Marin to San Francisco	20 Min.	No
19	Cancelled (See Route 29)		19	Remain Cancelled		No
20	Cancelled (See Routes 22, 23, 35, 70, & 80		20	Remain Cancelled		No
21	Basic: Marin Gen Hospital to Strawberry	60 Min.	21	Local: Marin Gen Hospital to Strawberry	60 Min.	Yes
22	Basic: San Anselmo to Sausalito	60 Min.	22	Basic: San Anselmo to Sausalito	60 Min.	Yes
23	Basic: Fairfax to San Rafael	30 Min.	23	Local: Fairfax to San Rafael		Yes
24	Commute: Fairfax to San Francisco	5 Min.	24	Commute: Fairfax to San Francisco	5 Min	No
25	Cancelled (See Routes 26 & 27		25	Remain Cancelled		No
26	Commute: Sleepy Hollow to San Francisco	14 Min.	26	Commute: Sleepy Hollow to San Francisco	14 Min	No
127	Sleepy Hollow to White School	10 Min.	127	Sleepy Hollow to White School	10 Min.	No
28	Cancelled (See Route 36)		28	Remain Cancelled		No
29	Basic: San Rafael to San Anselmo	30 Min.	29	Local: San Rafael to San Anselmo	30 Min.	Yes
30	Cancelled		30	Remain Cancelled		No
31	Cancelled		31	Remain Cancelled		No
32	Commute: Peacock Gap to San Rafael	24 Min.	32	Commute: Peacock Gap to San Rafael	24 Min	No
33	Basic: San Venetia to San Rafael	60 Min.	33	Local: San Venetia to San Rafael	15 Min.	Yes
34	Commute: San Venetia to San Rafael	27 Min.	34	Commute: San Venetia to San Rafael	30 Min.	Yes
35/36	Basic: East San Rafael to San Rafael to Marin City	15 Min.	35/36	Local: East San Rafael to San Rafael to Marin City	15 Min.	Yes
37	Canceled (See Route 29)		37	Remain Cancelled		No
38	Commute: Terra Linda to San Francisco	25 Min.	38	Commute: Terra Linda to San Francisco	25 Min.	Yes
139	School: Lucas Valley to Terra Linda High	20 Min.	139	School: Lucas Valley to Terra Linda High	20 Min.	No
40/42	Basic: San Rafael to Del Norte BART	23 Min.	40/42	Basic: San Rafael to Del Norte BART	23 Min.	No
41	Cancelled		41	Remain Cancelled		No
107	St. Hilary's School: to Tamalpais High to Marin City	19 Min.	107	St. Hilary's School: to Tamalpais High to Marin City	19 Min.	No
44	Commute: Lucas Valley to San Francisco	25 Min.	44	Commute: Lucas Valley to San Francisco	25 Min.	No
113/115	Paradise Cay/ Tiburon to Redwood High	20 Min.	113/115	Paradise Cay/ Tiburon to Redwood High	20 Min.	No
48	Cancelled		48	Remain Cancelled		No
50	Cancelled (See Routes 10, 29, 53, 57, 59, 70, & 80		50	Remain Cancelled		No
51	Cancelled (See Routes 54 & 58)		51	Remain Cancelled		No
53	Basic: San Marin to Novato	60 Min.	53	Local: San Marin to Novato	60 Min.	Yes
54	Commute: San Marin to San Francisco	13 Min.	54	Commute: San Marin to San Francisco	15 Min.	No
55	Local: Ignacio to Novato	60 Min.	55	Local: Ignacio to Novato	60 Min.	No
56	Commute: Novato to San Francisco	15 Min.	56	Commute: Novato to San Francisco	20 Min.	Yes
57/59	Local: Novato to San Rafael	17 Min.	57/59	Local: Novato to San Rafael	17 Min.	No
60	Commute: San Rafael to San Francisco	30 Min.	60	Commute: San Rafael to San Francisco	30 Min.	No
63	Local: Marin City to Stinson Weekends	123 Min.	63	Local: Marin City to Stinson Weekends	123 Min	No
70	Basic: Novato to San Francisco	30 Min.	70	Cancelled: see route 80		Yes
71	Cancelled: See route 80		71	Remain Cancelled: See route 80		No
72	Commute: Santa Rosa to San Francisco	5 Min.	72	Commute: Santa Rosa to San Francisco	15 Min.	Yes
73	Commute: Santa Rosa to San Francisco	29 Min.	73	Commute: Santa Rosa to San Francisco	30 Min.	No
74	Commute: Santa Rosa to San Francisco	21 Min.	74	Commute: Santa Rosa to San Francisco	21 Min.	No
75	Commute: Santa Rosa to East San Rafael	23 Min.	75	Commute: Santa Rosa to East San Rafael	23 Min.	No
76	Commute: East Petaluma to San Francisco	5 Min.	76	Commute: East Petaluma to San Francisco	5 Min.	No
78	Cancelled		78	Remain Cancelled		No
80	Basic: Santa Rosa to San Francisco	29 Min.	80	Basic: Santa Rosa to San Francisco	30 Min.	No
90	Cancelled		90	Remain Cancelled		No
93	Commute: GG toll plaza to Mission St.	25 Min.	93	Commute: GG toll plaza to SF Civic Center	20 Min.	Yes
97	Commute: Larkspur Ferry to San Rafael	1 run	97	Commute: Larkspur Ferry to San Rafael	1 Run	No
126	School: San Rafael to Brookside Schools	9 Min.	126	School: San Rafael to Brookside Schools	9 Min	No
132	Peacock Gap to San Rafael High	1 Run	132	Peacock Gap to San Rafael High	1 Run	No
143	School: Sausalito to Tamalpais High	60 Min.	143	School: Sausalito to Tamalpais High	60 Min.	No
153	Did not exist		153	School: Novato to San Marin High School	2 Runs	Yes

3.3.6.2 Golden Gate Transit Ferry Service

Golden Gate Transit operates ferry services from two ports in Marin County:

- Larkspur to San Francisco (30 minute peak headways)
- Sausalito to San Francisco (80 minute peak headways)

3.3.6.3 Blue and Gold Ferry Service

Blue and Gold Ferry operates from two ports in Marin County:

- Tiburon to San Francisco (60 minute peak headways)
- Sausalito to San Francisco (120 minute peak headways)

3.3.7 Transit Coordination

This performance measure considers the extent to which transit service is integrated between service types and modes and with other transit services within the county or in adjacent counties. The coordination of regional transit services enhances seamless regional transit travel. Transit schedule coordination can be measured at key transfer facilities between local and regional services.

3.3.8 Pedestrian and Bicycle Investment

The purpose of this measure is to ensure that pedestrian and bicycle travel is being accommodated in new transportation improvement projects. Because the Capital Improvement Program is a component of the CMP and pedestrian and bicycle improvements contribute to improved transportation system options, a separate measurement of pedestrian and bicycle improvement is recommended. This measure will reflect the extent that pedestrian and bicycle facilities are included in the design of all transportation projects, as appropriate, in the CMP's Capital Improvement Program.

CHAPTER 4 – TRAVEL DEMAND MANAGEMENT ELEMENT

4.1 Purpose and Intent of Legislation

California Government Code section 65089(b)(3) requires that a Travel Demand Management (TDM) element be a part of every CMP. Assembly Bill 2419, which became effective on January 1, 1997, eliminated the requirement for a "trip reduction" component to this element, leaving only the "travel demand" component. According to the revised CMP legislation, the TDM element should promote:

- Alternatives to the single-occupant automobile, e.g., carpools, vanpools, transit, and bicycles
- Increased use of park-and-ride lots
- Improvements in the balance between jobs and housing
- Other strategies for reducing vehicle trips, including flexible work hours, telecommuting, and parking management programs

The agency must also consider parking cash-out programs during the development and update of the travel-demand element.

The responsibility for planning future land-use and zoning patterns and for reviewing proposed development plans rests with local government. Both the long-range planning and development-review phases of local planning offer opportunities for local governments to ensure that TDM measures are implemented. Although not required, local governments may choose to support (by resolution or other means) regional TDM measures, such as carpool lanes and ridesharing facilities that would be implemented by other agencies (e.g., Caltrans).

Transportation Demand Management (TDM) focuses on reducing the number of vehicles on highways during peak periods through ridesharing, increased use of transit, and flexible work hours. Such measures can be integrated into the land-use planning process by providing incentives to developers, such as reduced parking requirements or reduced development impact fees when certain trip-reduction techniques are implemented. TDM is an approach to solving transportation problems by improving the efficiency of the existing transportation system by better managing the demand for transportation facilities. TDM views existing streets and highways, railways, parking facilities, bike and pedestrian facilities, and public and private vehicles as elements of a single transportation system. TDM attempts to organize these elements through operating, regulatory, and pricing policies into an efficient, productive, and integrated transportation system.

Peak-period traffic in Marin County is getting worse. The roads in the county, many of which were designed when the Bay Area's population was much lower, do not have the capacity to carry the demands placed upon them by motorists. Along with adding highway capacity and improving local transit service in response to this growing traffic, it is also important to improve the operating efficiency of the existing transportation system through TDM measures. The TDM element of the CMP has several goals including a coordinated countywide TDM program and the establishment of an on-going process that promotes local and regional planning to reduce traffic congestion.

4.2 Travel Demand Management in Marin County

The intent of this element is to give the widest possible range of choices to the County and its eleven cities in implementing the overall goal of reduced peak-hour usage of single-occupant vehicles. The TDM measures proposed fall into four broad categories:

- Traffic operation improvements that improve traffic flow. These improvements could come through such diverse sources as increased ridesharing or minor modifications to the highway system.
- Transit improvements that attract more riders to transit systems.
- Traffic mitigation measures that are intended to reduce the amount of traffic generated by a development or planning area and are applied through employers or developers.
- Land-use planning and regulation that seek to limit the demand for transportation or to mandate the implementation of traffic mitigation techniques through the land-use planning or approval processes.

These classifications overlap to some extent. For example, development permit approval may require traffic mitigation measures, and traffic mitigation may include greater use of public transit. The classification system focuses primarily on the entity responsible for implementation. Implementation responsibilities are shown in Table 4 below. In general, traffic operational improvements are implemented by state and local highway departments; transit improvements are the province of transit operators; traffic mitigation measures are implemented by employers or developers; and planning and regulatory techniques fall under the jurisdiction of local planning agencies. Effective traffic mitigation requires coordinated and systematic action by both the public and the private sectors.

Table 4 – Responsible Entities for Implementing Measures

Responsible Entity	Traffic Operational Improvements	Transit Improvements	Traffic Mitigation Measures	Land-Use Planning and Regulation
Cities	◆	◆	◆	◆
County	◆	◆	◆	◆
Caltrans	◆		◆	
Transit Operators		◆		
Private Sector		◆	◆	

Source: Marin County, 2003 Congestion Management Program

4.3 Consistency with Pertinent Air Quality Plans, as Incorporated in the RTP

The Bay Area's Regional Transportation Plan (RTP) incorporates Transportation Control Measures (TCMs) contained in the federal and state air quality plans to achieve and maintain the respective standards for ozone and carbon monoxide. The statues require that the Capital Improvement Program (CIP) of the CMP conform to transportation-related vehicle emission air quality mitigation measures. CMPs should promote the region's adopted TCMs for the federal and state clean air plans. In particular, TCMs that require local implementation should be identified in the CMP, specifically in the CIP.

The Marin County CMP includes numerous project types and programs that are identified in the TCM plan. Table 5 below lists chapters of the Marin County CMP that address specific TCMs.

Table 5 – Correlation of Bay Area Clean Air Plan State/Federal TCMs with the Marin County CMP

TCM	Description	Where Addressed in Marin County CMP
S1, F9	Support voluntary employer-based trip reduction programs.	Chapter 4, Travel Demand Management Element
S3, F3	Improve area wide transit service.	Chapter 7, Capital Improvement Program
S5	Improve access to ferries.	Chapter 7, Capital Improvement Program
S7	Improve ferry service	Chapter 7, Capital Improvement Program
S8, F4, F20	Construct carpool/express bus lanes on freeways.	Chapter 7, Capital Improvement Program
S9	Improve bicycle access and facilities.	Chapter 7, Capital Improvement Program
S10	Youth transportation	Chapter 3, Performance Measures Element
S12	Improve arterial traffic management.	Chapter 7, Capital Improvement Program
S13, F21, F22	Transit use incentives	Chapter 3, Performance Measures Element
S14, F5	Improve rideshare/vanpool services and incentives.	Chapter 4, Travel Demand Management Element
S15	Local clean air plans, policies and programs	Chapter 5, Land-Use Analysis Program
S19	Pedestrian travel	Chapter 7, Capital Improvement Program
S20	Promote traffic calming measures.	Chapter 7, Capital Improvement Program
F7, F8	Develop Park-and-Ride lots.	Chapter 7, Capital Improvement Program
F24, F25	Maintain and expand signal timing.	Chapter 7, Capital Improvement Program
Source: Marin County 2003 Congestion Management Plan		

4.4 Support of the Jobs/Housing (Employed Residents) Balance Requirement

There is a growing emphasis throughout the state on encouraging communities to achieve a balance between job and housing growth as a technique to reduce traffic congestion. Ideally, from a transportation perspective, achieving such a balance would allow workers to live close to their job and to other services required on a daily basis. Banks, dry cleaners, and child care/school facilities are all examples of services that could be within walking or biking distance. Reducing travel distance would result in shortening trips, reducing the number of trips required, and allowing residents to use alternatives to motorized vehicles for their transportation needs.

- The jobs/housing (employed residents) balance is frequently measured in terms of simple numerical ratios. Such a simple test does not fully reflect the complexity of the issue:
- Jobs/housing balance must balance worker wage levels with housing affordability. Policies that encourage high-cost housing and low-wage jobs do not result in balanced commuter flows.
- Jobs/housing balance must be viewed at the sub-regional and not just the municipal level. This is most true where cities are contiguous (or nearly so). For example, it would not necessarily be bad for one city to have a surplus of jobs over housing if a neighboring city were to have a surplus of housing over jobs, since these two communities are nearby.
- Even the best efforts to encourage balance may not always be successful.
- Jobs/housing balance must be one of several factors a local government considers in making land-use decisions. Other factors include maintaining a local government's fiscal solvency; providing appropriate densities around transportation corridors; providing affordable housing; and implementing strategies that balance travel demand, reduce congestion, and improve air quality.

One of the guiding objectives in The Marin Countywide Plan was the development of a balanced residential environment including access to jobs, community facilities, and road services. Historically, both population and the number of housing units in Marin grew rapidly before 1970, but since then growth has slowed. While population and housing growth were slowing in the 1970s and 1980s, job growth was accelerating. Since the 1960s, the cost of housing has increased dramatically, the median age of the local population has risen, and family size has decreased. Additionally, different growth rates for jobs and housing have caused a jobs/housing imbalance that contributes to increasingly severe traffic congestion along the U.S. 101 corridor (the main link between Marin County and counties to the north where housing costs are lower).

To reduce this imbalance, Marin County developed housing-related measures to encourage development of affordable housing in Marin County. This affordable housing development is necessary to meet the county's share of the growth in regional housing demand, and to enhance social and economic diversity within Marin County. Actions proposed in *The Marin Countywide Plan* to achieve jobs/housing goals include: encouragement of mixed-use development; provisions of more affordable housing; targeting job development to match the skills of Marin residents; employment training and retraining to meet labor market needs; and encouragement of trends which reduce the need to commute, such as telecommunications and home employment.

CHAPTER 5 – LAND-USE ANALYSIS PROGRAM

5.1 Purpose and Intent of Legislation

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

The Land-Use Analysis Program must include an estimate of the costs to mitigate impacts of development on the highway and transit systems. The legislation allows the cost of mitigating interregional travel (trips that do not begin in Marin County or trips that travel entirely through Marin County) to be excluded from the mitigation cost estimate. Public and private (developer) contributions to regional transportation improvements may be credited.

The law does not change the role of local jurisdictions in making land-use decisions and in determining the responsibilities of project proponents to mitigate those impacts. However, TAM has the authority to withhold the gas tax subventions to local governments provided by Proposition 111 if a local jurisdiction fails to meet the requirements outlined in the Monitoring and Conformance chapter of the CMP (Chapter 8). Further guidance on the Land-Use Analysis Program can be found in the *Congestion Management Resource Handbook* (Caltrans, November 1990, pages 35-37).

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

- The CMP Designated Transportation System and Roadway Level of Service Standards (see Chapters 1 and 2),
- Performance Measures (see Chapter 3),
- The Marin Travel Model, which is capable of analyzing land-use impacts on both highways and transit (see Chapter 6), and
- The Capital Improvement Program (see Chapter 7).

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

The Land-Use Analysis Program in Marin County is a process designed to improve upon decisions about land-use and the spending of funds on highway and transit improvements in the county. The process is intended to work in a positive, cooperative fashion that supports the needs of local, county, regional and state governments.

TAM acts as a resource to local governments in performing transportation analyses of land-use changes on the CMP designated transportation network. The Marin Travel Model is used to analyze local general plan updates and amendments and other major development decisions. The

California Environmental Quality Act (CEQA) provides a framework for such assessment. To avoid duplication, the Land-Use Analysis Program is intended to make maximum use of the CEQA process.

Cities can develop and maintain their own transportation models for use in local forecasting or impact analysis. However, their models should be approved by TAM for consistency with countywide and regional transportation models.

5.2 Land Development Projects Subject to Analysis

MarinMap, a consortium of public agencies, maintains a data table of land use information for parcels for the entirety of Marin County. Each local government is responsible for updating the existing and "build out" land use information of parcels within its jurisdiction. Data from this table is used to provide the inputs to the Marin Transportation Model. In addition, local governments are required to submit land use information for any General Plan amendment or zoning change that would result in an increase of 100 or more evening peak hour trips.

Large projects requiring a city or county general plan update or amendment should, however, be analyzed using the model. This approach is particularly attractive for four principal reasons:

1. General plan updates and amendments are normally processed well before any construction takes place. This provides more time for transportation impacts to be analyzed and mitigation measures developed than would occur if the analysis took place closer to actual project construction.
2. Existing general plans have already been incorporated into the Year 2020 land-uses for the countywide model, as well as for the MTC regional travel model. Thus, any land-development project that conforms to the general plan should not materially alter the forecasted results generated by computer analysis already completed for the CMP. Only *changes* in (or amendments to) existing general plans could cause any significant change in the Year 2020 model forecasts.
3. A city or the county may consider general plan updates or amendments no more than four times during any year according to state law. This reduces the number of possible model runs that would be required.
4. Most (but not all) general plan updates or amendments are for developments of significant size.

5.3 The Land-Use Analysis Program: Analysis Tiering

A two-tiered information and analysis process of local land-use impacts is instituted by the CMP. Under "Tier I," local governments forward information on proposed general plan updates or amendments to TAM during the period when the local jurisdiction is reviewing the application. "Tier II" includes a biannual update of projected land uses for 10 years in the future to be used for modeling both traffic and transit impacts. This two-tiered approach is discussed in more detail below.

5.3.1 Tier I

For Tier I, local governments forward to TAM information on all general plan updates or amendments concurrent with the local governments' approval process. By analyzing general plan updates or amendments rather than specific projects permitted under existing general plans, local governments can proactively plan development by taking into account regional transportation impacts and providing ways to finance transportation costs in advance of development proposals. Every application for a general plan update or amendment or major development proposal that would generate a net increase or decrease of 100 vehicle trips during the P.M. (afternoon) peak hour is to be forwarded to TAM for analysis. The local jurisdiction is responsible for determining which projects meet these criteria. The P.M. peak hour volume is the most appropriate measurement in Marin County because for most roadway segments, traffic levels of service are worse during the P.M. peak hour than in the A.M. peak hour. Examples of projects that typically meet the 100 PM peak hour trip threshold include 100 single-family homes, 150 apartment units, 5,000 square feet of retail space, or 40,000 square feet of office space.

The Marin County Community Development Agency (CDA) has in place an inventory of proposed development projects, known as "PROPDEV." PROPDEV includes all projects with at least five residential units or at least 5,000 square feet of non-residential use. The PROPDEV database file covers 40 items of information including location, project sponsor, acreage, zoning, square feet of building area, and status of development application. Local jurisdictions are still responsible for reporting information to CDA for projects in the PROPDEV inventory, which has a significantly lower threshold for all uses except retail space. Small projects in PROPDEV below the 100-trip threshold do not warrant a run of TAM's transportation model. Only large development proposals requiring general plan updates or amendments create a significant difference in the previously forecasted Year 2030 levels of service, which are based on the land-use assumptions of current general plans. The information on each general plan update or amendment that would generate a net increase or decrease of 100 PM peak hour trips that should be forwarded to TAM includes:

- Precise location of the project(s), mapped, including street access location;
- Project land use(s) and number of dwelling units or square footage of development;
- Any available traffic studies, including trip generation rates assumed in determining whether the general plan update or amendment met the 100 PM peak hour-trip threshold; and
- Expected occupancy of each land-use in Year 2030, with completion date and phasing.[5]

The TAM model run is to be incorporated into the local development review process. The local jurisdiction is responsible for identifying mitigations and costs as part of the Negative Declaration or Environmental Impact Report for the project. The local jurisdiction sends the

[5] General Plans normally focus on build out conditions. Since CMPs focus on a 7-Year CIP and a 7-10 year transportation modeling horizon, it is critical that the timing of development in the general plan update or amendment be addressed.

environmental document to TAM for referral and comment. TAM provides data on the number and percentage of interregional trips on facilities for which mitigations have been recommended.

Following approval of the general plan update or amendment or qualifying major development proposal, the local jurisdiction sends final project information and documentation to TAM so that TAM can conduct "Tier II" of the Land-Use Analysis Program.

5.3.2 Tier II

TAM biannually runs the countywide computer model on the updated land-use and transportation network information provided by the planning departments of each local government in Marin County. This analysis would be based on all general plan updates or amendments received during the past two years, as well as an assessment of the actual amount of development likely to be in place 10 years in the future based on PROPDEV's listing of "Approved" projects. Local governments are also responsible for advising TAM of all changes to the highway network and transit system based on their knowledge of developer mitigations, ordinance approvals, or changes to the circulation element of their general plan.

5.3.3 Tier I and Tier II Compliance

In order to comply with the requirements of Tier I and Tier II of the Land-Use Analysis Program, all jurisdictions in the county need to:

1. Annually (in accordance with the CDA PROPDEV update schedule):

    - Submit a complete account of all residential and commercial projects approved during the preceding year, and
    - Continue to participate in the CDA PROPDEV inventory.

2. During CEQA scoping process, submit information on all general plan updates and amendments and major project proposals involving a net change (increase or decrease) of 100 or more P.M. peak-hour trips, as described in Section 5.3.1.

3. As appropriate:

    - Submit information on all highway network and transit system changes in their jurisdiction that result from: (1) project mitigations, (2) ordinance approvals, or (3) changes to the circulation element of their general plan.
    - Adopt traffic LOS standards that are consistent with or more restrictive than the LOS standards in the CMP.
    - Develop a 7-year Capital Improvement Program designed to meet the adopted LOS standards and support alternate modes of transportation.
    - Participate in TAM's TDM Program (outlined in Chapter 4).
    - Comply with monitoring and conformance requirements as outlined in Chapter 8.

5.3.4 Example of the Process

Entirely hypothetical examples are provided to show how this process would work:

1. Based upon the jurisdictions' land-use data provided to TAM under Tier II and the proposed Capital Improvement Program, a run of the Marin Traffic Model indicates that there would be no further reductions in level of service below the standards adopted in the CMP. In that case, local jurisdictions would be free to make any land-use changes or approvals without TAM analysis, provided that whatever decisions they make are consistent with the information that has been provided to TAM.

2. At some time in the future, a local government decides that it wishes to amend its general plan to include 100 acres of land that had formerly been included in the Tier II land-use information that had been given to TAM. This area had been formerly zoned for agriculture but is proposed under the general plan amendment for single-family homes at six units per acre. These 600 proposed units would generate more than the threshold of 100 net new P.M. peak-hour trips, so the local government planning director, public works director, or traffic engineer forwards all of the general plan amendment application materials to TAM. Because of the size of the project, the local government also decides to hire (or have the applicant hire) a traffic engineer to prepare a detailed, comprehensive study of the proposed general plan amendment.

   Under Tier I review, TAM would make modifications to its land-use database used in the Marin Travel Model. The model would be run, including all highway and transit improvements (not just those on CMP designated facilities) for which funds seem reasonably secure, and also any improvements the applicant is willing to pay for as a condition of development approval. Assume that the model run indicates that some arterial segments of the CMP designated roadway system would operate worse than the LOS D standard as a result of general plan amendment approval.

   TAM would forward this information to the local agency, which would consider the reduction in level of service in making their decision to approve or not to approve the general plan amendment. In developing conditions for project approval, the local jurisdiction would then have the option of:

   - Requiring additional mitigations from the developer, such as TDM measures (e.g., transit service, flex time, etc.), roadway improvements that would improve the LOS to the adopted standard, or other system improvements that would improve air quality as allowed by the CMP legislation.
   - Delaying the project until certain highway or transit projects are constructed.
   - Working closely with TAM on development of a Deficiency Plan if it appears that a CMP system segment will not meet the adopted LOS standard.
   - Choosing not to implement any of the above measures and risk having the LOS not meet the adopted standard on certain roadway segments. In this case, the local

government could risk losing the additional increment of gasoline taxes provided by Proposition 111.

5.4 Relationship of the Land-Use Analysis Program to CEQA

Local governments continue to have lead agency responsibility for performing Environmental Impact Reports and Negative Declarations and conducting transportation analyses as part of these documents. Local government should continue to propose and analyze mitigation strategies. TAM may comment through the CEQA process, keeping local governments informed as to the adequacy of the analysis and approving any transportation models that are used for the analysis. TAM may also provide local governments with information on cumulative impacts.

5.5 Congestion Management Agency Experience with the Process

TAM has reviewed a number of land-use plans and projects since the adoption of the CMP. They include:

- Central Marin Ferry Connection Project (April 2004)
- Cal Park Hill Tunnel and Bicycle/Pedestrian Pathway Study (December 2002)
- St. Vincent's Village Plan (April 2002)
- 2000 Larkspur Landing Circle Project (September 2001)
- Hanna Oaks Center EIR – Rowland Extension Model Run (December 2000)
- Downtown Novato Redevelopment Plan Environmental Impact Report (February 1999)
- Transportation Impacts of the Novato General Plan Revision (March 1996)

CHAPTER 6 – TRAVEL DEMAND MODEL

6.1 Purpose and Intent of Legislation

California Government Code Section 65089(c) requires that every CMA, in consultation with the regional transportation planning agency (MTC), cities, and the county, develop a uniform database on traffic impacts for use in a countywide travel demand model. It also requires that the countywide model be the basis for transportation models used for county sub-areas and cities, and that all models be consistent with the modeling methodology and databases used by the regional transportation planning agency. TAM should also approve sub-county area transportation models, and models used by local jurisdictions for land-use impact analysis, if local jurisdictions decide to perform this work on their own.

The purpose of this requirement is to guide TAMS's decision making process in identifying the most effective balance of transportation programs and projects that maintain LOS standards. This includes the consideration of the benefits of transit service and TDM programs, as well as the need for projects that improve congestion on the CMP designated network. The modeling requirement is also intended to assist local agencies in assessing the impact of new development on the transportation system. TAM will need to consider the nature of the analysis, functions of specific analytic tools, and its available resources when deciding how to fulfill this requirement of the statutes.

6.2 Local Agency Requirements

At this time, there are no specific requirements of local agencies, other than supplying the base-year land-use information that is noted in the land-use analysis chapter (Chapter 5). It is expected that TAM will continue to operate its own countywide model, although cities may also create and use their own model, subject to the legislative requirements above.

TAM staff is continually refining and updating the Marin Travel Model. This includes meeting with MTC regularly to review model consistency procedures and participating in the regional Modeling Coordination Subcommittee of the Bay Area Partnership. This also includes periodically reviewing network and land-use assumptions for base and future years for every model run performed for the Land-Use Analysis Program.

NOTE: Many technical terms are used in this chapter. A glossary of terms has been included in Appendix B.

6.3 Introduction

A distinct and measurable relationship between travel demand, land-use patterns, and transportation systems is the basis for modern transportation planning practice. Transportation models were developed as the best tools available to quantify those relationships. The nature of those relationships is fairly complex, and research on more effective transportation modeling is still evolving.

The implementation of CMP legislation requires that a specific technical requirement be met: consistency with the regional model. This document is intended to explain the current status and development of consistency in Marin County modeling efforts and how the consistency issue corresponds to the other more traditional measure of model reasonableness – validation to actual traffic counts, regional trip patterns, and transit ridership.

6.4 Existing and Past Programs

The history of Bay Area modeling has been dominated by extensive travel behavior studies and model development by the Metropolitan Transportation Commission (MTC), the recognized Metropolitan Planning Organization for the Bay Area. MTC has had the charge and the funding at the federal level to develop models of travel behavior since the early 1970's. Marin County, in development of its own travel demand model, has built upon the information and logic from the MTC model.

The MTC is required to review any sub-regional model for consistency with the MTC model. TAM staff assists with any revisions to the model. The remainder of this chapter contains the MTC checklist and responses for model consistency. Items from the MTC checklist are provided in *Italics* in Section 6.5 below.

MTC's goal is to establish a regionally consistent model "set" for application by MTC and the Bay Area CMAs. The Bay Area Partnership finalized a report on modeling consistency issues recommending that MTC develop and the CMAs incorporate a consistent set of model components on desktop computers (termed BAYCAST). For immediate use for this CMP, the study recommended that the current MTC checklist format be utilized, proposing specific tolerances. This revised MTC checklist incorporates the results of testing those specific tolerances, as well as additional analyses.

On June 1, 2005, the CMA submitted a letter to MTC regarding the MTC Checklist for Modeling Consistency. That letter includes additional information regarding the differences between the MTC model and the Marin Travel Model (MTM) that are not included in this document.

6.5 MTC Checklist for Modeling Consistency

This Checklist guides the Congestion Management Agencies through their model development and consistency review process by providing an inventory of specific products to be developed and submitted to MTC, and by describing standard practices and assumptions to be followed. North Bay counties are not subject to Products 3, 5, 12 and 15, although the assumption used should be described.

Because of the complexity of the topic, the MTC checklist may need additional detailed information to explain differences in methodological approach or data. Significant differences will be resolved between MTC and the CMA, taking advantage of the Modeling Coordination Working Group standard formats for model comparisons that were developed.

6.5.1 Incremental Updates

The Congestion Management Agency forecasts must be updated every two years to be consistent with MTC's forecasts. Alternative approaches to fully rerunning the entire model are available, including incremental approaches through the application of factors to demographic inputs or to trip tables. Similarly, the horizon year must be the same as the TIP horizon year; however, interpolation and extrapolation approaches are acceptable, with appropriate attention to network changes. These alternatives to full re-running of the model should be reviewed with MTC.

6.5.2 Defining the MTC Model Sets

Unless otherwise specified, the MTC model sets referred to below will be defined as those in use on October 1st of the year preceding the CMP update.

6.5.2.1 Approach to Travel Demand Modeling by TAM

Describe the model, and its relationship to the MTC model. If the model is based on MTC's model, describe any adjustments to model constants, coefficients, k-factor or friction factor re-estimation, market segmentation, trip purposes, etc.

TAM has operated and updated its own countywide travel demand model based on the information and logic from the MTC model. For the CMP, the Marin Travel Model (MTM) contains 117 traffic analysis zones (TAZs) within the county, 83 TAZs for San Francisco, 69 TAZs for Sonoma, and 24 TAZs corresponding with the MTC super-district level for other Bay Area counties. This model is prepared using EMME/2 software for the P.M. peak hour, A.M. peak hour, and Average Daily Traffic.

This model is a "focused" model, meaning that the network contains different structures inside and outside of the focus area. The inside or focused counties for the MTM are San Francisco, Marin, and Sonoma Counties. Other Bay Area counties are outside of the focused area. The primary difference is that the more detailed MTC network structure is included in focused areas, while a skeleton roadway network is structured outside of the focused areas. Because the network outside of the focused areas is reduced, the speeds on the skeleton roadway network are fixed (not variable depending on capacity) and are not expected to represent actual traffic volumes on those roadway links.

To ensure regional consistency, the MTM utilizes a technique referred to as "balancing." The balancing is done to guarantee that the trip-end estimates and forecasts are roughly equal between the MTC regional model and the MTM, and guarantees that the trip flows between counties are also equal between the two models.

The MTM mode-choice procedure occurs after the person-trip generation and trip-distribution steps. It includes a detailed mode-choice analysis that divides trips into transit-person trips, 2-person vehicle-person trips, 3+ person vehicle-person trips, or drive alone vehicle-person trips for home-based-work trips. Simpler formulas for vehicle-person trips are used for all other trip purposes, which are home-based shop/other trips, home-based social-recreational trips, home-

based school trips, and non-home-based trips based on the San Francisco Bay Area Travel Survey 2000 – Regional Travel Characteristics Report (August 2004).

6.5.2.2 Demographic/Economic/Land-Use Forecasts

Use exact Association of Bay Area Governments (ABAG) Projections 2003 for other Bay Area counties, and control totals (within one percent) for the county for population, households, jobs, and employed residents. Congestion Management Agencies may reallocate growth forecasts within their own county in consultation with cities, MTC, and ABAG. The latest set of ABAG's Projections must be used for all new demographic databases developed for baseline travel demand forecasting purposes after August 1 of the year preceding the CMP update. Future year forecasts should address the latest available ABAG Projection series. MTC, in consultation with the Modeling Coordination Working Group, will develop factors that may be used to achieve consistency with the most recent ABAG demographics. Congestion Management Agencies may also, of course, analyze alternative land-use scenarios in addition to these forecasts. If a land-use based model is utilized, production and attraction comparisons will be made with the MTC model.

The MTM is based on ABAG *Projections 2003* land-use data. The MTM structure requires that land uses be allocated at a finer detail for Marin, Sonoma, and San Francisco counties than ABAG *Projections 2003* provides. In the disaggregating process, Marin County has recognized some inconsistencies in Marin County land uses by census tract and has made corresponding adjustments. Still, the overall land-use attributes for Marin County as a whole are consistent with ABAG. The difference between the MTM and ABAG *Projections 2003* is less than one percent for all the land-use categories. Land-use data outside of Marin was obtained from ABAG *Projections 2003*, so land-use information from the MTM is identical.

Future-year allocations by census tract provided by ABAG have been similarly refined. For this reason, individual census tracts do not contain land-use attributes identical to ABAG *Projections 2003*, but the overall county total for 2015 and 2030 is consistent with ABAG.

6.5.2.3 Pricing Assumptions

Use MTC's auto operating costs, transit fares, and bridge tolls.

The MTM has made adjustments for these regional pricing assumptions:

- **Bridge Tolls.** The model is run with assumptions from ABAG Projections 2003. This assumes the $5.00 Golden Gate Bridge toll and $3.00 Richmond-San Rafael Bridge toll, adjusted to 1980 dollars.
- **Auto Parking Costs.** Auto parking costs have been kept at the 1980 fixed costs obtained from the 101 Corridor Study. The 101 Corridor Study set parking costs for San Francisco ranging from 50 cent per day to $2.60 per day in 1979 dollars. No other auto parking costs were assumed in the focused area.
- **Auto Operating Costs.** An auto operating cost of 13.12 cents per mile in 1980 dollars is assumed to confirm with the MTC model.

6.5.2.4 Network Assumptions

Use MTC's regional highway and transit network assumptions for other Bay Area counties. Congestion Management Agencies should include more detailed network definition relevant to their own county in addition to the regional highway and transit networks. For the CMP horizon year, to be compared with the TIP interim year, regionally significant network changes in the base case scenario shall be limited to the current Transportation Improvement Program (TIP) for projects subject to inclusion in the TIP.

The MTM was first developed in 1987 and was revalidated for 2000. The MTM uses the MTC model structure facility types and numbers of lanes for Marin County. Some additional detail in the roadway network has been added where appropriate within Marin County.

The MTM includes representations of these major roadway gateways in Marin County:

- Highway 101 – (Golden Gate Bridge) San Francisco
- Interstate 580 – (Richmond/San Rafael Bridge) Contra Costa County
- Highway 37 – Sonoma County
- Highway 101 – Sonoma County
- Highway 1 – Sonoma County

In addition, the ferry connections from Larkspur, Tiburon, and Sausalito to San Francisco are also provided as gateways.

Because this model is a focused model, the East Bay and South Bay highway network are much less detailed than in the MTC model. A skeleton network in these locations significantly reduces run time for the model, as well as enables the model to be of a size small enough to be operated on Marin County computers. The impact of this network reduction is considered negligible to congestion in Marin County.

6.5.2.5 Auto Ownership Assumptions

Use MTC auto-ownership models or forecasts, or submit alternative models to MTC for review and comment.

The MTM utilizes MTC and ABAG's Projection 2003 information on auto ownership for mode split.

