

U.S. Department of Transportation
Federal Highway Administration

Congestion Management Process: A Guidebook

March 23, 2011
Webinar

U.S. Department of Transportation
Federal Highway Administration
Federal Transit Administration

CMP Guidebook Webinar – March 23, 2011

Collaboration

- FHWA Office of Planning, Environment & Realty
- FHWA Office of Operations
- FHWA Resource Center
- FTA Office of Planning & Environment
- Association of Metropolitan Planning Organizations (AMPO)
- Several metropolitan planning organizations (MPOs)

CMP Guidebook Webinar – March 23, 2011 2

Welcome and Introduction



- Egan Smith, FHWA Office of Planning, Environment & Realty



- Michael Grant, ICF International



- Matthew Day, ICF International



- Chris O'Neill, Capital District Transportation Committee (Albany, NY MPO)

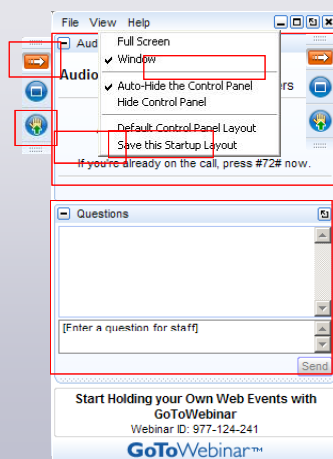


- Michelle Meaux, Capital Area Metropolitan Planning Organization (Austin, TX MPO)

CMP Guidebook Webinar – March 23, 2011

3

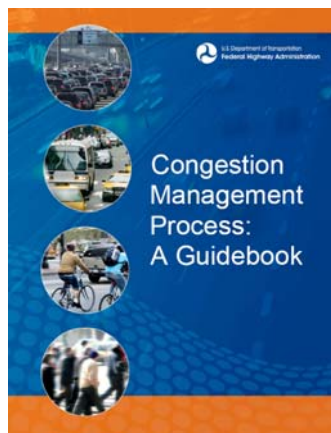
How to Participate Today



- Open and close your Panel
- View, Select, and Test your audio
- Submit text questions
- Raise your hand
- Q&A addressed at the end of today's session
- Everyone will receive an email within 24 hours with a link to view a recorded version of today's session

Outline of Webinar

- Introduction
- Overview of CMP Guidebook
- Case Study Examples
 - CDTC
 - CAMPO
- Questions & Answers

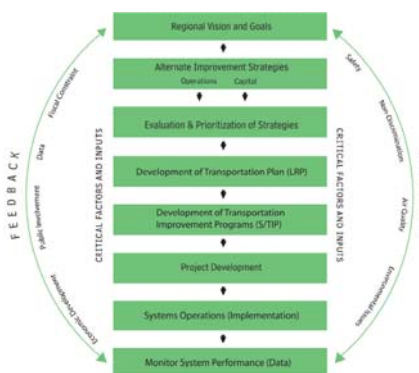


What is in the Guidebook?

- Introduction, including role of CMP within MPO planning process
- Recommended CMP Process Model
- Special topics related to the CMP
 - Collaboration among stakeholders
 - Livability and multimodal considerations
 - SOV Capacity-adding projects and Demand Management/Operations Strategies
 - NEPA and Project Development
 - Documentation
- Visualization in the CMP

CMP as Part of the Metropolitan Transportation Planning Process

- The CMP is intended to serve as an integrated element of the planning process
- The CMP can be an important source of information, particularly for project selection, in both the long-range plan and the Transportation Improvement Program (TIP)

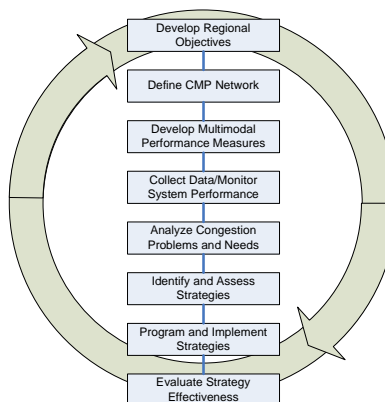


CMP Process Model

CMP Process Model

8 Actions

- Recognizes general sequence but also iterations and variations
- Notes cyclical nature of process (related to planning process)



Action 1: Develop Regional Objectives for Congestion Management

- Congestion management objectives define what the region is trying to achieve
- Eliminating congestion may not be possible or desirable, so it is important to define what is an “unacceptable” level of congestion
- Need to understand what the public wants
- Objectives should be “SMART” (Specific, Measurable, Agreed, Realistic, and Time-bound)

Action 1: Example (CDTC)

- Capital District Transportation Committee (Albany, NY) CMP Goals
 - Limit “excess delay” to support economic activity and quality of life
 - Implement TDM first, before adding SOV capacity
- Selected CMP Principles
 - Demand management is preferable to accommodation of single-occupant vehicle demand growth
 - Cost-effective operational actions are preferable to physical highway capacity expansion
 - Significant physical highway capacity expansion is an appropriate congestion management action only under certain circumstances
 - Incident management is essential to effective congestion management



