

MEMORANDUM

TO: Management, Operations, and Intelligent Transportation Systems
(MOITS) Policy Task Force and MOITS Technical Subcommittee

FROM: Andrew J. Meese, AICP
Systems Management Planning Director

Melanie Wellman
Transportation Planner II

DATE: October 4, 2007

SUBJECT: Congestion Management Process and MOITS

Introduction

A Congestion Management Process (CMP) is a requirement in metropolitan transportation planning, pursuant to SAFETEA-LU and the associated federal regulations for metropolitan planning. The CMP is aimed at evaluating transportation system performance, defining, analyzing, and implementing strategies for reducing congestion, and compiling project-specific congestion management information.

Federal regulations note a number of CMP strategies that metropolitan areas should consider, in the categories of demand management strategies and operational management strategies. Although the concept of the CMP may be a newly updated process, many of the strategies to address congestion are already in place in the region. An initial component of the CMP will be to compile information about these existing strategies, determine what the region is already doing to address congestion, and what additional strategies could be explored. Potential CMP strategies will be identified through the TPB Technical Committee, subcommittees, and staff.

Of particular importance to the CMP are operational management strategies, including incident management systems and ITS technologies. An estimated 50% of congestion is associated with incidents such as crashes, disabled vehicles, and traffic associated with special events. Incident management helps minimize secondary incidents, and helps normal flow resume quickly after an incident. ITS technologies can be used as a part of incident management, help disseminate traveler information, and aid in traffic signalization, all which can impact congestion. The scope of particular strategies may be regional, corridor-wide, or local.

The types of data we will be interested in for purposes of the CMP include: locations of incidents and disabled vehicles in the region, response time, reduction in secondary incidents, and what are the cost/benefits of implementing incident management strategies.

Continued...

MOITS Policy Task Force and Technical Subcommittee

October 4, 2007

Page 2 of 6

The TPB Technical Committee, Travel Management Subcommittee, and other subcommittees will provide feedback as to what existing strategies and potential strategies should be included in the CMP. The strategies will then be categorized according to potential impacts, and brought to the TPB for consideration.

Federal Regulation Overview

“The transportation planning process shall address congestion management...
...through a process that provides for safe and effective integrated management and operation of the multimodal transportation system...
...based on a cooperatively developed and implemented metropolitan-wide strategy...
...of new and existing transportation facilities...
...through the use of travel demand reduction and operational management strategies.”

[\$450.320(a), Metropolitan Transportation Planning, Final Rule, Federal Register, February 14, 2007 – emphasis added.]

Congestion management process requires a systematic approach. It must be part of the regional transportation plan and include:

- Methods to monitor and evaluate system performance
- Objectives and performance measures
- Data collection
- Identification and evaluation of the anticipated performance and expected benefits of Congestion Management strategies, including:
 - Demand management
 - Traffic operational improvements
 - Public transportation improvements- ITS technologies
 - Where necessary, additional system capacity
- Assessment of the effectiveness of previously implemented strategies.

SOV-capacity-increasing projects must be in conjunction with a CMP. The metropolitan transportation plan must include consideration of the results of the CMP.

MOITS Role and Input to the CMP

It is proposed that the MOITS Policy Task Force and Technical Subcommittee advise staff in development of components of the CMP involving incident management and non-recurring congestion. MOITS representatives have expertise in the day-to-day management of the transportation system which is a key emphasis area. Staff will research and cite available national, regional, and local information sources and develop

MOITS Policy Task Force and Technical Subcommittee

October 4, 2007

Page 3 of 6

summary material for the CMP on these topics, with the advice of MOITS. This should be an ongoing process to compile information as it becomes available over the years, necessitating the continuing involvement and interaction of MOITS representatives.

Components of the CMP and Their Relationship to MOITS

There are four major components of the CMP; Federal law and regulations require that a region's CMP address these components. Each component may have a relationship to MOITS activities.

- Monitor and evaluate transportation system performance – The location and extent of congestion must be identified. There are a number of data sources for average roadway conditions (traffic counts, volume-to-capacity ratios). However, since an estimated 50% of congestion is non-recurring or incident-related in nature, it will be important to compile and understand data on non-recurring congestion and incidents. Staff will explore available data, and would like to develop a process to get data of this type regularly from member agencies as available. Example data may include incident locations, duration, and impacts of management strategies.
- Define and analyze strategies – Federal law and regulations identify two major types of congestion management strategies for consideration: demand management strategies and operational management strategies. MOITS program areas relate to both.
 - Demand management strategies may include, for example, traveler information or other technologies to shape transportation demand or public transportation usage.
 - Operational management strategies are particularly relevant to MOITS program areas for traffic and incident management and related areas. Many well-known operational management strategies, such as motorist assistance patrols, clearance and recovery improvements, and advanced traffic signal systems will be noted, along with other strategies that MOITS stakeholders may identify.
 - The potential impacts of these strategies will be noted, but the process will not be proscriptive in that implementation of given strategies will remain at the initiative of the member agencies. Lists of potential strategies along with information on their potential impacts may be compiled, perhaps into a "short list" and "long list" as has been done in the past for air quality Transportation Emission Reduction Measures (TERMs).