6.5.2.6 Trip Generation

Use the BAYCAST person trip generation models for home-based work and non-work, and non-home based trips, or submit alternative models to MTC for review and comment. Results may be adjusted sub-regionally through calibration or modal constant adjustments.

The MTM uses a household size and income quartile cross-classification modeling. The MTM then revises the results using adjustment factors designed to replicate actual MTC trip generation patterns between counties into the model. In this way, aggregate trip generation by county is also consistent with the MTC model. The difference in trip productions or attractions (by type of trip) between the MTM and the MTC model is never greater than 1.0 percent.

6.5.2.7 Trip Distribution

Work trip distribution models must be calibrated to the 1990 Census Journey-to-Work commuter matrices. Trip distribution results must be balanced to productions, and attraction-balancing problems should be discussed with MTC.

The MTM uses the MTC trip distribution patterns between counties. In this way, aggregate trip distribution by county is completely consistent with the MTC model. By utilizing this technique, Marin County has achieved a closer trip distribution match with the MTC model than is normally expected with this focused model structure. For home-base work trips, there is less than a one-percent difference in any of the model years.

6.5.2.8 Mode Choice

If a logit mode choice model is to be used, MTC's BAYCAST should be used, or submit alternative methodology for MTC review.

The MTM mode choice analysis is consistent with MTC methodology. For home-based work trips, the MTM contains a Home-Based Work Mode Choice Model "TOT_TW." It contains a multinomial logit model structure for work trips, using drive alone, 2 person, 3+ person and transit. Non-work trips are assigned to auto and transit with auto occupancies inputted at this stage.

6.5.2.9 Traffic Assignment

Use capacity restraint assignment for peak-hour (or period) traffic assignments, or submit alternative methodology for MTC review.

The MTM provides A.M. peak, P.M. peak, non-peak, Average Daily Traffic, traffic and transit assignments similar to MTC methodology, with the same A.M. and P.M. peak-hour factor assumptions and external trip matrices.

6.6 Relationship to the Capital Improvement Program

The 2025 model run for the MTM includes all relevant projects listed in the State Transportation Improvement Program. These projects are incorporated into the 2015 base network in the MTM.

The MTM will be used for capital improvements programming. The CMP statutes stipulate three criteria for projects selected for the Capital Improvement Program (CIP):

- To maintain or improve the traffic level-of-service and transit performance standards,
- To mitigate land-use impacts, and
- To conform to vehicle emissions air quality mitigation measures.

Toward that end, the model results will be used in ranking projects in the CIP chapter (Chapter 7), in preparing a project list for Regional Transportation Improvement Program consideration, and for development and programming of any supplementary sources of revenue.

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CHAPTER 7 – CAPITAL IMPROVEMENT PROGRAM

7.1 Purpose and Intent of Legislation

California Government Code section 65089(b)(5) requires that a CMP contain a 7-year Capital Improvement Program (CIP) to maintain or improve the performance of the multimodal system for the movement of people and goods and to mitigate regional transportation impacts identified through the Land-Use Analysis Program. Capital improvement projects must conform to transportation-related vehicle emissions and air quality mitigation measures. These transportation control measures (TCMs) are contained in the *Bay Area 2000 Clean Air Plan*.

7.2 Relationship to the Regional Transportation Plan (RTP)

Since the CMP will ultimately be incorporated into the *Regional Transportation Plan* (RTP) Action Elements, projects selected for Marin County's CIP will need to be consistent with the assumptions, goals, policies, actions and projects identified in the RTP. The RTP is the basic statement of transportation policy by MTC. Because of the interdependence of transportation planning and land-use planning, a major effort was made by MTC to adopt policies that complement and support programs of federal, state, and regional agencies.

MTC's most recent RTP is the *Transportation 2030: Mobility for the Next Generation* plan. This plan was completed early in 2005 and was adopted by the Commission on February 23, 2005. This CIP is developed with information from the 2005 RTP.

7.3 Relationship to the Regional Transportation Improvement Program (RTIP)

The CIP is the basis for determining which projects are included in the Regional Transportation Improvement Program (RTIP). Inclusion of a project in the RTIP is the first step in obtaining a funding commitment from the State. Projects that MTC includes in the RTIP are then recommended to the California Transportation Commission (CTC) for inclusion in the State Transportation Improvement Program (STIP). If the CTC includes the project in the STIP, it has approved the project for the necessary environmental studies and project design, which ultimately lead to a final decision on whether or not to build the project. Projects that are to be included in the RTIP must be found consistent with the County's CMP. However, it is important to note that MTC is responsible for assembling the RTIP and that the RTIP is a funding-constrained document. This CIP is developed with information from the 2004 RTIP.

7.4 Relationship to Air Quality Attainment Plans

Marin County's CIP, included as part of the CMP, is closely related to air quality attainment plans. The *Bay Area 2000 Clean Air Plan* is the current adopted plan. A variety of Transportation Control Measures (TCMs) have been adopted as a part of this plan. MTC will give priority to the proposed projects that support or help implement any of the TCMs (see TDM Chapter 4 for more discussion on TCMs). Examples of such projects include high occupancy vehicle (HOV) lanes and ramp meter bypass lanes for HOVs.

7.5 CIP Development: Process and Criteria for Project Priority Ranking

In February 2003, the CMA (predecessor to TAM), the Marin County Board of Supervisors, and the Marin County Transit District jointly produced *Moving Forward: A 25-Year Transportation Vision for Marin County* in February 2003. This document lays out the scope of transportation needs and desires for the County in specific areas, such as bicycle and pedestrian improvements, bus transit improvements, rail transit implementation, TDM expansion, regional highway improvements, and local street rehabilitation and maintenance. This document also addressed funding shortfalls and ways in which the County can pursue other funding sources.

Given the situation with the State Highway Account, the California Transportation Commission (CTC) has implemented allocation criteria for the State Transportation Improvement Program (STIP) that focus its funds on major corridor improvements. Recognizing that the CTC will likely continue to use allocation criteria to select which projects to fund, TAM's priorities for the 2006 STIP are U.S. 101 corridor and interchange capacity increasing projects.

Mainline U.S. 101 projects could also be eligible for other funds, such as the Interregional Transportation Improvement Program (ITIP) or federal discretionary funds.

Projects on Marin County's arterial roadway system, e.g., Sir Francis Drake Boulevard, will also continue to be a priority for scarce transportation funds. These projects are eligible for federal and state transportation funding programs and could also be eligible for funds from new local tax mechanisms

TAM proposes to continue the same method of project prioritization that is familiar to and accepted by supervisors, council members, public works directors, planning directors, and the general public. In general, funds are to be programmed proportionately based on unmet modal needs, geographic equity, and cost effectiveness. More specifically, overall, transportation projects are likely to be guided by these integration principles:

- Consider all modes in a corridor simultaneously.
- Focus on "seamless" connectivity between modes to maximize utility of all improvements.
- Focus on connectivity between modes and eliminating unnecessary duplication.
- Take advantage of the initial investment in a publicly controlled right-of-way by committing to a high-capacity transit project that maximizes use of the corridor by adding a multi-use pathway, where feasible.
- Consider opportunities for phasing to get results as early as possible.
- Consider contingency for projects unable to complete environmental clearance.
- Prioritize local transportation solutions (school bus, bicycle and pedestrian projects, bus transit, rail, and ferry) that bring people from neighborhoods in Marin County to destinations in Marin County.
- Provide for comprehensive TDM programs focused towards Marin County employers to encourage carpools and other higher occupancy vehicle commuting.

- Build on the county-wide Safe Routes to Schools program bicycles, pedestrian programs and school busing that will encourage parents to stop driving their children to school.

For the CMP roadway network, a subset of projects also requires programming and funding. The procedure for identifying specific highway and arterial projects will consider:

- Improvements that reduce traffic congestion to acceptable levels for the most vehicles,
- Improvements that are the most cost effective,
- Improvements on facilities with higher existing traffic volumes,
- Improvements on facilities that are operating poorly based on existing traffic (not projected growth), and
- Improvements that are lower cost.

Two other considerations when identifying potential projects for purposes of this CIP are:

- **Operational characteristics.** If the project would result in shifting a capacity problem to another location, the effects of the downstream bottleneck are considered when setting priority for the project that ranks highest for cost effectiveness
- **Current deficiencies.** Projects that would eliminate existing deficiencies are prioritized above those that would eliminate future problems.

The lists of projects that result from this evaluation are shown in Tables 6 through 8 on the following pages. Table 6 lists those Marin County projects in the 2004 State Highway Operation and Protection Plan (SHOPP). Table 7 lists the 2005 CIP projects. Table 8 summarizes the un-prioritized Marin County projects that are candidates for future funding. Pedestrian and bicycle projects included in locally adopted pedestrian and bicycle plans are incorporated into the CMP by reference and are not listed separately in these tables. (See Appendix D for a list of adopted Marin pedestrian and bicycle master plans.)

Table 6 – 2004 State Highway Operational and Protection Plan (SHOPP) Projects in Marin County

Element	Responsible Agency	Project Location	Description	Fiscal Year
Safety Improvement	Caltrans	Near Mill valley-southbound off ramp to East Blithdale	Widen Ramp for additional lane	2006
Safety Improvement	Caltrans	various locations	Upgrade Traffic Barrier and Guard rail end terminals	2005
Roadway Preservation	Caltrans	South of Lucky Dr to N. San Pedro Road	Resurface Pavement	2005, 2007
Roadside Preservation	Caltrans	South of Spenser Ave to South of Lucky Dr.	Highway Planting Restoration	2005
Mobility	Caltrans	Near Novato and Vallejo - various locations	Install Traffic Operation systems	2005

Table 7
Draft CIP 2005

Sponsor	Mode	Project Name/Description	Estimated Cost	External Funding
Caltrans	State Hwy	Widen SB Off-Ramp to East Blithedale for additional lane	2,274,000	SHOPP
Caltrans	State Hwy	Upgrade Various Traffic Barrier & Guard rail end terminals	3,973,000	SHOPP
Caltrans	State Hwy	Resurface Pavement S. of Lucky Drive to N. San Pedro Rd.	5,150,000	SHOPP
Caltrans	State Hwy	Highway Planting Restoration S. of Spenser to Lucky Dr.	1,951,000	SHOPP
Caltrans	State Hwy	Install Traffic Operation systems- Var. locations near Novato	1,947,000	SHOPP
Caltrans	State Hwy	Wildlife crossing at Giacomini Gulch on Rt 1	775,000	ITIP
Caltrans	State Hwy	GG Botanical Mang. Area - 101 to Rodeo	300,000	ITIP
Caltrans	State Hwy	SR 101 HOV Lanes - Marin/Sonoma Narrows (ENV & PS&E)[1]	45,100,000	TCRP, STIP, DEMO
Corte Madera	Local Roads	Lucky Drive Fifer Ave Pavement Rehab	107,000	STP
Corte Madera	Local Roads	Madera Boulevard Rehabilitation	3,629	
Fairfax	Local Rds	Center Boulevard Rehabilitation	528,000	STP
Fairfax	Local Rds	Sir Francis Drake Boulevard Rehabilitation	118,000	STP
FHWA	Local Rds	Point Reyes Lighthouse Transportation Improvements	1,876,000	FLHP
FHWA	Local Rds	West Bunker & Mitchell Rd Rehab	6,502,313	FLHP
FHWA	Local Rds	Chimney Rock Lighthouse Rehabilitation	6,054,789	FLHP
FHWA	Local Rds	Stinson Beach Access Road Rehab	2,803,000	Other Fed
GGBHTD	Transit	Acquire 82 Bus Catalyst Devices	3,341,200	FTA
GGBHTD	Transit	Fleet Preventive Maintenance Program	10,520,000	FTA, STP

[1] Total forecasted cost for the Marin/Sonoma Narrows project is $450 M. Shared between Sonoma, Marin and the State.

Sponsor	Mode	Project Name/Description	Estimated Cost	External Funding
GGBHTD	Transit	Bus Radio Communications Sys Replacement	9,409,101	FTA
GGBHTD	Toll Bridge	Physical Suicide Deterrent System	2,000,000	FTA/STP
GGBHTD	Transit	Fixed Guideway Connectors	5,864,630	FTA
GGBHTD	Transit	Ferry Major Components Rehabilitation	3,621,583	FTA, STP
GGBHTD	Transit	Ferry Vessel	12,501,000	FTA
GGBHTD	Transit	Ferry channel & berth dredging	7,735,656	FTA
GGBHTD	Toll Bridge	Golden Gate Seismic Retrofit, Ph: 1-3A	352,713,075	TCRP, DEMO
GGBHTD	Transit	Replace (6) 1997 Paratransit Vans	440,000	FTA
GGBHTD	Transit	Replace (8) Paratransit Vans	603,000	FTA
GGBHTD	Toll Bridge	Golden Gate Seismic Retrofit, Phase 3B	137,500,000	HBRR
GGBHTD	Transit	Golden Gate Reg Transfer & Toll Plaza/ Merchant Rd	435,000	Other Fed
GGBHTD	Transit	4 Replacement Express Buses	1,600,000	RM2
GGBHTD	Toll Bridge	GG Bridge moveable median Barrier	23,800,000	FTA, Toll Bridge
Larkspur	Bike Ped	East Sir Francis Drake Bicycle/Pedestrian Multi Use Wooden Bridge Rehabilitation	97,500	Other Fed
Marin Co	Transit	Marin Parklands Visitor Access Improvements	7,647,483	FTA, STP, CMAQ
Marin Co.	Transit	Bus Stop Improvements	128,500	Other Fed
Marin Co	Local Rds	Sir Francis Drake Blvd. Laurel / Elm Rehabilitation	1,165,000	STP
Marin Co / BCPUD	Bike/Ped	Olema Bolinas Bike Path[2]	40,000	TFCA
TAM	State Hwy	Greenbrae Interchange Improvement	48,948,000	RM2, TEA
MCTD	Transit	Local Marin Bus service enhancements	6,965,000	FTA

[2] Project was not included in the Marin County Bicycle/Pedestrian Plan. The BAAQMD required that the project be added to the CMP to be eligible for TFCA funds.

Sponsor	Mode	Project Name/Description	Estimated Cost	External Funding
Mill Valley	Local Rds	Guardrails HES	132,700	HES
Novato	Local Rds	Redwood Blvd Rehab between Lamont Ave & Olive Ave	707,000	STP
Novato	Local Rds	Grant Avenue Rehabilitation	4,500,000	HBRR
Novato	Local Rds	Ignacio Boulevard Rehabilitation	627,000	STP
Ross	Local Rds	Lagunitas Bridge Replacement	1,992,000	HES
San Anselmo	Local Rds	Sir Francis Drake Boulevard Rehabilitation	194,000	STP
San Rafael	Local Rds	ESR Phase III FBE widening (Scotland Yard)	1,742,000	
San Rafael	Local Rds	Lincoln/Linden Lanes Traffic Signal Improvements	200,000	
San Rafael	Local Rds	Medway/Canal Enhancements	1,150,000	CMAQ, TEA
San Rafael	Local Rds	Fourth Street Rehabilitation (West End)	1,076,171	STP
San Rafael	Local Rds	Street Resurfacing 05-06 (Slurry/Cape Seal)	50,000	
San Rafael	Local Rds	Third/Union Intersection Improvements	900,000	
San Rafael	Local Rds	Nova Albion & Las Gallinas Signal & Int. Imps.	330,000	
San Rafael	Local Rds	Northgate Dr. & Los Ranchitos Signal & Int. Imps.	190,000	
San Rafael	Local Rds	Traffic Controller Replacement Project 03-04	60,000	
San Rafael	Local Rds	Fourth Street Rehabilitation	779,000	
Sausalito	Local Rds	Spencer Avenue Rehabilitation	125,000	STP
TAM	State Hwy	Sir Francis Drake Blvd Widening	429,000	RM2
TAM	Local Roads	Central Marin Ferry Access Improvements	8,531,000	RM2
Tiburon	Local Roads	Mar West Street Rehabilitation	450,000	STP

Table 8 – Un-prioritized Marin County Projects: Candidates for Future Funding*

Jurisdiction	Local Road	Highway
Belvedere	• Peninsula Rd	
Corte Madera		• Greenbrae interchange
Fairfax	• Cascade Rd stabilization (near #570) • Center Blvd Redesign Phase I &II • Fairfax Creek Restoration • Measure K Street and Storm Drain Rehabilitation • Pavement Repairs on Broadway • Scenic Dr Retaining Wall (near #185) • Sir Francis Drake Blvd Pavement Repairs • Tree Maintenance Program	
Larkspur	• Sir Francis Drake Trestle clean up restriping	• Greenbrae interchange
Marin Co	• Lucas Valley Rd (2002 storm damage) • Marin Ave at Flamingo Drainage Study • Marin City Bus Stop Repair • Muir Wood Rd slide repair • Park Street Culvert Restoration Project • Paradise Dr at Taylor • Paradise Dr Drainage Impr. MP5.38 & 5.49 • Paradise Dr Retaining wall MP6.57 • Portola Ave Retaining wall Repair • Pt Reyes Petaluma Debris removal • San Francisco Ave Drainage Improvements • Seminary at Ricardo Drainage Study • SFD rehabilitation through Samuel Taylor Park • SFD Bank stabilization MP25.29-28.87 • Van Winkle 60” Culvert replacement • Woodacre Triangle Drainage Study • #346 Laverne Ave Retaining Wall	• Greenbrae interchange • Marin Sonoma Narrows • Tiburon Interchange

Jurisdiction	Local Road	Highway
	• Tiburon Blvd at Cal Park slide stabilization	
Mill Valley	• HES Guardrails various locations • Thermo plastic for arterials	
Novato	Measure B Bond Pavement Rehabilitation Group 4 (25 residential streets) • Alameda Del Prado Improvements and Pavement Rehabilitation Group 6 (12 residential streets) • Mill Road Improvements and Pavement Rehabilitation Group 5 (18 residential streets) • Novato Boulevard Between Diablo Avenue and Grant Avenue • Rowland Boulevard/Rowland Way Capacity Improvements	Improvements to Redwood Boulevard and US 101 Southbound Ramps at San Marin Drive. • US 101 at Atherton Avenue Modify Northbound Ramps
Ross	• Lagunitas Bridge Replacement	
San Rafael		• Lucas Valley / Smith Ranch Interchange
Tiburon	• Trestle Glen rehabilitation	

* As described in Section 7.7, Pedestrian and Bicyle projects in the individual jurisdictions' Bicycle and Pedestrian Master Plans are candidate projects incorporated by reference.

7.6 Transit Projects

TAM continues to support the enhancement of transit facilities through its support of the Golden Gate Bridge, Highway, and Transportation District's and Marin County Transit District's Short-Range Transit Plans. The plans include bus replacement, improvements to the bus facilities, and enhancement to ferry terminals. Funding for these projects has been identified from a variety of sources, including the Federal Transit Administration formula grants, STP/CMAQ funds, and State funds.

TAM also continues to support the development of the Northwestern Pacific rail right-of-way. This right-of-way will enable Marin to use the corridor to provide an alternative transportation route to the congested highway, U.S. 101. Sonoma Marin Area Rail Transit District (SMART), a Sonoma County and Marin County transportation agency, is currently developing a proposal for startup rail service between the Larkspur Ferry Terminal and Cloverdale. Specific technology, station locations, operating plans, and funding recommendations are being studied. This project is included in the Regional Transit Expansion Program adopted by MTC (Resolution No. 3434). The completion of this project is dependent on funding from a local sales tax which is scheduled to be on the ballot in Marin and Sonoma counties in November 2006.

TAM developed a Local Transit Master Plan ("Marin Transit Futures") in 2000. This plan produced estimates of future revenue and operating and capital costs. An update of the plan for Marin is being prepared by Marin County Transit District, as their first Short Range Transit Plan and should be complete by the end of 2005.

7.7 Bicycle and Pedestrian Projects

TAM has a significant commitment to bicycle and pedestrian facilities. In 2003 the CMA (predecessor to TAM) developed a draft Countywide Pedestrian and Bicycle Master Plan to be used by local communities in developing individual plans. Most local communities adopted complementary plans in the last two years. Locally adopted pedestrian and bicycle plans, which are listed in Appendix D, are incorporated into the CMP herein by reference. If independently programmed, funding for these projects has been identified from a variety of sources, including Federal CMAQ funds and State program funds, such as Transportation Enhancement Activities (TEA), Transportation for Livable Communities (TLC), the Bicycle Transportation Account (BTA), and Safe Routes to School (SR2S). These projects may also be integrated into roadway projects, where feasible.

Pedestrian and Bicycle modes will continue to be referenced and incorporated into the Congestion Management Plan (CMP), so all their projects for these modes will continue to be eligible for funds. Additionally on April 28, 2005, TAM allocated $40,000 Transportation Funds for Clean Air (TFCA) funds to the Bolinas CPUD Land Bicycle Path. This project was not included in the Marin County bicycle and pedestrian plan and therefore must be shown in the CIP in the current update.

7.8 Funding Deficiencies

Marin County is facing the continuing challenge of a multi-million dollar deficit in the coming decade. Public acknowledgement of the need to move aggressively to close this deficit became apparent during the 2004 election. At this time, 71% of Marin voters approved the 2004 ballot passing of "Measure A", a measure involving a half-cent sales tax increase to raise money for transportation improvements. Measure A is expected to generate $332 million dollars over the 20-year life of the measure, with this over half of this money dedicated to transit including local bus service, community shuttles, rural buses, clean fuel vehicles, and discount passes to low-income residents.

In addition, the 5% fare increase effective July 1, 2005 will help to address the budget deficit, and help to prevent any further service cutbacks.

The CMP legislation requires that Congestion Management Agencies develop a program that is capable of estimating the cost of mitigating the impact of new development on the CMP designated system.

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CHAPTER 8 – MONITORING, IMPROVEMENT/DEFICIENCY PLANS AND CONFORMANCE

8.1 Purpose and Intent of Legislation

California Government Code sections 65089.3, 65089.4, and 65089.5 govern the conformance process. These sections require that, based on the information obtained through monitoring, the CMA must biannually determine whether or not Marin County and its cities and towns conform to the requirements of the CMP. If a CMA believes that a local government is not conforming to CMP requirements, it must then hold a noticed public hearing to determine areas of nonconformance. If after the public hearing the CMA still believes that the local government is not conforming to CMP requirements, it must provide written notice to the local government citing the specific instances of nonconformance. The local government then has 90 days to remedy the instances of nonconformance. If after 90 days the local government has not remedied the nonconformance instances, the CMA makes a finding of nonconformance and notifies the State Controller to withhold certain gas tax subvention funds.

8.2 Local Government Conformance Requirements

The CMP legislation makes the following requirements of a conformance determination for local jurisdictions:

- Maintaining the highway LOS standards outlined in the CMP (Chapter 2).
- Participating in a program to analyze the impact of land-use decisions, including the estimate of the costs associated with mitigating these impacts. Specific requirements and recommendations are outlined in the Land-Use Analysis Program element of the CMP (Chapter 5).
- Participating in adoption and implementation of a deficiency plan when highway and roadway LOS standards are not maintained on portions of the designated system.

If either Marin County or cities and towns in the county do not meet each of these CMP requirements by December 2005 when the CMA will make its nonconformance determination for each jurisdiction,[6] the jurisdiction that is found in nonconformance may risk losing an increment in their gasoline tax subvention funds and not having projects programmed in the Regional Transportation Improvement Program (RTIP).

[6] "Jurisdiction" refers to the local government that has the greatest segment distance within its boundaries. Designation of a jurisdiction that has primary responsibility for the segment provides clear direction to who is responsible for preparation of deficiency plans.

8.3 Local Government Monitoring Requirements

TAM must take active steps, at least biannually, to ensure that Marin County and each city and town in Marin County conforms to each requirement of the CMP legislation. Monitoring must be done for several reasons:

- Congestion is projected to increase, which will waste valuable time and add to the transportation costs of goods and services.
- Congestion causes energy to be wasted and contributes to a worsening of our air quality.
- Coordinated growth management and transportation planning is essential to minimizing both travel time and costs.

The CMP legislation specifies that jurisdictions that do not demonstrate that they conform to the requirements will lose street and highway subvention money. Many jurisdictions would use this money for maintenance of existing streets and roads so that their transportation infrastructure does not go neglected for many years.

Outlined below is the recommended monitoring that each jurisdiction should undertake to document to TAM that it conforms to CMP requirements.

8.3.1 Maintaining the Highway Level-of-Service Standards

Each city and town is responsible for biannually monitoring the level of service on segments[7] of the CMP designated routes within its jurisdiction.[8] Marin County is responsible for overall CMP roadway network monitoring. Where a segment falls within two or more jurisdictions, the jurisdiction responsible for the segment is the jurisdiction with the greatest segment mileage. The monitoring program occurs during the P.M. peak hour (4:00 P.M. to 6:00 P.M.). Traffic counts should be taken in even numbered years between the start of school in September and a week before Thanksgiving, with any necessary follow-up actions completed between by the end of December. The results, relative to conformance with the adopted LOS standards, are to be reported to TAM at the next available meeting.

The LOS is to be based on the counts consistent with the methods for determining LOS outlined in the highway LOS standards (Chapter 2). In general, local governments are responsible for counts on the non-state maintained, CMP designated facilities, and Caltrans is responsible for counts on the state maintained, CMP designated facilities where either of the following conditions are met:

[7] Roadway segments are defined from interchange to interchange for freeways, and from major intersection to major intersection for non-freeway state highways (e.g., Highway 1) and principal arterials (e.g., Sir Francis Drake Boulevard). These segments, along with the designated "responsible" jurisdiction, are shown in Appendix A.

[8] Annual monitoring is required if a segment is found to operate at LOS D. Conversely, monitoring frequency is reduced to a tri-annual basis if the LOS is A, B or C.

- The "existing" run of the Marin Travel Model shows that there has been a volume-to-capacity (v/c) ratio change that places the facility within 0.05 of the cutoff between what is considered acceptable and what is considered deficient (i.e., if the v/c ratio exceeds 0.85 for principal arterials, as opposed to 0.90, or 0.95 for freeways and rural expressways, as opposed to 1.00). Specific segments meeting these criteria would be determined at least biannually by TAM.
- The jurisdiction has issued occupancy permits for developments that total 100 or more P.M. peak-hour trips. While the completed projects may have an impact on CMP designated facilities in adjacent jurisdictions, the need for counts on segments that extend beyond the jurisdiction's boundaries would be determined by the biannual run of the Marin Travel Model. The model is therefore run every other year, or more often in the case of a development with more than 100 P.M. peak-hour trips.

Transportation improvements or changed economic conditions may result in changes in LOS. If the LOS is determined to be A, B, or C for any year that is monitored, the monitoring frequency would then become every three years, until such time as the segment is found to operate at LOS D or worse. Any segment determined to operate at LOS D should then be monitored every year.

Certain facilities that currently operate at LOS F can be grandfathered and thus would not be subject to monitoring requirements, as provided for in the CMP legislation. These facilities are outlined in the highway LOS standard (Chapter 2). It is recommended that jurisdictions in cooperation with the CMA develop "improvement plans" for these facilities. Improvement plans are envisioned as a description of construction plans, program options, or management techniques that a local jurisdiction intends to advocate for implementation by that jurisdiction or others (e.g., Caltrans for state facilities).

If a segment that has not been grandfathered is determined by TAM to not meet the adopted LOS standards (D for principal arterials; E for freeways), then that jurisdiction must:

- Immediately propose and designate funds for measures that improve the LOS to meet or be better than the adopted LOS standard which TAM would then incorporate into the CIP, or
- Create a "deficiency plan" in accordance with CMP requirements. A deficiency plan requires the local government to:
    1. Analyze the cause of the deficiency **AND** define improvements to the facility that maintain the LOS standard, **OR**
    2. Define improvements that have a measurable improvement on the transportation system's LOS or substantial air quality benefit **AND** determine the cost of the improvements.

Guidelines governing specific issues related to Deficiency Plan preparation are provided as Appendix C of this document.

TAM has grandfathered certain roadway segments currently operating at LOS F according to specified criteria, and recommended preparation of improvement plans for these roadway

segments. This exempts certain freeway and arterial segments from the congestion management requirements where TAM cannot identify viable transportation improvements for improving the operation of the deficient segment to meet the adopted LOS standard.

8.3.2 Maintaining Performance Measures

Performance measures have been required by the CMP legislation. The eight performance measures that are currently analyzed are:

- Roadway Level-of-Service
- Peak-Hour Travel Time
- Person Throughput
- Vehicle Miles Traveled in Congested Conditions
- Job/Housing Balance
- Transit Frequency
- Transit Coordination
- Pedestrian and Bicycle Investment

TAM, in cooperation with Marin County Transit District and Golden Gate Transit, Highway and Transportation District (Golden Gate Transit) staff, will determine biannually whether or not performance measures established in the Performance Element (Chapter 3) have been met. In making this conformance determination, TAM will have a coordination role with neighboring counties, MTC, Golden Gate Transit, Marin County Transit District, and the other transit operators in the county.

8.3.3 Maintaining a Program to Analyze the Impact of Land-Use Decisions

Land-use impact analysis monitoring requirements are detailed in the Land-Use Analysis Program (Chapter 5). Each jurisdiction is to be responsible for preparing and transmitting to CDA land-use data for use in the Marin Travel Model, as well as tracking the build-out of that land-use through issuance of planning and building permits. This requirement ties in with the CDA's existing property development ("PROPDEV") database that local governments are currently using, as well as, their Countywide Land-Use Database. TAM biannually runs the Marin Travel Model for updating future year LOS information in the CMP. Local governments can find this information very useful when updating the land-use and circulation elements of their general plans.

For any general plan update or amendment or major development proposal that would result in a net increase or decrease of 100 or more P.M. peak-hour vehicle trips, local governments are to forward information on the application to TAM and run the Marin Travel Model to obtain transportation impact information related to the application. The jurisdiction is responsible for conducting the model run, which could be performed: (1) by the jurisdiction, (2) by a consultant hired by the jurisdiction, or (3) by TAM staff , only if staff is available to do the work and the jurisdiction requesting the model run reimburses TAM for the cost of the model run. Model results are useful to cities and the County as part of their current review and approval process, especially for purposes of defining the necessary mitigation measures.

APPENDIX A
CMP Designated Facilities

Appendix A
CMP Designated Facilities
Roadway Segments

Table A-1
Facilities Held to LOS D Standard

CMP Route	From:	To:	Jurisdiction
SR I	U.S. 101	Flamingo Road	Marin County
SR I	Flamingo Road	Panoramic Hwy	Marin County
SR I	Panoramic Hwy	Muir Woods Rd	Marin County
SR I	Muir Woods Rd	Panoramic Hwy	Marin County
SR I	Panoramic Hwy	SFD Blvd S	Marin County
SR I	SFD Blvd S	SFD Blvd N	Marin County
SR I	SFD Blvd N	Sonoma Co	Marin County
SR 131	U.S. 101	Redwd Frtg Rd	Marin County
SR 131	Redwd Frntg Rd	Blackfield	Marin County
SR 131	Blackfield Dr	Trestle Glen	Tiburon
SR 131	Trestle Glen	San Rafael Av	Tiburon
SR 131	San Rafael Av	Beach Road	Tiburon
Bel Marin Keys		U.S. 101 SB	Hamilton DrNovato
Bridgeway/ Second Street/ Sausalito Lat	U.S. 101	Glen Street	Sausalito
	Glen Street	Marinship Way	Sausalito
	Marinship Way	Harbor Drive	Sausalito
	Harbor Drive		U.S. 101Sausalito
East SFD Blvd	U.S. 101	Larkspur Ferry	Larkspur
East SFD Blvd	Larkspur Ferry	Lspur Lndg E	Larkspur
East SFD Blvd	Lspur Lndg E	1-580	Marin County
Fourth Street	Ross Valley Dr	Marquard Avenue	San Rafael
Novato Blvd	Sutro/Sn Marin	Grant Avenue	Novato
Novato Blvd	Grant Avenue	Diablo Avenue	Novato
Red Hill Ave	SFD Blvd	Ross Valley Dr	San Anselmo
Rowland Blvd	S Novato Blvd	U.S. 101	Novato
Second Street	Marquard Avenue	Hayes Street	San Rafael
Second Street	Hayes Street	U.S. 101	San Rafael
SFDrake Blvd	SR I	Nicasio Vly Rd	Marin County
SFDrakc Blvd	Nicasio Vly Rd	Olema Road	Marin County
SFDrake Blvd	Olema Road	Butterfield Rd	Fairfax
SFDrake Blvd	Butterfield Rd	Red Hill Ave	San Anselmo
SFDrake Blvd	Red Hill Ave	Bolinas Avenue	San Anselmo
SFDrake Blvd	Bolinas Avenue	College Ave	Ross
SFDrake Blvd	College Ave	Wolfe Grade	Marin County

SFDrakc Blvd	Wolfe Grade	Bon Air Road	Marin County
SFDrake Blvd	Bon Air Road	U.S. 101	Marin
S Novato Blvd	Diablo Ave	Rowland Blvd	Novato
S Novato Blvd	Rowland Blvd	Sunset Parkway	Novato
S Novato Blvd	Sunset Parkway	U.S. 101	Novato
Third Street	Hayes Street	U.S. 101	San Rafael

1 "Jurisdiction" refers to the local government that has the greatest segment distance within its boundaries. Designation of a jurisdiction that has primary responsibility for die segment provides clear direction on who is responsible for preparation of deficiency plans.

Table A-2
Facilities Held to LOS E Standard

CMP Route	From:	To:
1-580	U.S. 101	Bellam Boulevard
1-580	Bellam Boulevard	Sir Francis Drake Blvd, East
1-580	Sir Francis Drake, East	Main Street
1-580	Main Street	Contra Costa County line
U.S. 37	U.S. 101	Atherton Avenue
U.S. 37	Atherton Avenue	Sonoma County line
U. S. 101	Golden Gate Bridge	Sausalito Lateral
U. S. 101	Sausalito Lateral	Spencer Avenue
U. S. 101	Spencer Avenue	Rodeo Avenue
U. S. 101	Rodeo Avenue	Bridgeway
U.S. 101	Bridgeway	SR I
U.S. 101	SR I	Redwood Road
U.S. 101	Redwood Road	Frontage Road
U.S. 101	Frontage Road	SR 131
U. S. 101	SR 131	Tamalpias Drive
U. S. 101	Tamalpias Drive	Madera Boulevard
U. S. 101	Madera Boulevard	Lucky Drive
U. S. 101	Lucky Drive	Sir Francis Drake Blvd
U. S. 101	Sir Francis Drake Blvd	1-580
U. S. 101	1-580	Irwin Street
U. S. 101	Irwin Street	Mission Street
U. S. 101	Mission Street	Lincoln-Villa Streets
U.S. 101	Lincoln-Villa Streets	San Pedro Road
U.S. 101	San Pedro Road	Manuel Freitas Pkwy
U.S. 101	Manuel Freitas Parkway	Lucas Valley Road
U.S. 101	Lucas Valley Road	Miller Creek Road
U. S. 101	Miller Creek Road	Hamilton Field
U. S. 101	Hamilton Field	Ignacio Boulevard
U. S. 101	Ignacio Boulevard	SR 37/S Novato Boulevard
U.S. 101	SR 37/S Novato Blvd	Rowland Boulevard
U.S. 101	Rowland Boulevard	De Long Avenue
U. S. 101	De Long Avenue	Atherton Avenue
U. S. 101	Atherton Avenue	Sonoma County line

APPENDIX B
Glossary of Technical Terms

GLOSSARY OF TECHNICAL TERMS

ACCESS LINK: A LINK used to reach a transit line. In this model, there are two types of access links: walk and auto (park-and-ride)

ALL-OR-NOTHING ASSIGNMENT: The process of allocating trips between each pair of zones to a path or route with the least travel time, ignoring any considerations of congestion.

ASCII FILE: American Standard Code for Information Interchange. A text file, usually containing TRANPLAN control cards and/or data.

ASSIGNMENT: The process by which trips described by mode, origin, destination, and time of day are distributed among the various available paths or routes in a network, according to one of a number of flow distribution rules.

ATTRACTION (TRIP): The non-home end of the trip, which is the reason for the trip being made. Employment centers, stores, entertainment facilities, etc. all generate trip attractions.

AUTO DRIVER TRIPS: The same as VEHICLE TRIPS.

BASE YEAR: A year for which land use, demographic, and other information is assembled as a baseline, against which the entire modelling sequence can be CALIBRATED. In the Sonoma County model, 1984 is the base year.

BATCH FILE: A DOS file containing a sequence of DOS commands. Executing the DOS file (which must have the extension BAT) is the same as executing a series of commands each time the A> prompt is received. It is like a script.

BUILDING (NETWORK): The computerized process of checking the network for errors, and creating a compressed binary representation of the file for further processing.

CALIBRATION: The process of adjusting travel models to simulate some known BASE YEAR **travel.**

CAPACITY RESTRAINT: The process by which the assigned volume on a Ink is compared with the practical capacity of that Ink, and the speed of the link adjusted to reflect the relationship between speed, volume, and capacity. The procedure is iterative until a realistic balance is achieved.