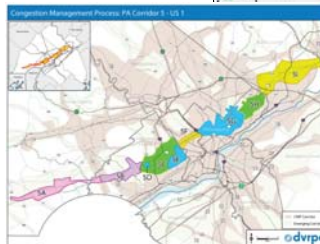
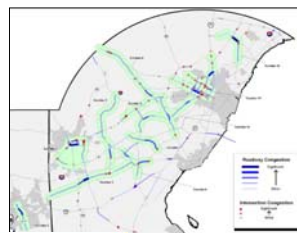
Source: Capital District Transportation Commission

Action 2: Define CMP Network

- Must define the geographic boundary of the study area (typically the MPO boundary)
- Must define the system components to analyze (network of surface transportation facilities)
 - Freeways and Arterial Roadways
 - Transit Services (rail, bus, etc.)
 - Bicycle and Pedestrian Networks

Action 2: Examples (WILMAPCO & DVRPC)

- **Wilmington Area Planning Council (Wilmington, DE)**
 - Two-tiered system of collecting data on all roadways classified as arterials or higher
 - Defines a limited set of CMP corridors based on the results of the data collection
- **Delaware Valley Regional Planning Commission (Philadelphia, PA)**
 - Uses evaluation criteria to define a network of major CMP corridors,
 - Corridors are further divided into subcorridors



Sources: "2009 WILMAPCO Congestion Management System Summary", Wilmington Area Planning Council, 2009, and "Maps of Pennsylvania Congested Corridors", Delaware Valley Regional Planning Commission, 2009.

Action 3: Develop Multimodal Performance Measures

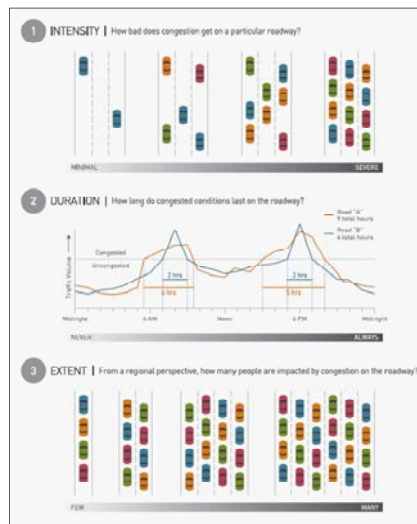
- CMP must identify/include appropriate performance measures to
 1. assess extent of congestion, and
 2. support evaluation of the effectiveness of implemented congestion management strategies
- Measures can be region-wide or location-specific
- Performance measures can be adjusted and adapted over time
- MPOs should try to measure the intensity, duration, extent, and variability of congestion

CMP Guidebook Webinar – March 23, 2011

13

Action 3: Example (ARC)

- Atlanta Regional Commission (Atlanta, GA) uses three measures, as portrayed in the graphic at right



Source: Atlanta Regional Commission,
Congestion Management Process, 2006

CMP Guidebook Webinar – March 23, 2011

14

Action 4: Collect Data/Monitor System Performance

- Often the most time/budget-consuming element of the CMP
- Serves important role in objective decision making
- Sources for data:
 - collected by in-house staff or consultants,
 - purchased from data vendors, or
 - gathered from planning/operations partners (such as local governments, state DOTs, transit agencies, etc.)
- Common types of data: traffic volume counts, speed and travel time data, operations and ITS data, transit data, bicycle/pedestrian data, crash data

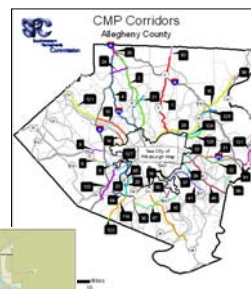
Action 4: Examples (SPC & PSRC)

- Southwestern Pennsylvania Commission (Pittsburgh, PA)

- collects data on travel time, speed, and delay on a three-year cycle using in-house staff and equipment

- Puget Sound Regional Council (Seattle, WA)

- primarily uses data collected by member agencies, viewing its role as the collator, coordinator, and analyzer of the data



Sources: Southwestern Pennsylvania Commission, "Congestion Management Process: Allegheny County CMP Corridors", (from website) 2010, and Puget Sound Regional Council, DRAFT T2040 Monitoring: Congestion and Mobility Report, 2010 Existing Conditions.

Action 5: Analyze Congestion Problems and Needs

- Before congestion management strategies can be identified, it is necessary to identify:
 - What the problems are;
 - Where they are located; and
 - What is causing them.
- This action serves as a critical link between data collection and strategy identification.
- Raw data must be translated into meaningful measures to allow comparison of conditions

Action 5: Example (PSRC)

- Puget Sound Regional Council (Seattle, WA)
 - Member agencies identify the causes of congestion through route development and corridor studies.
 - Studies have been completed on almost every major facility in the region.
 - PSRC “rolls-up” the information on congestion causes identified by the member agencies, and uses the information as an input to discussions on the development and evaluation of congestion management strategies.



