

# California's Congestion Management Program

BY ANDREW NASH

One of the hottest topics in transportation planning today is California's Congestion Management Program (CMP). California's program has been suggested as a model to the rest of the United States for addressing transportation problems and for conforming to the federal Clean Air Act. This article introduces California's Congestion Management Program, describes some problems related to California's CMP legislation, outlines the major CMP elements, and briefly explains the issue of the environmental impact of CMPs. This information might assist others in developing their own CMP programs.

## Introduction and Background

Congestion management programs were developed as part of the comprehensive transportation legislation drafted by the California legislature in 1989 and 1990. This legislation included increases in the state gas tax, allocations of transportation funds to specific projects throughout the state, and CMP requirements. CMP was linked to voter approval of an increased gas tax so that if the gas tax increase passed, CMP legislation would become effective.

State Assembly Transportation Committee Chair Richard Katz developed CMP because he felt that voters would not approve a gas tax increase without major improvements in the way transportation planning was performed. He felt that CMPs would help ensure that developers pay for the transportation in-

frastructure needed to mitigate the effects of their projects, and that if such a program had been in place earlier, transportation facilities would not be congested today. This line of thinking, that is, that developers could simply have paid for all the capital improvements needed to solve transportation problems, is probably incorrect. Today's transportation problems have as much to do with issues such as location and type of development as they do with transportation facilities. Nevertheless, the state gas tax increase was approved in June of 1990, and CMP became law as a little publicized addition to the gas tax.

While the CMP legislation is imprecise, its intent is clear: to reduce congestion through a combination of transportation improvements, land-use planning, trip reduction programs (travel demand management) and transit service improvements. The most significant aspect of CMP is that it is intended to force local jurisdictions to integrate the land use and transportation decision-making processes, something academics have urged for years. Some counties, notably Santa Clara County, have chosen to devote significant time and resources to developing a CMP that fulfills the intent of the legislation by significantly improving transportation conditions through a comprehensive planning process.

## Problems

There are several problems that have surfaced in connection with implement-

ing CMP. First, the actual CMP legislation is imprecise and therefore leaves a significant amount of latitude to local jurisdictions in preparing their plans. Second, certain aspects of CMPs are at odds with the CMP's ultimate goal of improving overall transportation and environmental conditions. Finally, the legislation assumes that the transportation planning profession has developed transportation models and level-of-service (LOS) analysis techniques that are a great deal more accurate than is actually the case. These problems feed into the program's largest problem: the legislation is subject to different interpretations. As a result, some counties have developed simplistic CMPs, which merely meet the letter of the law without addressing its intent, whereas other counties have created comprehensive CMP programs. These problems are discussed in more detail below.

## Major CMP Elements

The CMP legislation requires all urbanized counties in California to prepare a CMP in order to receive their share of the increased gas tax revenues. The legislation requires each county CMP to include five elements. It also specifies other actions necessary to meet the legislation requirements. Santa Clara County's Congestion Management Agency (CMA) has chosen to define all major aspects of CMP in terms of nine elements. Each element is defined below; actions that are included as elements of Santa Clara County's CMP but

are not defined as elements in the CMP legislation are indicated as such.

### **System Definition (Element 1)**

System definition consists of specifying what roadways will be part of the CMP system. The CMP legislation specifies that all state highways and principal arterials be included in the CMP system. The definition of principal arterials is left to individual CMAs. Most are choosing to adopt a minimal CMP system because roadways that are part of the system must be monitored to ensure that they operate within the CMP's adopted acceptable LOS. If they do not operate within the adopted LOS, the local jurisdiction could lose gas tax funds. With fewer roads in the system, there is less monitoring required and less chance of losing gas tax funds.

### **System LOS Standards (Element 2)**

The CMP legislation lists one element that defines the system as well as sets LOS standards; in Santa Clara County this element is treated as two separate elements. This element consists of setting a standard for traffic operations on the CMP roadway system and choosing a uniform methodology for evaluating traffic operations.

