



# **Congestion Management Systems Peer Exchange Forum**

## *Meeting Report*

### **Prepared for:**

New York State Association of MPOs

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## Summary Highlights

The New York State Association of Metropolitan Planning Organizations (MPOs) hosted a one-day Peer Exchange Forum on Congestion Management Systems. The Forum was held to: share information on CMS practice; identify the most promising CMS approaches; identify benefits and costs of changing CMS activities; and support strong peer relationships among the MPOs of New York State. The Forum was intended to highlight CMS issues particularly relevant to agencies that do not have high levels of resources available for CMS activities and for which high recurring congestion may not be the main transportation challenge.

In the first portion of the day, presentations were made to inform participants about innovative CMS approaches and practices. The Federal Highway Administration (FHWA) presented on the Federal perspective on CMS and noted some exemplary CMS practices. Two additional presentations by ICF Consulting presented innovative CMS approaches and practices noted from a recent national review of CMS experience: approaches taken to fulfill the required CMS elements; and broader uses of CMS activities to fulfill other important regional transportation goals. Three guest speakers from selected peer MPOs outside New York State then gave presentations on CMS approaches and activities undertaken by their agencies: the Rhode Island Statewide Planning Program from Providence, Rhode Island; the Capitol Region Council of Governments from Hartford, Connecticut; and the Hampton Roads Planning District Commission from Hampton Roads, Virginia.

In the second portion of the day, participants divided into smaller groups to discuss CMS approaches and practices, including those presented earlier. Groups were formed to discuss multiple sub-topics under two main topics: accomplishing the required CMS elements; and broader uses of CMS activities. Participants discussed these topics in terms of the applicability of approaches that might be used in New York State, the steps required to implement the approaches, and any challenges to implementation and potential solutions to those challenges. The groups then reported back to the full Forum on the results of their discussions.

## 1. Introduction

On September 15, 2005, the New York State (NYS) Association of Metropolitan Planning Organizations (MPOs) hosted a statewide Congestion Management Systems (CMS) Peer Exchange Forum in Syracuse, New York. The purpose of the Forum was to:

- Share information on innovative CMS approaches and practices based on national research and case studies of peer MPO areas;
- Identify the most promising CMS approaches and practices for NYS MPOs;
- Identify the benefits and costs, including resource requirements and staff time, associated with changing CMS processes; and
- Encourage peer relationship building.

ICF Consulting facilitated the Forum activities. Participants of the Forum included representatives of the New York State Department of Transportation, the Federal Highway Administration's New York Division, and most of the state's MPOs.

<u>Participant</u>	<u>Organization</u>
Aizaz Ahmed	New York Metropolitan Transportation Council
Michele Badger	New York State Department of Transportation MPO Bureau

Richard Beers	Federal Highway Administration
Brian Betlyon	Federal Highway Administration Resource Center
Mario Colone	Syracuse Metropolitan Transportation Council
John Czemanske	Orange County Transportation Council
Jim D'Agostino	Syracuse Metropolitan Transportation Council
Fernando De Aragon	Ithaca-Tompkins County Transportation Council
Mark Debald	Poughkeepsie-Dutchess County Transportation Council
Vincent Flood	Rhode Island Statewide Planning Program
Erik Frisch	Genesee Transportation Council
Chester Fung	ICF Consulting (project consultant)
Michael Grant	ICF Consulting (project consultant)
Scott Graves	ICF Consulting (project consultant)
Jean Gunsch	New York State Department of Transportation, Region 8 MPO Bureau
Jon Makler	Sarah Siwek and Associates (project consultant)
Tom Mank	Ulster County Transportation Council
Tom Maziarz	Capitol Region Council of Governments
Harry Miller	Herkimer Oneida County Transportation Study
Michael Moan	Rhode Island Statewide Planning Program
Keith Nichols	Hampton Roads Planning District Commission
Chris O'Neill	Capital District Transportation Council
John Reichert	New York State Department of Transportation, Region 3
Mary Rowlands	Syracuse Metropolitan Transportation Council
John Sterbentz	Binghamton Metropolitan Transportation Study
Doug Struckle	Greater Buffalo-Niagara Regional Transportation Council
Eoin Wrafter	Poughkeepsie-Dutchess County Transportation Council

Participants were asked to identify the key challenges they face in regard to the CMS and to express their personal objectives for what they would like to get out of the day's activities. Since the objectives related to the challenges, responses about personal objectives are noted below.