Source: Puget Sound Regional Council, DRAFT T2040 Monitoring: Congestion and Mobility Report, 2010 Existing Conditions.

Action 6: Identify and Assess CMP Strategies

- A set of recommended solutions to effectively manage congestion and achieve congestion management objectives
- Strategy selection should consider the stated congestion management objectives, local context, contribution to other regional goals and objectives, and implementation jurisdiction
- Strategies are typically selected for individual corridors/locations based on a larger defined set of strategies that could apply in the region

Action 6: Example Strategies

- Congestion management strategies typically fall into four broad categories:
 - Demand Management
 - Examples: promotion of alternative transportation, flexible work hours, telecommuting, land use changes, and congestion pricing
 - Traffic Operations
 - Examples: ramp metering, access management, signal timing optimization, and improved incident response
 - Public Transportation
 - Examples: new or improved transit services, improved bicycle and pedestrian access to transit, and dedicated transit rights-of-way
 - Road Capacity
 - Examples: intersection improvements, HOV lanes, and additional travel lanes

Action 7: Program and Implement CMP Strategies

- At the regional level, the CMP serves as a tool for identifying and prioritizing projects listed in the MTP and TIP (CMP measures are often used as criteria in the decision-making process)
- Some MPOs explicitly set aside funding for projects identified through the CMP (often specifically for operations or demand management projects)
- Many MPOs conduct corridor studies to develop more detailed strategies for specific corridors
- Important to note opportunities for operations and demand management strategies to be included along with capacity-adding projects (supplemental strategies)

Action 7: Example (DVRPC)

- DVRPC identifies supplemental congestion management strategies to implement as part of capacity-adding projects

Commitment	Status	Lead Agency/ Organization	Comments/Appropriate Strategy
Add bus stops on US 322	Planned	PennDOT / SEPTA	Improved Transit Service
Widen shoulder to 10' for bicycle improvements	Planned	PennDOT	Pedestrian and Bicycle Improvements
Install sidewalks for project area	Planned	PennDOT	Pedestrian and Bicycle Improvements
Install Park and Ride lot in project area	Planned	PennDOT	TDM Strategies
Upgrade signals and tie into Concord Township's closed-loop system	Planned	PennDOT	Basic Signal Upgrade
Extend closed-loop system throughout US 322 Corridor	Planned	PennDOT	ITS
Maintain website to provide public with information about project progress and development	Completed	PennDOT	www.us322-conchester.com

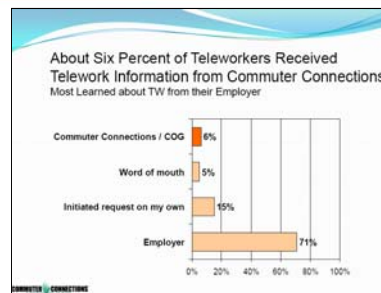
Source: "2009 Congestion Management Process Supplemental Projects Status Memorandum", Delaware Valley Regional Planning Commission, 2008.

Action 8: Evaluate Strategy Effectiveness

- Ensures that implemented strategies have been effective and allows changes to be made if strategies are ineffective
- Two primary methods of evaluation:
 - System-level performance evaluation
 - Strategy effectiveness evaluation
- Can be an on-going process, or a sequential step within the CMP process

Action 8: Examples (TPB & NCTCOG)

- The National Capital Region Transportation Planning Board (Washington, DC)
 - Uses surveys to estimate the impacts of demand management programs such as “Guaranteed Ride Home” program
- The North Central Texas Council of Governments (Dallas, TX)
 - Conducted analyses of its signal timing program to show the environmental and mobility benefits



Source: Commuter Connections, “2010 State of the Commute Presentation to the National Capital Region Transportation Planning Board”, 2010 and NCTCOG “Thoroughfare Assessment Program Phase 3.2, Executive Summary”, June 2010.

Corridor	Number of Signals		Average Daily Traffic	Benefits										Daily User Savings ¹	Per Intersection
	Along Travel Time Route	Corridor Total		From Travel Time Runs ²				From Synchro™ ^{3,13}							
				Travel Time (seconds)	Stops	Delay (veh-sec)	Total Signal Delay (veh-hours)	Stops	Total Travel Time (veh-hours)	Fuel Consumed (gallons)	CO Emissions (kilograms)	NOx Emissions (kilograms)	VOC Emissions (kilograms)		
640 Luma Road	6	6	17,700	-352	-3	-153	-57	-5,944	-51	-125	-8.75	-1.70	-1.97	\$713	\$310
641 Hebron	7	7	39,100	-448	-10	-432	-173	-8,474	-125	-166	-11.65	-2.24	-2.70	\$2,163	\$309
642 Josey	4	4	34,000	-136	-3	-133	-354	-1,238	-366	-262	-18.10	-3.50	-4.21	\$4,425	\$1,106
643 Industrial Blvd	15	15	36,800	-772	-22	-778	-760	-13,382	-720	-607	-42.46	-8.26	-9.88	\$9,500	\$633