The legislation gives CMAs a choice in the LOS methodology they use for CMP. The choices are:

- Transportation Research Board *Circular 212*;
- The most recent version of the *Highway Capacity Manual* (1985 HCM); or
- A method consistent with the most recent version of the HCM.

Santa Clara County contracted with a consulting firm to provide technical support to assist the CMA in deciding what LOS technique to adopt. As part of this work effort, six different intersection LOS methods were analyzed using data from 15 different intersections (one from each Santa Clara County city). In March, the CMA decided to use the 1985 HCM operations method for intersection analysis. This was a difficult decision, as most jurisdictions in California currently use *Circular 212* or the intersection capacity utilization method to estimate LOS.

After the CMA chose the LOS method, the consultant evaluated several different types of intersection LOS computer software and developed a se-

ries of standard values for use in the software. The CAPSSI-IO intersection LOS software was chosen because it combined ease of use with the ability to optimize traffic signal timing and was relatively inexpensive. The consultant also coordinated a classroom training session in software use for traffic engineers from all the cities in Santa Clara County.

Freeway LOS, as well as LOS at intersections, needs to be evaluated. This is a relatively difficult analysis and requires a significant amount of data. The CMA decided to use methods in the 1985 HCM and floating car data provided by the California Department of Transportation (Caltrans) to evaluate freeway LOS. Freeway LOS is problem related to CMPs because of limited data (compared to the number of freeway miles) and the fact that freeway LOS methods are not designed to be used to accurately evaluate LOS.

A major flaw in the CMP legislation is that use of LOS standards might not be the best way to solve the major inter-related transportation problems in California. LOS standards create a contradiction between CMP goals and CMP implementation. According to the CMP legislation, no land-use decisions should result in violation of LOS standards. This requirement could push new development into undeveloped areas where levels-of-service currently are good instead of increasing density in developed downtown areas and building infill housing near employment centers (which could reduce local LOS below the standard, but would improve overall transportation efficiency and air quality). One of the ironies of transit service is that it works best in highly congested areas where driving cars is just too inconvenient. This inherent contradiction in the method used to improve transportation conditions should be addressed in future legislation.

### **Transit Standards (Element 3)**

This element establishes standards for transit frequency and routing, stresses coordination between transit systems, and defines a CMP transit system (network). According to the legislation's sponsor, transit standards are intended to focus on transit efficiency (i.e., cost per passenger); however, most CMAs focus on service standards, the idea being that transit would be used to help improve LOS on the CMP system.

A problem CMAs are facing is how to fund increased transit service that higher standards would require. Most CMAs are therefore setting standards based on existing service. Another problem is that basing transit standards on efficiency measures might lead to a reduction of service which would, in-turn, add more vehicles to the system.

### **Trip Reduction and Travel Demand Management (Element 4)**

This element consists of developing a travel demand management (TDM) program. The CMP legislation requires that all cities adopt a TDM ordinance. TDM programs are designed to reduce traffic congestion by encouraging such strategies as ridesharing, transit use, site design guidelines, and parking management.

In Santa Clara County, the CMA is attempting to have all cities pass the same TDM ordinance. This would lead to uniformity in regulations from city to city, which would in turn equalize the advantages in terms of business conditions from city to city. In Contra Costa County, a set of guidelines for TDM ordinances was developed, and cities in the county are required to develop their own ordinances that follow these guidelines.

The TDM element is closely linked to California's recently passed Clean Air Act (CCAA). The CCAA imposes stronger regulations than does the federal Clean Air Act and requires areas that cannot meet defined air quality conditions to implement strict TDM measures. It is likely that the TDM element will need to be significantly strengthened in the future to meet CCAA requirements.

### **Database and Modeling (Element 5)**

This is not an element listed in the CMP legislation. In Santa Clara County this element requires CMAs to develop a county-wide computer model for evaluating the impact of land-use decisions on the regional transportation system. CMAs are also responsible for approving small-scale transportation models used by cities to evaluate the impact of local development projects. In many counties, including Santa Clara County, existing county-wide transportation models are being modified to meet the specific requirements of CMP.