CENTROID: The theoretical center of activity in a ZONE.

CENTROID CONNECTOR: One or more LINKs connected a CENTROID to the transportation network.

CODING (NETWORK): The process of taking maps, logs, and other descriptive data on a transportation network, and converting it to the numerical conventions suitable for processing by a computer.

CORDON LINE: An imaginary line enclosing a study area.

CORDON STATION: See GATEWAY.

DISTRICT: A grouping of contiguous zones that are aggregated to larger areas.

DOS: Disk Operating System. The most widely used operating system on personal microcomputers.

DRIVER TRIPS: Same as VEHICLE TRIPS.

EXTERNAL STATION: See GATEWAY.

EXTERNAL TRIP: A trip with one TRIP END outside the study area (in this case, outside Sonoma County)

EXTERNAL ZONE: A zone lying outside the primary study area. A gateway must be represented by a least one zone, but can be comprised of several zones. To the software, no differentiation is made between internal and external zones in loading, although they are handled differently during the trip distribution phase.

F-FACTOR: Factors representing the effect that various levels of travel time will have on travel between zones.

FRICTION FACTOR: (see F-factor)

GATEWAY: An entry point to the study area (County). The are the points through which all external and through trips must pass at some point.

GRAVITY MODEL: A mathematical model of trip distribution based on the premise that trips produced in any given area will distribute themselves in accordance with the accessibility of other areas, and the opportunities they offer.

HOME-BASED TRIP: A trip with one TRIP END at the traveler's residence, in other words, a trip that starts OR ends at the home of the traveler.

HOME-BASED ATTRACTIONS: Trips made by workers, shoppers, etc. to and from a place of work, shopping, etc., with one end at home. They are non-directional trips credited to the place of work, shop, etc.

HOME-BASED PRODUCTIONS: Trips made by residents of a home to and from other activities, such as work, shopping, etc. They are non-directional trips credited to the home end.

HORIZON YEAR: The future year under study.

HOV: High Occupancy Vehicle, in other words, buses and carpools. The size of carpools are variously defined. The Federal Highway Administration considers a carpool 3 or more persons. As used in this study, carpools (and thus eligibility to use HOV lanes) is assumed to be 2 or more persons.

INTERNAL TRIP: A trip with both TRIP ENDS within a study area (in this case, Sonoma County)

INTRAZONAL TRIP: A trip which remains entirely within a ZONE, i.e. both TRIP ENDS are within the same zone. Intrazonal trips do not get loaded onto the network.

IVTT: In vehicle travel time. The time actually spent in the LINE HAUL MODE vehicle.

IX (INTERNAL-EXTERNAL TRIP): A trip with one TRIP END inside the study area, and one trip end outside the study area.

K-FACTOR: An adjustment factor applied between zones (or groups of zones) in the gravity model trip distribution process. The purpose of the K-factor is to capture special socio-economic or other factors which are not adequately replicated by the F-FACTORS in the model.

LINE HAUL MODE: The mode of travel in which the greatest distance is travelled; opposite of access mode, which is typically a shorter trip made to access the line haul mode.

LINK: A section of the highway or transit network, defined by a NODE at each end. A link may be two-way (normally) or one-way.

LOAD HISTORY: A TRANPLAN name for an output file from a trip assignment program. The load history contains information on links (length, speed, capacity, type facility, etc.), as well as the travel volume assigned to each link. The load history file is then used as an input to another program that generates reports on the assigned volumes

LOGIT MODEL: A mathematical form of a MODE SPLIT MODEL. A key feature of the logit model is that it presumes traveler's are most sensitive to a choice between two modes when both are nearly equal in cost and travel time.

MODE SPLIT MODEL: A mathematical formulation express used to predict what mode of travel people will use (bus, auto, etc.), based on various factors which are assumed to influence that choice: relative travel time and cost being the two most important.

MTC: Metropolitan Transportation Commission, Oakland.

NETWORK: A set of nodes and connecting links that represent transportation facilities in an area.

NON-HOME BASED TRIP: A trip for which neither TRIP END is at the traveler's place of residence. In other words, trips which have neither end at the home of the traveler.

OD: Origin-destination. OD tables differ from P/A tables because they do not indicate which end of the trip is the home end. An example illustrates this best: consider trips between made between London and Boston. An O-D table might indicate 525 trips from London to Boston in the month of June, and 650 from Boston to London. We do not know from this how many were made by U.S. citizens visiting England, and how many were made by British subjects visiting the U.S.-- we simply know how many trips were made, regardless of the home end. The flows do not match during the month of June, although we presume that if we measured the travel for a long enough period of time (say a year or more), that the flows would balance, with everyone who left home also eventually returning. The same is true of OD tables-- no indication is given as to the home end , and over a period (24 hours) we assume the flows are symmetric-- that is, all of the flows from zone I to J should equal the flows from zone J to I.

OVTT: Out of vehicle travel time.

PATH BUILDING: The process of determining all the feasible paths between two zones.

PERSON TRIP: A trip made by one person, and having two TRIP ENDS. One person driving to work (one way) is one person trip; two people driving to work together in one car is two person trips.

PRODUCTION (TRIP): The number of home-based trip-ends in the zone of residence. For non-home based trips, productions are synonymous with origins.

SCREENLINE: A group of links in a general area used for model calibration or comparison of runs. A screenline can be drawn across a natural barrier (e.g. a river, a mountain, etc.) but does not have to be.

SKIMMING (NETWORK): The process of determining the shortest paths between all possible zone pairs, based on some-criteria (usually travel time, but

possibly including cost or distance). This process results in "skimmed trees," a series of binary records containing the travel times between every pair of zones in a network.

SPECIAL GENERATORS: Trip generating activities whose characteristics are not adequately estimated by the conventional trip generation model. Examples include universities, airports, larger sports complexes, etc.

THROUGH TRIP: See XX trip. A trip through the County with no trip end within in.

TRAVEL ANALYSIS ZONE (TAZ): See ZONE.

TRIP: A one-direction movement which begins at the origin at the start time, ends at the destination at the arrival time, and is conducted for a specific purpose.

TRIP END: Either a trip origin or a trip destination. Thus, every complete trip will have two trip ends.

TRIP TABLE: A table (matrix) showing trips between ZONES or between DISTRICTS, either directionally or two-way. The trips may be separated by mode, by purpose, by time period, by vehicle type, or by other criteria.

TWLTL: Two way left turn lane.

VEHICLE TRIP: A TRIP made by a vehicle or truck from an origin to a destination. A vehicle trip involves at least one, and possibly several, PERSON TRIPs.

V/C RATIO (VOLUME/CAPACITY RATIO): A measure used to indicate the level of congestion on a LINK. Depending on how CAPACITY is defined, this can be translated into travel delay. V/C ratios greater than 1 are always considered undesirable.

VHT: Vehicle hours of travel.

VMT: Vehicle miles of travel.

XX TRIP (EXTERNAL-EXTERNAL TRIP): A trip that passes through the study area, but that has not TRIP END within it. E.g. a trip from Novato to Cloverdale is a XX trip when Sonoma County is the study area.

ZONE: A portion of a study area, delineated for land use and travel analysis purposes. A zone has one and only one CENTROID.

APPENDIX C

Deficiency and Improvement Plan Guidelines

MARIN CONGESTION MANAGEMENT PROGRAM

Deficiency and Improvement Plan Guidelines

prepared for

Marin County
Congestion Management Agency

by
DKS Associates
May 1993

1. Introduction

This document describes a proposed process for the preparation of deficiency and improvement plans. There is an important distinction between the two:

- Deficiency plans are required by CMP legislation for any roadway segment that falls below the adopted level of service standard when the state-mandated exceptions (discussed below) are applied.

- Improvement plans are recommended by the Marin County CMP for all segments which are already below the adopted level of service standard or segments that fall below the adopted level of service standard but are exempted from a deficiency plan after exceptions are applied.

State Requirements for Deficiency Plans

The Congestion Management Program (CMP) legislation provides for deficiency plans as a way for local jurisdictions to remain in conformance with the CMP when level of service (LOS) deteriorates below the established standard.

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 65089.4.*

The 1991 Marin County CMP adopts LOS E as the standard for freeways and rural expressways (Interstate 580, Highway 101 and Highway 37) and LOS D for other roadways on the designated network. When deterioration of the level of service on a given C'MP network segment has not been prevented, the legislation provides two options for local jurisdictions to remain in conformance:

a) implementation of a specific plan to correct the LOS deficiency on that affected network segment; and,

b) implementation of other measures intended to result in measurable improvements in LOS on the CMP network and contribute to significant improvements in air quality.

Language regarding deficiency plans is found in California Government Code Section 65089.3, which states:

(a) The agency shall monitor the implementation of the elements of the congestion management program. The department is responsible for data collection and analysis on state highways, unless the agency designates that responsibility to another entity. The agency may also assign data collection and analysis responsibilities to other owners and operators of facilities or services if the responsibilities are specified in its adopted program. The agency shall consult with the department and other affected owners and operators in developing data collection and analysis procedures and schedules prior to program adoption. 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:

(a) Consistency with the levels of service and performance standards, except as provided in Section 65089.4.

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

(c) *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.*

(d) Adoption and implementation of a deficiency plan pursuant to Section 65089.4 when highway and roadway level of service standards are not maintained oil portions of the designated system.

The California Government Code specifies when deficiency plans are required:

65089.4. (a) A local jurisdiction shall prepare a deficiency plan when highway or roadway level of service standards are not maintained oil segments or intersections of the designated system. The deficiency plan shall be adopted by the city or county at a noticed public hearing.

(b) The agency shall calculate the impacts subject to exclusion pursuant to subdivision (0 *of this section, after consultation with the regional agency, the department, and the local air quality management district. If the calculated traffic level of service following exclusion of these impacts is consistent with the level of service standard, the agency shall make a finding at a publicly noticed meeting that no deficiency plan is required and so notify the affected local jurisdiction.*

Section 65089.4 of the California Goverment Code also specifies the required context of deficiency plans:

(c) *The agency shall be responsible for preparing and adopting procedures for local deficiency plan development and implementation responsibilities, consistent with the requirements of this section. The deficiency plan shall include all of the following:*

(1) An analysis of the cause of the deficiency. Yhis analysis shall include the following:

(A) Identification of the cause of the deficiency.

(B) Identification of the impacts of those local jurisdictions within the jurisdiction of the agency that contribute to the deficiency. These impacts shall be identified only if the calculated traffic level of service following exclusion of impacts pursuant to subdivision (f) indicates that the level of service standard has not been maintained, and shall be limited to impacts not subject to exclusion.

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

(3) A list of improvements, programs, or actions, and estimates of costs, that will (A) measurably improve multimodal performance, using measures defined in paragraphs (1) and (2) of subdivision (b) of Section 65089, and (B) contribute to significant improvements in air quality, such as improved public transit service and facilities, improved nonmotorized transportation facilities, high occupancy vehicle facilities, parking cash-out programs, and transportation control measures. Vie air quality management district or the air pollution control district shall establish and periodically revise a list of approved improvements, programs, and actions that meet the scope of this paragraph. If all 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 &strict.

(4) An action plan, consistent with the provisions of Chapter 5 (commencing with Section 66000),' that shall be implemented, consisting of improvements identified in paragraph (2), or improvements, programs, or actions identified in paragraph (3), that are found by the agency to be in the interest of the public health, safety, and welfare. The action plan shall include a specific implementation schedule. The action plan shall include implementation strategies for those jurisdictions that have contributed to the cause of the deficiency in accordance with the agency's deficiency plan procedures. The action plan need not mitigate the impacts of any exclusions identified in subdivision (f). Action plan strategies shall identify the most effective implementation strategies for improving current and future system performance.

The procedures required for deficiency plan approval are described in Section 65089.4 (d) to (e):

1 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) *A local jurisdiction shall forward its adopted deficiency plan to the agency within 12 months of the identification of a deficiency. The agency shall hold a noticed public hearing within 60 days of receiving the deficiency plan. Following that 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 locaI jurisdiction of the reasons for that rejection, and the local jurisdiction shall submit a revised plan within 90 days addressing the agency's concerns. Failure of a local jurisdiction to comply with the schedule and requirements of this section shall be considered to be nonconformance for the purposed of Section 65089.5.*

(e) The agency shall incorporate into its deficiency plan procedures, a methodology for determining if deficiency impacts are caused by more than one local jurisdiction within the boundaries of the agency.

(1) If, according to the agency's methodology, it is determined that more than one local jurisdiction is responsible for causing a deficient segment or intersection, all responsible local jurisdictions shall participate in the development of a deficiency plan to be adopted by all participating local jurisdictions.

(2) The local jurisdiction in which the deficiency occurs shall have lead responsibility for developing the deficiency plan and for coordinating with other impacting local jurisdictions. If a local jurisdiction responsible for participating in a multi-jurisdictional deficiency plan does not adopt the deficiency plan in accordance with the schedule and requirements of paragraph (a) of this section, that jurisdiction shall be considered in nonconformance with the program for purposes of Section 65089.5.

(3) The agency shall establish a conflict resolution process for addressing conflicts or disputes between local jurisdictions in meeting the multi-jurisdictional deficiency plan responsibilities of this section.

The provision of excluding some traffic from the deficiency is provided in Section 65089.4(f).

(f) *The analysis of the cause of the deficiency prepared pursuant to paragraph (1) of subdivision (c) shall exclude the following:*

(1) Interregional travel (also defined as trips which originate outside of Marin County),

(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-income and very low income housing.

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

(B) 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.

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

(a) If, *pursuant to the annual 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 collie 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) (1) Upon receiving notice form 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.*

(2) If, *within the 12-month period following the receipt of a notice of nonconformance, the Controller is notified by the agency that the city or county is in conformance, the Controller shall allocate the apportionments withheld pursuant to this section to the city or county.*

(3) If the Controller is not notified by the agency that the city or county is in conformance pursuant to paragraph (2), the Controller shall allocate the apportionments withheld pursuant to this section to the agency.

(c) *The agency shall use funds apportioned under this section for projects of regional significance which are included in the capital improvement program required by paragraph (5) of subdivision (b) of Section 65089, or in a deficiency plan which has been adopted by the agency. The agency shall not use these funds for administration or planning purposes.*

Improvement Plans

Improvement plans are recommended in the Marin Congestion Management Program. However, the State legislation makes no requirements for improvement plans. It is recommended that the approach for development of improvement plans should be similar to deficiency plans.

2. Recommendations on Key Issues

There are several policy directions needed for deficiency and improvement plans. We have identified the issues below.

Who is responsible for preparation of deficiency and improvement plans? Local jurisdictions are responsible for developing and adopting deficiency plans.

In some cases, several jurisdictions are required to collaborate in the development of a plan. The determination of which jurisdictions should participate is to be made by the CMA. The policy to make this determination is as follows:

> A jurisdiction should participate in the preparation of a deficiency plan at a specific location if traffic from that jurisdiction, either as an origin or a destination, represents ten (10%) percent of the assigned level of service capacity of the facility. The determination of the jurisdiction percentage of the traffic would be made using the select link analysis for the base year of the Marin County latest approved travel model for the P.M. peak hour.

No specific sponsorship of improvement plans is required. It is suggested that local jurisdictions sponsor these plans where possible, because they would need to prepare deficiency plans if the improvement plan actions eventually become ineffective.

> *Recommended action: The CMA is to designate the jurisdiction(s) required to lead or participate in the preparation of a deficiency plan. Preparation of deficiency plans must be the responsibility of local jurisdiction* (s) *with assistance from the CMA. Improvement plan preparation should be the responsibility of local jurisdictions, with assistance from the CMA.*

What triggers the deficiency and improvement plan process? The deficiency plan process is triggered when, pursuant to annual LOS monitoring through traffic counts and subsequent adjustments for all exclusions required by law (California Code Section 65089.4), a CMP network segment is found to be "deficient" because it degrades from the adopted LOS standard.

The determination of the exclusions is the responsibility of the CMA staff. The procedures for developing these exclusions are to be developed by the CMA once the deficiency is identified.

The improvement plans are intended for the grandfathered segments of the CMP network as mentioned in California Code Section 65089(a) (1) (B). This document recommends expanding them to those deficient segments that do not fall below the level of service standard once the state exclusions are applied.

> *Recommended action: CMA to require deficiency plans when deficiency occurs, in accordance with state guidelines.*

What trips must be excluded from the deficiency determination? Annually, upon completion of the level of service monitoring, the CMA will identify potentially deficient segments. The level of service will then be analyzed for both before and after the exclusion procedures established in the State legislation. These procedures mandate that exclusion be determined following consultation with Metropolitan Transportation Commission, California Department of Transportation, and Bay Area Air Quality Management District.

A decision was made in the first CMP that trips should not be removed for the exclusions. For local planning purposes, all improvement plans should not have any exempted trips. Also, any long-range planning and impact fee analysis work should be performed using level of service analyses before the exclusion.

As required in California Government Code Section 65089.4, several types of travel must be excluded from the determination of the need for deficiency plans, including interregional travel (including traffic originating outside of Marin County); construction, rehabilitation, or maintenance of facilities that impact the system; freeway ramp metering; traffic signal coordination by the state or a multi-jurisdictional agency; and traffic generated by the provision of low and very low income housing; traffic generated by high density residential development located within one-fourth mile of a fixed rail passenger station; and 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.

> *Recommended Action: ?he CMA will determine the trips to be excluded from the calculation of LOS for segments which may need to submit deficiency plans, in consultation with Metropolitan Transportation Commission, California Department of Transportation, and Bay Area Air Quality Management District. Improvement plans will not contain exclusions.*

What constitutes a deficient segment? A segment will be considered deficient and recommended for submission of an improvement plan when its level of service falls below the adopted standard. It will be considered deficient for CMP legislative purposes and require adoption of a deficiency plan if it registers below the adopted standard even after all exclusions listed above have been computed.

> *Recommended Action: The CMA will make a finding each year of deficient segments that will be recommended for improvement plans. Using the State guidelines, deficient segments requiring deficiency plans will also be designated as a subset of the first list.*

What is the purpose of the deficiency plan process? In the State legislation, the deficiency plan process requires local jurisdictions to examine two types of improvement options, and choose one of two options for addressing deficient network segments. The two options are:

- To implement improvements directly on the deficient segments designed to eliminate the deficiency; or

- 0 To designate the segment as deficient, and implement a deficiency or improvement plan including actions designed to measurably improve the overall LOS on the CMP network, and contribute to significant air quality improvements. Such actions may not necessarily be implemented or have a measurable impact on the deficient segment itself.

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. Measures not on the BAAQMD list may also be used, but will need to be evaluated by the BAAQMD for air quality impacts prior to including it as a measure in a deficiency plan.

> *Recommended action: The CMA should maintain a list of acceptable measures to examine both types of solutions to each level of service problem.*

What is the purpose of the improvement plan process? An improvement plan process is established as a proactive planning process to recommend solutions to traffic congestion problems not addressed in the deficiency plan process. This falls into the areas of existing traffic congestion problems, and anticipated traffic congestion problems that do not appear because of the exclusions discussed above.

When is a deficiency plan required? A deficiency plan is required when the CMA designates a CMP network segment as deficient using the State legislative definition.

> *Recommended action: The CMA should establish an official calendar to provide a* maximum *time window in deficiency plan preparation.*

When is an improvement plan required? An improvement plan deadline is not mandated by state legislation; the current CMP suggests that the plans be developed by the next CMP submittal.

> *Recommended action: The CMA may recommend that any proposed draft improvement plans should be in place by June of 1995 to allow for lead time when preparing the EIR on the next biennial approval. They can also be prepared at a later date.*

How are deficiency plans and improvement plans adopted? To **CMP legislative** guidelines, a deficiency plan must be prepared by the affected local jurisdiction(s). All participating jurisdictions in a multi-jurisdictional improvement plan must approve the plan.

Because the intent is similar and the approach logical, a similar method seems to be appropriate for improvement plans.

> *Recommended action: The CMA sta and the CMP technical advisory committee should review the draft to advise if the plan will be acceptable. Then, the deficiency and improvement plans should be adopted by the affected jurisdiction (s) at a public hearing and finally approved (with no amendments or conditions) by the Congestion Management Agency.*

How do deficiency and improvement plans relate to the countywide transportation planning process? Deficiency and improvement plan actions should be coordinated with the countywide transportation planning process, including forecasts of travel needs and planned capital improvements. Likewise, the occurrence of deficiencies should be a factor influencing future programming decisions associated with continued countywide transportation planning efforts.

> *Recommended action: All capital improvement items listed in deficiency and improvement plans should be mentioned in the capital improvements program for the CMP. Any growth management or transit actions from deficiency or improvement plans should be included in upcoming countywide plans.*

How long does a jurisdiction have to prepare a legislatively-mandated deficiency plan? Jurisdictions will receive a formal notice of a level of service deficiency at the time when LOS monitoring results are approved. This is the start of the 90-day period allowed under Section 65084.5.

> *Recommended action: The CMA should provide ample time to jurisdictions to consider legislatively-required documents. LOS monitoring should occur in the spring, and CMA conformance determination in the following spring, providing the maximum amount of time possible for jurisdictions to develop a deficiency plan.*

What are the required components of a deficiency and improvement plan? State law requires a deficiency plan to contain these items:

- an analysis of the deficiency;
- a list of improvements and related costs to mitigate that deficiency on that facility itself;
- a list of possible actions that would result in improvements to the CMP system's LOS and be beneficial to air quality; and,
- an action plan to implement improvements from one of the two above lists.

Because improvement plans are similar in nature, it seems appropriate to recommend the same format.

> *Recommended Action: All deficiency and improvement plans should include the State-legislated format.*

What constitutes acceptable deficiency and improvement plans? An acceptable plan shall contain all components listed above, as well as appropriate local review and comment. Approval procedures are specified for deficiency plans; improvement plans do not need to meet the strict approval guidelines.

Recommended Action: All deficiency plans should be reviewed by the CMA staff and technical committee prior to action by the CMA Board. The technical committee may make a recommendation related to approval or rejection of ally plan to the CMA Board. The plan will be evaluated oil the following technical criteria:

a) Completeness as explained in California Government Code Section 65089.4
b) Vie appropriateness of the plan actions in relation to the magnitude of the deficiency
c) Pie reliability of the funding sources
d) The reasonableness of the implementation plan schedule
e) The ability to implement the proposed actions (including jurisdictional control issues)

CMA staff technical committee and CMA Board review should be sought for improvement plans, although no specific CMA board action is required.

Why prepare a deficiency plan? When a state-defined deficiency occurs, the responsible jurisdiction(s) must respond. Tile jurisdiction will forego additional gasoline tax subventions (pursuant to Section 2105 of the Streets and Highways Code) unless it prepares a deficiency plan. If no response is forthcoming, the jurisdiction with the deficiency is required to be found in nonconformance with the CMP by the Congestion Management Agency (CMA) board.

Recommended action: Pie CMA should adopt a goal to approve all deficiency and improvement plans. The CMA should also utilize this adoption as all endorsement of the projects and/or actions in its planning and programming. In particular, these plans should be used in obtaining additional justification for funding allocations from regional, state and Federal sources in competitive funding environments.

Why prepare an improvement plan? Even though they are not required by State legislation, an improvement plan bodes several benefits. The plan becomes a document which can be used to leverage funding from regional, state and Federal sources. The plan also becomes a key component in the preparation of a capital improvements program and related funding programs. The plan offers communities and developers an opportunity to help implement the programs identified to eliminate the deficiency. Finally, adoption of an effective improvement plan may prevent a State-mandated deficiency plan from having to be prepared.

3. Process

The CMA should adopt a process by which plans are developed and approved. A typical process that could be used by Marin CMA is listed below.

Agencies Involved in Preparation. All jurisdictions affected by the deficiency should be involved. The leading jurisdiction is the jurisdiction in which the deficiency occurs. Other participating jurisdictions are determined according to this policy:

> A jurisdiction should participate in the preparation of a deficiency plan at a specific location if traffic from that jurisdiction, either as an origin or a destination, represents ten (10%) percent of tile volume of the facility at the maximum service flow rate of the LOS Standard set by the Marin CMA for that facility. The determination of the jurisdiction percentage of the traffic would be made using the select link analysis for the base year of the Marin County latest approved travel model for the P.M. peak hour.

If it is a multi-jurisdictional plan or if it involves system-wide improvements, Congestion Management Agency staff, transit agencies, the Bay Area Air Quality Management District, and the California Department of Transportation should also be involved.

Deficiency and Improvement Plan Development and Approval Process. The proposed process for developing and approving deficiency and improvement plans is described on the attached flowcharts.

Figure A describes the overall deficiency plan process. Figure B depicts the deficiency identification step in the process. Figure C illustrates the process to be followed by local jurisdictions for development of deficiency plans. Figure D shows the process to be followed for deficiency plan approval. This differs from Figure C in that Figure D sets the CMA actions and schedule for approval of deficiency plans in relation to the CMA's annual findings of conformance with CMP requirements. Figure E illustrates the deficiency plan monitoring process.

A similar set of figures describes the improvement plan approval process. Figure F depicts the overall process. Figure G describes the identification step in the process. Figure H illustrates the process to be followed for the development of improvement plans. Figure I illustrates the improvement plan monitoring process.

Deficiency Identification. A deficiency is discussed in the annual level of service monitoring process, as described in Chapter 2.

Figure A
GENERAL DEFICIENCY PLAN PROCESS

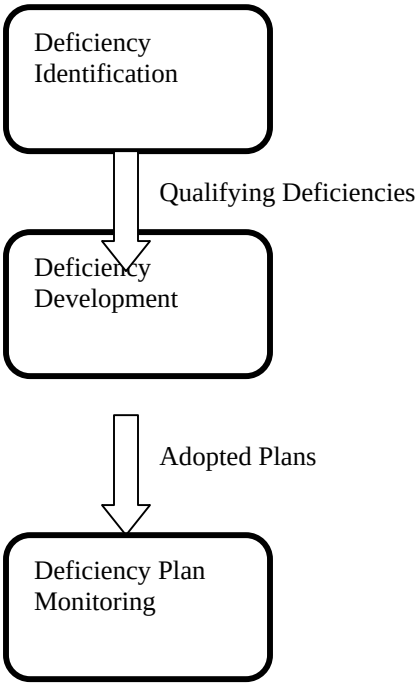


Figure B
IDENTIFICATION FOR DEFICIENCY PLANS

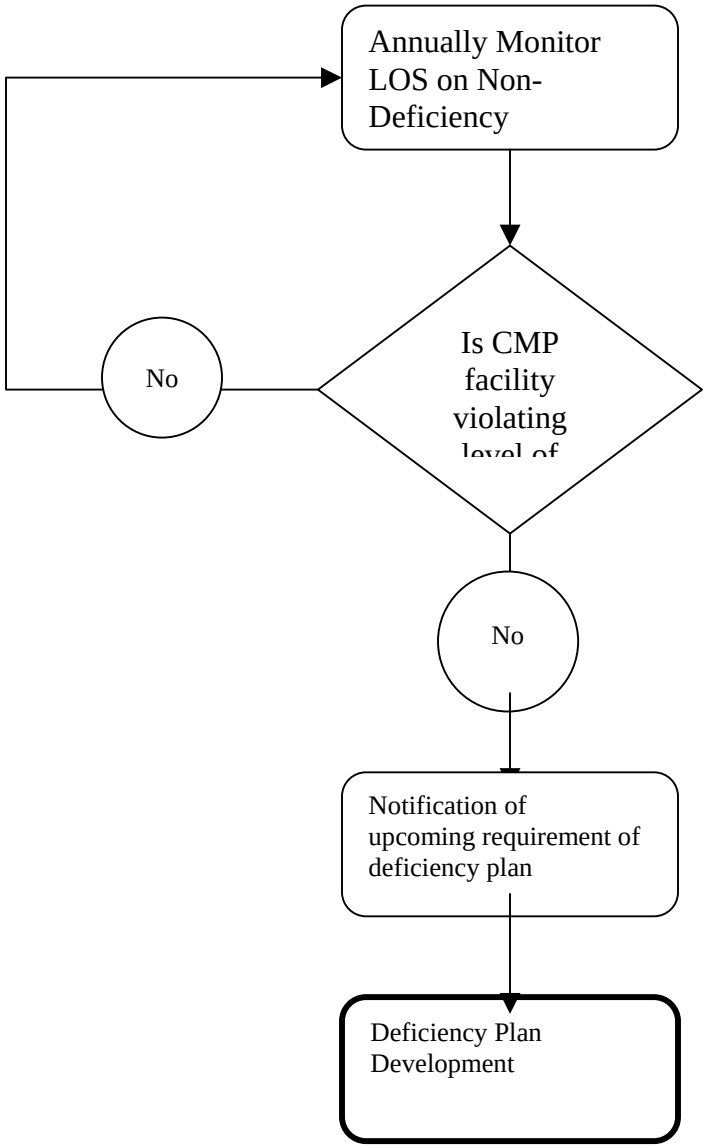


Figure C
DEFICIENCY PLAN DEVELOPMENT

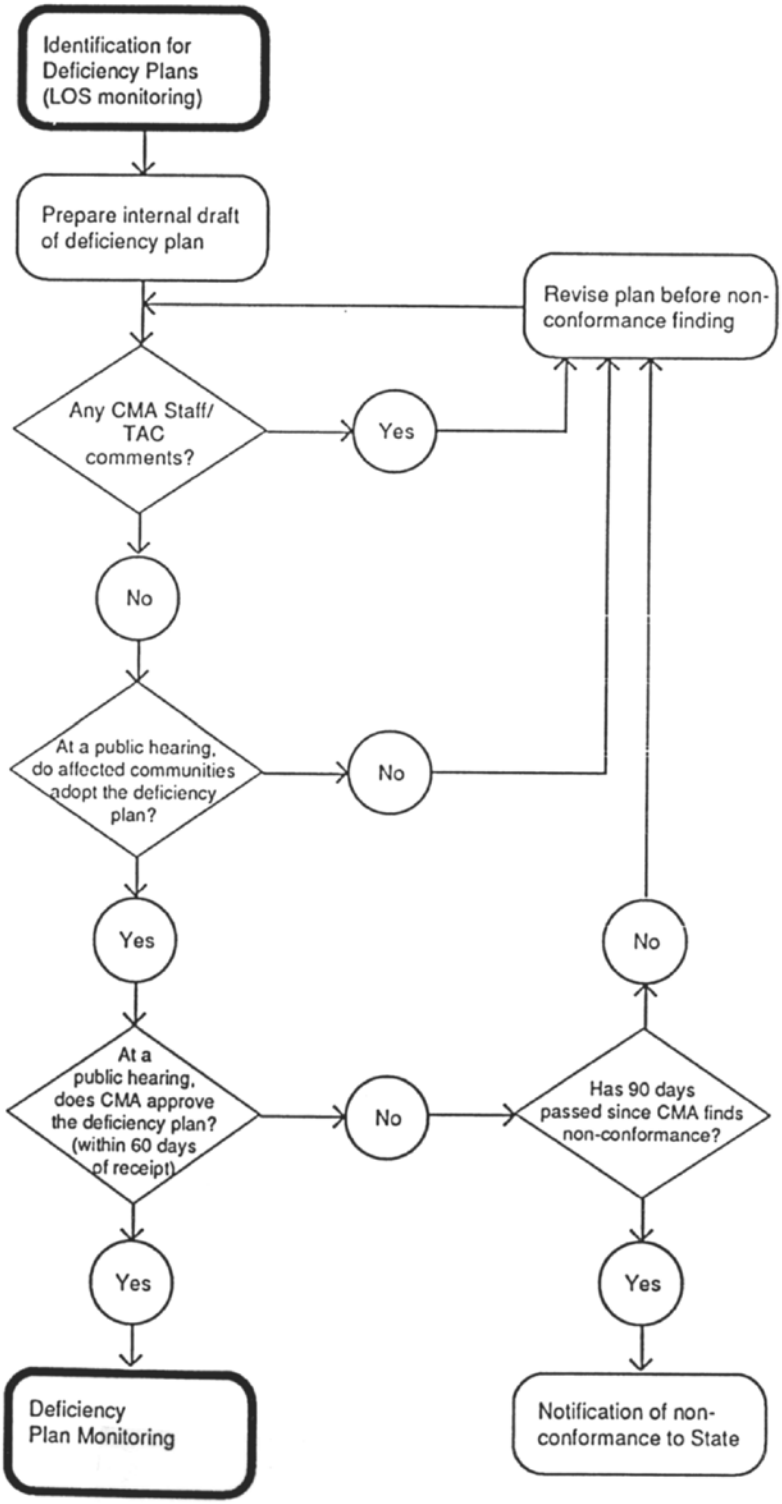
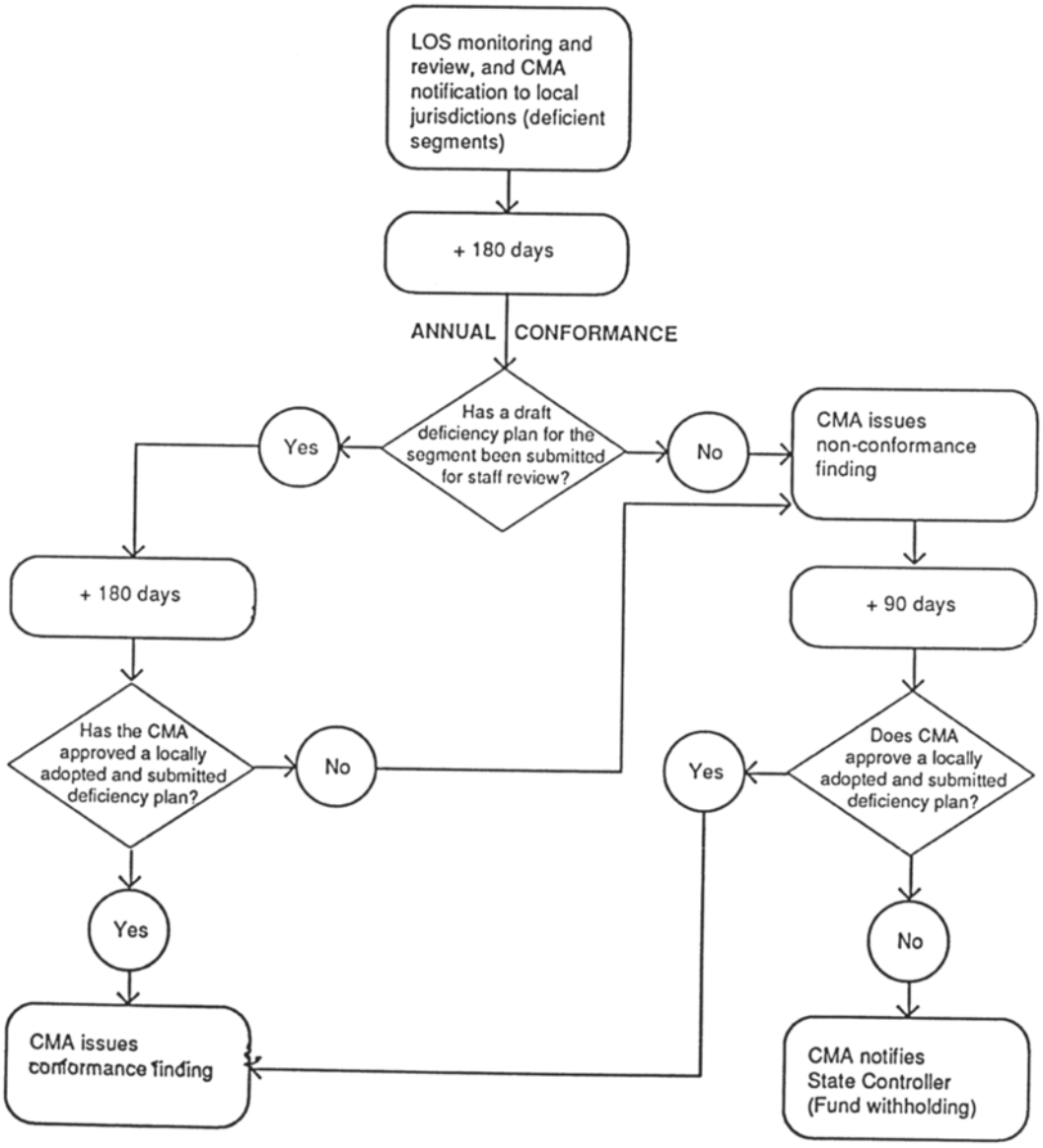


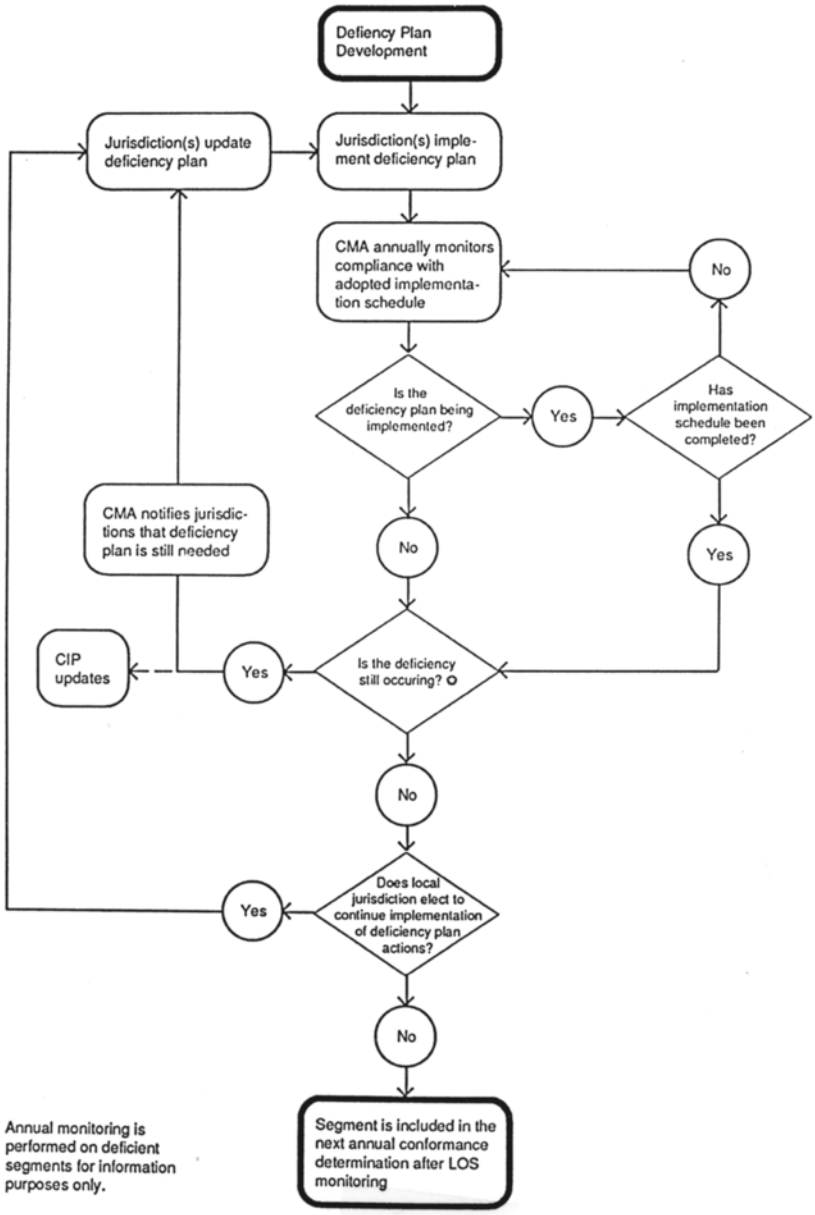
Figure D
APPROVAL PROCESS AND TIME LINES FOR DEFICIENCY PLANS



Time Allowed for Deficiency Plan Preparation (from LOS Notification)

1. If deficiency plan ready at annual monitoring: 180 days
2. If deficiency plan not ready at annual monitoring but approved during 1st cycle: 180 + 180 = 360 days
3. If no plan was prepared: 180 + 90 = 270 days
4. If deficiency plan was not ready at annual conformance monitoring and was rejected once: 180 + 180 + 90 = 450 days

Figure E
DEFICIENCY PLAN MONITORING



o Annual monitoring is performed on deficient segments for information purposes only.