Stakeholder Collaboration in the CMP

- Collaboration and coordination with stakeholders is an important foundation for an effective CMP:
 - MPO planners
 - State DOT operations & planning staff
 - Transit agencies
 - Local governments
 - Toll authorities
 - The private sector
 - Others
- Many MPOs have developed advisory committees to guide the CMP process (examples: CAMPO & WILMAPCO)

Livability and Multimodal Considerations

- There are several ways in which the CMP can support livable communities:
 - Developing congestion management objectives that account for community issues
 - Setting multimodal performance measures that focus on people, not just vehicles
 - Identifying the most appropriate congestion management strategies for specific locations, based on their positive contributions to communities and neighborhoods

Livability Principles

- Provide more transportation choices
- Promote equitable, affordable housing
- Enhance economic competitiveness
- Support existing communities
- Coordinate policies and leverage investment
- Value communities and neighborhoods

SOV Capacity-Adding Projects

In areas that are designated as nonattainment for ozone or carbon monoxide:

- No federal funding for SOV capacity-adding projects unless the project is addressed through the CMP.
- Must analyze reasonable demand management and operations strategies for a corridor in which an increase in SOV capacity is proposed.
- If a capacity-adding project is warranted, must also identify and incorporate reasonable travel demand reduction and operational strategies.

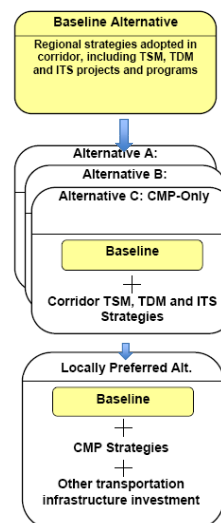
Example: Delaware Valley Regional Planning Commission (Philadelphia, PA) supplemental strategy requirement

Commitment	Status	Lead Agency/ Organization	Comments/Appropriate Strategy
Add bus stops on US 322	Planned	PennDOT / SEPTA	Improved Transit Service

Source: "2009 Congestion Management Process Supplemental Projects Status Memorandum", Delaware Valley Regional Planning Commission, 2008.

CMP-NEPA Linkage

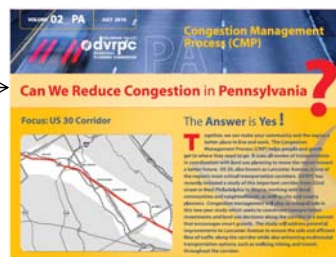
- Several ways for the CMP to inform the NEPA process:
 - Documentation of the need for capacity enhancement supports the NEPA Purpose and Need
 - Project alternatives to be studied in NEPA include the congestion management strategies identified in the CMP
 - Collection of before-and-after data as part of the implemented projects supports the strategy evaluation element of the CMP
- One key element: Work with NEPA practitioners to ensure that documentation developed for the CMP will be adequate for use in NEPA
- Example: North Central Texas Council of Governments



Source: "Overview of the Dallas-Ft. Worth Congestion Management Process", North Central Texas Council of Governments.

CMP Documentation

- There are many ways of documenting the CMP, associated data, and evaluation results:
 - Incorporate description of CMP into MTP
 - Provide information (including collected data) on a website
 - Produce annual or periodic reports, including maps and charts, for the public and decision-makers
 - Develop brochures/newsletters for the public
 - Develop detailed technical reports and guidebooks on congestion management for use by the MPO and partner agencies



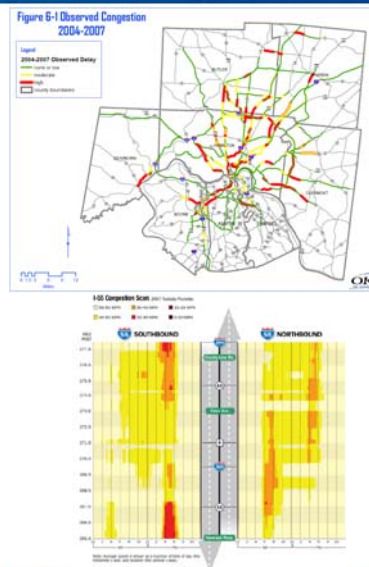
Sources: "2009 WILMAPCO Congestion Management System Summary," WILMAPCO, 2009.
 "CMP Newsletter: US 30 Corridor " Vol. 2 – PA, Delaware Valley Regional Planning Commission, 2010.