**Personal Objectives – Participants expressed interest in learning about...**

- Basic CMS requirements
- Other MPOs' experience
- The experience of multi-MPO TMAs, in particular
- CMS practices in NYS (i.e., which MPOs have separate documents, etc.)
- New Federal requirements
- How to make the CMS more effective
- Approaches applicable to small/mid-size MPOs with little congestion
- Solutions to limited staffing
- How to integrate CMS and the travel demand model
- How to link the CMS to planning, programming, other multi-objective

processes

- Incorporating CMS objectives into project design
- Measuring the benefits of ITS, and articulating the importance of ITS
- Data collection techniques, particularly techniques that are less labor intensive
- Congestion performance measures
- CMS monitoring/evaluation of strategies
- How to make the CMS more useful, recognizing that congestion is just one element of the planning process

Major items from the day's agenda were as follow:

- Presentations on CMS
  - Federal Perspective on CMS
  - National Review of CMS Practices and Approaches
  - Three Case Studies of Innovative Practices
    - Hartford, Connecticut
    - Providence, Rhode Island
    - Hampton Roads, Virginia
- Break-Out Session #1: Practices for Required CMS Elements
- Break-Out Session #2: Approaches for Broader Uses of CMS

The remainder of this report describes the proceedings of these agenda items.

## 2. Highlights of Presentations

Highlights of presentations are summarized below. In addition, Adobe Acrobat versions of each slide presentation have been created for reference.

### 2.1 CMS: A Federal Perspective

**Presented by Brian Betlyon, Federal Highway Administration**

Highlights:

- CMS is a Federal requirement in air quality non-attainment areas to ensure a systematic look at a full range of congestion management options is considered, especially important in air quality non-attainment areas
- Performance measures examples
  - North Jersey MPO uses eight types of measures
  - Wilmington, DE uses fewer, simpler measures on selected corridors
- Congestion strategies should include capacity, operational, multimodal solutions
- Strategy evaluation process could involve scoring process for screening, should be linked to planning and TIP processes
  - Atlanta, GA scores corridors for further study
  - Durham, NC scores projects for TIP priorities using current, future congestion
- New SAFETEA-LU language is similar to previous for CMS; includes more emphasis on systems management and operations

### 2.2 Innovative Approaches to Addressing CMS Requirements: Highlights of a National Review

**Presented by Michael Grant, ICF Consulting**

Highlights:

- A wide range of approaches have been taken to fulfill Federal requirements
- Performance measures: in addition to traditional measures (V/C ratios), use of travel-time-based, reliability, and accessibility measures
  - Different standards of “acceptable” congestion based on geographic location, time of day (Example: Austin, TX defines acceptable speeds based on functional class, location)
  - Use of traditional measures for initial identification of congested roads, and more detailed measures for congested roadways (Example: Las Vegas, NV uses V/C ratio, and more detailed measures for four different aspects of congestion; Tampa, FL uses similar process)
- Data collection: new ITS and GPS technologies offer new opportunities for data, particularly for speed and non-recurring congestion measures
  - Dayton, OH measures non-recurring congestion via multiple sources, including reports from a local radio station
- Strategy identification, evaluation: many approaches found
  - Strategies are often grouped into categories (Examples: Harrisburg, PA groups categories based on level of practicality and assesses by corridor; Las Vegas, NV developed hierarchical groups of strategies, first focusing on eliminating trips and mode change)

- Some MPOs have developed resource materials to support implementation of CMS strategies at the local level (Examples: Chicago, IL created a CMS strategy handbook for implementing agencies; San Diego, CA created a CMS toolbox and model ordinances for trip reduction)
- Monitoring effectiveness: little experience found
  - Dallas, TX maintains a database for CMS strategy monitoring
  - Lincoln, NE has conducted before-and-after studies for signal timing