Figure F
GENERAL IMPROVEMENT PLAN PROCESS

Figure G
IDENTIFICATION FOR IMPROVEMENT PLANS

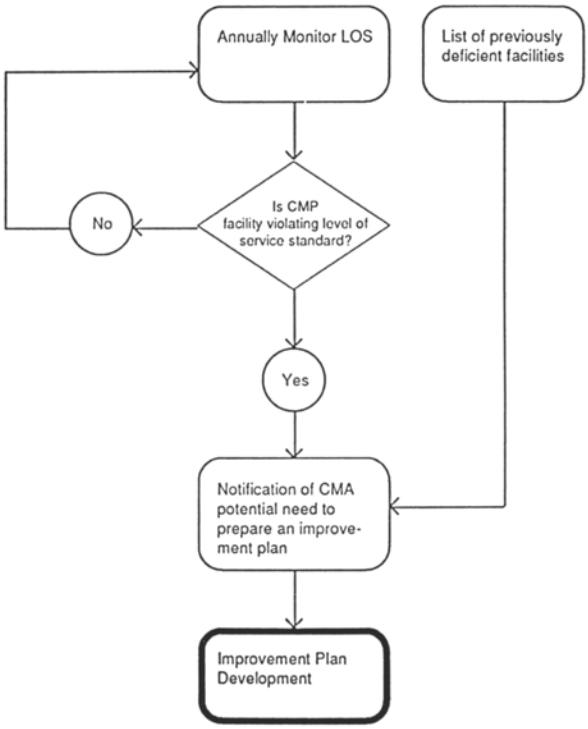


Figure H
IMPROVEMENT PLAN DEVELOPMENT

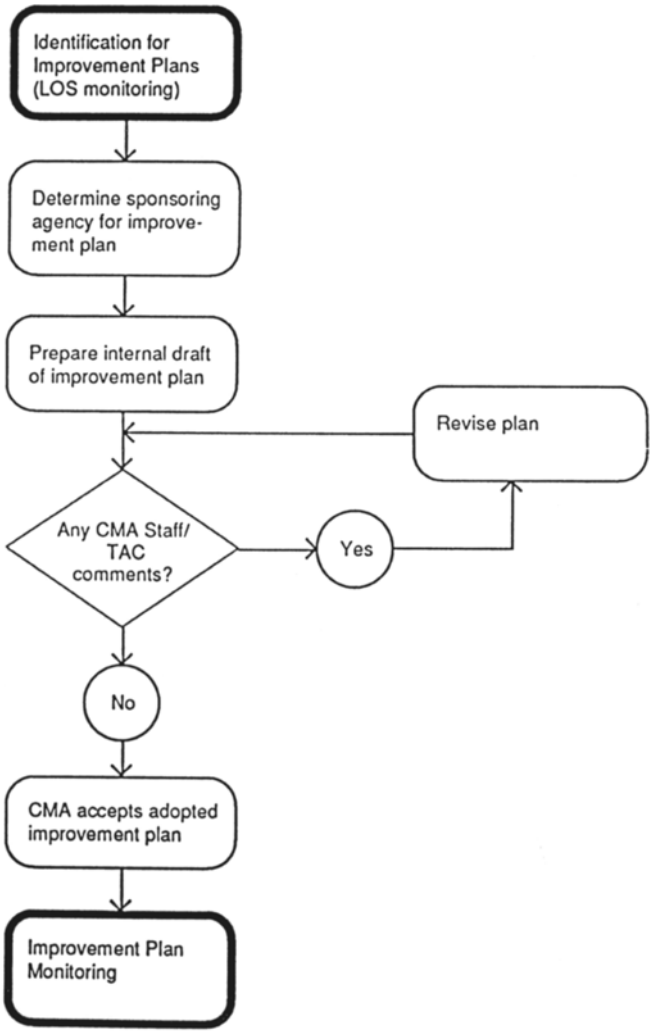
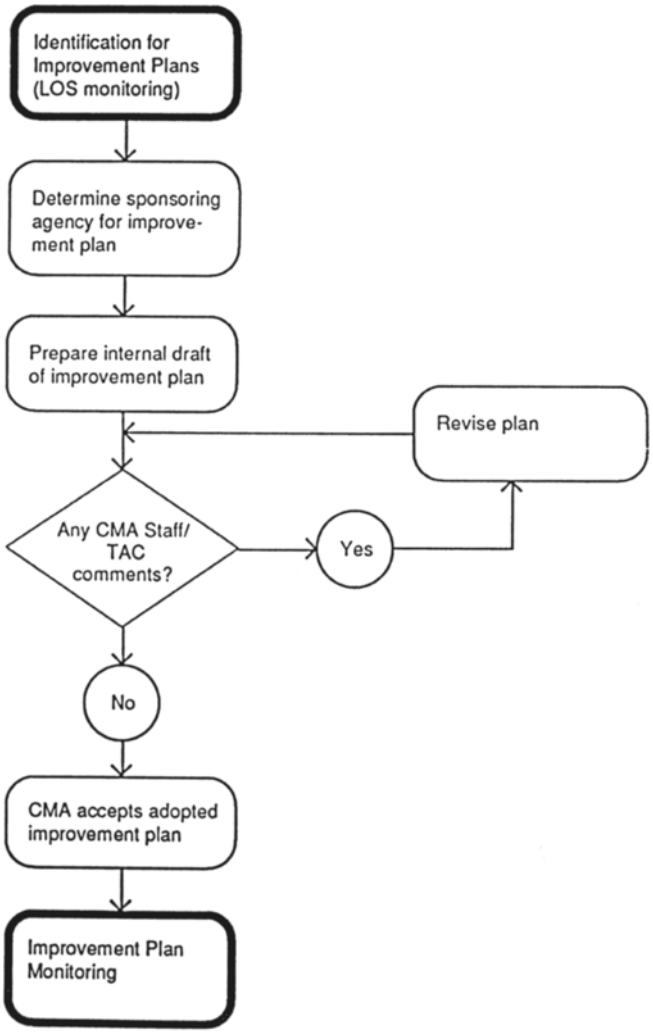


Figure H
IMPROVEMENT PLAN DEVELOPMENT



Development of Deficiency Plans

1. The CMA will designate one local jurisdiction to be the lead on preparing and submitting a deficiency plan. That jurisdiction would follow these steps:

- That jurisdiction should develop a work strategy by which to develop a draft plan in the adopted time frame. The draft plan should include a plan for other designated jurisdictions to participate and provide feedback. A draft plan should address these points:

- The deficiency must be described in terms of its cause and magnitude (such as needed reduction in traffic to raise speed to the level of service standard.)

- Actions considered to remedy the specific deficiency should be considered. If no action can be developed to remedy that specific deficiency, alternative actions to improve level of service on the CMP network shall be considered.

- If actions are considered which are intended to improve LOS on the CMP network, those actions listed in the Bay Area Air Quality Management District guidelines for deficiency plans, and other possible actions identified by affected jurisdictions and approved by the BAAQMD should be given a suitability assessment (See *Appendix* B). Suitable system actions should be evaluated at a sketch-planning level for potential effects on system-wide traffic congestion and air quality (traffic analyses or model forecasts may be required).

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

2. A draft plan should be reviewed by CMA staff and the technical committee. These groups should coordinate with the local jurisdiction where desired to develop a deficiency plan acceptable to that jurisdiction and the CMA.

3a. To meet legislative compliance, a final deficiency plan must be adopted by the affected local jurisdictions at a noticed public hearing not later than 90 days following notification of the annual conformance findings of the CMA.

Also for plans required to obtain legislative compliance, a final plan must be approved by the CMA. The CMA will approve or reject a deficiency plan within 60 days of receipt of the deficiency plan from the local jurisdiction.

3b. Because improvement plans do not need legislative compliance, their adoption procedure is simplified. Local jurisdictions may submit their improvement plan, or endorse an improvement plan submitted through the CMA.

Implementation Monitoring. Deficiency and improvement plans should be monitored annually by the CMA, prior to annual conformance determination, to establish:

a) whether they are being implemented according to the schedule detailed in their specific action plans; and

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

The plan should include a schedule for implementation of the proposed actions. Compliance with the stated schedule will be monitored annually at the time of conformance determination. 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 in non-conformance if the deficiency still exists. Once the action plan is implemented, ail evaluation to recognize a measurable improvement will determine if the plan should be updated or if the roadway can be returned to level of service monitoring as its conformance determination. Action plans will be incorporated into future CMP documents.

The evaluation may result in recommended changes in other elements of the CMP, such as the capital improvements program (CIP) or trip reduction ordinances (TROs).

Process for Deficiency Plan Update. To facilitate the approval process, minor updates to deficiency and improvement plans should be accepted by the Congestion Management Agency Board. The affected jurisdiction(s) may submit a notice to the CMA stating the reason and the content of the update to their plan. The CMA board would then approve or reject the request for the update. Should the CMA reject the request, the existing deficiency plan would remain in place.

Development of Improvement Plans

If an improvement plan need is identified, staff from CMA and the affected local jurisdictions should meet to determine what the contents and objective of the plan should be. At a minimum, an improvement plan should contain:

- An analysis of the causes of the deficiency
- An indication of the potential future need of a deficiency plan if no improvement plan is implemented
- Potential actions to be considered to remedy the deficiency's impact
- Recommendations which are intended to prevent the need for a deficiency plan

Although no adoption is required, review by the CMA staff, technical committee, CMA board and affected local jurisdictions governing boards should be provided.

4. Methodology

General Approach to Deficiency and Improvement Plan Analysis. The scope for the deficiency plan actions should be matched to the severity of the problem. Extreme deficiencies will need more significant actions; minor deficiencies need only minor actions.

Calculation of Deficiency. The magnitude of the deficiency should be determined as the amount of traffic on a road segment that is above its level of service capacity.

Available Action Tools. Action tools fall into one of two categories: improvements designed to directly mitigate the specific deficiency, and improvements designed to improve LOS on the CMP network and provide air quality improvements

The first type of action tools are intended to directly mitigate a deficiency. These include highway, transit and other mode improvements.

The second type of action tools are intended to provide measurable improvements to air quality and LOS on the CMP network in cases where deficiencies on specific segments or at specific intersections cannot be mitigated directly. For these, 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 plan.

When developing a plan, the most current Bay Area Air Quality Management District list of actions should be consulted. Actions currently on the BAAQMD list are shown in Appendix A.

Identification of Preferred Implementation Actions. Beginning with the Bay Area Air Quality Management District list, a jurisdiction should have a number of preferred implementation actions available to it. To assist jurisdictions with the selection of preferred actions, a suitability screening table has been prepared (Appendix B).

Format. Deficiency and improvement plan reports should be as easy as possible to prepare and reproduce. The Congestion Management Agency staff should be available as a technical resource in the preparation of deficiency plans.

Reports should be submitted on copy-ready single-sided 8 and 1/2 by 11 paper, and will contain the following sections:

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

Deficiency Analysis. An explanation of what are the likely causes of the deficiency, and a quantitative assessment of the magnitude of the deficiency.

Screening of Actions. A suitability screening table of possible actions and a sketch-planning level evaluation of most suitable actions.

Evaluation of Suitable Actions. A determination of whether to remedy the deficiency on the specific link, or to measurably improve air quality and the LOS on the CMP network.

Implementation Plan. A description of the proposed implementation actions and their costs, and dates for implementation and completion of deficiency plan actions.

Appendix A: Approved Systemwide Deficiency Plan Actions on Bay Area Air Quality Management District List

Actions adopted November 4, 1992 include:

• Bicycle and Pedestrian Measures

- Improved roadway bicycle facilities and bike paths
- Transit and bicycle integration
- Bicycle lockers and racks at park-and-ride lots
- Bicycle facilities and showers at developments
- Improved pedestrian facilities
- Pedestrian signals Lighting for pedestrian safety

• Transit

- Improvement of bus, rail and ferry transit services
- Expansion of rail transit services
- Expansion of ferry services
- Preferential treatment for buses and in-street light rail vehicles
- Transit information and promotion
- Transit pricing strategies to encourage ridership and, where applicable, reduce transit vehicle crowding
- Transit fare subsidy programs
- Transit centers
- Improved and expanded timed transfer programs
- Improved and expanded fare coordination
- Signal preemption by transit vehicles
- Bus stop bulbs
- School bus transit service

• Carpooling, Buspooling, Vanpooling, Taxipooling, Jitneys, Casual Carpooling and Other Shared Rides (Ridesharing)

- Preferential treatment for shared ride vehicles
- Increased use of commuter/employer services

• High-Occupancy Vehicles (HOV) Facilities

- Preferential treatment for **HOVs**
- Bus and carpool/buspool/vanpool/taxipooI priority lanes on local arterials Accelerated implementation of the 2005 HOV Master Plan
- HOV to HOV facilities
- Direct HOV lane entrance/exit ramps to arterials and special generators

• Other TCMs, Related Measures

- Stricter travel demand management/trip reduction ordinance
- Expanded public education programs
- Child care facilities at or close to employment sites, transit centers and park-and-ride lots
- Retail services at or close to employment sites, transit centers and park-and-ride lots
- Telecommuting centers and work-at-home programs
- Parking management
- Parking "cash-out" program/travel allowance
- Land use measures

•Traffic Flow Improvements

- Preferential treatment of HOVs
- Ramp metering
- Auxiliary lanes of up to one mile in length where HOV lanes are provided
- Signalization improvements
- Computerized traffic and transit control/management on arterials
- Turn lanes at intersections
- Turn restrictions at intersections
- Reversible lanes
- One-way streets
- Targeted traffic enforcement programs
- Restrictions oil curb side deliveries and on-street parking

Appendix B
Suitability Screening for Available Actions
(Deficiency Plan Actions Approved by BAAQMD)

Available Actions	Consistency with Local General Plan	Effect on Local Economy	Relationship to Causes of Deficiency	Anticipated Effect on Travel Behavior	Anticipated Effect on Existing Residents/ Property Owners	Anticipated Implementation Costs	Overall Suitability
Bicycle and Pedestrian Measures							
- Improved roadway bicycle facilities and bike paths							
- Transit and bicycle integration							
- Bicycle lockers and racks at park-and-ride lots							
- Bicycle facilities and showers at developments							
- Improved pedestrian facilities							
- Pedestrian signals							
- Lighting for pedestrian safety							
Transit							
. Improvement of bus, rail and ferry transit services							
- Expansion of rail transit services							
- Expansion of ferry services							
- Preferential treatment for buses and in-street light rail vehicles							
- Transit information and promotion							
- Transit pricing strategies to encourage ridership and, where applicable, reduce transit vehicle crowding							
- Transit fare subsidy programs							
- Transit centers							
- Improved and expanded timed transfer programs							
- Improved and expanded fare coordination							
- Signal preemption by transit vehicles							
- Bus stop bulbs							
- School bus transit service							

CC113 ranked from I to 4, where I - not suitable and 4 = clearly suitable.

Appendix B (continued)
Suitability Screening for Available Actions
(Deficiency Plan Actions Approved by BAAQMD)

Available Actions	Consistency with Local General Plan	Effect on Local Economy	Relationship to Causes of Deficiency	Anticipated Effect on Travel Behavior	Anticipated Effect on Existing Residents/ Property Owners	Anticipated Implementation Costs	Overall Suitability
Carpooling, Buspooling, Vanpooling, Txaipooling, Jitneys, Casual Carpooling, and Other Shared Rider (Ridesharing)							
- Preferential treatment for shared ride vehicles							
- Increased use of commuter/employer services							
High-Occupancy Vehicles (HOV) Facilities							
- Preferential treatment for HOVs							
- Bus and carpool/buspool/vanpool/taxipool priority lanes on local arterials							
- Accelerated implementation of the 2005 HOV Master Plan							
- HOV to HOV facilities							
- Direct HOV lane entrance/exit ramps to arterials and special generators							
Other TCMs, Related Mama=							
- Stricter travel demand management/trip reduction ordinance							
- Expanded public education programs							
- Child care facilities at or close to employment sites, transit centers and park-and-ride lots							
- Retail services at or close to employment sites, transit centers and park-and-ride lots							
- Telecommuting centers and work-at-home programs							
- Parking management							
- Parking "cash-out" program/travel allowance							
- Land use measures							

1 Cells ranked from I to 4, where I = not suitable and 4 = clearly suitable.

Appendix B (continued)
Suitability Screening for Available Actions1
(Deficiency Plan Actions Approved by BAAQMD)

Available Actions	Consistency with Local General Plan	Effect on Local Economy	Relationship to Causes of Deficiency	Anticipated Effect on Travel Behavior	Anticipated Effect on Existing Residents/ Property Owners	Anticipated Implementation Costs	Overall Suitability
Traffic Flow Improvements							
- Preferential treatment of HOVs							
- Ramp metering							
- Auxiliary lanes of up to one mile in length where HOV lanes arc provided							
- Signalization improvements							
- Computerized traffic and transit control/management on arterials							
- Turn lanes at intersection&							
- Turn restrictions at intersections							
- Reversible lanes							
- One-way streets							
- Targeted traffic enforcement programs							
- Restrictions on curb side deliveries and on-street parking							

Cells ranked from I to 4, where I - not suitable and 4 = clearly suitable.

Appendix C: Glossary

AVR (Average Vehicle Ridership). The number of employees reporting to a worksite during the peak period, divided by the number of vehicles those employees use to arrive at the worksite.

Baseline LOS. The level of service included in the initial CMP.

CIP (Capital Improvement Program). A list of physical improvements to the transportation system (including roads, transit facilities, pedestrian and bicycle facilities).

CMA. Marin County's Congestion Management Agency. The CMA is a countywide organization responsible for preparing and implementing the county's CMP. CMAs came into existence as a result of state legislation and voters' approval of Proposition I I I in 1990.

CMA Model. The Marin County travel model. It is currently monitored by the Marin County Department of Public Services.

CMP. Marin County's Congestion Management Program. Updated biennially, a CMP sets performance standards for roadways and public transit, and shows how local jurisdictions will attempt to meet those standards through TDM strategies (including a TRO), land use strategies, and a seven-year capital improvements program. A CMP is necessary in order to qualify for certain funds made available through the state gas tax increase authorized in **1990.** CMPs must be consistent with the RTP.

ETC (Employee Transportation Coordinator). A person designated to develop and manage an employer's TDM program.

Funded Transportation Projects. Those projects funded for construction. This includes all projects in the State Transportation Improvement Program (STIP).

HCM. The Transportation Research Board's Special Report Number 209, entitled 1985

Highway Capacity Manual.

HOV Lane (High Occupancy Vehicle Lane). The technical term for a carpool lane, commuter lane or diamond lane.

Internal Trips. Those trips expected to have both their origin and destination within specific development projects. For example, if a project consists of office space and residential space, internal trips shall consist of trips by residents of the development project to offices within the development project. The purpose of estimating internal trips is to prevent double counting of trips in trip generation. In the example above, if one trip was assumed to come from the

housing and one trip was assumed to come to the office, when if fact it was the same trip, the estimated trip generation from the project would be too high.

ITE. Institute of Transportation Engineers

IVHS (Intelligent Vehicle Highway Systems). Refers to a wide range of advanced electronics and communications technology applied to roads and vehicles. Designed to improve safety and productivity, IVHS also can have a positive impact on air quality by cutting congestion.

Lead Agency. The local jurisdiction that has responsibility for certifying a lane use development project's CEQA environmental analysis.

LOS (Level of Service). This is tile measure used by transportation professionals to grade performance of transportation facilities. LOS is graded on a scale of A (the best performance) to F (the worse performance).

Member Agency. A local jurisdiction that is a signatory of CMA's Joint Powers Agreement.

Network. The representation of transportation facilities for use in the model.

Passer-By Trips. Those trips estimated to be generated by a development project that will come from traffic already on the transportation system and will merely stop on its way. Passerby trips are important for shopping and commercial development where it is likely that people on their way home from work will stop without generating a new trip.

Peak Hour. The peak hour of traffic volumes in the area surrounding a development project.

Peak Periods. Between the hours of 6:00 A.M. and 9:00 A.M. and between 3:30 P.M. and 6:30 P.M. on non-holiday weekdays.

PMS (Pavement Management System). A computer-assisted program for diagnosing the need for roadway improvements in a timely, cost-effective manner. The Metropolitan Transportation Commission has developed a standard PMS system.

Responsible Jurisdiction. The local jurisdiction is responsible for preparing a deficiency plan (the city or county in which the deficient facility is located).

TCM (Transportation Control Measures). Strategy to reduce driving or smooth traffic flows in order to cut auto emissions.

TDM (Transportation Demand Management). Methods to reduce the number of automobiles on the transportation system; examples include programs to promote telecommuting, flextime and ridesharing.

TMA (Transportation Management Association). A voluntary group set up by employers to develop strategies for reducing vehicle trips within a certain area.

TOS (Traffic Operations System). In the Bay Area, California Department of Transportation and the CHP will monitor traffic flows by means of detectors embedded in pavement and closed-circuit television cameras, quickly dispatching two trucks and other assistance. Signs and radio messages will alert drivers to trouble ahead, while ramp metering will control traffic flows. By the year 2000, all 500 miles of the Bay Area's freeways should be TOS-equipped.

Transportation Facility. Any part of the designated CMP system, including roadways, intersections, freeways, bicycle facilities, pedestrian facilities and transit facilities.

TRO (Trip Reduction Ordinance). A TRO is an ordinance that requires employers to meet certain trip-reduction goals and objectives. A TRO is required under the CMP and CCAA legislation. The Bay Area Air Quality Management District has prepared a regional TRO for the Bay Area.

TSN1 (Transportation Systems Management). Low-cost improvements to make the transportation system work more efficiently, such as traffic signal coordination.

VER (Vehicle Employee Ratio). The number of vehicles used by employees who start work at a worksite during the peak period, divided by the number of those employees. VER is the reciprocal of AVR.

APPENDIX D
Adopted Marin Pedestrian and Bicycle Plans

List of Adopted Marin Pedestrian and Bicycle Master Plans

Corte Madera
Town of Corte Madera Bicycle Transportation Plan, Adopted July 10, 2001

County of Marin
Marin County Unincorporated Area Bicycle and Pedestrian Master Plan, Adopted May 22, 2001

Fairfax
Town of Fairfax Pedestrian and Bicycle Master Plan, Adopted July 3, 2001

Larkspur
Larkspur Bicycle and Pedestrian Master Plan, Adopted September 5, 2001

Mill Valley
Mill Valley Bicycle & Pedestrian Transportation Plan Update, Adopted January 21, 2003

Novato
City of Novato Bicycle Plan, adopted December 12, 1995

San Anselmo
San Anselmo Bicycle Master Plan, Adopted June 2001

San Rafael
City of San Rafael Bicycle/Pedestrian Plan, Adopted February 4, 2002

Sausalito
Sausalito Bicycle Master Plan, Adopted October 1999

Tiburon
Town of Tiburon Bicycle and Pedestrian Master Plan, Adopted July 18, 2001

Appendix E
MTC CHECKLIST FOR 2005 CMP

Date June 1, 2005

TO: Transportation Authority of Marin (TAM)

FROM: Tho X. Do, Associate Engineer

Ref: **1. MTC Checklist for Modeling Consistency for 2005 CMP**
2. 2005 Congestion Management Program for TAM

A. General Approach to Travel Demand Modeling by the TAM

The Transportation of Marin (TAM) has operated and updated its own countywide travel demand model based on the information and logic from the MTC model. For the Congestion Management Program, the Marin Travel Model (MTM) contains 117 traffic analysis zones (TAZs) within the county, 83 TAZs for San Francisco, 69 TAZs for Sonoma, and 24 TAZs corresponding with the MTC super-district level for other Bay area counties. This model is prepared using EMME/2 for the P.M. peak hour, A.M. peak hour, ADT and currently stored and updated at the County Public Works Department.

This model is a "focused" model, meaning that the network contains different structures inside and outside of the focus area. The inside or focused counties for the MTM are San Francisco, Marin and Sonoma Counties. Other Bay area counties are outside of the focused area. The primary difference is that the more detailed MTC network structure is included in focused areas, while a skeleton roadway network is structured outside of the focused areas. Because the network outside of the focused areas is reduced, the speeds on the skeleton roadway network are fixed (not variable depending on capacity) and are not expected to represent actual traffic volumes on those roadway links.

To ensure regional consistency, the MTM utilizes a technique referred to as "balancing". The balancing is done to guarantee that the trip end estimates and forecasts are roughly equal between the MTC and Marin Model, and guarantees that the trip flows between counties are also equal between the two models.

The MTM mode choice procedure occurs after the person-trip generation and trip distribution steps. It includes a detailed mode choice analysis that divides trips into transit-person trips, 2 person vehicle-person trips, 3+ person vehicle-person trips, or drive alone vehicle-person trips for home-based-work trips. Simpler formulas for vehicle-person trips are used for all other trip purposes, which are home-based shop/other trips, home-based social-recreational trips, home-based school trips, and non-home-based trips based on San Francisco Bay Area Travel Survey 2000 - Regional Travel Characteristics Report (August 2004).

B. Demographic/Economic/Land Use Forecasts

MTM is based on ABAG P*rojections* 2003 land use data. The MTM structure requires that land uses be allocated at a finer detail for Marin, Sonoma and San Francisco County than ABAG *Projections* 2003 provides. In the disaggregating process, Marin County has recognized some inconsistencies in Marin land uses by census tract and has made corresponding adjustments. Still, the overall land use attributes for Marin County as a whole are consistent with ABAG. Land use data outside of Marin was obtained from ABAG *Projections* '03. The land use comparisons are shown in Tables B-1 to B-3.

Future year allocations by census tract provided by ABAG have been similarly refined. For this reason, individual census tracts do not contain land use attributes identical to ABAG *Projections 2003*, but the overall county total for 2015 and 2030 are consistent with ABAG.

C. Pricing Assumptions

The MTM has made adjustments for these regional pricing assumptions:

- **Bridge Tolls**. The model assumes the current $5.00 Golden Gate Bridge and $3.00 Richmond-San Rafael Bridge tolls, adjusted to 1980 dollars.

- **Auto Parking Costs.** Auto parking costs have been kept at the 1980 fixed costs obtained from the *101 Corridor Study*. The Corridor Study set parking costs for San Francisco ranging from 50 cent per day to $2.60 per day in 1979 dollars. No other auto parking costs were assumed in the focused area.

- **Auto Operating Costs.** An auto operating cost of 13.12 cents per mile in 1980 dollars is assumed to confirm with the MTC model.

- **Transit Fare**: Deflated transit fare from $1987 to at $1980.

D. Network Assumptions

The MTM was originally developed in 1987 and is revalidated for 2000. The MTM uses the MTC model structure facility types and numbers of lanes for Marin County. Some additional detail in the roadway network has been added where appropriate within Marin County.

The MTM includes representations of these major roadway gateways in Marin County:

- Highway 101 - (Golden Gate Bridge) San Francisco
- Interstate 580 - (Richmond/San Rafael Bridge) Contra Costa County
- Highway 37 - Sonoma County
- Highway 101 - Sonoma County
- Highway 1 - Sonoma County

In addition, the ferry connections from Larkspur, Tiburon, and Sausalito to San Francisco are also provided as gateways.

Because of this model is a focused model, the East Bay and South Bay highway network are much less detailed than in the MTC model. A skeleton network in these locations significantly reduces run time for the model, as well as enables the model to be of a size small enough to be operated on Marin County computers. The impact of this network reduction is considered negligible to congestion in Marin County.

E. Auto Ownership Assumptions

The Marin Travel Model utilizes MTC and ABAG's Projection 2003 information on auto ownership for mode split.

F. Trip Generation

The Marin Travel Model uses Household size and income quartile cross class and has been revised using adjustment factors designed to replicate actual MTC trip generation patterns between counties into the model. In this way, aggregate trip generation by county is also consistent with the MTC model. Trip Generation comparisons are shown in Tables F-1-1 through F-5-2.

G. Trip Distribution

The Marin Travel Model uses the MTC trip distribution patterns between counties into the model. In this way, aggregate trip distribution by county is completely consistent with the MTC model.

By utilizing this technique, Marin County has achieved a closer trip distribution match with the MTC model than is normally expected with this focused model structure. Tables G-1-1 through G-5-2 describe the trip distribution comparisons for daily person trips.

H. Mode Choice

The Marin Travel Model mode choice analysis is consistent with MTC methodology, the Home Based Work Mode Choice Model "TOT_TW". It contains a multinomial logit model structure for work trips, using drive alone, 2 person, 3+ person and transit (transit person trips are included walk and bike trips). Non-work trips are assigned to auto and transit with auto occupancies inputted at this stage.

I. Traffic Assignment

The Marin Travel Model provides A.M. peak, P.M. peak, non-peak, ADT, traffic and transit assignments similar to the MTC methodology, with the same A.M. and P.M. peak hour factors assumptions (Table I).