CMP Guidebook Webinar – March 23, 2011

29

Visualization in the CMP

- Visualizations serve an important role in the CMP, as both an analysis and a communication tool
- Variety of types:
 - Simple displays, such as charts, graphs, and simple maps
 - More complex displays, such as photosimulations, three-dimensional illustrations, videos, and animation

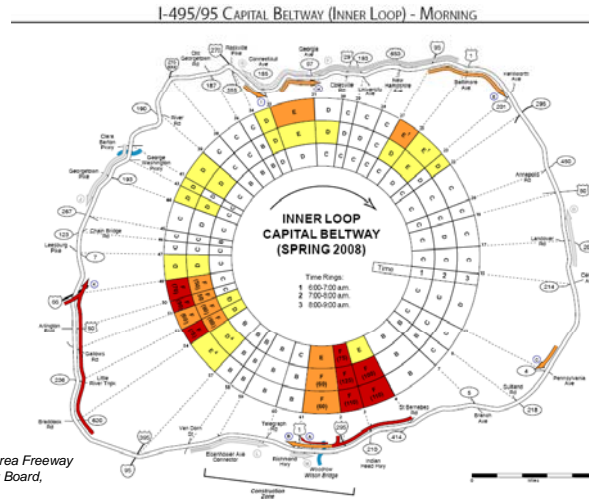


CMP Guidebook Webinar – March 23, 2011

30

Visualization in the CMP

- Temporal and Geographic Display – National Capital Region Transportation Planning Board (Washington, DC)



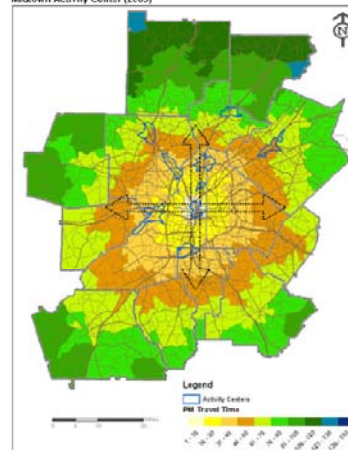
Draft – 2/7/2011

31

Visualization in the CMP

- Travel Time Contour Maps – Atlanta Regional Commission (Atlanta, GA)

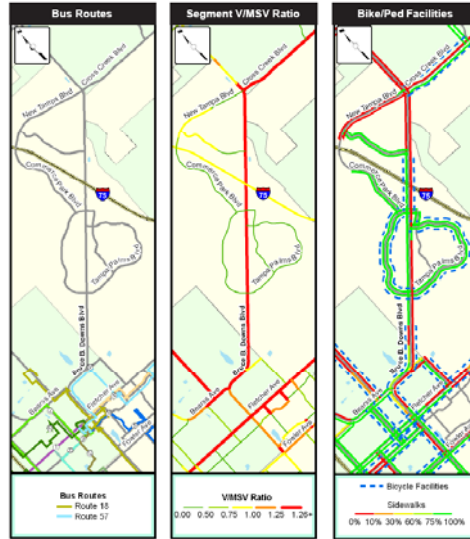
Figure 5-4: PM Period Travel Time Contours (15 minutes) from Downtown-Midtown Activity Center (2005)



Visualization in the CMP

- Side-by-side Display of Multimodal Information – Hillsborough County MPO (Tampa, FL)

Source: "Congestion Management System Performance Report", Hillsborough County MPO, 2005.



Visualization in the CMP

- Before and After Video – Southwestern Pennsylvania Commission (Pittsburgh, PA)
www.spcregion.org/downloads/signals/beforeafter.wmv





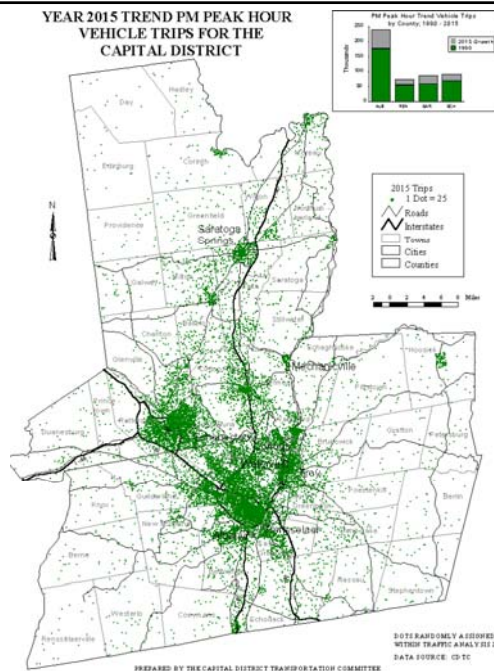
The CDTC Congestion Management Process

Christopher O'Neill
Capital District Transportation Committee
Albany, New York

Capital District

Albany
Troy
Schenectady
Saratoga
Springs

800,000
population





choosing our
future>

New Visions for
a Quality Region

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)

***New Visions*
Regional Plan**

**The Congestion
Management
Process is
strongly
integrated with
the Plan**

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)

The image shows the cover of a report titled 'New Visions for a Quality Region'. The cover features a stylized illustration of a city skyline with various buildings and trees against a light blue background. The text 'choosing our future>' is at the top, and 'New Visions for a Quality Region' is in the center. The report title 'New Visions Regional Plan' and a sub-headline 'The Congestion Management Process is strongly integrated with the Plan' are on the right. The logo for the Capital District Transportation Committee Metropolitan Planning Organization (MPO) is at the bottom right.



choosing our
future>

New Visions for
a Quality Region

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)

***New Visions*
Regional Plan**

**The Plan calls for a
strong livability
agenda—**

- land use planning,
- urban reinvestment,
- transportation choices
- community values

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)

The image shows the cover of a report titled 'New Visions for a Quality Region'. The cover features a stylized illustration of a city skyline with various buildings and trees against a light blue background. The text 'choosing our future>' is at the top, and 'New Visions for a Quality Region' is in the center. The report title 'New Visions Regional Plan' and a sub-headline 'The Plan calls for a strong livability agenda—' are on the right. Below the sub-headline is a bulleted list of four items: 'land use planning', 'urban reinvestment', 'transportation choices', and 'community values'. The logo for the Capital District Transportation Committee Metropolitan Planning Organization (MPO) is at the bottom right.