Transportation modeling is highly

technical. The CMP legislation requires a new (higher) degree of accuracy for local transportation models. This has caused several Bay Area CMAs to spend more than a million dollars in computer model development. Maintaining these detailed models will be expensive in terms of both time and money. Furthermore, as most experienced modelers admit, large county-wide transportation/land-use models should not be used to provide detailed LOS estimates for areas such as intersections or specific roadway segments. The CMP legislation assumes that these models can be used for this purpose.

#### **Land-Use Analysis Program (Element 6)**

According to the legislation, CMPs must include a program for analyzing the impact on the regional transportation system of land-use decisions made by local jurisdictions and for estimating the costs associated with mitigating that impact. This element is probably the most important part of the CMP program and is certainly the most controversial. It was developed because little attention has been paid to the impact of local land-use decisions on regional transportation facilities, such as state highways, and on transportation facilities in adjoining jurisdictions, where major congestion has developed on interregional facilities. Local jurisdictions are therefore required to evaluate the impact of their land-use decisions on regional transportation facilities using uniform standards with a transportation model that is consistent with the regional model.

Under the CMP legislation, individual cities are responsible for ensuring that development projects they approve do not violate any of the CMP standards (traffic LOS, transit, TDM program). If the development would violate CMP standards, one or more of the following actions must be taken:

1. The development project must be modified to avoid the violation (content, timing, and/or vehicle trip reduction program);
2. Improvements to the transportation system must be made to eliminate the violation; and/or
3. A Deficiency Plan (described below) must be prepared and adopted by the responsible local jurisdiction and approved by the CMA.

The CMA is responsible for monitoring cities to ensure that they comply with all aspects of CMP (monitoring is described in more detail below). A local jurisdiction that violates CMP standards could lose its gas tax revenues.

#### **Capital Improvement Program (CIP) (Element 7)**

The CIP identifies projects that will improve the performance of the CMP system and help meet transit and LOS standards. The existing CIP in California was modified by the CMP legislation to give responsibility for preparing the county CIP to the CMA (in the past other county departments were responsible for preparing CIPs). During the first year of operation, most CMP projects will probably be existing ones. Linking them and new projects to other CMP elements will happen with time.

Each county's CIP includes a prioritized list of transit and highway projects. This list is submitted to a regional transportation planning agency, such as the Metropolitan Transportation Commission (MTC) in the San Francisco Bay Area, for inclusion in the Regional Transportation Improvement Program (RTIP). The RTIP is developed by prioritizing projects in the nine-county Bay Area. Next, RTIPs from throughout the state are submitted to the California Transportation Commission (CTC), which prioritizes projects from throughout the state and funds the selected projects.

#### **Monitoring and Conformance (Element 8)**

Although monitoring and conformance are not specific elements in the CMP legislation, the CMP legislation requires that all elements of CMP be annually monitored by the CMA. The purpose of monitoring is to determine local conformance with CMP and to provide data to update the county-wide transportation model. The CMA must certify that local governments are in conformance with *all aspects* of CMP in order to receive the new gas tax revenues.

The possible loss of new gas tax revenues is, in essence, the major incentive for cities and counties to develop and implement CMPs. One problem with this incentive is that it is currently a relatively small amount of money (it only applies to the *additional* gas tax revenues

that were added in the 1990 election, not other funding). Furthermore, preparing and implementing a CMP is a relatively expensive and time-consuming process. Therefore, there has been some discussion of simply opting out of preparing CMPs. To date, no city or county has chosen to opt out, but the possibility exists. It is likely that, if CMPs can be shown to be effective, additional funding will be tied to CMPs in the future, so opting out may become effectively impossible.

The loss of gas tax revenues for not meeting CMP standards raises another important question, namely, who loses the gas tax revenues? The most troubling aspect of this question is that the jurisdiction responsible for meeting the CMP standard may have no control over meeting the standard. For example, if city A approves a development project that causes a LOS standard violation in city B, according to the legislation, city B would lose gas tax revenues although it had no control over the violation. Solving this problem will be difficult. If the legislation were merely changed to say that in that type of situation, city A would lose its gas tax revenues, the problem would be proving what project caused the violation. It is clear from such questions that a more sophisticated approach to monitoring the conformance to CMP is required.