## 2.3 Using CMS to Inform Planning and Meet Multiple Objectives

Presented by Chester Fung, ICF Consulting

Highlights:

- CMS can be useful beyond fulfilling Federal requirements
- Using CMS for planning and programming: prioritizing corridors; initial strategy screening; congestion goals and data for broader strategy evaluations
  - Harrisburg, PA identifies strategies by corridor for inclusion in plans
  - Phoenix, AZ prioritizes congestion strategies based on location
  - Miami, FL uses CMS for a funding program for small congestion projects
- Using CMS for land use transportation integration
  - Lansing, MI used land use policy changes as a CMS strategy
  - California Congestion Management Agencies receive State funding and work with land use jurisdictions to coordinate transportation investments and land uses
- Using CMS for ITS planning goals: Chicago, IL coordinates regional ITS efforts as congestion management strategy
- Using CMS for multimodal planning: Gainesville, FL measures bicycle, pedestrian LOS in terms of travel conditions
- Other potential linkages
  - Freight
  - Air quality
  - Safety
  - Transportation demand management

## 2.4 Integrating CMS into the Planning Process

Presented by Michael Moan, Rhode Island Statewide Planning Program, Providence, RI

Highlights:

- Traffic congestion in Rhode Island increasing much faster than population growth
- Conducted Corridor Study, producing recommended strategies by corridor
- CMS conducted as an element of the statewide Ground Transportation Plan
  - Measured current congestion on defined CMS network
  - Predicted future congestion with travel demand model
  - Recommended multimodal congestion management strategies
- Strategies entered into TIP
- Used data from Mobility Technologies – <http://stakeholder.traffic.com/html/index.html>

## 2.5 Congestion Management System in the Hartford Metropolitan Area

Presented by Thomas Maziarz, Capitol Region Council of Governments, Hartford, CT

Highlights:

- CMS monitors freeways and arterials, while minimizing labor requirements, using shared data
- Freeway monitoring uses existing freeway Regional Traffic Monitoring System
  - Operated by CT DOT
  - 144 sensors, 60 centerline miles
  - Records volume, speed, lane occupancy per lane, 30-second intervals
  - Datasets large: 3 GB of data per month
  - Software utility needed for converting data into useable formats
- Arterial monitoring: uses low-cost GPS surveys
  - Requires field work; used normal staff commute trips for travel time runs
  - Data recorded with GPS units every 2 seconds
    - Small – size of cell phone
    - Hands-free operation
    - No antenna required
    - Inexpensive - \$180 including PDA software
    - Ample capacity: 50,000 data points, 8-hour battery life
  - Data downloaded first from GPS to PDA, then PDA to desktop
    - PDA approximately \$350
    - Allows additional GPS functions in the field if necessary
  - Data analyzed in GIS
- Preliminary results
  - Freeways: calculated 5.2 million VMT, 3,000 hours delay
  - Arterials: calculated average speed by arterial segment, delay per vehicle
- Future directions
  - Calculate ‘base’ speeds on freeways, then measure non-recurring congestion
  - Develop measures comparable to Texas Transportation Institute

## 2.6 Congestion Management System in Hampton Roads, Virginia

Presented by Keith Nichols, Hampton Roads Planning District Commission, Hampton Roads, VA

Highlights:

- Data collected for CMS
  - Traffic volumes for CMS network segments
  - Travel time surveys for bridges, tunnels
- Congestion analysis
  - AM, PM LOS for segments based on Highway Capacity Manual
  - Delays for bridges, tunnels
  - Congested locations identified
  - Strategies recommended for evaluation in long range planning process, TIP process
- Produces multiple extensive reports on CMS
  - *State of Transportation in Hampton Roads* – graphically oriented
  - Congestion Analysis – technically oriented
  - *Special Report on Congestion* – publicly oriented

- Conducted regional crash study aimed at improving safety, congestion
- Future improvements: move to travel speed collection
  - ITS – difficulties with coverage, data quality
  - Wireless location technology – demonstration project with University of Virginia

### 3. Break-Out Session #1: Required Elements

The first set of break-out sessions focused on three of the Federally-required CMS elements: performance measures; data collection and monitoring; and strategy identification and evaluation. The participants first brainstormed a ‘universe’ list of potential approaches for their chosen CMS element; subsequently, they narrowed the list to a few approaches that seemed most promising. Then the participants delineated the steps necessary to implement each of approaches from the narrowed-down list. Finally, they identified potential barriers to implementation, and suggested some potential solutions to those barriers.