Performance Measures

The New Visions performance measures were all included in the CMP:

- Access (Transit, Bike, Pedestrian)
- Accessibility
- Congestion severity
- Flexibility
- Safety
- Economic Cost

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)



Performance Measures

- ***Community Quality of Life***
- Arterial Conflict
 - Residential Driveway conflict
 - Commercial Driveway conflict
- Economic Development

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)





Transit, walking, cycling, quality of life, access management—important components of congestion management.

Performance Measures

The CMP uses the congestion performance measure: **Excess Person Hours of Delay** -
The time spent above and beyond what it would take to travel at LOS “D”

- **Strong distinction**— just because level of service “E” or “F” occurs does not indicate a critical congestion problem
- Corridors with the most hours of excess delay are called **critical congestion corridors**



Performance Measures

Not “minimize congestion at any cost, consider other impacts if possible”

A central feature of the CMP is the recognition that while reducing traffic congestion is important, it is not the preeminent goal of transportation planning in the region

Trade offs needed among all performance measures. -- *This is a choice to be made with public input, not a mechanical determinism.*

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)



Performance Measures

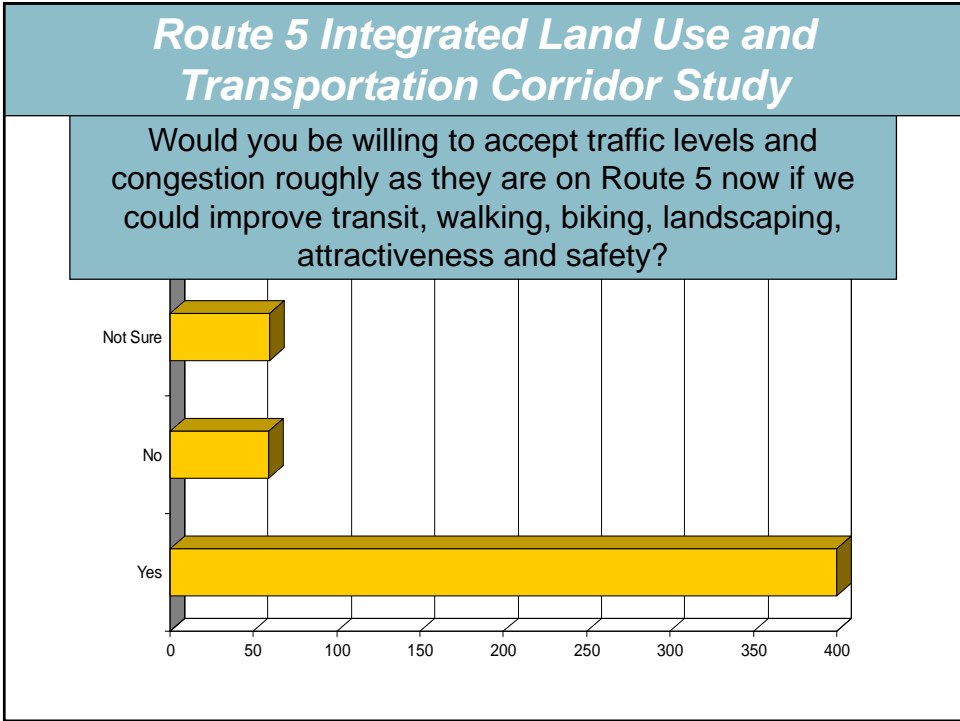
Get public input into the trade-offs between performance measures.

In many cases, the trade off between, say, traffic congestion and community quality of life is an easier choice than we think for the public;

while planners and engineers can get stuck thinking there is a mandate to address traffic level of service as the first priority

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)





The public process in the New Visions Plan has led us to the conclusion that the public experiences recurring delay as tolerable;

while unpredictable, non-recurring delay is not tolerable.

A photograph showing a multi-lane highway with heavy traffic congestion. The road is filled with cars, trucks, and buses, moving slowly. In the background, there are green highway signs and trees. The sky is overcast.

Performance Measures

If you know your commute home every day is 15 minutes longer than you would expect at 10 PM, you can plan around this.

But if your commute home one day is an hour and fifteen minutes longer, because of an incident, this is a much more significant hardship.