The CMP monitoring program will also be relatively expensive and data intensive. Strictly speaking, all parts of the CMP system must be annually monitored. In Santa Clara County, LOS at all CMP system intersections will be evaluated each year. This means that traffic counts and analysis must be performed for more than 100 intersections.

There are two ways of looking at this aspect of the annual monitoring requirement. First, it is an unreasonable burden on local government; second, collecting this data will give cities important information that could be used to improve transportation conditions and increase efficiency. Santa Clara County has taken the second viewpoint. For example, the annual intersection traffic analysis will be used as a database of current traffic conditions so that every project traffic impact study does not need to make separate traffic counts at intersections affected by the project. This will reduce the time required to prepare traffic stud-

ies and will improve the efficiency of the planning review and approval process.

#### Deficiency Plan (Element 9)

This is not a specific element listed in CMP legislation. However, the CMP legislation specifies that local governments can prepare Deficiency Plans for transportation facilities that do not conform to CMP standards. Deficiency Plans require improvement of transportation conditions on the overall CMP system to compensate for specific locations that do not meet LOS standards. They must also significantly improve regional air quality. It is therefore likely that Deficiency Plans will include implementing transportation control measures (TCMs) developed by regional air quality districts. Deficiency Plan measures would include coordinated, long-term mitigation measures to benefit the overall CMP system.

The way Deficiency Plans are used will greatly affect how successfully CMP legislation improves transportation conditions. It is possible that a Deficiency

Plan could become a loophole in CMP by approving a major development project that would cause violations in CMP standards. On the other hand, Deficiency Plans could be used to encourage density increases in downtown areas and infill housing projects, which would be one way to address the inconsistency in using LOS standards to guide development decisions (as discussed above).

### Environmental Review

One of the most perplexing issues facing CMAs is evaluating the environmental impact of CMPs. The California Environmental Quality Act (CEQA) requires the impact of any project that could potentially affect the environment to be analyzed. A strong case can be made that CMPs, although intended to improve transportation conditions (and, therefore, the environment), are such projects. Unless CMPs are specifically exempted from CEQA by the legislature, the CMA will be required to prepare some form of environmental review (environmental impact regulation or a negative declaration) as part of every CMP.

### Summary

It is somehow appropriate that California, a state that exemplifies the automobile age, would introduce a means to control the significant negative impact of the automobile. California's CMP is the first comprehensive program designed to improve transportation conditions and reduce the environmental impact of traffic. CMPs are clearly not the ultimate solution to these problems, but they are an excellent start.

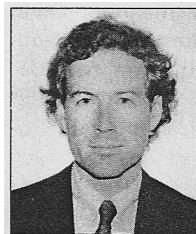
Attempting to solve transportation problems and improving the environment is an extremely ambitious goal. Problems with the initial program were expected. Some of the main issues that should be considered in improving the development and implementation of the CMP program include the following:

1. Congestion is not always bad. Congestion encourages people to use transit or TDM programs. Increasing densities in downtown areas and building infill housing near major employment sites would improve overall transportation conditions.
2. The CMP program structure encour-

ages counties to prepare minimal plans to reduce the chance of losing gas tax revenues. A structure that encourages more comprehensive plans should be considered.

3. The CMP program assumes that transportation modeling is more precise than it really is. The limitation of modeling should be better understood.
4. Development and implementation of CMPs will be costly. Funding options should be investigated.
5. CMPs should be closely coordinated with other transportation planning efforts (including air quality programs) to increase program effectiveness and cost efficiency.
6. CMPs begin to address the issue of the land-use impact on transportation conditions; however, as long as one jurisdiction can benefit (e.g. through increased tax revenues) by allowing development that negatively affects another jurisdiction without mitigating those effects, transportation conditions will continue to worsen. There should be some means for addressing the issue of responsibility as it applies to land-use decisions in neighboring jurisdictions.

As the initial CMPs are completed during the coming year, these issues will take on new importance. It is likely that the California legislature will amend the initial CMP legislation to improve CMP development and implementation. |



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