Transportation Authority of Marin (TAM)
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Table B-1

	San Francisco			Marin			Sonoma		
	ABAG P-03	MTM (1)	% Diff.	ABAG P-03	MTM (2)	% Diff.	ABAG P-03	MTM (1)	% Diff.
Households									
2000	329,699	329,699	0.0%	100,653	99,654	1.0%	172,406	172,406	0.0%
2015	352,797	352,797	0.0%	109,783	108,682	1.0%	202,358	202,358	0.0%
2030	402,597	402,597	0.0%	115,379	114,226	1.0%	213,158	213,158	0.0%
% Increase									
2000-2015	7.01%	7.01%		9.07%	9.06%		17.37%	17.37%	
2015-2030	14.12%	14.12%		5.10%	5.10%		5.34%	5.34%	
Population									
2000	776,734	776,734	0.0%	247,290	244,819	1.0%	458,616	458,616	0.0%
2015	827,178	827,178	0.0%	271,166	268,457	1.0%	539,511	539,511	0.0%
2030	935,068	935,068	0.0%	283,090	280,260	1.0%	565,707	565,707	0.0%
% Increase									
2000-2015	6.49%	6.49%		9.66%	9.66%		17.64%	17.64%	
2015-2030	13.04%	13.04%		4.40%	4.40%		4.86%	4.86%	
Jobs									
2000	634,449	634,449	0.0%	122,970	121,748	1.0%	205,223	205,223	0.0%
2015	728,236	728,236	0.0%	144,584	143,139	1.0%	263,717	263,717	0.0%
2030	818,684	818,684	0.0%	163,966	162,324	1.0%	321,016	321,016	0.0%
% Increase									
2000-2015	14.78%	14.78%		17.58%	17.57%		28.50%	28.50%	
2015-2030	12.42%	12.42%		13.41%	13.40%		21.73%	21.73%	
Emp Resid									
2000	444,851	444,851	0.0%	140,955	142,367	-1.0%	229,308	229,308	0.0%
2015	479,794	479,794	0.0%	158,698	160,285	-1.0%	289,402	289,402	0.0%
2030	547,502	547,502	0.0%	166,100	167,762	-1.0%	309,096	309,096	0.0%
% Increase									
2000-2015	7.85%	7.85%		12.59%	12.59%		26.21%	26.21%	
2015-2030	14.11%	14.11%		4.66%	4.66%		6.81%	6.81%	

Notes: (1) All data based on MTC/ABAG Projections 2003 series
(2) Marin Travel Model (MTM)

Transportation Authority of Marin (TAM)
Marin Travel Model (MTM)
Land Use Input for the Bay Area Counties

Table B-2

	San Mateo			Santa Clara			Alameda		
	ABAG P-03	MTM (1)	% Diff.	ABAG P-03	MTM (2)	% Diff.	ABAG P-03	MTM (1)	% Diff.
Households									
2000	254,110	254,110	0.0%	565,878	565,878	0.0%	523,375	523,375	0.0%
2015	277,992	277,992	0.0%	662,088	662,088	0.0%	587,693	587,693	0.0%
2030	301,016	301,016	0.0%	768,065	768,065	0.0%	675,933	675,933	0.0%
% Increase									
2000-2015	9.40%	9.40%		17.00%	17.00%		12.29%	12.29%	
2015-2030	8.28%	8.28%		16.01%	16.01%		15.01%	15.01%	
Population									
2000	707,165	707,165	0.0%	1,682,588	1,682,588	0.0%	1,443,745	1,443,745	0.0%
2015	785,212	785,212	0.0%	1,977,692	1,977,692	0.0%	1,652,676	1,652,676	0.0%
2030	845,945	845,945	0.0%	2,274,167	2,274,167	0.0%	1,888,275	1,888,275	0.0%
% Increase									
2000-2015	11.04%	11.04%		17.54%	17.54%		14.47%	14.47%	
2015-2030	7.73%	7.73%		14.99%	14.99%		14.26%	14.26%	
Jobs									
2000	395,914	395,914	0.0%	1,092,372	1,092,372	0.0%	751,688	751,688	0.0%
2015	461,675	461,675	0.0%	1,299,217	1,299,217	0.0%	921,377	921,377	0.0%
2030	526,569	526,569	0.0%	1,481,683	1,481,683	0.0%	1,087,379	1,087,379	0.0%
% Increase									
2000-2015	16.61%	16.61%		18.94%	18.94%		22.57%		
2015-2030	14.06%	14.06%		14.04%	14.04%		18.02%		
Emp Resid									
2000	403,086	403,086	0.0%	959,074	959,074	0.0%	697,885	697,885	0.0%
2015	450,299	450,299	0.0%	1,125,595	1,125,595	0.0%	846,406	846,406	0.0%
2030	490,702	490,702	0.0%	1,313,394	1,313,394	0.0%	1,063,204	1,063,204	0.0%
% Increase									
2000-2015	11.71%	11.71%		17.36%	17.36%		21.28%	21.28%	
2015-2030	8.97%	8.97%		16.68%	16.68%		25.61%	25.61%	

Notes: (1) All data based on MTC/ABAG Projections 2003 series
(2) Marin Travel Model (MTM)

Transportation Authority of Marin (TAM)
Marin Travel Model (MTM)
Land Use Input for the Bay Area Counties

Table B-3

	Contra Costa			Solano			Napa		
	ABAG P-03	MTM (1)	% Diff.	ABAG P-03	MTM (2)	% Diff.	ABAG P-03	MTM (1)	% Diff.
Households									
2000	344,142	344,142	0.0%	130,404	130,404	0.0%	45,402	45,402	0.0%
2015	408,554	408,554	0.0%	169,232	169,232	0.0%	53,562	53,562	0.0%
2030	459,900	459,900	0.0%	193,371	193,371	0.0%	57,232	57,232	0.0%
% Increase									
2000-2015	18.72%	18.72%		29.78%	29.78%		17.97%	17.97%	
2015-2030	12.57%	12.57%		14.26%	14.26%		6.85%	6.85%	
Population									
2000	948,818	948,818	0.0%	394,542	394,542	0.0%	124,279	124,279	0.0%
2015	1,129,303	1,129,303	0.0%	512,086	512,086	0.0%	145,400	145,400	0.0%
2030	1,257,290	1,257,290	0.0%	577,288	577,288	0.0%	153,503	153,503	0.0%
% Increase									
2000-2015	19.02%	19.02%		29.79%	29.79%		16.99%	16.99%	
2015-2030	11.33%	11.33%		12.73%	12.73%		5.57%	5.57%	
Jobs									
2000	361,133	361,133	0.0%	123,215	123,215	0.0%	66,834	66,834	0.0%
2015	448,165	448,165	0.0%	160,640	160,640	0.0%	82,323	82,323	0.0%
2030	536,440	536,440	0.0%	204,676	204,676	0.0%	88,998	88,998	0.0%
% Increase									
2000-2015	24.10%	24.10%		30.37%	30.37%		23.18%	23.18%	
2015-2030	19.70%	19.70%		27.41%	27.41%		8.11%	8.11%	
Emp Resid									
2000	483,901	483,901	0.0%	179,517	179,517	0.0%	67,111	67,111	0.0%
2015	613,256	613,256	0.0%	253,801	253,801	0.0%	77,697	77,697	0.0%
2030	704,748	704,748	0.0%	305,500	305,500	0.0%	82,997	82,997	0.0%
% Increase									
2000-2015	26.73%	26.73%		41.38%	41.38%		15.77%	15.77%	
2015-2030	14.92%	14.92%		20.37%	20.37%		6.82%	6.82%	

Notes: (1) All data based on MTC/ABAG Projections 2003 series
(2) Marin Travel Model (MTM)

Transportation Authority of Marin (TAM)

Marin Travel Model (MTM)-Trip Generation Comparison-ABAG's Proj. 2003

Table F-1-1 Trip Production Home-Based Work Person Trips (HBW)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	660,683	660,692	-9	0.0%	695,518	691,932	3,586	0.5%	822,935	822,925	10	0.0%
San Mateo	595,081	595,068	13	0.0%	615,914	616,319	-405	-0.1%	718,677	718,677	0	0.0%
Santa Clara	1,325,355	1,325,336	19	0.0%	1,584,098	1,585,156	-1,058	-0.1%	1,946,560	1,946,549	11	0.0%
Alameda	1,070,256	1,070,270	-14	0.0%	1,305,708	1,306,556	-848	-0.1%	1,685,883	1,685,914	-31	0.0%
Contra Costa	700,745	700,755	-10	0.0%	907,097	907,666	-569	-0.1%	1,082,426	1,082,452	-26	0.0%
Solano	263,357	263,360	-3	0.0%	377,368	377,613	-245	-0.1%	460,181	460,191	-10	0.0%
Napa	88,877	88,875	2	0.0%	104,263	104,325	-62	-0.1%	115,315	115,314	1	0.0%
Sonoma	347,075	347,079	-4	0.0%	442,312	442,614	-302	-0.1%	480,564	480,550	14	0.0%
Marin	196,852	196,844	8	0.0%	219,721	219,865	-144	-0.1%	243,003	242,994	9	0.0%
TOTAL	5,248,281	5,248,279	2	0.0%	6,251,999	6,252,046	-47	0.0%	7,555,544	7,555,566	-22	0.0%

Table F-1-2 Trip Attraction Home-Based Work Person Trips (HBW)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	971,054	971,021	33	0.0%	1,123,414	1,123,374	40	0.0%	1,324,117	1,324,099	18	0.0%
San Mateo	545,626	545,609	17	0.0%	640,300	640,298	2	0.0%	771,580	771,582	-2	0.0%
Santa Clara	1,467,353	1,467,383	-30	0.0%	1,784,548	1,784,604	-56	0.0%	2,163,985	2,163,999	-14	0.0%
Alameda	1,018,281	1,018,313	-32	0.0%	1,207,423	1,207,464	-41	0.0%	1,472,421	1,472,419	2	0.0%
Contra Costa	508,358	508,367	-9	0.0%	618,650	618,648	2	0.0%	764,948	764,964	-16	0.0%
Solano	171,288	171,293	-5	0.0%	211,552	211,547	5	0.0%	268,139	268,146	-7	0.0%
Napa	91,961	91,957	4	0.0%	106,660	106,658	2	0.0%	116,039	116,035	4	0.0%
Sonoma	295,892	295,889	3	0.0%	356,018	356,016	2	0.0%	432,080	432,090	-10	0.0%
Marin	178,467	178,469	-2	0.0%	203,434	203,428	6	0.0%	242,236	242,232	4	0.0%
TOTAL	5,248,280	5,248,301	-21	0.0%	6,251,999	6,252,037	-38	0.0%	7,555,545	7,555,566	-21	0.0%

Notes:

(1) MTC County-County Person Trip Forecasts HBW Trips, 1990-2030 Data Summary, Table 8 - Jnuary 2005

(2) Marin Travel Model (MTM) Forecasts for Years 2000, 2015 & 2030 - Based on ABAG' Projections 2003

Transportation Authority of Marin (TAM)

Marin Travel Model (MTM)-Trip Generation Comparison-ABAG's Proj. 2003

Table F-2-1 Trip Production Home-Based Shop/Other Person Trips (HBSH)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	524,742.	524,735	7	0.0%	587,354	587,352	2	0.0%	666,997	667,009	-12	0.0%
San Mateo	588,603.	588,595	8	0.0%	720,830	720,833	-3	0.0%	768,426	768,433	-7	0.0%
Santa Clara	1,465,349.	1,465,341	8	0.0%	1,786,036	1,786,049	-13	0.0%	2,057,721	2,057,722	-1	0.0%
Alameda	1,025,245.	1,025,240	5	0.0%	1,209,401	1,209,413	-12	0.0%	1,405,785	1,405,806	-21	0.0%
Contra Costa	711,980.	711,996	-16	0.0%	877,336	877,329	7	0.0%	994,940	994,947	-7	0.0%
Solano	277,663.	277,669	-6	0.0%	375,269	375,272	-3	0.0%	432,136	432,145	-9	0.0%
Napa	92,564.	92,566	-2	0.0%	114,326	114,328	-2	0.0%	122,272	122,270	2	0.0%
Sonoma	336,406.	336,415	-9	0.0%	415,960	415,979	-19	0.0%	450,317	450,299	18	0.0%
Marin	178,535.	178,531	4	0.0%	207,527	207,539	-12	0.0%	225,518	225,531	-13	0.0%
TOTAL	5,201,087.	5,201,088	-1	0.0%	6,294,039	6,294,094	-55	0.0%	7,124,112	7,124,162	-50	0.0%

Table F-2-2 Trip Attraction Home-Based Shop/Other Person Trips (HBSH)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	591,782.	591,484	298	0.1%	696,240	704,469	-8,229	-1.2%	769,017	766,731	2,286	0.3%
San Mateo	575,781.	575,758	23	0.0%	695,279	693,154	2,125	0.3%	767,370	769,331	-1,961	-0.3%
Santa Clara	1,446,596.	1,446,543	53	0.0%	1,719,788	1,714,615	5,173	0.3%	1,967,318	1,972,345	-5,027	-0.3%
Alameda	1,009,643.	1,009,607	36	0.0%	1,197,931	1,194,309	3,622	0.3%	1,383,455	1,386,998	-3,543	-0.3%
Contra Costa	701,633.	701,614	19	0.0%	883,483	880,809	2,674	0.3%	1,007,477	1,010,030	-2,553	-0.3%
Solano	274,834.	274,822	12	0.0%	377,607	376,465	1,142	0.3%	439,586	440,708	-1,122	-0.3%
Napa	93,559.	93,556	3	0.0%	112,784	112,443	341	0.3%	115,215	115,511	-296	-0.3%
Sonoma	332,056.	331,839	217	0.1%	412,812	417,053	-4,241	-1.0%	463,705	453,238	10,467	2.3%
Marin	175,203.	175,868	-665	-0.4%	198,116	200,759	-2,643	-1.3%	210,970	209,271	1,699	0.8%
TOTAL	5,201,087	5,201,091	-4	0.0%	6,294,040	6,294,076	-36	0.0%	7,124,113	7,124,163	-50	0.0%

Notes:

(1) MTC County-County Person Trip Forecasts HBW Trips, 1990-2030 Data Summary, Table 8 - Jnuary 2005

(2) Marin Travel Model (MTM) Forecasts for Years 2000, 2015 & 2030 - Based on ABAG' Projections 2003

Transportation Authority of Marin (TAM)

Marin Travel Model (MTM)-Trip Generation Comparison-ABAG's Proj. 2003

Table F-3-1 Trip Production Home-Based Social/Recreation Person Trips (HBSR)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francis	244,086	244,077	9	0.0%	272,505	272,497	8	0.0%	317,260	317,279	-19	0.0%
San Mateo	326,829	326,836	-7	0.0%	386,433	386,436	-3	0.0%	426,082	426,088	-6	0.0%
Santa Clara	730,992	731,002	-10	0.0%	891,457	891,436	21	0.0%	1,051,089	1,051,098	-9	0.0%
Alameda	421,910	421,893	17	0.0%	490,647	490,664	-17	0.0%	570,538	570,555	-17	0.0%
Contra Cost	331,182	331,168	14	0.0%	403,657	403,651	6	0.0%	463,962	463,948	14	0.0%
Solano	122,892	122,893	-1	0.0%	164,440	164,443	-3	0.0%	190,018	190,026	-8	0.0%
Napa	41,733	41,733	0	0.0%	52,429	52,426	3	0.0%	57,749	57,747	2	0.0%
Sonoma	156,710	156,704	6	0.0%	194,105	194,101	4	0.0%	210,804	210,800	4	0.0%
Marin	92,855	92,856	-1	0.0%	104,944	104,938	6	0.0%	115,197	115,198	-1	0.0%
TOTAL	2,469,189	2,469,162	27	0.0%	2,960,617	2,960,592	25	0.0%	3,402,699	3,402,739	-40	0.0%

Table F-3-2 Trip Attraction Home-Based Social/Recreation Person Trips (HBSR)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francis	258,759	258,757	2	0.0%	296,632	296,641	-9	0.0%	338,605	338,596	9	0.0%
San Mateo	323,829	323,820	9	0.0%	377,445	377,436	9	0.0%	422,497	422,490	7	0.0%
Santa Clara	729,104	729,067	37	0.0%	868,601	868,577	24	0.0%	1,008,086	1,008,108	-22	0.0%
Alameda	415,869	415,889	-20	0.0%	492,947	492,935	12	0.0%	576,855	576,854	1	0.0%
Contra Cost	330,141	330,153	-12	0.0%	411,511	411,516	-5	0.0%	476,969	476,984	-15	0.0%
Solano	121,634	121,637	-3	0.0%	163,438	163,440	-2	0.0%	195,022	195,027	-5	0.0%
Napa	41,503	41,500	3	0.0%	51,389	51,387	2	0.0%	54,773	54,772	1	0.0%
Sonoma	155,048	155,042	6	0.0%	192,456	192,468	-12	0.0%	215,107	215,117	-10	0.0%
Marin	93,302	93,305	-3	0.0%	106,198	106,196	2	0.0%	114,785	114,791	-6	0.0%
TOTAL	2,469,189	2,469,170	19	0.0%	2,960,617	2,960,596	21	0.0%	3,402,699	3,402,739	-40	0.0%

Notes:
(1) MTC County-County Person Trip Forecasts HBW Trips, 1990-2030 Data Summary, Table 8 - Jnuary 2005
(2) Marin Travel Model (MTM) Forecasts for Years 2000, 2015 & 2030 - Based on ABAG' Projections 2003

Transportation Authority of Marin (TAM)

Marin Travel Model (MTM)-Trip Generation Comparison-ABAG's Proj. 2003

Table F-4-1 Trip Production Home-Based School Person Trips (HBSch)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisc	201,937	201,936	1	0.0%	293,777	293,778	-1	0.0%	244,446	244,446	0	0.0%
San Mateo	227,249	227,251	-2	0.0%	232,754	232,762	-8	0.0%	222,519	222,512	7	0.0%
Santa Clara	592,561	592,588	-27	0.0%	678,847	678,839	8	0.0%	681,819	681,811	8	0.0%
Alameda	513,343	513,327	16	0.0%	534,247	534,272	-25	0.0%	560,770	560,753	17	0.0%
Contra Costa	340,518	340,528	-10	0.0%	335,110	335,097	13	0.0%	351,347	351,363	-16	0.0%
Solano	150,337	150,330	7	0.0%	165,538	165,543	-5	0.0%	176,664	176,664	0	0.0%
Napa	41,441	41,438	3	0.0%	40,481	40,483	-2	0.0%	42,032	42,031	1	0.0%
Sonoma	158,454	158,450	4	0.0%	151,904	151,897	7	0.0%	148,984	148,989	-5	0.0%
Marin	68,758	68,761	-3	0.0%	69,518	69,505	13	0.0%	62,793	62,798	-5	0.0%
TOTAL	2,294,598.	2,294,609	-11	0.0%	2,502,176	2,502,176	0	0.0%	2,491,374	2,491,367	7	0.0%

Table F-4-2 Trip Attraction Home-Based School Person Trips (HBSch)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisc	219,383	219,420	-37	0.0%	310,119	310,094	25	0.0%	261,521	261,515	6	0.0%
San Mateo	210,657	210,687	-30	0.0%	217,519	217,514	5	0.0%	206,946	206,933	13	0.0%
Santa Clara	607,441	607,558	-117	0.0%	693,788	693,781	7	0.0%	697,019	697,004	15	0.0%
Alameda	516,928	517,015	-87	0.0%	537,977	538,023	-46	0.0%	564,609	564,643	-34	0.0%
Contra Costa	325,348	325,412	-64	0.0%	320,146	320,147	-1	0.0%	335,287	335,290	-3	0.0%
Solano	143,648	143,292	356	0.2%	157,891	157,894	-3	0.0%	169,658	169,658	0	0.0%
Napa	41,567	41,576	-9	0.0%	40,633	40,637	-4	0.0%	42,171	42,173	-2	0.0%
Sonoma	162,403	162,412	-9	0.0%	156,034	156,025	9	0.0%	152,840	152,826	14	0.0%
Marin	67,223	67,236	-13	0.0%	68,070	68,059	11	0.0%	61,324	61,327	-3	0.0%
TOTAL	2,294,598	2,294,608	-10	0.0%	2,502,177	2,502,174	3	0.0%	2,491,375	2,491,369	6	0.0%

Notes:
(1) MTC County-County Person Trip Forecasts HBW Trips, 1990-2030 Data Summary, Table 8 - Jnuary 2005
(2) Marin Travel Model (MTM) Forecasts for Years 2000, 2015 & 2030 - Based on ABAG' Projections 2003

Transportation Authority of Marin (TAM)

Marin Travel Model (MTM)-Trip Generation Comparison-ABAG's Proj. 2003

Table F-5-1 Trip Production Non Home-Based Person Trips (NHB)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	920,563.	920,584	-21	0.0%	1,054,299	1,054,307	-8	0.0%	1,185,720	1,185,700	20	0.0%
San Mateo	699,051.	699,056	-5	0.0%	808,314	808,318	-4	0.0%	914,803	914,817	-14	0.0%
Santa Clara	1,602,743.	1,602,737	6	0.0%	1,870,147	1,870,134	13	0.0%	2,147,334	2,147,356	-22	0.0%
Alameda	1,103,449.	1,103,432	17	0.0%	1,308,358	1,308,380	-22	0.0%	1,536,327	1,536,328	-1	0.0%
Contra Costa	637,221.	637,214	7	0.0%	781,916	781,931	-15	0.0%	919,749	919,754	-5	0.0%
Solano	231,686.	231,688	-2	0.0%	301,822	301,825	-3	0.0%	369,573	369,571	2	0.0%
Napa	97,313.	97,314	-1	0.0%	118,692	118,693	-1	0.0%	125,585	125,584	1	0.0%
Sonoma	312,211.	312,226	-15	0.0%	387,394	387,397	-3	0.0%	451,233	451,240	-7	0.0%
Marin	216,423.	216,426	-3	0.0%	244,756	244,754	2	0.0%	268,797	268,793	4	0.0%
TOTAL	5,820,660.	5,820,677	-17	0.0%	6,875,698.	6,875,739.	-41	0.0%	7,919,121	7,919,143	-22	0.0%

Table F-5-2 Trip Attraction Non Home-Based Person Trips (NHB)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	919,901.	919,882	19	0.0%	1,056,747	1,056,770	-23	0.0%	1,191,218	1,191,239	-21	0.0%
San Mateo	700,635.	700,625	10	0.0%	812,117	812,140	-23	0.0%	918,760	918,764	-4	0.0%
Santa Clara	1,604,739.	1,604,770	-31	0.0%	1,873,524	1,873,531	-7	0.0%	2,157,597	2,157,625	-28	0.0%
Alameda	1,104,127.	1,104,148	-21	0.0%	1,304,107	1,304,096	11	0.0%	1,530,495	1,530,476	19	0.0%
Contra Costa	634,667.	634,679	-12	0.0%	778,264	778,276	-12	0.0%	913,300	913,313	-13	0.0%
Solano	231,931.	231,927	4	0.0%	302,871	302,866	5	0.0%	369,273	369,271	2	0.0%
Napa	97,466.	97,464	2	0.0%	118,865	118,866	-1	0.0%	125,792	125,793	-1	0.0%
Sonoma	312,504.	312,504	0	0.0%	386,849	386,831	18	0.0%	447,339	447,331	8	0.0%
Marin	214,690.	214,679	11	0.0%	242,355	242,359	-4	0.0%	265,347	265,342	5	0.0%
TOTAL	5,820,660	5,820,678	-18	0.0%	6,875,699	6,875,735	-36	0.0%	7,919,121	7,919,154	-33	0.0%

Notes:
(1) MTC County-County Person Trip Forecasts HBW Trips, 1990-2030 Data Summary, Table 8 - Jnuary 2005
(2) Marin Travel Model (MTM) Forecasts for Years 2000, 2015 & 2030 - Based on ABAG' Projections 2003

Transportation Authority of Marin (TAM)

Marin Travel Model (MTM)-Trip Distribution Comparison-ABAG's Proj. 2003

Table G-1-1 Trip Production Home-Based Work Person Trips (HBW)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	660,683	660,577	106	0.0%	695,518	692,174	3,344	0.5%	822,935	822,774	161	0.0%
San Mateo	595,081	595,090	-9	0.0%	615,914	617,278	-1,364	-0.2%	718,677	719,721	-1,044	-0.1%
Santa Clara	1,325,355	1,325,386	-31	0.0%	1,584,098	1,587,623	-3,525	-0.2%	1,946,560	1,949,376	-2,816	-0.1%
Alameda	1,070,256	1,070,310	-54	0.0%	1,305,708	1,308,590	-2,882	-0.2%	1,685,883	1,688,363	-2,480	-0.1%
Contra Costa	700,745	700,781	-36	0.0%	907,097	909,079	-1,982	-0.2%	1,082,426	1,084,024	-1,598	-0.1%
Solano	263,357	263,370	-13	0.0%	377,368	378,201	-833	-0.2%	460,181	460,859	-678	-0.1%
Napa	88,877	88,878	-1	0.0%	104,263	104,487	-224	-0.2%	115,315	115,481	-166	-0.1%
Sonoma	347,075	347,092	-17	0.0%	442,312	440,600	1,712	0.4%	480,564	478,451	2,113	0.4%
Marin	196,852	196,851	1	0.0%	219,721	213,853	5,868	2.7%	243,003	236,279	6,724	2.8%
TOTAL	5,248,281	5,248,335	-54	0.0%	6,251,999	6,251,885	114	0.0%	7,555,544	7,555,328	216	0.0%

Table G-1-2 Trip Attraction Home-Based Work Person Trips (HBW)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	971,054	972,378	-1,324	-0.1%	1,123,414	1,125,622	-2,208	-0.2%	1,324,117	1,327,012	-2,895	-0.2%
San Mateo	545,626	546,372	-746	-0.1%	640,300	641,579	-1,279	-0.2%	771,580	773,280	-1,700	-0.2%
Santa Clara	1,467,353	1,469,434	-2,081	-0.1%	1,784,548	1,788,174	-3,626	-0.2%	2,163,985	2,168,760	-4,775	-0.2%
Alameda	1,018,281	1,019,736	-1,455	-0.1%	1,207,423	1,209,880	-2,457	-0.2%	1,472,421	1,475,658	-3,237	-0.2%
Contra Costa	508,358	509,078	-720	-0.1%	618,650	619,886	-1,236	-0.2%	764,948	766,647	-1,699	-0.2%
Solano	171,288	171,532	-244	-0.1%	211,552	211,970	-418	-0.2%	268,139	268,736	-597	-0.2%
Napa	91,961	92,086	-125	-0.1%	106,660	106,871	-211	-0.2%	116,039	116,290	-251	-0.2%
Sonoma	295,892	289,000	6,892	2.4%	356,018	348,567	7,451	2.1%	432,080	421,536	10,544	2.5%
Marin	178,467	178,718	-251	-0.1%	203,434	199,336	4,098	2.1%	242,236	237,408	4,828	2.0%
TOTAL	5,248,280	5,248,334	-54	0.0%	6,251,999	6,251,885	114	0.0%	7,555,545	7,555,327	218	0.0%

Notes:

(1) MTC County-County Person Trip Forecasts HBW Trips, 1990-2030 Data Summary, Table 8 - Jnuary 2005

(2) Marin Travel Model (MTM) Forecasts for Years 2000, 2015 & 2030 - Based on ABAG' Projections 2003

Transportation Authority of Marin (TAM)

Marin Travel Model (MTM)-Trip Distribution Comparison-ABAG's Proj. 2003

Table G-2-1 Trip Production Home-Based Shop/Other Person Trips (HBSH)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	524,742.	524,341	401	0.1%	587,354	585,824	1,530	0.3%	666,997	665,244	1,753	0.3%
San Mateo	588,603.	588,217	386	0.1%	720,830	719,526	1,304	0.2%	768,426	767,233	1,193	0.2%
Santa Clara	1,465,349.	1,464,269	1,080	0.1%	1,786,036	1,782,442	3,594	0.2%	2,057,721	2,053,871	3,850	0.2%
Alameda	1,025,245.	1,025,053	192	0.0%	1,209,401	1,208,766	635	0.1%	1,405,785	1,405,218	567	0.0%
Contra Costa	711,980.	712,361	-381	-0.1%	877,336	878,567	-1,231	-0.1%	994,940	996,622	-1,682	-0.2%
Solano	277,663.	278,046	-383	-0.1%	375,269	376,509	-1,240	-0.3%	432,136	433,649	-1,513	-0.3%
Napa	92,564.	92,780	-216	-0.2%	114,326	114,979	-653	-0.6%	122,272	122,874	-602	-0.5%
Sonoma	336,406.	337,438	-1,032	-0.3%	415,960	419,355	-3,395	-0.8%	450,317	453,539	-3,222	-0.7%
Marin	178,535.	178,559	-24	0.0%	207,527	207,785	-258	-0.1%	225,518	225,833	-315	-0.1%
TOTAL	5,201,087.	5,201,064	23	0.0%	6,294,039	6,293,753	286	0.0%	7,124,112	7,124,083	29	0.0%

Table G-2-2 Trip Attraction Home-Based Shop/Other Person Trips (HBSH)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	591,782.	542,523	49,259	9.1%	696,240	607,311	88,929	14.6%	769,017	640,957	128,060	20.0%
San Mateo	575,781.	582,915	-7,134	-1.2%	695,279	706,325	-11,046	-1.6%	767,370	785,718	-18,348	-2.3%
Santa Clara	1,446,596.	1,464,523	-17,927	-1.2%	1,719,788	1,747,195	-27,407	-1.6%	1,967,318	2,014,356	-47,038	-2.3%
Alameda	1,009,643.	1,022,156	-12,513	-1.2%	1,197,931	1,217,003	-19,072	-1.6%	1,383,455	1,416,541	-33,086	-2.3%
Contra Costa	701,633.	710,335	-8,702	-1.2%	883,483	897,546	-14,063	-1.6%	1,007,477	1,031,544	-24,067	-2.3%
Solano	274,834.	278,238	-3,404	-1.2%	377,607	383,618	-6,011	-1.6%	439,586	450,095	-10,509	-2.3%
Napa	93,559.	94,719	-1,160	-1.2%	112,784	114,580	-1,796	-1.6%	115,215	117,971	-2,756	-2.3%
Sonoma	332,056.	335,964	-3,908	-1.2%	412,812	424,574	-11,762	-2.8%	463,705	462,260	1,445	0.3%
Marin	175,203.	169,692	5,511	3.2%	198,116	195,601	2,515	1.3%	210,970	204,641	6,329	3.1%
TOTAL	5,201,087	5,201,065	22	0.0%	6,294,040	6,293,753	287	0.0%	7,124,113	7,124,083	30	0.0%

Notes:

(1) MTC County-County Person Trip Forecasts HBW Trips, 1990-2030 Data Summary, Table 8 - Jnuary 2005

(2) Marin Travel Model (MTM) Forecasts for Years 2000, 2015 & 2030 - Based on ABAG' Projections 2003

Transportation Authority of Marin (TAM)

Marin Travel Model (MTM)-Trip Distribution Comparison-ABAG's Proj. 2003

Table G-3-1 Trip Production Home-Based Social/Recreation Person Trips (HBSR)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	244,086	244,042	44	0.0%	272,505	272,237	268	0.1%	317,260	316,817	443	0.1%
San Mateo	326,829	326,851	-22	0.0%	386,433	386,474	-41	0.0%	426,082	426,066	16	0.0%
Santa Clara	730,992	731,030	-38	0.0%	891,457	891,507	-50	0.0%	1,051,089	1,050,992	97	0.0%
Alameda	421,910	421,914	-4	0.0%	490,647	490,722	-75	0.0%	570,538	570,551	-13	0.0%
Contra Costa	331,182	331,188	-6	0.0%	403,657	403,717	-60	0.0%	463,962	463,996	-34	0.0%
Solano	122,892	122,903	-11	0.0%	164,440	164,481	-41	0.0%	190,018	190,076	-58	0.0%
Napa	41,733	41,741	-8	0.0%	52,429	52,452	-23	0.0%	57,749	57,808	-59	-0.1%
Sonoma	156,710	156,744	-34	0.0%	194,105	194,235	-130	-0.1%	210,804	211,131	-327	-0.2%
Marin	92,855	92,864	-9	0.0%	104,944	104,898	46	0.0%	115,197	115,156	41	0.0%
TOTAL	2,469,189	2,469,277	-88	0.0%	2,960,617	2,960,723	-106	0.0%	3,402,699	3,402,593	106	0.0%

Table G-3-2 Trip Attraction Home-Based Social/Recreation Person Trips (HBSR)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	258,759	258,783	-24	0.0%	296,632	296,730	-98	0.0%	338,605	338,664	-59	0.0%
San Mateo	323,829	323,852	-23	0.0%	377,445	377,549	-104	0.0%	422,497	422,575	-78	0.0%
Santa Clara	729,104	729,139	-35	0.0%	868,601	868,837	-236	0.0%	1,008,086	1,008,310	-224	0.0%
Alameda	415,869	415,930	-61	0.0%	492,947	493,083	-136	0.0%	576,855	576,969	-114	0.0%
Contra Costa	330,141	330,186	-45	0.0%	411,511	411,639	-128	0.0%	476,969	477,079	-110	0.0%
Solano	121,634	121,649	-15	0.0%	163,438	163,489	-51	0.0%	195,022	195,066	-44	0.0%
Napa	41,503	41,504	-1	0.0%	51,389	51,402	-13	0.0%	54,773	54,783	-10	0.0%
Sonoma	155,048	155,057	-9	0.0%	192,456	192,526	-70	0.0%	215,107	215,160	-53	0.0%
Marin	93,302	93,178	124	0.1%	106,198	105,469	729	0.7%	114,785	113,988	797	0.7%
TOTAL	2,469,189	2,469,278	-89	0.0%	2,960,617	2,960,724	-107	0.0%	3,402,699	3,402,594	105	0.0%

Notes:
(1) MTC County-County Person Trip Forecasts HBW Trips, 1990-2030 Data Summary, Table 8 - Jnuary 2005
(2) Marin Travel Model (MTM) Forecasts for Years 2000, 2015 & 2030 - Based on ABAG' Projections 2003

Transportation Authority of Marin (TAM)

Marin Travel Model (MTM)-Trip Distribution Comparison-ABAG's Proj. 2003

Table G-4-1 Trip Production Home-Based School Person Trips (HBSch)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	201,937	201,931	6	0.0%	293,777	293,837	-60	0.0%	244,446	244,413	33	0.0%
San Mateo	227,249	227,291	-42	0.0%	232,754	232,895	-141	-0.1%	222,519	222,561	-42	0.0%
Santa Clara	592,561	592,793	-232	0.0%	678,847	679,340	-493	-0.1%	681,819	681,955	-136	0.0%
Alameda	513,343	513,246	97	0.0%	534,247	534,462	-215	0.0%	560,770	560,737	33	0.0%
Contra Costa	340,518	340,330	188	0.1%	335,110	335,087	23	0.0%	351,347	351,288	59	0.0%
Solano	150,337	150,244	93	0.1%	165,538	165,552	-14	0.0%	176,664	176,945	-281	-0.2%
Napa	41,441	41,319	122	0.3%	40,481	40,410	71	0.2%	42,032	42,065	-33	-0.1%
Sonoma	158,454	158,883	-429	-0.3%	151,904	152,340	-436	-0.3%	148,984	149,759	-775	-0.5%
Marin	68,758	68,583	175	0.3%	69,518	68,229	1,289	1.9%	62,793	61,739	1,054	1.7%
TOTAL	2,294,598.	2,294,620	-22	0.0%	2,502,176	2,502,152	24	0.0%	2,491,374	2,491,462	-88	0.0%

Table G-4-2 Trip Attraction Home-Based School Person Trips (HBSch)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	219,383	219,401	-18	0.0%	310,119	310,052	67	0.0%	261,521	261,393	128	0.0%
San Mateo	210,657	210,708	-51	0.0%	217,519	217,688	-169	-0.1%	206,946	207,098	-152	-0.1%
Santa Clara	607,441	607,619	-178	0.0%	693,788	694,336	-548	-0.1%	697,019	697,561	-542	-0.1%
Alameda	516,928	517,067	-139	0.0%	537,977	538,454	-477	-0.1%	564,609	565,095	-486	-0.1%
Contra Costa	325,348	325,445	-97	0.0%	320,146	320,403	-257	-0.1%	335,287	335,558	-271	-0.1%
Solano	143,648	143,306	342	0.2%	157,891	158,020	-129	-0.1%	169,658	169,794	-136	-0.1%
Napa	41,567	41,580	-13	0.0%	40,633	40,670	-37	-0.1%	42,171	42,207	-36	-0.1%
Sonoma	162,403	162,428	-25	0.0%	156,034	156,150	-116	-0.1%	152,840	152,948	-108	-0.1%
Marin	67,223	67,066	157	0.2%	68,070	66,379	1,691	2.5%	61,324	59,808	1,516	2.5%
TOTAL	2,294,598	2,294,620	-22	0.0%	2,502,177	2,502,152	25	0.0%	2,491,375	2,491,462	-87	0.0%

Notes:
(1) MTC County-County Person Trip Forecasts HBW Trips, 1990-2030 Data Summary, Table 8 - Jnuary 2005
(2) Marin Travel Model (MTM) Forecasts for Years 2000, 2015 & 2030 - Based on ABAG' Projections 2003

Transportation Authority of Marin (TAM)

Marin Travel Model (MTM)-Trip Distribution Comparison-ABAG's Proj. 2003

Table G-5-1 Trip Production Non Home-Based Person Trips (NHB)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	920,563.	920,433	130	0.0%	1,054,299	1,053,186	1,113	0.1%	1,185,720	1,184,018	1,702	0.1%
San Mateo	699,051.	699,097	-46	0.0%	808,314	808,477	-163	0.0%	914,803	915,070	-267	0.0%
Santa Clara	1,602,743.	1,602,828	-85	0.0%	1,870,147	1,870,497	-350	0.0%	2,147,334	2,147,945	-611	0.0%
Alameda	1,103,449.	1,103,499	-50	0.0%	1,308,358	1,308,642	-284	0.0%	1,536,327	1,536,757	-430	0.0%
Contra Costa	637,221.	637,258	-37	0.0%	781,916	782,099	-183	0.0%	919,749	920,023	-274	0.0%
Solano	231,686.	231,707	-21	0.0%	301,822	301,900	-78	0.0%	369,573	369,693	-120	0.0%
Napa	97,313.	97,326	-13	0.0%	118,692	118,723	-31	0.0%	125,585	125,622	-37	0.0%
Sonoma	312,211.	312,277	-66	0.0%	387,394	387,508	-114	0.0%	451,233	451,382	-149	0.0%
Marin	216,423.	216,441	-18	0.0%	244,756	244,648	108	0.0%	268,797	268,695	102	0.0%
TOTAL	5,820,660.	5,820,866	-206	0.0%	6,875,698.	6,875,680.	18	0.0%	7,919,121	7,919,205	-84	0.0%

Table G-5-2 Trip Attraction Non Home-Based Person Trips (NHB)

County	2000				2015				2030			
	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.	MTC (1)	MTM (2)	Diff.	% Diff.
San Francisco	919,901.	919,974	-73	0.0%	1,056,747	1,057,087	-340	0.0%	1,191,218	1,191,595	-377	0.0%
San Mateo	700,635.	700,695	-60	0.0%	812,117	812,384	-267	0.0%	918,760	919,039	-279	0.0%
Santa Clara	1,604,739.	1,604,931	-192	0.0%	1,873,524	1,874,094	-570	0.0%	2,157,597	2,158,271	-674	0.0%
Alameda	1,104,127.	1,104,258	-131	0.0%	1,304,107	1,304,488	-381	0.0%	1,530,495	1,530,934	-439	0.0%
Contra Costa	634,667.	634,742	-75	0.0%	778,264	778,510	-246	0.0%	913,300	913,586	-286	0.0%
Solano	231,931.	231,950	-19	0.0%	302,871	302,957	-86	0.0%	369,273	369,382	-109	0.0%
Napa	97,466.	97,474	-8	0.0%	118,865	118,902	-37	0.0%	125,792	125,831	-39	0.0%
Sonoma	312,504.	312,535	-31	0.0%	386,849	386,947	-98	0.0%	447,339	447,465	-126	0.0%
Marin	214,690.	214,305	385	0.2%	242,355	240,312	2,043	0.9%	265,347	263,102	2,245	0.9%
TOTAL	5,820,660	5,820,864	-204	0.0%	6,875,699	6,875,681	18	0.0%	7,919,121	7,919,205	-84	0.0%

Notes:
(1) MTC County-County Person Trip Forecasts HBW Trips, 1990-2030 Data Summary, Table 8 - Jnuary 2005
(2) Marin Travel Model (MTM) Forecasts for Years 2000, 2015 & 2030 - Based on ABAG' Projections 2003

Marin Travel Model - Marin CMP

Regional Highway Peaking Factors for A.M. and P.M. peak Hours

Table I

AM/PM Peak Hour - Trip Purpose	Trip Direction	Factors
A.M. Peak Hour Factors		
Home-Based Work	H -> W	0.15436
Weighted Average	W -> H	0.00329
Home-Based Non-Work	H -> N W	0.04476
	NW -> H	0.01576
Non-Home-Based	NW -> NW	0.02404
HBW Drive Alone	H -> W	0.14597
	W -> H	0.00514
HBW Shared Ride 2+	H -> W	0.17763
	W -> H	0.00172
P.M. Peak Hour Factors		
Home-Based Work	H -> W	0.00788
Weighted Average	W -> H	0.12533
Home-Based Non-Work	H -> N W	0.03626
	NW -> H	0.06325
Non-Home-Based	NW -> NW	0.08388
HBW Drive Alone	H -> W	0.0079
	W -> H	0.12661
HBW Shared Ride 2+	H -> W	0.00857
	W -> H	0.13595

Source: Regional Highway Peaking Factors for AM and PM Peak Hour - MTCFCAST Model-
Travel Forecasting Assumptions for Transportation Plan and 2005 Transportation Improvement Program

Appendix F
2005 PERFORMANCE MEASURES MONITORING REPORT

MARIN COUNTY
CONGESTION MANAGEMENT PROGRAM

2005 Performance Measures Monitoring Report

Prepared for

Marin County Congestion Management Agency

By

Wilbur Smith Associates

June 2005

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1 INTRODUCTION

This report provides the results of the 2005 performance measures monitoring program undertaken as part of the Marin County Congestion Management Program.