#### 3.1 Session on Performance Measures

This group first identified a wide range of different types of performance measures:

- Volume/capacity ratio
- Speed or travel time
- Delay or excess delay
- Non-volume based delay (e.g., weather-related delay or travel times, compared to optimal conditions)
- Reliability measures, such as TTI measure, planning time index (time needed to be on time 95% of the time), accident rates, number and/or duration of incidents
- Transit load factor
- Non-congestion/accessibility measures, such as bicycle/pedestrian LOS

These were then grouped into two broad categories: congestion (recurring and non-recurring) and non-congestion measures.

Volume-to-capacity was recognized as the most widely used measure but was also seen as potentially deceptive, because of the tendency of volume to be more of a reflection of roadway capacity rather than demand when volume is high. It was also acknowledged, though, that this ratio served well as a way to ‘screen’ the roadway system to identify congested locations. Speed was noted as a measure of interest, but there was still a question of how to implement it. Reliability was also noted as a very important type of measure, and it was suggested that this measure could be used for transit as well as auto travel. Finally, the group noted that non-congestion measures, such as bicycle and pedestrian access, can be an important part of the CMS since they help to balance the focus on roadway congestion and provide a comparative measure for evaluating the need for investments in transit, bicycle, and pedestrian facilities that provide mobility and offer opportunities to reduce traffic congestion.

#### Congestion Measures

The group identified some critical implementation issues for non-traditional congestion measures such as reliability and speed. Data could be gathered from Traffic Management Centers (TMCs), loop detectors, and the EZPass system, but then would require labor to extract into useful forms. It was suggested that the DOT could provide the data in a more useful format to minimize this labor time. The group noted that there might be software compatibility issues, as well as privacy issues that might be barriers to getting and using this kind of data. The group also discussed the link between CMS data collection and model calibration, noting that although it would be desirable to use collected data to help calibrate the travel demand model, there would need to be some assurance that the data were accurate. The group also noted that GPS could be used for data collection. Finally, the group acknowledged that a main focus of CMS performance measures should be on relating the data back to traveler perceptions.

## Non-Congestion Measures

The group discussed critical steps for non-congestion measures. The group noted that for these kinds of measures, it is necessary to first identify where short trips might occur, and suggested that the travel demand model might be a good source. Once these locations are identified, the group noted that facilities would need to be inventoried in order to assess pedestrian, bicycle, and transit access in those locations and facilities. It was noted that quantitative measures are not necessary; qualitative measures such as Level of Service could be used to measure performance on these metrics, and public input and/or MPO staff can be used in rating LOS based on their knowledge of facilities and areas. Ultimately, these types of measures can be important to ensure that the focus of the CMS is not solely on traffic congestion.

### 3.2 Session on Data Collection

This group identified the following data collection approaches: use of Global Positioning Systems (GPS) for travel time and speed surveys, including utilization of public fleets like transit and police vehicles; cell phone pulse tracking; sharing data from Intelligent Transportation Systems (ITS) sensors and networks, including EZPass gates for toll roads, bridges, and tunnels; and use of compiled radio station traffic reports. These reports were mentioned as an untapped source for incident-related congestion. The group was also interested in the possibility of tracking the pulses of cell phones along certain roadways, since cell phones emit a periodic pulse regardless of whether or not they are being used. This pulse could be used to determine travel speeds on selected roadways. The group wanted more information on this technology. One member mentioned that Cingular had given a presentation a few years ago on a possible demonstration project.

