



**Mountainland Association of Governments
Congestion Management System**

Policy and Procedures

*Approved by Regional Planning Committee
April 1, 2004*



MAG Congestion Management System Policy and Procedures

A. Background

Federal transportation legislation requires Metropolitan Planning Organizations to develop and implement Congestion Management Systems (CMS) as part of the metropolitan transportation planning process (23 CFR 500). The CMS is intended to be a systematic way of monitoring, measuring and diagnosing the causes of current and future congestion on a region's multi-modal transportation systems; evaluating and recommending alternative strategies to manage or mitigate current and future regional congestion; and monitoring and evaluating the performance of strategies implemented to manage or mitigate congestion.

B. Purpose and Scope

MAG has developed a CMS process to meet the unique needs of the Utah Valley metropolitan area. The CMS includes an ongoing method to provide information on the performance of the transportation system and on alternative strategies to alleviate congestion and enhance mobility. The CMS emphasizes effective management of existing facilities through use of travel demand and operational management strategies.

In Transportation Management Areas (TMA) that are in non-attainment of ozone or carbon monoxide (CO) standards, Federal funds may not be advanced for any new project that will significantly increase the carrying capacity for single-occupant vehicles (SOV's) unless the project results from a CMS. For the MAG TMA, a significant increase in carrying capacity for SOV's is defined as a project that adds one or more through-travel lanes for one half mile or more on a roadway classified as a Minor Arterial or higher on the Federal functional class map for the Utah Valley area.

SOV projects that are a part of the CMS must include operational management and/or travel demand reduction strategies to effectively manage these facilities so system performance does not worsen after the facilities are constructed.

The CMS includes the following components:

- CMS Network
- Performance measures;
- A program for continuous data collection and system monitoring;
- Identification and evaluation, as part of the planning process, of possible congestion management strategies; and
- Evaluation of the effectiveness of implemented strategies.

Information gathered in management systems implementation should be used in planning. Potential strategies identified to manage system deficiencies or to enhance system performance should be analyzed in the development of the Plan and TIP.

C. CMS Network

For the purposes of data collection and system monitoring, MAG has identified a subset of the regional street and highway network as the “CMS Network”.

These facilities include:

- All National Highway System routes;
- All functionally classified roads, meaning; freeways, highways, major and minor Arterials, and collectors.
- All routes with high levels of transit service.

D. Performance Measures

The MAG CMS currently includes the following performance measures for the CMS Network:

- Peak period delay as defined:

$$\text{Peak Delay} = (1/\text{Speed}_c - 1/\text{Speed}_{ff}) * \text{Dist} * \text{Vol} * \text{Pct Vol}_{pk}$$

Where:	Speed _c	=	Congested speed
	Speed _{ff}	=	Free Flow speed
	Dist	=	Distance traveled
	Vol	=	Traffic volume
	Pct Vol _{pk}	=	Percent of volume in the peak hour

- Daily Level of Service (LOS) based on observed volume/capacity (V/C) ratios;
- AM and PM peak period Levels of Service based on speeds derived from observed travel times; and
- Transit will be measured in terms of Vehicle Miles Traveled (VMT) reduction.

E. Data Collection and System Monitoring

The MAG CMS currently incorporates the following data collection and system monitoring activities for the CMS Network:

- Collection of GPS data to collect speed, travel time, and delay data;
- Collection and analysis of observed traffic volumes from state and local agencies and private vendors, as appropriate;

- Collection and analysis of travel time data through periodic travel time studies; and
- Travel demand forecasting through the regional travel model, maintained by MAG.

F. Congestion Management Strategies

The MAG CMS provides information about a wide range of congestion management strategies applicable to the Utah Valley region.

The intent of the CMS Toolbox is to provide a reference for the development of alternative strategies for consideration in Corridor Studies, which may be conducted within the context of the Utah Valley metropolitan transportation planning process.