2 PURPOSE OF MONITORING PROGRAM

According to California Government Code section 65089(b)(2), the Congestion Management Program (CMP) shall contain a performance element that includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods. The CMP identifies eight performance measures. These measures and their evaluation are presented in this performance measures monitoring report.

According to California Government Code section 65089.5(a), the Congestion Management Agency (CMA), based on information obtained by a monitoring program determines whether or not the County and its cities and towns are conforming to the requirements of the CMP. If an agency believes that a local government is not conforming to CMP requirements, it must then hold a noticed public hearing to determine areas of nonconformance. If after the public hearing the CMA still believes that the local government is not conforming to CMP requirements, it must provide written notice to the local government citing the specific instances of nonconformance. If after ninety days the local government has not remedied the nonconformance instances, the CMA makes a finding of nonconformance and notifies the State Controller to withhold the subventions from the *additional* gas tax made available from Proposition 111, and this could affect Discretionary Funding.

3 2005 CMP PERFORMANCE MEASURES MONITORING RESULTS

3.1. Highway Level of Service Description

The CMP monitoring program documented here consisted of several tasks. They included:

- Identification of monitoring locations
- Data collection results
- Evaluation of level of service
- Additional level of service analysis based on travel time
- Comparisons to highway level-of-service standards in the CMP

All major facilities on the CMP designated network have been counted. A total of 24 locations were counted in May 2005, and evaluated for the monitoring program. All monitoring locations were counted during the P.M. peak period (4:00 - 6:00 P.M.). For those facilities that are multi-directional, only the primary commute distance was counted and evaluated. This was deemed sufficient to record the lower range LOS for each facility. Figure 1 shows the count locations. The numerical references on the figure refer to the count locations that can be found in Table 1. The appendix includes the data collection sheets.

Since the first CMP, there has been lots of research done on highway level of service, and new methodologies have been developed that better reflect the operation of highways. In particular, the *Highway Capacity Manual, 2000* no longer uses volume-to-capacity ratio to analyze arterial

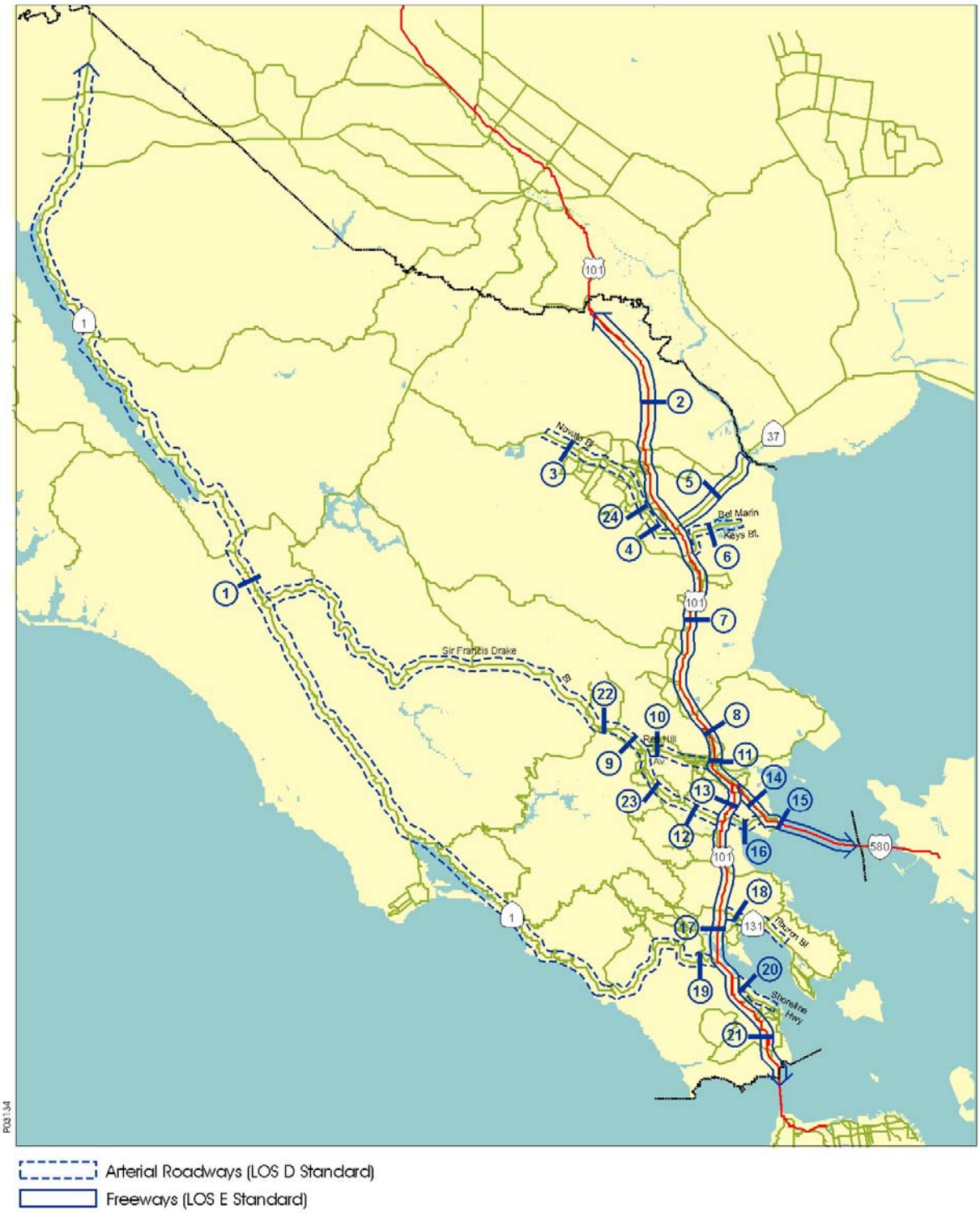
segments. Instead, it bases the level of service on travel time and/or time spent following. The Marin County CMA has determined that this year should be a transitional year, where the level of service for roadway segments is still determined based on volume-to-capacity, but that some segments would be analyzed based on travel time. This will help give some perspective to the information that will be collected during the next CMP update when the CMA completely transitions to analyzing the roadway LOS through the use of travel time data.

One capacity has been assumed for the freeway segments in all the previous CMPs and earlier versions of the *Highway Capacity Manual*. This enables a consistent analysis based on the adopted CMP standards. However, research included in the recent *Highway Capacity Manual* indicates that the capacity of basic freeway segments has increased from an estimated 2000 vehicles per hour per lane to 2,200 or 2,400 vehicles per hour per lane. This increase is largely attributed to the improved handling of vehicles that has led to more aggressive drivers. This higher capacity could substantially improve the reporting of level of service of some roadways.

Table 1: Count Locations

Segment Number	Location
1	Shoreline Highway (State Route 1), North of Sir Francis Drake Blvd
2	U.S. 101, South of the Sonoma County Line
3	Novato Blvd, East of San Marin Drive
4	Novato Blvd, West of US 101
5	Route 37, East of US 101
6	Bel Marin Keys, East of US 101
7	U.S. 101, South of Lucas Valley Road
8	U.S. 101, North of Mission
9	Sir Francis Drake Blvd, West of Red Hill Avenue
10	Red Hill Ave, East of Sir Francis Drake Blvd
11	U.S. 101, North of I-580
12	Sir Francis Drake Blvd, West of Wolfe Grade
13	U.S. 101, South of I-580
14	Interstate 580, West of Sir Francis Drake Blvd
15	Interstate 580, East of Sir Francis Drake Blvd
16	Sir Francis Drake Blvd, East of US 101
17	U.S. 101, North of State Route 131
18	Tiburon Blvd (State Route 131), West of Strawberry Drive
19	Shoreline Highway (State Route 1), East of Almonte Blvd
20	Bridgeway Blvd, South of Gate 6 Road
21	U.S. 101, South of Spencer Avenue
22	Sir Francis Drake Blvd, West of Butterfield
23	Sir Francis Drake Blvd, West of College Avenue
24	Novato Blvd, West of Diablo Avenue

Figure 1: Marin County 2005 Congestion Management Program Monitored Roadway Locations



3.1.1 2005 CMP Monitoring Results

The level-of-service methodology, which applies for both freeway segments and arterial segments, is based on a level that was adopted for the *1991 Congestion Management Plan*. Under this methodology, the levels of service are based on the volume-to-capacity (V/C) ratios for each roadway segment. The maximum V/C ratio for each roadway type is listed in Table 2.

The established roadway level-of-service standards are as follows:

- Freeways and Rural Expressways (such as Highway 101, Interstate 580, State Route 37) - LOS E
- Urban and Suburban Arterials - LOS D

The only exception to these standards is for "grandfathered" monitoring segments; those segments that were operating at LOS E (arterial) or LOS F (freeway) when the first CMP was first completed. The Congestion Management Agency has recommended that an improvement plan should be developed for each grandfathered segment that still operates worse than the level-of-service standard for that type of segment.

The results of the 2005 monitoring survey are found in Table 3. Many of the freeway segments in the peak direction are operating at levels higher than capacity, which results in a failure in the level of service. However, as discussed earlier, there is considerable research to suggest that the 2000 vehicles per hour per lane that was assumed in the initial CMP is too low and that a capacity of 2,200 to 2,400 would be more appropriate. An assessment of the volumes per lane in Table 3 indicates that most of the segments that are considered to be failing today, would not be if a higher capacity was assumed. Because the volume-to-capacity ratio does not necessarily capture the performance of the roadway segment, especially when they are severely congested, the CMA is transitioning to measuring the roadway level of service based on the travel time of the segment.

CMP Segment 24 Novato Boulevard between Wilson and Diablo Avenue is the only non grandfathered segment found to be failing. Closer examination of the key intersection on this segment (Diablo Avenue), however, indicates that it is operating at LOS D (acceptable) and suggests that minor signal and striping changes could further improve its operation. As intersections are the primary determinant of level of service, this more detailed analysis suggests that CMP Segment 24 is operating satisfactorily.

The CMP monitoring program has been conducted for each segment at two year intervals. Table 4 summarizes the monitoring results since 1995.

Table 2: Maximum Volume-to-Capacity Ratio by Roadway Type

LOS	Type I Basic Freeway	Type II Major Arterial
A	0.35	0.60
B	0.54	0.70
C	0.77	0.80
D	0.93	0.90
E	1.00	1.00

Table 3: Segment Level of Service

# *	Segment	Direction	Peak Hour Volume	No. of Lanes	Volume Per Lane	Type	Capacity	V/C	Peak Direction LOS	# of Vehicles above Standard
	Non-Grandfathered, Satisfactory									
1	Shoreline Highway (State Route 1), from Flamingo Rd. to Sonoma County Line	NB	124	1	124	II	1400	0.09	A	
3	Novato Blvd. from San Marin Dr./Sutro Ave to Wilson Ave.	NB	346	1	346	II	800	0.43	A	
4	South Novato Blvd. from U.S. 101 to Novato Blvd.	NB	475	1	475	II	800	0.59	A	
5	State Route 37, from Sonoma County Line to U.S. 101	EB	2302	2	1151	I	2000	0.58	C	
10	Red Hill Ave. from Ross Valley Drive to Sir Francis Drake Blvd.	WB	1804	2	902	II	1200	0.75	C	
18	Tiburon Blvd. (State Route 131) from Main St. to U.S. 101	EB	1449	2	725	II	960	0.75	C	
20	Bridgeway Blvd., Alexander Ave., and Sausalito Lateral Rd.,from U.S. 101 to U.S. 101	NB	1258	2	629	II	960	0.66	B	
21	U.S. 101 from San Francisco County Line to Shoreline Highway (SR1)	NB	5486	4	1372	I	2000	0.69	C	
		SB	3575	4	894	I	2000	0.45	B	
15	Interstate 580, from west of Sir Francis Drake Blvd. to Contra Costa Co. Line	WB	2634	2	1317	I	2000	0.66	C	
		EB	3271	2	1636	I	2000	0.82	D	
	Non-Grandfathered, Improvement Plan Needed									
24	Novato Blvd., from Wilson Ave. to Diablo Ave.	NB	912	1	912	II	960	0.95	E1	
	Grandfathered, Satisfactory									
6	Bel Marin Keys, from Arroyo San Jose to State Route 101	WB	1253	2	627	II	800	0.78	C	
7	U.S. 101, from N. San Pedro Rd. to State Route 37	NB	7748	4	1937	I	2000	0.97	E	
12	Sir Francis Drake Blvd., from U.S. 101 to College Ave.	WB	1547	2	774	II	1200	0.64	B	
16	E. Sir Francis Drake Blvd., from Interstate 580 to U.S. 101	EB	1446	2	723	II	960	0.75	C	
2	U.S. 101, from State Route 37 to Sonoma County Line	NB	3664	2	1832	I	2000	0.92	D	
	Grandfathered, Improvement Plan Needed									
17	U.S. 101, from Shoreline Highway (SR 1) to Tiburon Blvd. (SR 131)	NB	7078	3	2359	I	2000	1.18	F	-359
8	U.S. 101, from Mission Ave. to N. San Pedro Rd.	NB	8602	4	2151	I	2000	1.08	F	-151
9	Sir Francis Drake Blvd., from Red Hill Ave. to Butterfield Rd.	WB	1880	2	940	II	960	0.98	E	
11	U.S. 101, from Interstate 580 to Mission Ave.	NB	6530	3	2177	I	2000	1.09	F	-177
13	U.S. 101 from Tiburon Blvd. (SR 131) to Interstate 580	NB	6214	3	2071	I	2000	1.04	F	-71
19	Shoreline Highway (State Route 1), from U.S. 101 to Flamingo Rd.	NB	842	1	842	II	800	1.05	F	-42
14	Interstate 580, from U.S. 101 to west of Sir Francis Drake Blvd.	EB	1941	1	1941	I	1400	1.39	F	-541
22	Sir Francis Drake Blvd.from Butterfield Rd. to State Route 1	WB	910	1	910	II	960	0.95	E	
23	Sir Francis Drake Blvd. from College Ave. to Red Hill Ave.	WB	1120	1	1120	II	960	1.17	F	-160

* From Table 1
(1) More detailed intersection level analysis indicates level of Service D (acceptable).

Table 4: Segment LOS Timeline

				1995		1997		1999		2001		2003		2005	
#	Segment	Direction	Type	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
Non-Grandfathered, Satisfactory															
1	Shoreline Highway (State Route 1), from Flamingo Rd. to Sonoma County Line	NB	II	0.16	A	0.13	A	0.09	A	0.05	A	0.07	A	0.09	A
3	Novato Blvd. from San Marin Dr./Sutro Ave to Wilson Ave.	NB	II	0.67	B	0.59	A	0.54	A	0.45	A	0.4	A	0.43	A
4	South Novato Blvd. from U.S. 101 to Novato Blvd.	NB	II	0.42	A	0.58	A	0.55	A	0.51	A	0.48	A	0.59	A
5	State Route 37, from Sonoma County Line to U.S. 101	EB	I	0.57	C	0.59	C	0.63	C	0.62	C	0.59	C	0.58	C
10	Red Hill Ave. from Ross Valley Drive to Sir Francis Drake Blvd.	WB	II	0.8	D	0.91	D	0.82	D	0.89	D	0.82	D	0.75	C
18	Tiburon Blvd. (State Route 131) from Main St. to U.S. 101	EB	II	0.78	C	0.76	C	0.7	C	0.71	C	0.66	C	0.75	C
20	Bridgeway Blvd., Alexander Ave., and Sausalito Lateral Rd.,from U.S. 101 to U.S. 101	NB	II	0.71	C	0.69	B	0.74	C	0.62	B	0.73	C	0.66	B
21	U.S. 101 from San Francisco County Line to Shoreline Highway (SR1)	NB	I	0.86	D	0.87	D	0.87	D	0.77	D	0.69	C	0.69	C
		SB	I	0.51	B	0.49	B	0.48	B	0.54	C	0.48	B	0.45	B
15	Interstate 580, from west of Sir Francis Drake Blvd. to Contra Costa Co. Line	EB	I	0.63	C	0.64	C	0.64	C	1.01	F	0.95	E	0.66	C
		WB	I	0.63	C	0.63	C	0.83	D	0.62	C	0.59	C	0.82	D
Non-Grandfathered, Needs Improvement Plan															
24	Novato Blvd., from Wilson Ave. to Diablo Ave.	NB	II	1.10	F	0.93	E	1.02	F	0.88	D	0.70	C	0.95	E1
Grandfathered, Satisfactory															
6	Bel Marin Keys, from Arroyo San Jose to State Route 101	WB	II	0.92	E	0.96	E	1.24	F	0.94	E	0.78	C	0.78	C
7	U.S. 101, from N. San Pedro Rd. to State Route 37	NB	I	0.79	D	0.8	D	0.82	D	0.91	D	0.62	C	0.97	E
12	Sir Francis Drake Blvd., from U.S. 101 to College Ave.	WB	II	0.69	B	0.69	B	0.72	C	0.76	C	0.8	C	0.64	B
2	U.S. 101, from State Route 37 to Sonoma County Line	NB	II	1.01	F	1.02	F	1.08	F	0.94	E	1	F	0.92	D
16	E. Sir Francis Drake Blvd., from Interstate 580 to U.S. 101	EB	II	1.11	F	0.99	E	1	F	1.1	F	1.03	F	0.75	C
Grandfathered, Improvement Plan Needed															
17	U.S. 101, from Shoreline Highway (SR 1) to Tiburon Blvd. (SR 131)	NB	I	0.78	D	0.77	C	0.8	D	0.89	D	0.77	C	1.18	F
8	U.S. 101, from Mission Ave. to N. San Pedro Rd.	NB	I	1.04	F	1.01	F	1.11	F	0.91	D	1.05	F	1.08	F
9	Sir Francis Drake Blvd., from Red Hill Ave. to Butterfield Rd.	WB	II	0.88	D	1.06	F	0.99	E	1.2	F	0.99	E	0.98	E
11	U.S. 101, from Interstate 580 to Mission Ave.	NB	I	1.06	F	1.21	F	1.1	F	0.91	D	1.09	F	1.09	F
13	U.S. 101 from Tiburon Blvd. (SR 131) to Interstate 580	NB	I	0.98	E	0.87	D	0.87	D	1.11	F	1.1	F	1.04	F
19	Shoreline Highway (State Route 1), from U.S. 101 to Flamingo Rd.	NB	II	0.9	E	0.82	D	0.86	D	0.81	D	0.77	C	1.05	F
14	Interstate 580, from U.S. 101 to west of Sir Francis Drake Blvd.	EB	I	0.35	B	0.4	B	0.31	A	0.46	B	0.52	B	1.39	F
22	Sir Francis Drake Blvd.from Butterfield Rd. to State Route 1	WB	II	1.16	F	1.05	F	1.11	F	1.33	F	1.05	F	0.95	E
23	Sir Francis Drake Blvd. from College Ave. to Red Hill Ave.	WB	II	1.24	F	1.32	F	1.26	F	0.95	E	1.16	F	1.17	F

(1) More detailed intersection level analysis indicates level of Service D (acceptable).

3.1.2 Actions

The results of the survey suggest different actions in monitoring for four different categories of roadways. Table 5 illustrates the actions that should be taken on each segment.

Table 5: Actions Needed by Segment

10	Red Hill Ave. from Ross Valley Drive to Sir Francis Drake Blvd.	WB	C	Within LOS Standard; No Action
18	Tiburon Blvd. (State Route 131) from Main St. to U.S. 101	EB	C	Within LOS Standard; No Action
20	Bridgeway Blvd., Alexander Ave., and Sausalito Lateral Rd.,from U.S. 101 to U.S. 101	NB	B	Within LOS Standard; No Action
21	U.S. 101 from San Francisco County Line to Shoreline Highway (SR1)	NB	C	Within LOS Standard; No Action
		SB	B	Within LOS Standard; No Action
15	Interstate 580, from west of Sir Francis Drake Blvd. to Contra Costa Co. Line	WB	C	Within LOS Standard; No Action
		EB	D	Within LOS Standard; No Action
Non-Grandfathered, Improvement Plan Needed				
24	Novato Blvd., from Wilson Ave. to Diablo Ave.	NB	E1	Improvement plan or deficiency plan needed
Grandfathered, Satisfactory				
6	Bel Marin Keys, from Arroyo San Jose to State Route 101	WB	C	Grandfathered; No Action
7	U.S. 101, from N. San Pedro Rd. to State Route 37	NB	E	Grandfathered; No Action
12	Sir Francis Drake Blvd., from U.S. 101 to College Ave.	WB	B	Grandfathered; No Action
16	E. Sir Francis Drake Blvd., from Interstate 580 to U.S. 101	EB	C	Grandfathered; No Action
2	U.S. 101, from State Route 37 to Sonoma County Line	NB	D	Grandfathered; No Action
Grandfathered, Improvement Plan Needed				
17	U.S. 101, from Shoreline Highway (SR 1) to Tiburon Blvd. (SR 131)	NB	F	Grandfathered; Improvement Plan Needed
8	U.S. 101, from Mission Ave. to N. San Pedro Rd.	NB	F	Grandfathered; Improvement Plan Needed
9	Sir Francis Drake Blvd., from Red Hill Ave. to Butterfield Rd.	WB	E	Grandfathered; Improvement Plan Needed
11	U.S. 101, from Interstate 580 to Mission Ave.	NB	F	Grandfathered; Improvement Plan Needed
13	U.S. 101 from Tiburon Blvd. (SR 131) to Interstate 580	NB	F	Grandfathered; Improvement Plan Needed
19	Shoreline Highway (State Route 1), from U.S. 101 to Flamingo Rd.	NB	F	Grandfathered; Improvement Plan Needed
14	Interstate 580, from U.S. 101 to west of Sir Francis Drake Blvd.	EB	F	Grandfathered; Improvement Plan Needed
22	Sir Francis Drake Blvd.from Butterfield Rd. to State Route 1	WB	E	Grandfathered; Improvement Plan Needed
23	Sir Francis Drake Blvd. from College Ave. to Red Hill Ave.	WB	F	Grandfathered; Improvement Plan Needed

(1) More detailed intersection level analysis indicates level of Service D (acceptable).

Within Marin, the slowest and most consistent bottleneck occurs on U.S. 101 in both directions near I-580 in San Rafael. The freeway in this area is not only congested in the peak direction, but as Figure 2 illustrates, it is also congested in the non-peak direction.

Figure 2: Marin County Congestion Management Program PM Peak Hour Congestion Analysis

3.3. Person Throughput

The performance measure "person throughput" identifies the number of people, not vehicles, who are able to move over a given facility in the peak period. As a combination of vehicle occupancy and level of service, this measure allows for recognition that transit service and HOV lanes can benefit corridor capacity.

This performance measure can be estimated by analyzing traffic volumes and transit usage. Average auto occupancy information for mixed-flow and HOV lanes are used to derive auto riders in the analysis. Monitoring of this measure was conducted at the following locations:

- U.S. 101 between Interstate 580 and Central San Rafael
- U.S. 101 between Paradise Drive and Tiburon Boulevard
- U.S. 101 north of Atherton Avenue
- Sir Francis Drake Boulevard east of Wolfe Grade
- Sir Francis Drake Boulevard north of Red Hill Avenue
- Red Hill Avenue east of Sir Francis Drake Boulevard

Table 7 summarizes the number of persons traveling through each checkpoint by transit and automobile in each direction during the evening peak hour. The table further identifies the person throughput in terms of persons per roadway lane.

The maximum person throughput occurs on U.S. 101 between Tiburon Boulevard and Paradise Drive with over 16,400 persons per hour northbound in the evening. This checkpoint also has the greatest number of transit riders: almost 4,700 riders (nearly 30 percent of person throughput).

The throughput per roadway lane is highest for the two most congested sections of U.S. 101 (Corte Madera and northern Novato). The single highest lane volume occurs on U.S. 101 between Interstate 580 and Central San Rafael. This four lane facility has roughly 3,333 persons traveling in each lane during the evening peak hour.

Table 7: Person Throughput in the PM Peak Hour

	Transit Persons	Auto Persons	Vanpool Persons	Total Persons	Number of Lanes	Persons Per Lane
US 101 between Interstate 580 and Central San Rafael						
NB	2,205	11,127	0	13,332	4	3,333
US 101 between Tiburon Boulevard and Paradise Drive						
NB	4,680	11,631	110	16,421	5	3,284
US 101 North of Atherton						
NB	1,080	4,026	11	5,117	2	2,559
Sir Francis Drake Boulevard east of Wolfe Grade						
NB	0	3,497	0	3,497	2	1,749
Sir Francis Drake Boulevard north of Red Hill Avenue						
NB	1,620	3,986	0	5,606	2	2,803
Red Hill Avenue east of Sir Francis Drake Boulevard						
NB	315	3,460	0	3,775	2	1,888

Source: Wilbur Smith Associates, 2005

3.4. Vehicle Miles Traveled on Congested Highway

This performance measure, derived from the Marin Travel Model, measures vehicle miles traveled on congested segments of the freeway system in Marin County. Congested segments are highway segments at LOS E or worse. This measure, when viewed over time, provides an understanding of the relative extent of congestion on the freeway portion of the CMP roadway system.

Table 9 summarizes the vehicle miles traveled on the State Highway System for 1990 and two future periods, 2010 and 2020. The travel model shows a significant increase in vehicle miles traveled in the future. Vehicle miles on congested highway will almost double between 1990 and 2010 with some improvement due to roadway projects by the year 2020.

Table 8: Vehicle Miles Traveled on Congested Roadways (PM Peak Hour)

	1990	1998	2010	2020
Total PM Peak Hour Vehicle Miles Traveled	510,881	572,227	752,720	785,717
Total PM Peak Hour Vehicle Miles Traveled in Congested Conditions	78,296	87,928	341,299	364,936
Percent of Vehicle Miles Traveled in Congested Conditions	15%	15%	45%	46%
Source: Marin County Travel Model, 2003				

3.5. Jobs/Housing Balance

This performance measure considers the balance between projected employed residents and projected jobs within different planning areas of the county. Achieving a balance between jobs and housing within a community or area can help the regional transportation system by reducing the length of trips and traffic congestion.

Through a variety of land-use analyses conducted in the county, it has been found that the least long-distance commuting occurs when the number of employed residents equals the number of jobs in the county or subareas of the county. The primary reasons for long distance commuting are economic, job specialization and community ties. If there is an imbalance, then some of the workers must commute to jobs in other subareas or counties. Table 9 summarizes the number of employed residents and jobs for the San Francisco Bay Area. Table 10 summarizes the number of employed residents and jobs for subareas in Marin County.

Based on ABAG 2003 projections, the Marin Community Development Agency has projected the number of employed residents and jobs in Sonoma, Marin and San Francisco. In the year 2010 Sonoma County is expected to have 242,857 jobs and 274,795 employed residents, so Sonoma County will have to export at least 31,938 workers to jobs outside the County. In Marin County, there are expected to be 134,096 jobs and 154,597 employed residents. Marin County will have to export at least 20,501 workers to jobs outside the county. San Francisco is expected to have 686,505 jobs and 453,300employed residents. San Francisco will have to import at least 233,205 workers to fill their jobs.

Table 9: Bay Area Jobs/Housing Balance

Employed Residents							
	2000	2005	2010	2015	2020	2025	2030
Alameda	697,882	730,706	795,498	846,402	923,299	1,007,404	1,063,201
Contra Costa	483,898	518,693	572,688	613,253	650,392	681,723	704,742
Marin	**140,955**	**145,301**	**154,597**	**158,698**	**161,398**	**163,897**	**166,100**
Napa	67,111	70,301	73,799	77,697	80,000	81,800	82,997
San Francisco	444,850	434,612	453,300	479,794	494,297	519,301	547,501
San Mateo	403,083	400,797	420,990	450,296	469,696	483,305	490,701
Santa Clara	959,071	961,104	984,923	1,125,590	1,193,998	1,254,000	1,313,391
Solano	179,517	205,201	233,102	253,801	272,604	294,599	305,499
Sonoma	229,307	254,401	274,795	289,402	297,903	304,501	309,097
Total Jobs							
	2000	2005	2010	2015	2020	2025	2030
Alameda	751,674	790,403	865,076	921,358	975,417	1,028,612	1,087,366
Contra Costa	361,105	385,061	418,908	448,145	476,541	505,449	536,412
Marin	122,964	125,290	134,096	144,578	151,916	158,232	163,964
Napa	66,834	72,259	77,236	82,323	85,147	87,076	88,998
San Francisco	634,447	635,507	686,505	728,233	755,877	786,047	815,680
San Mateo	395,905	396,659	429,104	461,666	489,008	506,455	526,561
Santa Clara	1,092,348	1,085,891	1,199,186	1,299,194	1,362,834	1,418,804	1,481,652
Solano	123,211	133,630	146,767	160,640	172,383	188,435	204,673
Sonoma	205,221	224,261	242,857	263,713	283,418	303,703	321,013
Jobs/Residents Ratio							
	2000	2005	2010	2015	2020	2025	2030
Alameda	1.08	1.08	1.09	1.09	1.06	1.02	1.02
Contra Costa	0.75	0.74	0.73	0.73	0.73	0.74	0.76
Marin	**0.87**	**0.86**	**0.87**	**0.91**	**0.94**	**0.97**	**0.99**
Napa	1.00	1.03	1.05	1.06	1.06	1.06	1.07
San Francisco	1.43	1.46	1.51	1.52	1.53	1.51	1.49
San Mateo	0.98	0.99	1.02	1.03	1.04	1.05	1.07
Santa Clara	1.14	1.13	1.22	1.15	1.14	1.13	1.13
Solano	0.69	0.65	0.63	0.63	0.63	0.64	0.67
Sonoma	0.89	0.88	0.88	0.91	0.95	1.00	1.04
Import (Export) Workers							
	2000	2005	2010	2015	2020	2025	2030
Alameda	53,792	59,697	69,578	74,956	52,118	21,208	24,165
Contra Costa	(122,793)	(133,632)	(153,780)	(165,108)	(173,851)	(176,274)	(168,330)
Marin	**(17,991)**	**(20,011)**	**(20,501)**	**(14,120)**	**(9,482)**	**(5,665)**	**(2,136)**
Napa	(277)	1,958	3,437	4,626	5,147	5,276	6,001
San Francisco	189,597	200,895	233,205	248,439	261,580	266,746	268,179
San Mateo	(7,178)	(4,138)	8,114	11,370	19,312	23,150	35,860
Santa Clara	133,277	124,787	214,263	173,604	168,836	164,804	168,261
Solano	(56,306)	(71,571)	(86,335)	(93,161)	(100,221)	(106,164)	(100,826)
Sonoma	(24,086)	(30,140)	(31,938)	(25,689)	(14,485)	(798)	11,916
Source: ABAG Projections 2003							

Table 10: Marin Jobs/Housing Balance

Employed Residents							
	2000	2005	2010	2015	2020	2025	2030
Mill Valley/Saulsalito*	50,348	51,628	54,207	55,310	56,198	57,199	58,119
Novato*	32,043	33,415	36,595	38,652	39,905	40,773	41,503
San Rafael*	58,564	60,258	63,795	64,736	65,295	65,925	66,478
Marin County	140,955	145,301	154,597	158,698	161,398	163,897	166,100
Total Jobs							
	2000	2005	2010	2015	2020	2025	2030
Mill Valley/Saulsalito*	42,175	42,666	44,639	46,965	49,388	51,911	54,815
Novato*	27,878	28,582	32,455	38,201	41,499	43,864	45,295
San Rafael*	52,911	54,042	57,002	59,412	61,029	62,457	63,854
Marin County	122,964	125,290	134,096	144,578	151,916	158,232	163,964
Jobs/Residents Ratio							
	2000	2005	2010	2015	2020	2025	2030
Mill Valley/Saulsalito*	0.84	0.83	0.82	0.85	0.88	0.91	0.94
Novato*	0.87	0.86	0.89	0.99	1.04	1.08	1.09
San Rafael*	0.90	0.90	0.89	0.92	0.93	0.95	0.96
Marin County	0.87	0.86	0.87	0.91	0.94	0.97	0.99
Import (Export) Workers							
	2000	2005	2010	2015	2020	2025	2030
Mill Valley/Saulsalito*	(8,173)	(8,962)	(9,568)	(8,345)	(6,810)	(5,288)	(3,304)
Novato*	(4,165)	(4,833)	(4,140)	(451)	1,594	3,091	3,792
San Rafael*	(5,653)	(6,216)	(6,793)	(5,324)	(4,266)	(3,468)	(2,624)
Marin County	(17,991)	(20,011)	(20,501)	(14,120)	(9,482)	(5,665)	(2,136)

Note: * City Sphere of Influence
Source: ABAG Projections 2003

Based on the ABAG 2003 projections, the jobs/housing balance should be substantially better in 2030 with significantly reduced need for long-distance commuting in Sonoma and Marin Counties. In 2030, Sonoma County is expected to have 321,013 jobs and 309,097 employed residents. Sonoma County will have to import at least 11,916 workers to jobs inside the County. Marin County is expected to have 164,964 jobs and 166,100 employed residents. Marin County will have to export at only 2,136 workers to jobs outside the county. In San Francisco, there are projected to be 815,680 jobs and 547,501 employed residents. San Francisco will have to import at least 268,179 workers to fill their jobs.

3.6. Transit Headway

The performance measure "transit headway" presents the time intervals, or headways, between transit vehicles. Proper headways ensure that individual routes operate at frequencies that are appropriate to the type of service they provide and adequately address both existing and potential ridership demand.

The following transit routes are considered a portion of the congestion management transportation

system. Their effective headways are shown below.

Golden Gate Transit Basic Service

- Route 10, Tiburon to Sausalito (30 min)
- Route 26, San Francisco to San Anselmo via San Rafael (30 min)
- Route 40, San Rafael to Richmond (20 min)
- Route 70, Novato to SF (included in Route 80)
- Route 80, Santa Rosa to SF (30 min)

Golden Gate Transit Commute Service to San Francisco (unless otherwise noted)

- Route 2, Marin City/Sausalito (15 min)
- Route 4, Mill Valley (10 min)
- Route 8, Tiburon/Belvedere (25 min)
- Route 18, Kentfield (College of Marin) (15 min)
- Route 24, Inverness/Fairfax (10 min)
- Route 26, Sleepy Hollow/San Anselmo (25 min)
- Route 38, Terra Linda (15 min)
- Route 44, Lucas Valley (25 min)
- Route 54, San Marin/Novato to San Francisco (10 min)
- Route 56, San Marin/Novato (30 min)
- Route 71, Santa Rosa to San Rafael (30 min)
- Route 75, Santa Rosa to San Rafael (30 min)
- Route 97, San Rafael to SF via Larkspur Ferry Terminal (1 per day)

Golden Gate Transit Local Service

- Route 21, Kentfield to Mill Valley (30 min)
- Route 22, San Rafael to Sausilito (60 min)
- Route 23, Fairfax to Marin Civic Center (30 min)
- Route 29, San Rafael to San Anselmo (30 Min)
- Route 35, San Rafael to Canal Area (30 min)

3.7. Transit Coordination

This performance measure considers the extent to which transit service is integrated between service types and modes and with other transit services within the county or in adjacent counties. The coordination of regional transit services enhances seamless regional transit travel. Transit schedule coordination can be measured at key transfer facilities between local and regional services.

The measures and targets for improving transit coordination in Marin County are listed below:

- Convenient transfers within Marin County. Target: Continued operation of existing transfer locations, and effort to establish additional transfer locations and facilities.
- Convenience of regional transit connections. Target: Continued coordination of regional services and fares with those of other local transit operators in Marin, San Francisco and

Sonoma counties, and work toward joint fare agreements and service coordination with other public transit operators in the Bay Area.

- Level of coordination with other modes. Target: Continue to work with ridesharing agencies to increase the number of vanpools and carpools to jobs in Marin and San Francisco, as well as to facilitate bicycle and pedestrian access to transit routes.
- Discount fares for seniors and youth. Target: Continue to provide transit fare discounts for seniors age 65 or older and students age 6-18.
- Deficiency plan participation. Target: Work with local operators, local jurisdictions and the Bay Area Air Quality Management District to implement transit improvements as potential deficiency plan actions.

Local jurisdictions must consider whether or not the services noted above will result in transit accommodating the necessary share of trips during peak periods of congestion (e.g., the P.M. peak hour) so that the chosen Highway Level of Service (LOS) Standards can be met. It will be necessary for local jurisdictions to work closely with all transit operators (e.g., Golden Gate, Marin Transit District, Blue and Gold Fleet, Whistlestop Wheels, Marin Airporter, etc.) to ensure that transit services remain effective, as well as identify the costs (and anticipated sources of any needed funding subsidies) of needed improvements in transit service.