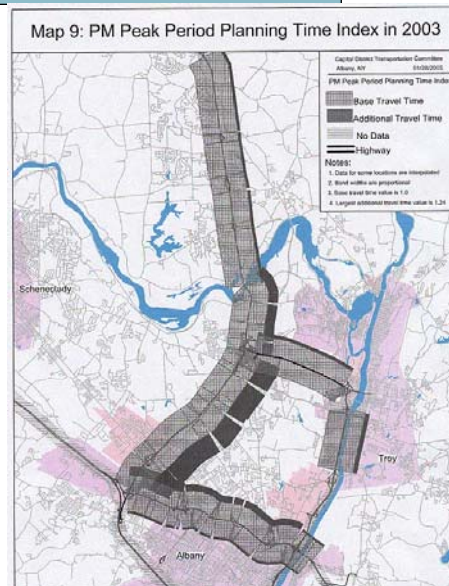
Capital District Transportation Committee
Metropolitan Planning Organization (MPO)



Performance Measures

Planning Time Index-

- Measure of reliability
- Developed by Texas Transportation Institute
- Ratio of 95th percentile time to regular travel time



Congestion Management Principles

Capacity projects must be in critical congestion corridors

Infrastructure projects should not increase capacity unless risk assessment indicates

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)



Congestion Management Principles

- **Management of demand is preferable to accommodation of single-occupant vehicle demand growth**
- **Incident management is essential to effective congestion management.**

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)



Congestion Management Principles

- **Any major highway expansion considered by CDTC will include a management approach**
- **Trade offs between performance measures are necessary—congestion is only one of many**

Capital District Transportation Committee
Metropolitan Planning Organization (MPO) 

Institutional Issue	Congestion Management Process
Traditional performance measures based only on quantifiable measures of “recurring” traffic flow	Developed performance measures with input from the public, such as reliability, bike/ped, transit and quality of life measures— livability
Agencies are focused on capital projects; funding and staffing are set up for capital projects	Improving operations has large benefits, is economically feasible, represents strategic investment; set priorities for operations

Institutional Issue	Congestion Management Process
The project design process tends to ignore planning as well as operations	<ul style="list-style-type: none"> •Should give equal consideration to multi modal performance measures •Should give equal consideration to community quality of life, livability •Alternatives in design should strongly consider operations alternatives

Institutional Issue	Congestion Management Process
Transit operations options such as Transit Signal Priority (TSP) are given lower priority by focusing on auto level of service	Says regional planning context should set priorities for transit investment
Operational solutions such as signal coordination lack funding and staff	Working to find ways to maintain valuable systems—Regional Operations Committee, Integrated Corridor Management

Conclusions

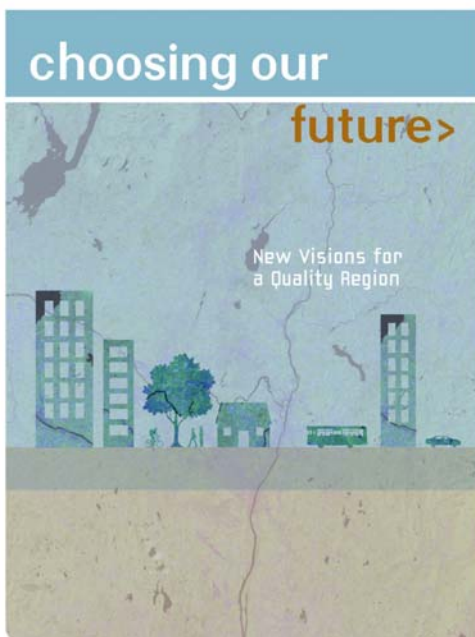
- The CDTC CMP supports the livability agenda proposed by US DOT, US EPA and HUD

- The CDTC CMP supports livability by emphasizing public participation

- The New Visions Plan emphasis on land use planning and multi-modal planning supports livability—the CMP is integrated with the Plan



- An emphasis on operations in the CMP supports regional land use vision and livability



Thank You

Chris O'Neill

coneill@cdtcmpo.org

Capital District Transportation Committee
Metropolitan Planning Organization (MPO)