The group eventually focused on the more traditional sources and technologies for collecting congestion data: GPS and ITS. Weighing the differences and advantages of both technologies, the group noted that while ITS seemed to work well for larger metropolitan areas, GPS was promising and flexible enough for smaller areas that did not have as much ITS infrastructure in place and may not have a steady flow of funding for ITS or data collection. The group concluded that a combination of the two approaches might be used to maximize coverage of the transportation system.

#### ITS Data Collection

The group noted that understanding what data and sources are available was the first step, being sure to include local and DOT TMCs as well as local signal interconnect systems. Second, sharing agreements would be needed between the MPO and the operator of the sensing equipment. Privacy and liability issues lurk here, as the data collected may include information about the travel behavior of individuals, as well as video footage. Sometimes such information can be controversial, as in when police departments request video footage as evidence. There may also be limitations on what MPOs are able to do with the shared data, especially when data sources include private-sector entities. Memoranda of Understanding (MOUs) were suggested as helpful ways to codify data-sharing arrangements, as well as to clarify privacy and liability issues. The suggestion was for MPOs to request processed data, with any specific information about individual travelers or any video removed from the datasets that would be delivered to the MPO. In this way, privacy and liability issues can be avoided. The shared data would need to be formatted in a way that is useful for supporting planning functions, especially since the amount of data collected by sensors is so large. It was suggested that additional software or other automated methods would help in archiving and formatting the data for maximum usability. The group also discussed data quality and variability as a potential barrier, noting that broken detector loops and other malfunctions are common enough to render the data collected inaccurate for planning purposes.

## **GPS Data Collection**

The group first identified the steps involved. The first step would be to determine the travel routes of interest for data collection, the number and extent of which clearly depends on the amount of staffing available. Other important steps include securing the GPS technology itself, vehicles that can serve as probes, and training for the staff charged with collecting in the field. Beyond transportation agency staff, other potential data collectors include public fleets such as transit and police vehicles, although there is some question about whether or not such vehicles can represent adequately the travel conditions facing the average traveler. The group noted that this data collection technique requires a geographic information system (GIS) to be in place that is compatible with the GPS data collection units. Finally, the data collected still requires processing into a format usable by planners. Again, because of the large amounts of data involved, some specialized software may be needed to help with this task.

The group also identified some important implementation issues for GPS-enabled data collection. Significant staff hours would be needed for each travel route surveyed, and a significant amount of work would be needed simply for tracking the data collection if many routes were chosen, and for manually downloading data. Some potential ways to defray the cost of data collection might be to partner with organizations involved with travel on a regular basis, such as vanpool organizations, car rental companies, or taxicab companies. Other issues include the large amount of storage space needed for the collected data, and the amount of computer power needed to process and format the data. Also, data quality is a concern, especially if the collection effort employs multiple surveyors who are not familiar with transportation issues. The group suggested strong emphasis on training to address this issue, as well as selecting a technology that above all is easy to use. Any data collection effort clearly requires significant resources, and the group suggested that the new Federal re-authorization bill's emphasis on congestion management and operations strategies might make available more money for ITS and other technologies that help to monitor and manage the transportation system.

### **3.3 Session on Strategy Identification and Evaluation**

#### **Promising Approaches**

This group first focused on the potential for linking CMS with the ranking of projects for the TIP. This led to a discussion on how to prioritize congestion mitigation strategies relative to other projects. Some of the topics that came under this heading were: signal operations, with emphasis on asset management and how to determine whether signals are functioning as intended; and multi-jurisdictional signal coordination. This led to a discussion of greater integration, both in terms of vertical sharing of data within an agency, and horizontal sharing across agencies. There was also concern about how to permit capacity-expanding projects that add access but not necessarily mobility.

The second topic was whether or not to preemptively allocate funds for a specific purpose, such as congestion. This led to some conversation about identifying geographic areas of need based on congestion data.

#### **Required Steps, Barriers, and Opportunities**

Some MPOs already have protocols for scoring or ranking projects, whereas others do not – and some do not plan to have such. Such protocols seem like prerequisites to including congestion-related criteria in project selection. Demonstrating benefits is the key challenge, both in terms of quantifying congestion mitigation and the benefit of changing the existing process for funding or project selection (i.e., congestion is an urban problem and outlying areas might resist a greater emphasis in the programming process).