The Congestion Management Agency continues to work with local governments and transit agencies to ensure that any transit improvements identified are reasonable, and can be funded and implemented in the time frame they are proposed. All participating agencies must consider transit service performance measures as potential actions when developing a deficiency plan. A requirement to meet the CMP performance measure targets may be enacted for particular transit services recommended as a deficiency plan action.

3.8. Pedestrian and Bicycle Investment

The purpose of this measure is to ensure that pedestrian and bicycle travel is being accommodated in new transportation improvement projects. Because the capital improvement program is a component of the CMP and pedestrian and bicycle improvements contribute to improved transportation system options, a separate measurement of pedestrian and bicycle improvement should be provided. This measure will reflect the extent to which pedestrian and bicycle facilities are included in the design of all transportation projects, as appropriate, in the CMP's Capital Improvement Program.

Marin County routinely applies for and spends the TDA funds available for bicycle and pedestrian projects each year. Additionally, the County includes bicycle and pedestrian components in capital projects whenever appropriate. Recognizing the importance of bicycle and pedestrian projects in the community, the County has undertaken a Countywide Pedestrian Bicycle Master Plan effort as a basis for prioritizing and implementing improvements for both near-term and long-range development.

APPENDIX
Traffic Count Data

Intersection:	Shoreline Hwy SR 1 /	East of Flamingo	Date:	June 28, 2005	Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm		Project:	531950 Marin Co.	

INPUTS

Labels =>				Apprh			A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15											175						
4 :30											348						
4 :45											528						
5 :00											685						
5 :15											884						
5 :30											1082						
5 :45											1221						
6 :00											1405						

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	175	0	175	0	0	0	0	175		4
4 :30	0	0	0	0	0	0	0	0	0	173	0	173	0	0	0	0	173		4
4 :45	0	0	0	0	0	0	0	0	0	180	0	180	0	0	0	0	180		4
5 :00	0	0	0	0	0	0	0	0	0	157	0	157	0	0	0	0	157	685	5
5 :15	0	0	0	0	0	0	0	0	0	199	0	199	0	0	0	0	199	709	5
5 :30	0	0	0	0	0	0	0	0	0	198	0	198	0	0	0	0	198	734	5
5 :45	0	0	0	0	0	0	0	0	0	139	0	139	0	0	0	0	139	693	5
6 :00	0	0	0	0	0	0	0	0	0	184	0	184	0	0	0	0	184	720	6
	0	0	0		0	0	0		0	734	0		0	0	0			Peak Hour	
PEAK =>	0	0	0		0	0	0		0	734	0		0	0	0			734	
HOUR																		Total Intersection Vol	
TOTAL								5 :30											

WHOLE INTERSECTION

PEAK HR VOL	734	4 :30	5 :30
PEAK 15 MIN VOL	199	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.92		
	-		

BY APPROACH

PEAK HR VOL	-	-	734	-
PEAK 15 MIN VOL	-	-	199	-
PEAK HR FACTOR (PHF)	-	-	0.92	-
	-	-	-	-

Intersection:	Shoreline Hwy SR 1 /	East of Flamingo	Date:	June 28, 2005	Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm		Project:	531950 Marin Co.	

INPUTS

Labels =>				Apprh			A	c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15															153		
4 :30															319		
4 :45															482		
5 :00															676		
5 :15															871		
5 :30															1077		
5 :45															1289		
6 :00															1518		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	153	0	153	153		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	166	0	166	166		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	163	0	163	163		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	194	0	194	194	676	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	195	0	195	195	718	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	206	0	206	206	758	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	212	0	212	212	807	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	229	0	229	229	842	6
	0	0	0		0	0	0		0	0	0		0	842	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	0	0		0	842	0			842 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	842	5 :00 Peak Period Starting at	6 :00 Peak Period Ending at
PEAK 15 MIN VOL	229		
PEAK HR FACTOR (PHF)	0.92		
	-		

BY APPROACH

PEAK HR VOL	-	-	-	842
PEAK 15 MIN VOL	-	-	-	229
PEAK HR FACTOR (PHF)	-	-	-	0.92
	-	-	-	-

Intersection:	US 101 NB /	N. of SR 131	Date:	May 10, 2005	Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm		Project:	531950 Marin Co.	

INPUTS

Labels =>				Apprh		A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15		1790													506	
4 :30		3395													986	
4 :45		5008													1349	
5 :00		6963													1821	
5 :15		8502													2240	
5 :30		10427													2849	
5 :45		12086													3204	
6 :00		13988													3798	

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	1790	0	1790	0	0	0	0	0	0	0	0	0	0	506	506	2296		4
4 :30	0	1605	0	1605	0	0	0	0	0	0	0	0	0	0	480	480	2085		4
4 :45	0	1613	0	1613	0	0	0	0	0	0	0	0	0	0	363	363	1976		4
5 :00	0	1955	0	1955	0	0	0	0	0	0	0	0	0	0	472	472	2427	8784	5
5 :15	0	1539	0	1539	0	0	0	0	0	0	0	0	0	0	419	419	1958	8446	5
5 :30	0	1925	0	1925	0	0	0	0	0	0	0	0	0	0	609	609	2534	8895	5
5 :45	0	1659	0	1659	0	0	0	0	0	0	0	0	0	0	355	355	2014	8933	5
6 :00	0	1902	0	1902	0	0	0	0	0	0	0	0	0	0	594	594	2496	9002	6
	0	7025	0		0	0	0		0	0	0		0	0	1977			Peak Hour	
PEAK => HOUR TOTAL	0	7025	0		0	0	0		0	0	0		0	0	1977			9002 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	9,002	5 :00 Peak Period Starting at	6 :00 Peak Period Ending at
PEAK 15 MIN VOL	2,534		
PEAK HR FACTOR (PHF)	0.89		

CAUTION : PHF below 0.9

BY APPROACH

PEAK HR VOL	7,025	-	-	1,977
PEAK 15 MIN VOL	1,925	-	-	609
PEAK HR FACTOR (PHF)	0.91	-	-	0.81
	-	-	-	CAUTION : PHF below 0.9

Intersection:	US 101 NB /	S. of Lucos Valley Blvd.		Date:	May 17, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh		A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15		1951											186			
4 :30		3613											306			
4 :45		5393											440			
5 :00		7097											530			
5 :15		9199											680			
5 :30		11211											792			
5 :45		12974											869			
6 :00		14845											952			

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	1951	0	1951	0	0	0	0	0	0	0	0	186	0	0	186	2137		4
4 :30	0	1662	0	1662	0	0	0	0	0	0	0	0	120	0	0	120	1782		4
4 :45	0	1780	0	1780	0	0	0	0	0	0	0	0	134	0	0	134	1914		4
5 :00	0	1704	0	1704	0	0	0	0	0	0	0	0	90	0	0	90	1794	7627	5
5 :15	0	2102	0	2102	0	0	0	0	0	0	0	0	150	0	0	150	2252	7742	5
5 :30	0	2012	0	2012	0	0	0	0	0	0	0	0	112	0	0	112	2124	8084	5
5 :45	0	1763	0	1763	0	0	0	0	0	0	0	0	77	0	0	77	1840	8010	5
6 :00	0	1871	0	1871	0	0	0	0	0	0	0	0	83	0	0	83	1954	8170	6
	0	7748	0		0	0	0		0	0	0		422	0	0			Peak Hour	
PEAK => HOUR TOTAL	0	7748	0		0	0	0		0	0	0		422	0	0			8170 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	8,170	5 :00 Peak Period Starting at	6 :00 Peak Period Ending at
PEAK 15 MIN VOL	2,252		
PEAK HR FACTOR (PHF)	0.91		
	-		

BY APPROACH

PEAK HR VOL	7,748	-	-	422
PEAK 15 MIN VOL	2,102	-	-	150
PEAK HR FACTOR (PHF)	0.92	-	-	0.70
	-	-	-	CAUTION : PHF below 0.9

Intersection:	W. of Wolfe Grade /	Sir Francis Drake Bl. WB		Date:	May 12, 2005 Thursday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15														328		
4 :30														682		
4 :45														988		
5 :00														1357		
5 :15														1725		
5 :30														2122		
5 :45														2506		
6 :00														2904		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	328	0	328	328		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	354	0	354	354		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	306	0	306	306		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	369	0	369	369	1357	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	368	0	368	368	1397	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	397	0	397	397	1440	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	384	0	384	384	1518	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	398	0	398	398	1547	6
	0	0	0		0	0	0		0	0	0		0	1547	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	0	0		0	1547	0			1547 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	1,547	5 :00 Peak Period Starting at	6 :00 Peak Period Ending at
PEAK 15 MIN VOL	398		
PEAK HR FACTOR (PHF)	0.97		
	-		

BY APPROACH

PEAK HR VOL	-	-	-	1,547
PEAK 15 MIN VOL	-	-	-	398
PEAK HR FACTOR (PHF)	-	-	-	0.97
	-	-	-	-

Intersection:	W. of Red Hill Ave. /	Sir Francis Drake Bl. WB	Date:	May 12, 2005	Thursday
Direction	N / S	E / W			
Time Period:	4 - 6pm		Project:	531950 Marin Co.	

INPUTS

Labels =>				Apprh			A	c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15															242		
4 :30															552		
4 :45															998		
5 :00															1501		
5 :15															1956		
5 :30															2403		
5 :45															2878		
6 :00															3372		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	242	0	242	242		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	310	0	310	310		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	446	0	446	446		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	503	0	503	503	1501	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	455	0	455	455	1714	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	447	0	447	447	1851	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	475	0	475	475	1880	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	494	0	494	494	1871	6
	0	0	0		0	0	0		0	0	0		0	1880	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	0	0		0	1880	0			1880 Total Intersection Vol	

5 :45

WHOLE INTERSECTION

PEAK HR VOL	1,880	4 :45	5 :45
PEAK 15 MIN VOL	503	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.93		
	-		

BY APPROACH

PEAK HR VOL	-	-	-	1,880
PEAK 15 MIN VOL	-	-	-	503
PEAK HR FACTOR (PHF)	-	-	-	0.93
	-	-	-	-

Intersection:	W. of Strawberry Dr. /	SR 131/Tiburon EB		Date:	May 10, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15											358						
4 :30											688						
4 :45											1034						
5 :00											1396						
5 :15											1748						
5 :30											2137						
5 :45											2482						
6 :00											2833						

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	358	0	358	0	0	0	0	358		4
4 :30	0	0	0	0	0	0	0	0	0	330	0	330	0	0	0	0	330		4
4 :45	0	0	0	0	0	0	0	0	0	346	0	346	0	0	0	0	346		4
5 :00	0	0	0	0	0	0	0	0	0	362	0	362	0	0	0	0	362	1396	5
5 :15	0	0	0	0	0	0	0	0	0	352	0	352	0	0	0	0	352	1390	5
5 :30	0	0	0	0	0	0	0	0	0	389	0	389	0	0	0	0	389	1449	5
5 :45	0	0	0	0	0	0	0	0	0	345	0	345	0	0	0	0	345	1448	5
6 :00	0	0	0	0	0	0	0	0	0	351	0	351	0	0	0	0	351	1437	6
	0	0	0		0	0	0		0	1449	0		0	0	0			Peak Hour	
PEAK =>	0	0	0		0	0	0		0	1449	0		0	0	0			1449	
HOUR																		Total Intersection Vol	
TOTAL									5 :30										

WHOLE INTERSECTION

PEAK HR VOL	1,449	4 :30	5 :30
PEAK 15 MIN VOL	389	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.93		
	-		

BY APPROACH

PEAK HR VOL	-	-	1,449	-
PEAK 15 MIN VOL	-	-	389	-
PEAK HR FACTOR (PHF)	-	-	0.93	-
	-	-	-	-

Intersection:	E. of Sir Francis Drake B. /	I 580 WB		Date:	May 10, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15															554		
4 :30															1146		
4 :45															1752		
5 :00															2369		
5 :15															3752		
5 :30															3862		
5 :45															4346		
6 :00															5003		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	554	0	554	554		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	592	0	592	592		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	606	0	606	606		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	617	0	617	617	2369	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	1383	0	1383	1383	3198	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	110	0	110	110	2716	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	484	0	484	484	2594	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	657	0	657	657	2634	6
	0	0	0		0	0	0		0	0	0		0	3198	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	0	0		0	3198	0			3198 Total Intersection Vol	

5 :15

WHOLE INTERSECTION

PEAK HR VOL	3,198	4 :15	5 :15
PEAK 15 MIN VOL	1,383	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.58		

CAUTION : PHF below 0.9

BY APPROACH

PEAK HR VOL	-	-	-	3,198
PEAK 15 MIN VOL	-	-	-	1,383
PEAK HR FACTOR (PHF)	-	-	-	0.58
	-	-	-	CAUTION : PHF below 0.9

Intersection:	E. of Sir Francis Drake B. /	I 580 EB		Date:	May 10, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh			b	Apprh	a		B	Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15											799						
4 :30											1599						
4 :45											2368						
5 :00											3149						
5 :15											4066						
5 :30											4870						
5 :45											5632						
6 :00											6343						

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	799	0	799	0	0	0	0	799		4
4 :30	0	0	0	0	0	0	0	0	0	800	0	800	0	0	0	0	800		4
4 :45	0	0	0	0	0	0	0	0	0	769	0	769	0	0	0	0	769		4
5 :00	0	0	0	0	0	0	0	0	0	781	0	781	0	0	0	0	781	3149	5
5 :15	0	0	0	0	0	0	0	0	0	917	0	917	0	0	0	0	917	3267	5
5 :30	0	0	0	0	0	0	0	0	0	804	0	804	0	0	0	0	804	3271	5
5 :45	0	0	0	0	0	0	0	0	0	762	0	762	0	0	0	0	762	3264	5
6 :00	0	0	0	0	0	0	0	0	0	711	0	711	0	0	0	0	711	3194	6
	0	0	0		0	0	0		0	3271	0		0	0	0			Peak Hour	
PEAK =>	0	0	0		0	0	0		0	3271	0		0	0	0			3271	
HOUR																		Total Intersection Vol	
TOTAL									5 :30										

WHOLE INTERSECTION

PEAK HR VOL	3,271	4 :30	5 :30
PEAK 15 MIN VOL	917	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.89		

CAUTION : PHF below 0.9

BY APPROACH

PEAK HR VOL	-	-	3,271	-
PEAK 15 MIN VOL	-	-	917	-
PEAK HR FACTOR (PHF)	-	-	0.89	-
	-	-	CAUTION : PHF below 0.9	-

Intersection:	W. of Butterfiled Dr. /	Sir Francis Drake Bl.		Date:	May 12, 2005 Thursday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh				Apprh				Apprh				Apprh
					A		c			b			a	B		
	Northbound				Southbound				Eastbound				Westbound			
15-min period	L	T	R	PHF	L	T	R	PHF	L	T	R	PHF	L	T	R	PHF
Ending Time																
4 :15														155		
4 :30														379		
4 :45														621		
5 :00														841		
5 :15														1059		
5 :30														1289		
5 :45														1504		
6 :00														1731		

OUTPUTS

15-min period				Apprh				Apprh				Apprh				Apprh	15 min. totals	60 min totals	15-min
				PHF				PHF				PHF				PHF			
Ending Time																			Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	155	0	155	155		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	224	0	224	224		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	242	0	242	242		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	220	0	220	220	841	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	218	0	218	218	904	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	230	0	230	230	910	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	215	0	215	215	883	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	227	0	227	227	890	6
	0	0	0		0	0	0		0	0	0		0	910	0			Peak Hour	
PEAK =>	0	0	0		0	0	0		0	0	0		0	910	0			910	
HOUR																		Total Intersection Vol	
TOTAL								5 :30											

WHOLE INTERSECTION

PEAK HR VOL	910	4 :30	5 :30
PEAK 15 MIN VOL	242	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.94		
	-		

BY APPROACH

PEAK HR VOL	-	-	-	910
PEAK 15 MIN VOL	-	-	-	242
PEAK HR FACTOR (PHF)	-	-	-	0.94
	-	-	-	-

Intersection:	W. of Sir Francis Drake Bl. /	Int. 580 EB		Date:	May 12, 2005 Thursday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15											455						
4 :30											960						
4 :45											1433						
5 :00											1903						
5 :15											2363						
5 :30											2865						
5 :45											3374						
6 :00											3817						

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	455	0	455	0	0	0	0	455		4
4 :30	0	0	0	0	0	0	0	0	0	505	0	505	0	0	0	0	505		4
4 :45	0	0	0	0	0	0	0	0	0	473	0	473	0	0	0	0	473		4
5 :00	0	0	0	0	0	0	0	0	0	470	0	470	0	0	0	0	470	1903	5
5 :15	0	0	0	0	0	0	0	0	0	460	0	460	0	0	0	0	460	1908	5
5 :30	0	0	0	0	0	0	0	0	0	502	0	502	0	0	0	0	502	1905	5
5 :45	0	0	0	0	0	0	0	0	0	509	0	509	0	0	0	0	509	1941	5
6 :00	0	0	0	0	0	0	0	0	0	443	0	443	0	0	0	0	443	1914	6
	0	0	0		0	0	0		0	1941	0		0	0	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	1941	0		0	0	0			1941 Total Intersection Vol	

5 :45

WHOLE INTERSECTION

PEAK HR VOL	1,941	4 :45 Peak Period Starting at	5 :45 Peak Period Ending at
PEAK 15 MIN VOL	509		
PEAK HR FACTOR (PHF)	0.95		
	-		

BY APPROACH

PEAK HR VOL	-	-	1,941	-
PEAK 15 MIN VOL	-	-	509	-
PEAK HR FACTOR (PHF)	-	-	0.95	-
	-	-	-	-

Intersection:	E. of 101 NB /	Sir Francis Drake Bl.		Date:	May 10, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15											337						
4 :30											710						
4 :45											1063						
5 :00											1431						
5 :15											1760						
5 :30											2156						
5 :45											2444						
6 :00											2856						

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	337	0	337	0	0	0	0	337		4
4 :30	0	0	0	0	0	0	0	0	0	373	0	373	0	0	0	0	373		4
4 :45	0	0	0	0	0	0	0	0	0	353	0	353	0	0	0	0	353		4
5 :00	0	0	0	0	0	0	0	0	0	368	0	368	0	0	0	0	368	1431	5
5 :15	0	0	0	0	0	0	0	0	0	329	0	329	0	0	0	0	329	1423	5
5 :30	0	0	0	0	0	0	0	0	0	396	0	396	0	0	0	0	396	1446	5
5 :45	0	0	0	0	0	0	0	0	0	288	0	288	0	0	0	0	288	1381	5
6 :00	0	0	0	0	0	0	0	0	0	412	0	412	0	0	0	0	412	1425	6
	0	0	0		0	0	0		0	1446	0		0	0	0			Peak Hour	
PEAK =>	0	0	0		0	0	0		0	1446	0		0	0	0			1446	
HOUR																		Total Intersection Vol	
TOTAL									5 :30										

WHOLE INTERSECTION

PEAK HR VOL	1,446	4 :30	5 :30
PEAK 15 MIN VOL	412	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.88		

CAUTION : PHF below 0.9

BY APPROACH

PEAK HR VOL	-	-	1,446	-
PEAK 15 MIN VOL	-	-	396	-
PEAK HR FACTOR (PHF)	-	-	0.91	-
	-	-	-	-

Intersection:	W. of College Ave. /	Sir Francico Drake		Date:	May 12, 2005 Thursday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15														229		
4 :30														474		
4 :45														719		
5 :00														964		
5 :15														1232		
5 :30														1537		
5 :45														1813		
6 :00														2084		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	229	0	229	229		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	245	0	245	245		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	245	0	245	245		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	245	0	245	245	964	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	268	0	268	268	1003	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	305	0	305	305	1063	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	276	0	276	276	1094	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	271	0	271	271	1120	6
	0	0	0		0	0	0		0	0	0		0	1120	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	0	0		0	1120	0			1120 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	1,120	5 :00 Peak Period Starting at	6 :00 Peak Period Ending at
PEAK 15 MIN VOL	305		
PEAK HR FACTOR (PHF)	0.92		
	-		

BY APPROACH

PEAK HR VOL	-	-	-	1,120
PEAK 15 MIN VOL	-	-	-	305
PEAK HR FACTOR (PHF)	-	-	-	0.92
	-	-	-	-

Intersection:	E. of 101 /	Bel Marin Keys		Date:	June 28, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A c	Apprh			b	Apprh	a		B	Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15										98						
4 :30										202						
4 :45										317						
5 :00										447						
5 :15										575						
5 :30										722						
5 :45										855						
6 :00										990						

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	98	0	98	0	0	0	0	98		4
4 :30	0	0	0	0	0	0	0	0	0	104	0	104	0	0	0	0	104		4
4 :45	0	0	0	0	0	0	0	0	0	115	0	115	0	0	0	0	115		4
5 :00	0	0	0	0	0	0	0	0	0	130	0	130	0	0	0	0	130	447	5
5 :15	0	0	0	0	0	0	0	0	0	128	0	128	0	0	0	0	128	477	5
5 :30	0	0	0	0	0	0	0	0	0	147	0	147	0	0	0	0	147	520	5
5 :45	0	0	0	0	0	0	0	0	0	133	0	133	0	0	0	0	133	538	5
6 :00	0	0	0	0	0	0	0	0	0	135	0	135	0	0	0	0	135	543	6
	0	0	0		0	0	0		0	543	0		0	0	0			Peak Hour	
PEAK =>	0	0	0		0	0	0		0	543	0		0	0	0			543	
HOUR																		Total Intersection Vol	
TOTAL									6 :00										

WHOLE INTERSECTION

PEAK HR VOL	543	5 :00	6 :00
PEAK 15 MIN VOL	147	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.92		
	-		

BY APPROACH

PEAK HR VOL	-	-	543	-
PEAK 15 MIN VOL	-	-	147	-
PEAK HR FACTOR (PHF)	-	-	0.92	-
	-	-	-	-

Intersection:	E. of 101 /	Bel Marin Keys		Date:	June 28, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15															234		
4 :30															509		
4 :45															819		
5 :00															1121		
5 :15															1436		
5 :30															1740		
5 :45															2072		
6 :00															2301		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	234	0	234	234		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	275	0	275	275		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	310	0	310	310		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	302	0	302	302	1121	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	315	0	315	315	1202	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	304	0	304	304	1231	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	332	0	332	332	1253	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	229	0	229	229	1180	6
	0	0	0		0	0	0		0	0	0		0	1253	0			Peak Hour	
PEAK =>	0	0	0		0	0	0		0	0	0		0	1253	0			1253	
HOUR																		Total Intersection Vol	
TOTAL								5 :45											

WHOLE INTERSECTION

PEAK HR VOL	1,253	4 :45	5 :45
PEAK 15 MIN VOL	332	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.94		
	-		

BY APPROACH

PEAK HR VOL	-	-	-	1,253
PEAK 15 MIN VOL	-	-	-	332
PEAK HR FACTOR (PHF)	-	-	-	0.94
	-	-	-	-

Intersection:	E. of 101 /	Nave	Date:	May 17, 2005	Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm		Project:	531950 Marin Co.	

INPUTS

Labels =>				Apprh			A c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15														141		
4 :30														254		
4 :45														360		
5 :00														511		
5 :15														633		
5 :30														766		
5 :45														888		
6 :00														1029		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	141	0	141	141		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	113	0	113	113		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	106	0	106	106		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	151	0	151	151	511	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	122	0	122	122	492	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	133	0	133	133	512	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	122	0	122	122	528	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	141	0	141	141	518	6
	0	0	0		0	0	0		0	0	0		0	528	0			Peak Hour	
PEAK =>	0	0	0		0	0	0		0	0	0		0	528	0			528	
HOUR																		Total Intersection Vol	
TOTAL								5 :45											

WHOLE INTERSECTION

PEAK HR VOL	528	4 :45	5 :45
PEAK 15 MIN VOL	151	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.87		

CAUTION : PHF below 0.9

BY APPROACH

PEAK HR VOL	-	-	-	528
PEAK 15 MIN VOL	-	-	-	151
PEAK HR FACTOR (PHF)	-	-	-	0.87
	-	-	-	CAUTION : PHF below 0.9

Intersection:	E. of Sir Francis Drake Bl. /	Red Hill Ave.		Date:	May 12, 2005 Thursday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15														0		
4 :30														361		
4 :45														789		
5 :00														1223		
5 :15														1681		
5 :30														2111		
5 :45														2577		
6 :00														3027		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	361	0	361	361		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	428	0	428	428		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	434	0	434	434	1223	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	458	0	458	458	1681	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	430	0	430	430	1750	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	466	0	466	466	1788	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	450	0	450	450	1804	6
	0	0	0		0	0	0		0	0	0		0	1804	0			Peak Hour	
PEAK =>	0	0	0		0	0	0		0	0	0		0	1804	0			1804	
HOUR																		Total Intersection Vol	
TOTAL								6 :00											

WHOLE INTERSECTION

PEAK HR VOL	1,804	5 :00	6 :00
PEAK 15 MIN VOL	466	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.97		
	-		

BY APPROACH

PEAK HR VOL	-	-	-	1,804
PEAK 15 MIN VOL	-	-	-	466
PEAK HR FACTOR (PHF)	-	-	-	0.97
	-	-	-	-

Intersection:	W. of 101 /	Novato Blvd.		Date:	May 17, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			c	Apprh				Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15														92		
4 :30														194		
4 :45														312		
5 :00														429		
5 :15														546		
5 :30														649		
5 :45														779		
6 :00														904		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	92	0	92	92		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	102	0	102	102		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	118	0	118	118		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	117	0	117	117	429	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	117	0	117	117	454	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	103	0	103	103	455	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	130	0	130	130	467	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	125	0	125	125	475	6
	0	0	0		0	0	0		0	0	0		0	475	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	0	0		0	475	0			475 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	475	5 :00 Peak Period Starting at	6 :00 Peak Period Ending at
PEAK 15 MIN VOL	130		
PEAK HR FACTOR (PHF)	0.91		
	-		

BY APPROACH

PEAK HR VOL	-	-	-	475
PEAK 15 MIN VOL	-	-	-	130
PEAK HR FACTOR (PHF)	-	-	-	0.91
	-	-	-	-

Intersection: E. of San Marin Dr. / Novato Blvd.
Direction N / S E / W
Time Period: 4:30 - 6:30 PM

Date: May 17, 2005 Tuesday
Project: 531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh			b		Apprh	a		B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound				PHF	Westbound				PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R			L	T	R		
4:45																76			
5:00																157			
5:15																233			
5:30																327			
5:45																411			
6:00																486			
6:15																579			
6:30																667			

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4:45	0	0	0	0	0	0	0	0	0	0	0	0	0	76	0	76	76		4
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	81	0	81	81		5
5:15	0	0	0	0	0	0	0	0	0	0	0	0	0	76	0	76	76		5
5:30	0	0	0	0	0	0	0	0	0	0	0	0	0	94	0	94	94	327	5
5:45	0	0	0	0	0	0	0	0	0	0	0	0	0	84	0	84	84	335	5
6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	75	0	75	75	329	6
6:15	0	0	0	0	0	0	0	0	0	0	0	0	0	93	0	93	93	346	6
6:30	0	0	0	0	0	0	0	0	0	0	0	0	0	88	0	88	88	340	6
	0	0	0		0	0	0		0	0	0		0	346	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	0	0		0	346	0			346 Total Intersection Vol	

6 :15

WHOLE INTERSECTION

PEAK HR VOL	346	5 :15 Peak Period Starting at	6 :15 Peak Period Ending at
PEAK 15 MIN VOL	94		
PEAK HR FACTOR (PHF)	0.92		
	-		

BY APPROACH

PEAK HR VOL	-	-	-	346
PEAK 15 MIN VOL	-	-	-	94
PEAK HR FACTOR (PHF)	-	-	-	0.92
	-	-	-	-

Intersection:	Diablo Ave. /	Novato Blvd.	Date:	July 13, 2005 Wednesday
Direction	N / S	E / W		
Time Period:	4 - 6pm		Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh		A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15	8	69	10		68	54	117		99	88	8		7	94	42	
4 :30	16	130	13		127	128	254		165	161	11		19	176	101	
4 :45	21	180	18		173	196	430		250	263	15		32	297	165	
5 :00	30	243	28		223	287	606		373	330	24		45	395	224	
5 :15	36	306	31		274	355	754		466	411	28		61	505	277	
5 :30	42	361	39		344	428	889		573	467	32		75	616	320	
5 :45	55	410	41		407	498	1023		662	533	37		86	718	379	
6 :00	63	464	45		464	578	1168		745	605	49		95	813	429	

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	8	69	10	87	68	54	117	239	99	88	8	195	7	94	42	143	664		4
4 :30	8	61	3	72	59	74	137	270	66	73	3	142	12	82	59	153	637		4
4 :45	5	50	5	60	46	68	176	290	85	102	4	191	13	121	64	198	739		4
5 :00	9	63	10	82	50	91	176	317	123	67	9	199	13	98	59	170	768	2808	5
5 :15	6	63	3	72	51	68	148	267	93	81	4	178	16	110	53	179	696	2840	5
5 :30	6	55	8	69	70	73	135	278	107	56	4	167	14	111	43	168	682	2885	5
5 :45	13	49	2	64	63	70	134	267	89	66	5	160	11	102	59	172	663	2809	5
6 :00	8	54	4	66	57	80	145	282	83	72	12	167	9	95	50	154	669	2710	6
	26	231	26		217	300	635		408	306	21		56	440	219			Peak Hour	
PEAK => HOUR TOTAL	26	231	26		217	300	635		408	306	21		56	440	219			2885 Total Intersection Vol	

5 :30

WHOLE INTERSECTION

PEAK HR VOL	2,885	4 :30 Peak Period Starting at	5 :30 Peak Period Ending at
PEAK 15 MIN VOL	768		
PEAK HR FACTOR (PHF)	0.94		
	-		

BY APPROACH

PEAK HR VOL	283	1,152	735	715
PEAK 15 MIN VOL	82	317	199	198
PEAK HR FACTOR (PHF)	0.86	0.91	0.92	0.90
CAUTION : PHF below 0.9	-	-	-	-

Intersection:	W. Of Diablo Ave. /	Novato Blvd.		Date:	May 17, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15																
4 :30														194		
4 :45														379		
5 :00														591		
5 :15														824		
5 :30														1045		
5 :45														1291		
6 :00														1491		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	194	0	194	194		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	185	0	185	185		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	212	0	212	212	591	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	233	0	233	233	824	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	221	0	221	221	851	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	246	0	246	246	912	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	200	0	200	200	900	6
	0	0	0		0	0	0		0	0	0		0	912	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	0	0		0	912	0			912 Total Intersection Vol	

5 :45

WHOLE INTERSECTION

PEAK HR VOL	912	4 :45 Peak Period Starting at	5 :45 Peak Period Ending at
PEAK 15 MIN VOL	246		
PEAK HR FACTOR (PHF)	0.93		
	-		

BY APPROACH

PEAK HR VOL	-	-	-	912
PEAK 15 MIN VOL	-	-	-	246
PEAK HR FACTOR (PHF)	-	-	-	0.93
	-	-	-	-

Intersection: N. of Sir Francis Drake Blvd / SR 1
Direction N / S E / W
Time Period: 4 - 6pm

Date: May 17, 2005 Tuesday
Project: 531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15															39		
4 :30															73		
4 :45															100		
5 :00															124		
5 :15															149		
5 :30															175		
5 :45															194		
6 :00															213		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	39	0	39	39		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	34	0	34	34		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0	27	27		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	24	0	24	24	124	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0	25	25	110	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	26	26	102	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	19	19	94	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	19	19	89	6
	0	0	0		0	0	0		0	0	0		0	124	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	0	0		0	124	0			124 Total Intersection Vol	

5 :00

WHOLE INTERSECTION

PEAK HR VOL	124	4 :00 Peak Period Starting at	5 :00 Peak Period Ending at
PEAK 15 MIN VOL	39		
PEAK HR FACTOR (PHF)	0.79		

CAUTION : PHF below 0.9

BY APPROACH

PEAK HR VOL	-	-	-	124
PEAK 15 MIN VOL	-	-	-	39
PEAK HR FACTOR (PHF)	-	-	-	0.79
	-	-	-	CAUTION : PHF below 0.9

Intersection:	E. of US 101 NB/Marsh Dr. /	Route 37 EB		Date:	May 17, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh				Apprh				Apprh				Apprh
					A		c		b				a	B		
	Northbound				Southbound				Eastbound				Westbound			
15-min period	L	T	R	PHF	L	T	R	PHF	L	T	R	PHF	L	T	R	PHF
Ending Time																
4 :15										536						
4 :30										1099						
4 :45										1697						
5 :00										2223						
5 :15										2804						
5 :30										3401						
5 :45										3939						
6 :00										4420						

OUTPUTS

15-min period				Apprh				Apprh				Apprh				Apprh	15 min. totals	60 min totals	15-min
Ending Time				PHF				PHF				PHF				PHF			Ending
4 :15	0	0	0	0	0	0	0	0	0	536	0	536	0	0	0	0	536		4
4 :30	0	0	0	0	0	0	0	0	0	563	0	563	0	0	0	0	563		4
4 :45	0	0	0	0	0	0	0	0	0	598	0	598	0	0	0	0	598		4
5 :00	0	0	0	0	0	0	0	0	0	526	0	526	0	0	0	0	526	2223	5
5 :15	0	0	0	0	0	0	0	0	0	581	0	581	0	0	0	0	581	2268	5
5 :30	0	0	0	0	0	0	0	0	0	597	0	597	0	0	0	0	597	2302	5
5 :45	0	0	0	0	0	0	0	0	0	538	0	538	0	0	0	0	538	2242	5
6 :00	0	0	0	0	0	0	0	0	0	481	0	481	0	0	0	0	481	2197	6
	0	0	0		0	0	0		0	2302	0		0	0	0			Peak Hour	
PEAK =>	0	0	0		0	0	0		0	2302	0		0	0	0			2302	
HOUR																		Total Intersection Vol	
TOTAL									5 :30										

WHOLE INTERSECTION

PEAK HR VOL	2,302	4 :30	5 :30
PEAK 15 MIN VOL	598	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.96		
	-		

BY APPROACH

PEAK HR VOL	-	-	2,302	-
PEAK 15 MIN VOL	-	-	598	-
PEAK HR FACTOR (PHF)	-	-	0.96	-
	-	-	-	-

Intersection:	US 101 NB /	South of 580	Date:	May 24, 2005	Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm		Project:	531950 Marin Co.	

INPUTS

Labels =>				Apprh		A	c	Apprh		b		Apprh	a	B		Apprh
		Northbound		PHF		Southbound		PHF		Eastbound		PHF		Westbound		PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15		1529														
4 :30		2639														
4 :45		4273														
5 :00		5734														
5 :15		7265														
5 :30		8826														
5 :45		10401														
6 :00		11948														

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	1529	0	1529	0	0	0	0	0	0	0	0	0	0	0	0	1529		4
4 :30	0	1110	0	1110	0	0	0	0	0	0	0	0	0	0	0	0	1110		4
4 :45	0	1634	0	1634	0	0	0	0	0	0	0	0	0	0	0	0	1634		4
5 :00	0	1461	0	1461	0	0	0	0	0	0	0	0	0	0	0	0	1461	5734	5
5 :15	0	1531	0	1531	0	0	0	0	0	0	0	0	0	0	0	0	1531	5736	5
5 :30	0	1561	0	1561	0	0	0	0	0	0	0	0	0	0	0	0	1561	6187	5
5 :45	0	1575	0	1575	0	0	0	0	0	0	0	0	0	0	0	0	1575	6128	5
6 :00	0	1547	0	1547	0	0	0	0	0	0	0	0	0	0	0	0	1547	6214	6
	0	6214	0		0	0	0		0	0	0		0	0	0			Peak Hour	
PEAK => HOUR TOTAL	0	6214	0		0	0	0		0	0	0		0	0	0			6214 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	6,214	5 :00	6 :00
PEAK 15 MIN VOL	1,634	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.95		
	-		

BY APPROACH

PEAK HR VOL	6,214	-	-	-
PEAK 15 MIN VOL	1,575	-	-	-
PEAK HR FACTOR (PHF)	0.99	-	-	-
	-	-	-	-

Intersection:	US 101 NB /	N. of 580	Date:	May 10, 2005	Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm		Project:	531950 Marin Co.	