G. Evaluation of Implemented Strategies

The implementation of CMS strategies will be tracked through the development of the TIP. Evaluation of implemented CMS strategies may be conducted as “before and after” studies for individual projects, through modeling exercises or through literature reviews of the benefits and costs of project types, as appropriate. These evaluations may be conducted by MAG or by individual project sponsors, however, at a minimum the network for the regional travel demand model will be updated every three years, in advance of each plan update, to reflect implemented CMS strategies involving highway or fixed guideway transit capacity into the existing network.

H. Integration with the Metropolitan Planning Process

The MAG CMS is one component of the metropolitan planning process. It is integrated with the Long-Range Transportation Plan (LRTP), Transportation Improvement Program (TIP) and Corridor Studies through its data and analysis functions as well as through the CMS Toolbox.

Relationship to the Plan

The MAG CMS is related to the development of the regional Long-Range Transportation Plan in four ways:

- The CMS provides system performance information for project sponsors, which may influence their recommended projects for incorporation in the Plan
- The CMS provides system performance information which may be used by MAG to identify corridors or segments for detailed analysis in Corridor Studies, as recommended by the Plan
- The CMS Toolbox provides alternative congestion management strategies for consideration in Corridor Studies, which ultimately provide recommendations for preferred strategies to be incorporated into the Plan.

The CMS provides system performance information for use by MAG in evaluating projects nominated for inclusion in the TIP; and

Relationship to the TIP

The MAG CMS is related to the development of the regional Transportation Improvement Program in two ways:

- The CMS provides system performance information for project sponsors, which may influence their recommended projects for incorporation in the TIP;
- The CMS provides information about alternative congestion management strategies considered for SOV capacity projects to be advanced using federal funds.

Relationship to Corridor Studies and Other Special Studies

The MAG CMS is related to the development of Corridor Studies in two ways:

- The CMS provides system performance information which may be used by MAG to identify corridors or segments for detailed analysis in Corridor Studies; and
- The CMS Toolbox provides alternative congestion management strategies for consideration in Corridor Studies. When traffic congestion is referenced in the Purpose and Need statement for a study, the study shall consider the congestion management strategies included in the MAG CMS Toolbox as a starting point for the development of alternative strategies. This does not preclude the study from considering other strategies that may not be in the CMS Toolbox, nor does it require that the study select a strategy from the CMS Toolbox as the preferred alternative, however, the study document must include a discussion of how the CMS Toolbox strategies were addressed.

Relationship to the Regional Intelligent Transportation Systems (ITS) Architecture

All ITS strategies implemented from the CMS Toolbox will be consistent with the Regional ITS Architecture. MAG will ensure that both the Regional ITS Architecture and the CMS Toolbox are reviewed for consistency and reconciled as necessary when either is updated.

I. Regionally Significant Projects not on CMS Network

Regionally significant projects on facilities not included on the CMS network may be considered to result from the MAG CMS if:

- An analysis of alternatives, including TDM and TSM, is conducted in the context of a Corridor Study or development of a NEPA Environmental Document to develop the preferred strategy for the project AND
- The development of alternatives for the Corridor Study or NEPA Document includes a review of the strategies catalogued in the MAG CMS Toolbox AND
- The documentation of the study describes how the CMS Toolbox strategies were
- addressed in the development of the preferred strategy.

J. CMS Review and Update Process

All elements of the MAG CMS will be reviewed and updated periodically to reflect changes to the region's transportation goals and objectives and transportation systems.

At a minimum:

- The CMS Network will be updated every three years, in advance of each update to the Long-Range Transportation Plan
- Travel time data will be collected and analyzed every three years by MAG, in advance of each update to the Plan
- CMS Network performance will analyzed every three years by MAG, in advance of each update to the Plan
- The regional travel demand model network will be updated every three years, in advance of each Plan update
- Observed traffic volumes will be incorporated into the CMS database as they are made available to MAG
- Policies and procedures governing the CMS will be reviewed and revised as necessary to address changes to regional transportation goals and/or federal rules and requirements
- These and other elements of the CMS may be reviewed and updated on a case-by case basis as requested by Regional Planning and Technical Advisory Committee, in consultation with the Congestion Management Committee.