There is also some concern – and some hope – that once a diagnostic tool is in place, it creates pressure for action. At the same time, there could be political resistance to “objective” identification of problem areas. This is not the kind of thing that some officials like to see in black and white. Some see the lack of federal guidance as an obstacle to justifying allocating resources to an effort to identify congestion at a detailed level.

Solutions to overcoming barriers include integrating all of these concepts into the long-range planning process, such as the identification of problem locations and the prioritization of concepts. Another idea, on the funding allocation side, is that certain projects could be deemed “eligible” for specially-allocated funds in a manner similar to CMAQ. One point was that elected officials don’t like to be surprised, so a key to success is bringing such individuals on-board early with a new process like this, rather than having them find out through the press release that publicizes the congestion data.

#### 4. Break-Out Session #2: Broader Uses

The second set of break-out sessions began with voting on topics of interest. The topics were issues and goals related to congestion management between which key linkages might be made with the activities carried out to fulfill the Federal CMS requirements. The goal of the sessions was to explore potential linkages between CMS and each topic, and to identify ways to strengthen and capitalize on such linkages. Results are as follow.

<u>Topic</u>	<u>Votes</u>
Land Use and Transportation Integration	22
Freight Planning	15
Operations/ITS/Emergency Management	13
Transportation Safety	11
Prioritize Limited Funding	9
Transit, Bicycle, Pedestrian Planning	4
Urban Renewal/Economic Development	3
Maintaining/Upgrading Infrastructure	3

Four of the top vote-getting topics became the focus of these break-out sessions: land use and transportation integration; freight planning, which was combined with operations/ITS/emergency management; and transportation safety. Each group first explored the nature of the relationship between congestion management and the topic selected. The sessions then identified CMS activities that might help support regional goals relating to the topic, as well as steps needed to make these linkages stronger. Finally, the sessions noted potential barriers to using CMS to support these goals, and potential solutions to those barriers.

##### 4.1 Session on Land Use and Transportation Integration

The session focusing on land use and transportation integration described a number of aspects about the relationship between land use and traffic congestion, making clear the high degree of inter-connectedness between the two. They noted that the transportation effects of land use are felt on a regional basis, even though land use decisions are made by local jurisdictions. And developers wanting to locate new

development may not agree with transportation planners about where it should go. There is community resistance to better connectivity when citizens are actually confronted with the prospect by a concrete proposal, even though many initial complaints are replaced with satisfaction with the improved connectivity. Finally, some developments are not designed with a long design life, but the public infrastructure needed to support that development does have a long design life.

### **Linkages Between Land Use Integration and CMS**

There were many ideas about ways to link transportation and land use, some of which called upon CMS activities. Most popular was the idea to use the CMS to promote a regional approach to land use. The concept here is that CMS and the travel demand model can be used to show the impacts of current and future land use patterns on a regional basis, helping to focus some public dialogue on how land use might be planned to improve transportation outcomes. The group suggested that CMS allows MPOs to engage the public directly about land use and transportation issues, which can result in a different perspective than the ones that might be offered by developers or even elected officials. The group also noted that CMS not only identifies over-utilized facilities, but under-utilized facilities as well, and that this identification of congested and non-congested areas on a regional basis could help clarify where sufficient capacity remains to support more employment and housing growth. Related to that idea is the concept that CMS strategies be linked to land use. For instance, MPOs may limit funding of congestion strategies to the areas that the community has agreed should be developed. The CMS then relies on the identification of growth areas in order to conduct evaluations of congestion strategies. These ideas speak to the CMS as a way to help prevent future congestion. The group cautioned that if MPOs only address congestion, and those places tend to be more affluent suburban locations, rather than the less affluent urban cores, there may be an equity issue that is raised.

Considering these ways to link transportation and land use, the group identified major steps that could be taken with the CMS to help forge this linkage. The ideas generally fell under the categories of: educating the community, supporting MPO involvement in development decisions, and supporting MPO as a regional point of coordination.