INPUTS

Labels =>				Apprh			A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15		1500															
4 :30		3110															
4 :45		4700															
5 :00		6280															
5 :15		7910															
5 :30		9460															
5 :45		11230															
6 :00		12810															

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	1500	0	1500	0	0	0	0	0	0	0	0	0	0	0	0	1500		4
4 :30	0	1610	0	1610	0	0	0	0	0	0	0	0	0	0	0	0	1610		4
4 :45	0	1590	0	1590	0	0	0	0	0	0	0	0	0	0	0	0	1590		4
5 :00	0	1580	0	1580	0	0	0	0	0	0	0	0	0	0	0	0	1580	6280	5
5 :15	0	1630	0	1630	0	0	0	0	0	0	0	0	0	0	0	0	1630	6410	5
5 :30	0	1550	0	1550	0	0	0	0	0	0	0	0	0	0	0	0	1550	6350	5
5 :45	0	1770	0	1770	0	0	0	0	0	0	0	0	0	0	0	0	1770	6530	5
6 :00	0	1580	0	1580	0	0	0	0	0	0	0	0	0	0	0	0	1580	6530	6
	0	6530	0		0	0	0			0	0	0		0	0	0		Peak Hour	
PEAK => HOUR TOTAL	0	6530	0		0	0	0			0	0	0		0	0	0		6530 Total Intersection Vol	

5 :45

WHOLE INTERSECTION

PEAK HR VOL	6,530	4 :45 Peak Period Starting at	5 :45 Peak Period Ending at
PEAK 15 MIN VOL	1,770		
PEAK HR FACTOR (PHF)	0.92		
	-		

BY APPROACH

PEAK HR VOL	6,530		-		-		-	
PEAK 15 MIN VOL	1,770		-		-		-	
PEAK HR FACTOR (PHF)	0.92		-		-		-	
	-	-		-		-		-

Intersection:	US 101 SB /	N. of Sonomo Co.		Date:	May 24, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh		A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15						572										
4 :30						1142										
4 :45						1726										
5 :00						2396										
5 :15						2999										
5 :30						3653										
5 :45						4261										
6 :00						4843										

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	572	0	572	0	0	0	0	0	0	0	0	572		4
4 :30	0	0	0	0	0	570	0	570	0	0	0	0	0	0	0	0	570		4
4 :45	0	0	0	0	0	584	0	584	0	0	0	0	0	0	0	0	584		4
5 :00	0	0	0	0	0	670	0	670	0	0	0	0	0	0	0	0	670	2396	5
5 :15	0	0	0	0	0	603	0	603	0	0	0	0	0	0	0	0	603	2427	5
5 :30	0	0	0	0	0	654	0	654	0	0	0	0	0	0	0	0	654	2511	5
5 :45	0	0	0	0	0	608	0	608	0	0	0	0	0	0	0	0	608	2535	5
6 :00	0	0	0	0	0	582	0	582	0	0	0	0	0	0	0	0	582	2447	6
	0	0	0		0	2535	0		0	0	0		0	0	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	2535	0		0	0	0		0	0	0			2535 Total Intersection Vol	

5 :45

WHOLE INTERSECTION

PEAK HR VOL	2,535	4 :45 Peak Period Starting at	5 :45 Peak Period Ending at
PEAK 15 MIN VOL	670		
PEAK HR FACTOR (PHF)	0.95		

BY APPROACH

PEAK HR VOL	-	2,535	-	-
PEAK 15 MIN VOL	-	670	-	-
PEAK HR FACTOR (PHF)	-	0.95	-	-

Intersection:	US 101 NB /	N. of Sonomo Co.		Date:	May 24, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15		852															
4 :30		1690															
4 :45		2616															
5 :00		3530															
5 :15		4408															
5 :30		5354															
5 :45		6253															
6 :00		7155															

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	852	0	852	0	0	0	0	0	0	0	0	0	0	0	0	852		4
4 :30	0	838	0	838	0	0	0	0	0	0	0	0	0	0	0	0	838		4
4 :45	0	926	0	926	0	0	0	0	0	0	0	0	0	0	0	0	926		4
5 :00	0	914	0	914	0	0	0	0	0	0	0	0	0	0	0	0	914	3530	5
5 :15	0	878	0	878	0	0	0	0	0	0	0	0	0	0	0	0	878	3556	5
5 :30	0	946	0	946	0	0	0	0	0	0	0	0	0	0	0	0	946	3664	5
5 :45	0	899	0	899	0	0	0	0	0	0	0	0	0	0	0	0	899	3637	5
6 :00	0	902	0	902	0	0	0	0	0	0	0	0	0	0	0	0	902	3625	6
	0	3664	0		0	0	0			0	0	0		0	0	0		Peak Hour	
PEAK => HOUR TOTAL	0	3664	0		0	0	0			0	0	0		0	0	0		3664 Total Intersection Vol	

5 :30

WHOLE INTERSECTION

PEAK HR VOL	3,664	4 :30 Peak Period Starting at	5 :30 Peak Period Ending at
PEAK 15 MIN VOL	946		
PEAK HR FACTOR (PHF)	0.97		
	-		

BY APPROACH

PEAK HR VOL	3,664	-		-		-		
PEAK 15 MIN VOL	946	-		-		-		
PEAK HR FACTOR (PHF)	0.97	-		-		-		
	-		-		-		-	

Intersection:	US 101 NB /	N. Of Mission		Date:	May 24, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh		A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15		2100														
4 :30		4334														
4 :45		6454														
5 :00		8321														
5 :15		10560														
5 :30		12585														
5 :45		14831														
6 :00		16923														

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	2100	0	2100	0	0	0	0	0	0	0	0	0	0	0	0	2100		4
4 :30	0	2234	0	2234	0	0	0	0	0	0	0	0	0	0	0	0	2234		4
4 :45	0	2120	0	2120	0	0	0	0	0	0	0	0	0	0	0	0	2120		4
5 :00	0	1867	0	1867	0	0	0	0	0	0	0	0	0	0	0	0	1867	8321	5
5 :15	0	2239	0	2239	0	0	0	0	0	0	0	0	0	0	0	0	2239	8460	5
5 :30	0	2025	0	2025	0	0	0	0	0	0	0	0	0	0	0	0	2025	8251	5
5 :45	0	2246	0	2246	0	0	0	0	0	0	0	0	0	0	0	0	2246	8377	5
6 :00	0	2092	0	2092	0	0	0	0	0	0	0	0	0	0	0	0	2092	8602	6
	0	8602	0		0	0	0		0	0	0		0	0	0			Peak Hour	
PEAK => HOUR TOTAL	0	8602	0		0	0	0		0	0	0		0	0	0			8602 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	8,602	5 :00 Peak Period Starting at	6 :00 Peak Period Ending at
PEAK 15 MIN VOL	2,246		
PEAK HR FACTOR (PHF)	0.96		
	-		

BY APPROACH

PEAK HR VOL	8,602		-		-		-	
PEAK 15 MIN VOL	2,246		-		-		-	
PEAK HR FACTOR (PHF)	0.96		-		-		-	
	-	-		-		-		-

Intersection:	Bridgeway Blvd. /	S. of Gate 6	Date:	May 3, 2005	Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm		Project:	531950 Marin Co.	

INPUTS

Labels =>				Apprh			A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15		302															
4 :30		540															
4 :45		843															
5 :00		1133															
5 :15		1470															
5 :30		1754															
5 :45		2052															
6 :00		2391															

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	302	0	302	0	0	0	0	0	0	0	0	0	0	0	0	302		4
4 :30	0	238	0	238	0	0	0	0	0	0	0	0	0	0	0	0	238		4
4 :45	0	303	0	303	0	0	0	0	0	0	0	0	0	0	0	0	303		4
5 :00	0	290	0	290	0	0	0	0	0	0	0	0	0	0	0	0	290	1133	5
5 :15	0	337	0	337	0	0	0	0	0	0	0	0	0	0	0	0	337	1168	5
5 :30	0	284	0	284	0	0	0	0	0	0	0	0	0	0	0	0	284	1214	5
5 :45	0	298	0	298	0	0	0	0	0	0	0	0	0	0	0	0	298	1209	5
6 :00	0	339	0	339	0	0	0	0	0	0	0	0	0	0	0	0	339	1258	6
	0	1258	0		0	0	0		0	0	0		0	0	0			Peak Hour	
PEAK => HOUR TOTAL	0	1258	0		0	0	0		0	0	0		0	0	0			1258 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	1,258	5 :00	6 :00
PEAK 15 MIN VOL	339	Peak Period Starting at	Peak Period Ending at
PEAK HR FACTOR (PHF)	0.93		
-			

BY APPROACH

PEAK HR VOL	1,258	-	-	-
PEAK 15 MIN VOL	339	-	-	-
PEAK HR FACTOR (PHF)	0.93	-	-	-
-		-	-	-

Intersection:	E of Almonte Blvd. /	Shoreline Hwy		Date:	May 3, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh			b	Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15															275		
4 :30															606		
4 :45															942		
5 :00															1276		
5 :15															1589		
5 :30															1971		
5 :45															2410		
6 :00															2851		

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	275	0	275	275		4
4 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	331	0	331	331		4
4 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	336	0	336	336		4
5 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	334	0	334	334	1276	5
5 :15	0	0	0	0	0	0	0	0	0	0	0	0	0	313	0	313	313	1314	5
5 :30	0	0	0	0	0	0	0	0	0	0	0	0	0	382	0	382	382	1365	5
5 :45	0	0	0	0	0	0	0	0	0	0	0	0	0	439	0	439	439	1468	5
6 :00	0	0	0	0	0	0	0	0	0	0	0	0	0	441	0	441	441	1575	6
	0	0	0		0	0	0		0	0	0		0	1575	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	0	0		0	0	0		0	1575	0			1575 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	1,575	5 :00 Peak Period Starting at	6 :00 Peak Period Ending at
PEAK 15 MIN VOL	441		
PEAK HR FACTOR (PHF)	0.89		

CAUTION : PHF below 0.9

BY APPROACH

PEAK HR VOL	-	-	-	1,575
PEAK 15 MIN VOL	-	-	-	441
PEAK HR FACTOR (PHF)	-	-	-	0.89
	-	-	-	CAUTION : PHF below 0.9

Intersection:	US 101 SB /	S. of Spencer Ave.		Date:	May 3, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh		A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound			PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R		L	T	R		L	T	R	
4 :15						742										
4 :30						1656										
4 :45						2554										
5 :00						3286										
5 :15						4084										
5 :30						5029										
5 :45						5919										
6 :00						6861										

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	0	0	0	0	742	0	742	0	0	0	0	0	0	0	0	742		4
4 :30	0	0	0	0	0	914	0	914	0	0	0	0	0	0	0	0	914		4
4 :45	0	0	0	0	0	898	0	898	0	0	0	0	0	0	0	0	898		4
5 :00	0	0	0	0	0	732	0	732	0	0	0	0	0	0	0	0	732	3286	5
5 :15	0	0	0	0	0	798	0	798	0	0	0	0	0	0	0	0	798	3342	5
5 :30	0	0	0	0	0	945	0	945	0	0	0	0	0	0	0	0	945	3373	5
5 :45	0	0	0	0	0	890	0	890	0	0	0	0	0	0	0	0	890	3365	5
6 :00	0	0	0	0	0	942	0	942	0	0	0	0	0	0	0	0	942	3575	6
	0	0	0		0	3575	0		0	0	0		0	0	0			Peak Hour	
PEAK => HOUR TOTAL	0	0	0		0	3575	0		0	0	0		0	0	0			3575 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	3,575	5 :00 Peak Period Starting at	6 :00 Peak Period Ending at
PEAK 15 MIN VOL	945		
PEAK HR FACTOR (PHF)	0.95		

BY APPROACH

PEAK HR VOL	-	3,575	-	-
PEAK 15 MIN VOL	-	945	-	-
PEAK HR FACTOR (PHF)	-	0.95	-	-

Intersection:	US 101 NB /	S. of Spencer Ave.		Date:	May 3, 2005 Tuesday
Direction	N / S	E / W			
Time Period:	4 - 6pm			Project:	531950 Marin Co.

INPUTS

Labels =>				Apprh			A	c	Apprh		b		Apprh	a	B		Apprh
	Northbound			PHF	Southbound				PHF	Eastbound			PHF	Westbound			PHF
15-min period Ending Time	L	T	R		L	T	R			L	T	R		L	T	R	
4 :15		1050	3														
4 :30		2245	7														
4 :45		3431	8														
5 :00		4685	13														
5 :15		5899	14														
5 :30		7115	16														
5 :45		8681	18														
6 :00		10171	19														

OUTPUTS

15-min period Ending Time				Apprh PHF				Apprh PHF				Apprh PHF				Apprh PHF	15 min. totals	60 min totals	15-min Ending
4 :15	0	1050	3	1053	0	0	0	0	0	0	0	0	0	0	0	0	1053		4
4 :30	0	1195	4	1199	0	0	0	0	0	0	0	0	0	0	0	0	1199		4
4 :45	0	1186	1	1187	0	0	0	0	0	0	0	0	0	0	0	0	1187		4
5 :00	0	1254	5	1259	0	0	0	0	0	0	0	0	0	0	0	0	1259	4698	5
5 :15	0	1214	1	1215	0	0	0	0	0	0	0	0	0	0	0	0	1215	4860	5
5 :30	0	1216	2	1218	0	0	0	0	0	0	0	0	0	0	0	0	1218	4879	5
5 :45	0	1566	2	1568	0	0	0	0	0	0	0	0	0	0	0	0	1568	5260	5
6 :00	0	1490	1	1491	0	0	0	0	0	0	0	0	0	0	0	0	1491	5492	6
	0	5486	6		0	0	0		0	0	0		0	0	0			Peak Hour	
PEAK => HOUR TOTAL	0	5486	6		0	0	0		0	0	0		0	0	0			5492 Total Intersection Vol	

6 :00

WHOLE INTERSECTION

PEAK HR VOL	5,492	5 :00 Peak Period Starting at	6 :00 Peak Period Ending at
PEAK 15 MIN VOL	1,568		
PEAK HR FACTOR (PHF)	0.88		

CAUTION : PHF below 0.9

BY APPROACH

PEAK HR VOL	5,492	-	-	-
PEAK 15 MIN VOL	1,568	-	-	-
PEAK HR FACTOR (PHF)	0.88	-	-	-
CAUTION : PHF below 0.9		-	-	-

Appendix G New
FUTURE TRANSPORTATION DEMAND

Land Development

ABAG 2003 Projections - Generally Includes city spheres

	Exist 2005	Projected 2015	Change 2005 to 2015
Belvedere			
Sum households	970	990	20
Total Jobs	470	470	0
Corte Madera			
Sum households	3,930	4,110	180
Total jobs	9,640	10,820	1,180
Fairfax			
Sum households	3,810	3,960	150
Total jobs	1,490	1,600	110
Larkspur			
Sum households	8,880	9,600	720
Total jobs	10,240	11,470	1,230
Mill Valley			
Sum households	10,900	11,370	470
Total jobs	8,190	8,480	290
Novato			
Sum households	21,200	23,980	2,780
Total jobs	25,900	34,750	8,850
Ross			
Sum households	770	790	20
Total jobs	1,230	1,260	30
San Anselmo			
Sum households	6,160	6,290	130
Total jobs	3,840	3,940	100
San Rafael			
Sum households	27,840	29,600	1,760
Total jobs	43,210	47,810	4,600
Sausalito			
Sum households	5,940	6,210	270
Total jobs	5,440	6,170	730
Tiburon			
Sum households	6,660	6,900	240
Total jobs	3,750	4,120	370
Unincorporated			
Sum households	5,630	5,980	350
Total jobs	11,890	13,700	1,810
Countywide			
Sum households	**102,690**	**109,780**	**7,090**
Total jobs	**125,290**	**144,590**	**19,300**

Assumed Transportation Network Changes

The HOV Gap Closure is complete through central San Rafael, so there is continuous HOV from SR1 to Hwy 37. There are no HOV lanes through the Marin Sonoma Narrows. There is no commuter or light rail between Cloverdale and San Rafael or Larkspur. The transit system is as it existed in summer 2005.

Appendix H
CONGESTION MANAGEMENT PROGRAM CALIFORNIA GOVERNMENT CODE

around the capitol

{**Caution**}

CALIFORNIA GOVERNMENT CODE

65088. The Legislature finds and declares all of the following:

(a) Although California's economy is critically dependent upon transportation, its current transportation system relies primarily upon a street and highway system designed to accommodate far fewer vehicles than are currently using the system.

(b) California's transportation system is characterized by fragmented planning, both among jurisdictions involved and among the means of available transport.

(c) The lack of an integrated system and the increase in the number of vehicles are causing traffic congestion that each day results in 400,000 hours lost in traffic, 200 tons of pollutants released into the air we breathe, and three million one hundred thousand dollars ($3,100,000) added costs to the motoring public.

(d) To keep California moving, all methods and means of transport between major destinations must be coordinated to connect our vital economic and population centers.

(e) In order to develop the California economy to its full potential, it is intended 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.

(f) In addition to solving California's traffic congestion crisis, rebuilding California's cities and suburbs, particularly with affordable housing and more walkable neighborhoods, is an important part of accommodating future increases in the state's population because homeownership is only now available to most Californians who are on the fringes of metropolitan areas and far from employment centers.

(g) The Legislature intends to do everything within its power to remove regulatory barriers around the development of infill housing, transit-oriented development, and mixed use commercial development in order to reduce regional traffic congestion and provide more housing choices for all Californians.

(h) The removal of regulatory barriers to promote infill housing, transit-oriented development, or mixed use commercial development does not preclude a city or county from holding a public hearing nor finding that an individual infill project would be adversely impacted by the surrounding environment or transportation patterns.
65088.

1. As used in this chapter the following terms have the following meanings:

(a) Unless the context requires otherwise, "regional agency" means the agency responsible for preparation of the regional transportation improvement program.

(b) Unless the context requires otherwise, "agency" means the agency responsible for the preparation and adoption of the congestion management program.

(c) "Commission" means the California Transportation Commission.

(d) "Department" means the Department of Transportation.

(e) "Local jurisdiction" means a city, a county, or a city and county.

(f) "Parking cash-out program" means an employer-funded program under which an employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the employer would otherwise pay to

provide the employee with a parking space. "Parking subsidy" means 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 not owned by the employer and the price, if any, charged to an employee for use of that space. A parking cash-out program may include a requirement that employee participants certify that they will comply with guidelines established by the employer designed to avoid neighborhood parking problems, with a provision that employees not complying with the guidelines will no longer be eligible for the parking cash-out program.

(g) "Infill opportunity zone" means a specific area designated by a city or county, pursuant to subdivision (c) of Section 65088.4, zoned for new compact residential or mixed use development within one-third mile of a site with an existing or future rail transit station, a ferry terminal served by either a bus or rail transit service, an intersection of at least two major bus routes, or within 300 feet of a bus rapid transit corridor, in counties with a population over 400,

000. The mixed use development zoning shall consist of three or more land uses that facilitate significant human interaction in close proximity, with residential use as the primary land use supported by other land uses such as office, hotel, health care, hospital, entertainment, restaurant, retail, and service uses. The transit service shall have maximum scheduled headways of 15 minutes for at least 5 hours per day. A qualifying future rail station shall have broken ground on construction of the station and programmed operational funds to provide maximum scheduled headways of 15 minutes for at least 5 hours per day.

(h) "Interregional travel" means any trips that originate outside the boundary of the agency. A "trip" means a one-direction vehicle movement. The origin of any trip is the starting point of that trip. A roundtrip consists of two individual trips.

(i) "Level of service standard" is a threshold that defines a deficiency on the congestion management program highway and roadway system which requires the preparation of a deficiency plan. It is the intent of the Legislature that the agency shall use all elements of the program to implement strategies and actions that avoid the creation of deficiencies and to improve multimodal mobility.

(j) "Multimodal" means the utilization of all available modes of travel that enhance the movement of people and goods, including, but not limited to, highway, transit, nonmotorized, and demand management strategies including, but not limited to, telecommuting. The availability and practicality of specific multimodal systems, projects, and strategies may vary by county and region in accordance with the size and complexity of different urbanized areas.

(k) "Performance measure" is an analytical planning tool that is used to quantitatively evaluate transportation improvements and to assist in determining effective implementation actions, considering all modes and strategies. Use of a performance measure as part of the program does not trigger the requirement for the preparation of deficiency plans.

(l) "Urbanized area" has the same meaning as is defined in the 1990 federal census for urbanized areas of more than 50,000 population.

(m) "Bus rapid transit corridor" means a bus service that includes at least four of the following attributes:

(1) Coordination with land use planning.

(2) Exclusive right-of-way.

(3) Improved passenger boarding facilities.

(4) Limited stops.

(5) Passenger boarding at the same height as the bus.

(6) Prepaid fares.

(7) Real-time passenger information.

(8) Traffic priority at intersections.

(9) Signal priority.

(10) Unique vehicles. 65088.

3. This chapter does not apply in a county in which a majority of local governments, collectively comprised of the city councils and the county board of supervisors, which in total also represent a majority of the population in the county, each adopt resolutions electing to be exempt from the congestion management program. 65088.

4. (a) It is the intent of the Legislature to balance the need for level of service standards for traffic with the need to build infill housing and mixed use commercial developments within walking distance of mass transit facilities, downtowns, and town centers and to provide greater flexibility to local governments to balance these sometimes competing needs.

(b) Notwithstanding any other provision of law, level of service standards described in Section 65089 shall not

apply to the streets and highways within an infill opportunity zone. The city or county shall do either of the following:

(1) Include these streets and highways under an alternative areawide level of service standard or multimodal composite or personal level of service standard that takes into account both of the following:

(A) The broader benefits of regional traffic congestion reduction by siting new residential development within walking distance of, and no more than one-third mile from, mass transit stations, shops, and services, in a manner that reduces the need for long vehicle commutes and improves the jobs-housing balance.

(B) Increased use of alternative transportation modes, such as mass transit, bicycling, and walking.

(2) Approve a list of flexible level of service mitigation options that includes roadway expansion and investments in alternate modes of transportation that may include, but are not limited to, transit infrastructure, pedestrian infrastructure, and ridesharing, vanpool, or shuttle programs.

(c) The city or county may designate an infill opportunity zone by adopting a resolution after determining that the infill opportunity zone is consistent with the general plan and any applicable specific plan. A city or county may not designate an infill opportunity zone after December 31,

2009.

(d) The city or county in which the infill opportunity zone is located shall ensure that a development project shall be completed within the infill opportunity zone not more than four years after the date on which the city or county adopted its resolution pursuant to subdivision (c). If no development project is completed within an infill opportunity zone by the time limit imposed by this subdivision, the infill opportunity zone shall automatically terminate. 65088.

5. Congestion management programs, if prepared by county transportation commissions and transportation authorities created pursuant to Division 12 (commencing with Section 130000) of the Public Utilities Code, shall be used by the regional transportation planning agency to meet federal requirements for a congestion management system, and shall be incorporated into the congestion management system.

65089. (a) A congestion management program shall be developed, adopted, and updated biennially, consistent with the schedule for adopting and updating the regional transportation improvement program, for every county that includes an urbanized area, and shall include every city and the county. The program shall be adopted at a noticed public hearing of the agency. The program shall be developed in consultation with, and with the cooperation of, the transportation planning agency, regional transportation providers, local governments, the department, and the air pollution control district or the air quality management district, either by the county transportation commission, or by another public agency, as designated by resolutions adopted by the county board of supervisors and the city councils of a majority of the cities representing a majority of the population in the incorporated area of the county.

(b) The program shall contain all of the following elements:

(1) (A) Traffic level of service standards established for a system of highways and roadways designated by the agency. The highway and roadway system shall include at a minimum all state highways and principal arterials. No highway or roadway designated as a part of the system shall be removed from the system. All new state highways and principal arterials shall be designated as part of the system, except when it is within an infill opportunity zone. Level of service (LOS) shall be measured by Circular 212, by the most recent version of the Highway Capacity Manual, or by a uniform methodology adopted by the agency that is consistent with the Highway Capacity Manual. The determination as to whether an alternative method is consistent with the Highway Capacity Manual shall be made by the regional agency, except that the department instead shall make this determination if either (i) the regional agency is also the agency, as those terms are defined in Section 65088.1, or (ii) the department is responsible for preparing the regional transportation improvement plan for the county.

(B) In no case shall the LOS standards established be below the level of service E or the current level, whichever is farthest from level of service A except when the area is in an infill opportunity zone. When the level of service on a segment or at an intersection fails to attain the established level of service standard outside an infill opportunity zone, a deficiency plan shall be adopted pursuant to Section 65089.

4.

(2) A performance element that 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 service 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 required pursuant to paragraph (5), deficiency plans required pursuant to Section 65089.4, and the land use analysis program required pursuant to paragraph (4).

(3) A travel demand element that promotes alternative transportation methods, including, but not limited to, carpools, vanpools, transit, bicycles, and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including, but not limited to, flexible work hours, telecommuting, and parking management programs. The agency shall consider parking cash-out programs during the development and update of the travel demand element.

(4) 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 costs 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, credit 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.

(5) A seven-year capital improvement program, developed using the performance measures described in paragraph (2) to determine effective projects that maintain or improve the performance of the multimodal system for the movement of people and goods, to mitigate regional transportation impacts identified pursuant to paragraph (4). The program shall conform to transportation-related vehicle emission air quality mitigation measures, and include any project that will increase the capacity of the multimodal system. It is the intent of the Legislature that, when roadway projects are identified in the program, consideration be given for maintaining bicycle access and safety at a level comparable to that which existed prior to the improvement or alteration. The capital improvement program may also include safety, maintenance, and rehabilitation projects that do not enhance the capacity of the system but are necessary to preserve the investment in existing facilities.

(c) The agency, in consultation with the regional agency, cities, and the county, shall develop a uniform data base on traffic impacts for use in a countywide transportation computer model and shall approve transportation computer models of specific areas within the county that will be used by local jurisdictions to determine the quantitative impacts of development on the circulation system that are based on the countywide model and standardized modeling assumptions and conventions. The computer models shall be consistent with the modeling methodology adopted by the regional planning agency. The data bases used in the models shall be consistent with the data bases used by the regional planning agency. Where the regional agency has jurisdiction over two or more counties, the data bases used by the agency shall be consistent with the data bases used by the regional agency.

(d) (1) The city or county in which a commercial development will implement a parking cash-out program that is included in a congestion management program pursuant to subdivision (b), or in a deficiency plan pursuant to Section 65089.4, shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for new commercial development.

(2) At the request of an existing commercial development that has implemented a parking cash-out program, the city or county shall grant an appropriate reduction in the parking requirements otherwise applicable based on the demonstrated reduced need for parking, and the space no longer needed for parking purposes may be used for other appropriate purposes.

(e) Pursuant to the federal Intermodal Surface Transportation Efficiency Act of 1991 and regulations adopted pursuant to the act, the department shall submit a request to the Federal Highway Administration Division Administrator to accept the congestion management program in lieu of development of a new congestion management system otherwise required by the act. 65089.

1. (a) For purposes of this section, "plan" means a trip reduction plan or a related or similar proposal submitted by an employer to a local public agency for adoption or approval that is designed to facilitate employee ridesharing, the use of public transit, and other means of travel that do not employ a single-occupant vehicle.

(b) An agency may require an employer to provide rideshare data bases; an emergency ride program; a preferential parking program; a transportation information program; a parking cash-out program, as defined in subdivision (f) of Section 65088.1; a public transit subsidy in an amount to be determined by the employer;

bicycle parking areas; and other noncash value programs which encourage or facilitate the use of alternatives to driving alone. An employer may offer, but no agency shall require an employer to offer, cash, prizes, or items with cash value to employees to encourage participation in a trip reduction program as a condition of approving a plan.

(c) Employers shall provide employees reasonable notice of the content of a proposed plan and shall provide the employees an opportunity to comment prior to submittal of the plan to the agency for adoption.

(d) Each agency shall modify existing programs to conform to this section not later than June 30,

1995. Any plan adopted by an agency prior to January 1, 1994, shall remain in effect until adoption by the agency of a modified plan pursuant to this section.

(e) Employers may include disincentives in their plans that do not create a widespread and substantial disproportionate impact on ethnic or racial minorities, women, or low-income or disabled employees.

(f) This section shall not be interpreted to relieve any employer of the responsibility to prepare a plan that conforms with trip reduction goals specified in Division 26 (commencing with Section 39000) of the Health and Safety Code, or the Clean Air Act (42 U.S.C. Sec. 7401 et seq.).

(g) This section only applies to agencies and employers within the South Coast Air Quality Management District. 65089.

2. (a) Congestion management programs shall be submitted to the regional agency. The regional agency shall evaluate the consistency between the program and the regional transportation plans required pursuant to Section

65080. In the case of a multicounty regional transportation planning agency, that agency shall evaluate the consistency and compatibility of the programs within the region.

(b) The regional agency, upon finding that the program is consistent, shall incorporate the program into the regional transportation improvement program as provided for in Section

65082. If the regional agency finds the program is inconsistent, it may exclude any project in the congestion management program from inclusion in the regional transportation improvement program.

(c) (1) The regional agency shall not program any surface transportation program funds and congestion mitigation and air quality funds pursuant to Section 182.6 and 182.7 of the Streets and Highways Code in a county unless a congestion management program has been adopted by December 31, 1992, as required pursuant to Section

65089. No surface transportation program funds or congestion mitigation and air quality funds shall be programmed for a project in a local jurisdiction that has been found to be in nonconformance with a congestion management program pursuant to Section 65089.5 unless the agency finds that the project is of regional significance.

(2) Notwithstanding any other provision of law, upon the designation of an urbanized area, pursuant to the 1990 federal census or a subsequent federal census, within a county which previously did not include an urbanized area, a congestion management program as required pursuant to Section 65089 shall be adopted within a period of 18 months after designation by the Governor.

(d) (1) It is the intent of the Legislature that the regional agency, when its boundaries include areas in more than one county, should resolve inconsistencies and mediate disputes which arise between agencies related to congestion management programs adopted for those areas.

(2) It is the further intent of the Legislature that disputes which may arise between regional agencies, or agencies which are not within the boundaries of a multicounty regional transportation planning agency, should be mediated and resolved by the Secretary of Business, Housing and Transportation Agency, or an employee of that agency designated by the secretary, in consultation with the air pollution control district or air quality management district within whose boundaries the regional agency or agencies are located.

(e) At the request of the agency, a local jurisdiction that owns, or is responsible for operation of, a trip-generating facility in another county shall participate in the congestion management program of the county where the facility is located. If a dispute arises involving a local jurisdiction, the agency may request the regional agency to mediate the dispute through procedures pursuant to subdivision (d) of Section 65089.

2. Failure to resolve the dispute does not invalidate the congestion management program. 65089.

3. The agency shall monitor the implementation of all elements of the congestion management program. The department is responsible for data collection and analysis on state highways, unless the agency designates that responsibility to another entity. The agency may also assign data collection and analysis responsibilities to other owners and operators of facilities or services if the responsibilities are specified in its adopted program. The

agency shall consult with the department and other affected owners and operators in developing data collection and analysis procedures and schedules prior to program adoption. 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:

(a) Consistency with levels of service standards, except as provided in Section 65089.

4.

(b) 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.

(c) Adoption and implementation of a deficiency plan pursuant to Section 65089.4 when highway and roadway level of service standards are not maintained on portions of the designated system. 65089.

4. (a) A local jurisdiction shall prepare a deficiency plan when highway or roadway level of service standards are not maintained on segments or intersections of the designated system. The deficiency plan shall be adopted by the city or county at a noticed public hearing.

(b) The agency shall calculate the impacts subject to exclusion pursuant to subdivision (f) of this section, after consultation with the regional agency, the department, and the local air quality management district or air pollution control district. If the calculated traffic level of service following exclusion of these impacts is consistent with the level of service standard, the agency shall make a finding at a publicly noticed meeting that no deficiency plan is required and so notify the affected local jurisdiction.

(c) The agency shall be responsible for preparing and adopting procedures for local deficiency plan development and implementation responsibilities, consistent with the requirements of this section. The deficiency plan shall include all of the following:

(1) An analysis of the cause of the deficiency. This analysis shall include the following:

(A) Identification of the cause of the deficiency.

(B) Identification of the impacts of those local jurisdictions within the jurisdiction of the agency that contribute to the deficiency. These impacts shall be identified only if the calculated traffic level of service following exclusion of impacts pursuant to subdivision (f) indicates that the level of service standard has not been maintained, and shall be limited to impacts not subject to exclusion.

(2) 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.

(3) A list of improvements, programs, or actions, and estimates of costs, that will (A) measurably improve multimodal performance, using measures defined in paragraphs (1) and (2) of subdivision (b) of Section 65089, and (B) contribute to significant improvements in air quality, such as improved public transit service and facilities, improved nonmotorized 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 that meet the scope of this paragraph. If an improvement, program, or action on the approved list has not 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.

(4) An action plan, consistent with the provisions of Chapter 5 (commencing with Section 66000), that shall be implemented, consisting of improvements identified in paragraph (2), or improvements, programs, or actions identified in paragraph (3), that are found by the agency to be in the interest of the public health, safety, and welfare. The action plan shall include a specific implementation schedule. The action plan shall include implementation strategies for those jurisdictions that have contributed to the cause of the deficiency in accordance with the agency's deficiency plan procedures. The action plan need not mitigate the impacts of any exclusions identified in subdivision (f). Action plan strategies shall identify the most effective implementation strategies for improving current and future system performance.

(d) A local jurisdiction shall forward its adopted deficiency plan to the agency within 12 months of the identification of a deficiency. The agency shall hold a noticed public hearing within 60 days of receiving the deficiency plan. Following that 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 local jurisdiction of the reasons for that rejection, and the local jurisdiction shall submit a revised plan within 90 days addressing the agency's concerns. Failure of a local jurisdiction to comply with the schedule and requirements of this section shall be considered to be nonconformance for the purposes of Section 65089.

5.

(e) The agency shall incorporate into its deficiency plan procedures, a methodology for determining if deficiency impacts are caused by more than one local jurisdiction within the boundaries of the agency.

(1) If, according to the agency's methodology, it is determined that more than one local jurisdiction is responsible for causing a deficient segment or intersection, all responsible local jurisdictions shall participate in the development of a deficiency plan to be adopted by all participating local jurisdictions.

(2) The local jurisdiction in which the deficiency occurs shall have lead responsibility for developing the deficiency plan and for coordinating with other impacting local jurisdictions. If a local jurisdiction responsible for participating in a multi-jurisdictional deficiency plan does not adopt the deficiency plan in accordance with the schedule and requirements of paragraph (a) of this section, that jurisdiction shall be considered in nonconformance with the program for purposes of Section 65089.

5.

(3) The agency shall establish a conflict resolution process for addressing conflicts or disputes between local jurisdictions in meeting the multi-jurisdictional deficiency plan responsibilities of this section.

(f) The analysis of the cause of the deficiency prepared pursuant to paragraph (1) of subdivision (c) shall exclude 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-income and very low income housing.

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

(B) 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.

(g) For the purposes of this section, the following terms have the following meanings:

(1) "High density" means residential density development which contains a minimum of 24 dwelling units per acre and a minimum density per acre which is equal to or greater than 120 percent of the maximum residential density allowed under the local general plan and zoning ordinance. A project providing a minimum of 75 dwelling units per acre shall automatically be considered high density.

(2) "Mixed use development" means development which integrates compatible commercial or retail uses, or both, with residential uses, and which, due to the proximity of job locations, shopping opportunities, and residences, will discourage new trip generation. 65089.

5. (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) (1) 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.

(2) If, within the 12-month period following the receipt of a notice of nonconformance, the Controller is notified by the agency that the city or county is in conformance, the Controller shall allocate the apportionments withheld pursuant to this section to the city or county.

(3) If the Controller is not notified by the agency that the city or county is in conformance pursuant to paragraph (2), the Controller shall allocate the apportionments withheld pursuant to this section to the agency.

(c) The agency shall use funds apportioned under this section for projects of regional significance which are included in the capital improvement program required by paragraph (5) of subdivision (b) of Section 65089, or in a deficiency plan which has been adopted by the agency. The agency shall not use these funds for administration or planning purposes. 65089.

6. Failure to complete or implement a congestion management program shall not give rise to a cause of action against a city or county for failing to conform with its general plan, unless the city or county incorporates

the congestion management program into the circulation element of its general plan. 65089.

7. A proposed development specified in a development agreement entered into prior to July 10, 1989, shall not be subject to any action taken to comply with this chapter, except actions required to be taken with respect to the trip reduction and travel demand element of a congestion management program pursuant to paragraph (3) of subdivision (b) of Section

65089. 65089.

9. The study steering committee established pursuant to Section 6 of Chapter 444 of the Statutes of 1992 may designate at least two congestion management agencies to participate in a demonstration study comparing multimodal performance standards to highway level of service standards. The department shall make available, from existing resources, fifty thousand dollars ($50,000) from the Transportation Planning and Development Account in the State Transportation Fund to fund each of the demonstration projects. The designated agencies shall submit a report to the Legislature not later than June 30, 1997, regarding the findings of each demonstration project. 65089.

10. Any congestion management agency that is located in the Bay Area Air Quality Management District and receives funds pursuant to Section 44241 of the Health and Safety Code for the purpose of implementing paragraph (3) of subdivision (b) of Section 65089 shall ensure that those funds are expended as part of an overall program for improving air quality and for the purposes of this chapter.

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