MOITS Policy Task Force and Technical Subcommittee

October 4, 2007

Page 4 of 6

- Implement and assess strategies – Information will be compiled on strategies that have been implemented, particularly on a regional-level basis. This will include operational management information associated with MOITS-related activities of member agencies. How to assess previously implemented strategies must also be explored.
- Compile project-specific congestion management information – The regulations require that information be compiled on the consideration and inclusion of congestion management strategies in any major single occupant vehicle (SOV) capacity-increasing projects. Implementing agencies are asked to submit such information in the Call for Projects documentation when CLRPs are developed. This may require an increased level of coordination within agencies between (1) the planners and engineers involved in developing aspects of a project and (2) their agencies' capital programming personnel. This will help ensure that such information is included in CLRP submissions. For SOV capacity-increasing projects, staff will compile and analyze information gathered in the Call for Projects' Congestion Management Documentation Forms on what CMP alternatives have been considered.

Example Strategies

The following are examples of strategies from MOITS program areas that are anticipated to be considered in the CMP.

Incident Management/Non-Recurring Congestion Strategies

- *Surveillance and detection* (call boxes, imaging/video)
- Automated Enforcement Systems (AES) in DC & MD
- VDOT Smart Traffic Control Center – loop detection and pavement sensors in roadways
- *Mobilization and Response* (Response routing, motorist assistance patrols
 - Service patrols in DC, MD and VA providing assistance to major and minor
- *Information dissemination / crash prevention & safety* (Variable message signs, Highway Advisory Radio)
- Variable message signs in DC, MD, VA warning of incidents, inclement weather, roadway closures, etc.
- Automated truck rollover warning systems installed on a number of Beltway interchanges in Virginia

MOITS Policy Task Force and Technical Subcommittee

October 4, 2007

Page 5 of 6

- AM radio advisories in VA, two which are specifically geared toward the Springfield Interchange and Woodrow Wilson Bridge
- *Clearance and Recovery* (Investigation, Temporary Traffic Control)
- CHART – information on location of incidents and disabled vehicles, response times, reduction in secondary incidents, etc.

ITS Technologies and Systems Management

- *Advanced Traffic Signal Systems*
- Adaptive Signal Control in Arlington County (on a portion of network)
- *Electronic Payment Systems*
- SmarTrip card on rail & bus, and parking lots; E-ZPass on roadways for transit payment & toll payment, respectively.
- *Freeway ramp metering*
- VDOT ramp meters on I-66, I-95, I-395, and I-495.
- *Probe testing*
- Ongoing probe testing of vehicle traveler information in the Baltimore region.
- *Traveler Information Systems*
- Passenger information displays in Metrorail stations, indicating arrival times, closures, and other information.
- Transit schedule and route information is available through the WMATA Ride Guide on the internet.
- VDOT Advanced Traveler Information Systems (ATIS) statewide
- *Bus Priority Systems*
- Pilot deployments in the region: U.S. 1 (Fairfax County), Columbia Pike (Arlington County), and Georgia Avenue (DC).
- *Lane Management*
 - HOV Facilities along several corridors in the region (information provided in 2004 Performance reports and 2005, 2006 Northern VA corridor count reports.)

MOITS Policy Task Force and Technical Subcommittee

October 4, 2007

Page 6 of 6

Operational Management Strategies Not in the Traditional MOITS Purview

The regulations call for consideration of another category of operational management strategies not typically discussed at MOITS, which are capacity increase or traffic engineering strategies associated with operational management. Examples include adding turn lanes, roundabouts, bottleneck elimination, and infrastructure safety improvements. Staff will research information sources for these, and welcomes input from MOITS representatives.

Development Schedule for the CMP

CMP development will follow two tracks. An “Initial” track will develop CMP components of the December 2007 CLRP. This will identify congestion in the region (through Skycomp and other available data), and develop and document proposed process.

A “Later” track will develop a CMP Technical Report. The proposed outline was reviewed by the TPB Technical Committee in May. After review by the Travel Management Subcommittee on September 25, it was recommended that process development be pursued before completion of the technical report. Technical report development remains ongoing now, but will continue and be completed after committee review and consensus (by June 2008).

Draft CMP materials to be included in the CLRP are anticipated to be distributed for comment in early-to-mid October; MOITS will be included in this distribution. Comments will be requested at the time of the next Travel Management Subcommittee meeting scheduled for October 23. A special TPB Technical Committee meeting is also scheduled for October 26 to focus on newly-developed components of the 2007 CLRP, including the CMP. A final draft is anticipated for November, with approval currently slated for December 2007.

The outlook and focus is to review CMP development among the several involved committees and get consensus on the process's overall structure. The defined process structure is what needs to be documented by the December 2007 CLRP.