#### **Linkage: Educating the Community**

The group felt that educating the community, especially officials involved in the development approval process, was a goal that the CMS could support most strongly. Because town councils and planning boards may not be familiar with transportation issues, and especially because there tends to be high turnover among these decision-making bodies, it is important to educate them about the transportation effects of land use and development on a frequent basis. CMS provides much of the background data that would be useful in showing these effects. CMS results can be displayed in a manner easy for non-transportation audiences to understand, such as in a brief, glossy document with strong graphics that could be the broadly-distributed supplement to a technical document. Alternatively, CMS results can be folded into a regional transportation plan (RTP) update, since this process is already aiming to engage stakeholders in a dialogue about transportation effects and the community's response to those effects. This opportunity points to the importance of linking the CMS with the RTP. Councils and planning boards also may not know what tools they have at their disposal to encourage particular types of development patterns, and would benefit from understanding what kinds of requirements and conditions could be placed on proposed development. The CMS may also help here with CMS strategies that aim for land use planning and zoning changes, potentially with model ordinance language or other 'how-to' technical support.

**Linkage: Regional Coordination**

As the agency that monitors and formulates regional responses to traffic congestion, MPOs have a clear interest in taking an active role in land use decisions, both at the local and regional levels. CMS can be a mechanism for making that linkage to land use, if MPOs can come to agreement with local planning agencies on how the CMS and comprehensive planning (or re-zoning) processes will relate to each other. CMS activities can help MPOs become the repository for regional congestion data. This function provides a basis for the MPO to convene decision-makers and a framework for discussing regional land use and transportation goals. It also positions the MPO to suggest regional congestion strategies, and promote the idea that congestion is one – but not the only – important transportation consideration.

**Barriers to Strengthening Linkage**

As desirable as stronger linkages between land use and transportation may be, there are many barriers to implementing this linkage. Clearly, one is that stakeholders may not agree with the idea that MPOs should take an active role in land use planning and development approvals. Local control is often held sacred, and there is often extreme reluctance to share that control with a regional agency. A potential solution offered was to frame the issue as a way to work together, rather than a way for the MPO or county to dictate to local jurisdictions. Another difficult issue is the conflicting interests of stakeholders regarding land use and transportation issues. Developers, town leaders, and residents often have differing visions. The effect of land use on tax revenue also factors into development decisions. While the potential lack of agreement on land use issues between citizens and elected officials may be a barrier to clarifying the community's vision, sometimes a direction connection to citizens – which might be made through the CMS – can be helpful in receiving more balanced input about land use and transportation issues. It may also help to build goodwill between government and citizens. Other potential barriers include the power of rumors regarding negative community impacts and the resistance to improved connectivity when faced with implementation of projects that improve local connectivity. One solution offered was to engage the public early on, and to provide enough information about the benefits of improved connectivity – including positive past experiences, if possible – to counter-balance the negative fears that may be spurred by project proposals.

**4.2 Session on Freight, Operations, and Emergency Management Planning**

This group decided to tackle three related issues: freight, operations, and emergency management. The group began by establishing the nature of the relationship between these transportation issues and congestion. Identifying traffic bottlenecks is critical to facilitating evacuations, and traffic modeling can help with evacuation route planning for emergency management purposes. This can involve an examination of traffic as well as transit evacuation routes. Identifying heavily used truck routes allows identification of where conflicts might exist between commercial vehicles and cars. It also indicates where hazardous materials might be traveling. Finally, CMS activities could support freight planning activities, such as examining the need for and feasibility of truck-only lanes and predicting freight reliability. Commercial vehicle identification relies on ITS technology, which is put in place to monitor and manage congestion.

**Relevant CMS Activities**

The group noted which CMS activities can make these linkages stronger. Data collection is an important CMS activity for identifying congested freight corridors. To maximize the effectiveness of CMS data, it is important for data collection efforts to distinguish between commercial trucks and passenger cars. Freight strategies can also be considered in the CMS in order to reduce congestion. Freight management strategies might include support for rail and barge modes to alleviate traffic on truck routes. They may

also include targeted traffic studies near terminals, or more attention toward predicting and improving the reliability of travel.

### **Implementation Issues**

Some critical steps for strengthening these linkages include: establishing relationships between MPO staff and freight shippers, emergency management personnel, and other related stakeholders; determining the information available (local agencies might be a good source); making arrangements to share that information; and coordination with land use for issues such as locating businesses, warehouses and other freight-related facilities. Challenges include the difficulty of obtaining freight data and engaging freight and emergency management staff in the planning process. Private companies are generally reticent to share any private operations information in a public forum. It is also often beyond the means of the MPO to track freight travel specifically. Finally, the private nature of the freight industry in the US raises privacy issues regarding freight information. Solutions suggested by the group centered on building relationships with private shippers, such as: creating a freight focus group; distributing shipper surveys; and memoranda of understanding (MOUs) related to the use and disclosure of proprietary data. The group also noted that there may be support at the federal level for this kind of examination of the transportation system, from either DOT or the Department of Homeland Security.

### **4.3 Session on Transportation Safety**

The group discussed how congestion is related to transportation safety, noting that high accident rates in specific locations can lead to high non-recurring congestion in those locations. The group also identified Safe Routes to School, traffic calming, and community livability as potential ways to address the link between congestion and transportation safety. The group then suggested that CMS can affect safety by identifying potential problem locations (for pedestrians as well as vehicles), leading to changes in traffic signalization, signage, or road design to reduce collision rates.

### **Critical Steps**

Steps identified for making this linkage included: GIS mapping of congestion and accidents; overlay and analysis of accident frequencies and rates to identify high-priority locations; and responses to these collision 'hot spots.' Responses might include special routing for emergency response vehicles, or implementation of changeable message signs that warn drivers of upcoming accident-related congestion. The group also raised construction zone safety and detour planning as issues related to safety. Future data collection might be facilitated if MPOs and other agencies coordinated with emergency rooms to capture key pieces of data from accidents.

### **Implementation Issues**

The group discussed resource requirements, challenges and potential solutions relating to this linkage. Resources would be needed for: data collection; GIS software; staff time to conduct the analysis; staff training for operating the software; and gathering GPS data. The group determined that interagency cooperation was critical to this linkage, and that conducting a CMS-related safety study was a way to foster and support this cooperation. A challenge faced by such regional safety efforts is acquiring robust regional accident data. Such data might be kept by a number of local police departments and a state police department, whose systems may not be compatible, or may not include the information most useful to a road safety study. Also noted as a challenge was the issue of regional coordination; local agencies may be resistant to regional cooperation, and coordination is needed with safety agencies with whom coordination has not taken place before. Some suggested solutions included beginning with modest safety studies rather than very ambitious ones, and to utilize MPO resources first rather than asking for

resource-sharing. Finally, safety is one arena that, because it is in some cases becoming a planning goal of its own and is relatively new to most agencies in NYS, calls for close coordination among NYS MPO staff.

## 5. Conclusions

Forum participants learned about and discussed CMS approaches used in other metropolitan areas around the country with respect to fulfilling the federal CMS requirements as well as supporting other regional transportation goals beyond just congestion management. They discussed the benefits of expanding beyond traditional, volume-based measures to travel-time-based, reliability, and non-congestion measures as a way to broaden discussions of congestion, and acknowledged that the use of these measures depended on the ability to collect data to support them. They also determined that the potential for using new technologies in collecting data was high, such as GPS-enabled travel time surveys and archived ITS data, but also that some implementation challenges needed to be addressed. Finally, participants concluded that CMS strategies would probably be best addressed by better integrating the CMS into long-range planning processes. Regarding the possibility of relating CMS to other regional transportation goals, Forum participants noted that there was high potential for making stronger linkages to goals such as land use and transportation integration, freight, operations, ITS, and safety, and noted some of the critical steps necessary to make those stronger linkages. The issues raised at the Peer Forum will be used in the development of the next product of the project: a Menu of Options for CMS approaches. Input received at the Forum will be used to tailor the options to those most relevant to the MPOs of New York as well as to highlight important issues relating to the options.