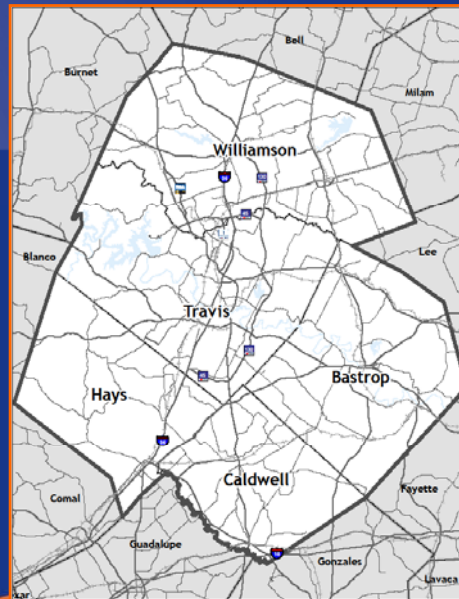


**The Congestion Management
Process:
A Collaborative Approach**
March 23, 2011

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

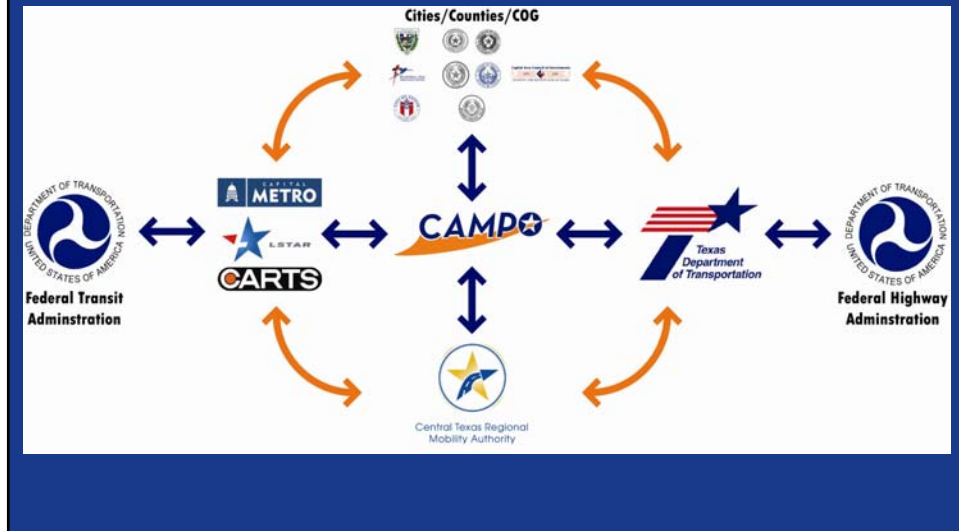
THE Basics:
CAMPO

- 5-County
- 1.6 million in population
 - 50% in core city
 - 60% in core county
- 19 member Policy Board
- 22 member Technical Committee



CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Stakeholders in the Planning Process



Key Features of the CAMPO CMP

- **Collaboration** among stakeholders
- Extensive use of **working groups**, **workshops** and **partnerships**
- Roadway Congestion Analysis Report and Information System: primary source of **data** & **analysis**

Working Groups, Committees and Teams

- **CMP/ITS Working Group:** regional congestion management and ITS planning
- **Bottleneck Committee:** analysis and selection of operations projects
- **AIMHigh Team:** incident management planning and coordination

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Working Groups, Committees and Teams

- **Regional ITS Architecture and Deployment Plan Working Group:** updates to the architecture and plan
- **Managed Lanes Working Group:** focused on planning Mopac/Loop 1 Express Lanes and regional managed lane policies

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Workshops

- **Workshops and Training focused on operations improvements**
 - Modern Roundabouts
 - Adaptive Traffic Management
 - Superstreets
 - Using Congestion Analysis for Identifying Operations Improvements
 - Reactivation of the Bottleneck Team and Identification of Low Cost Improvements



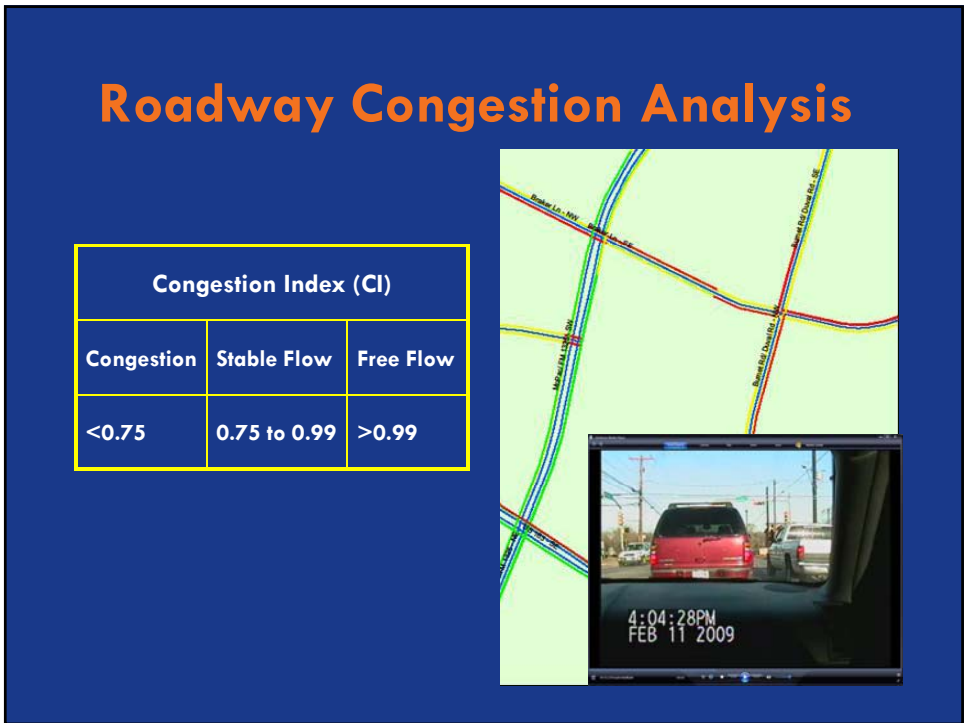
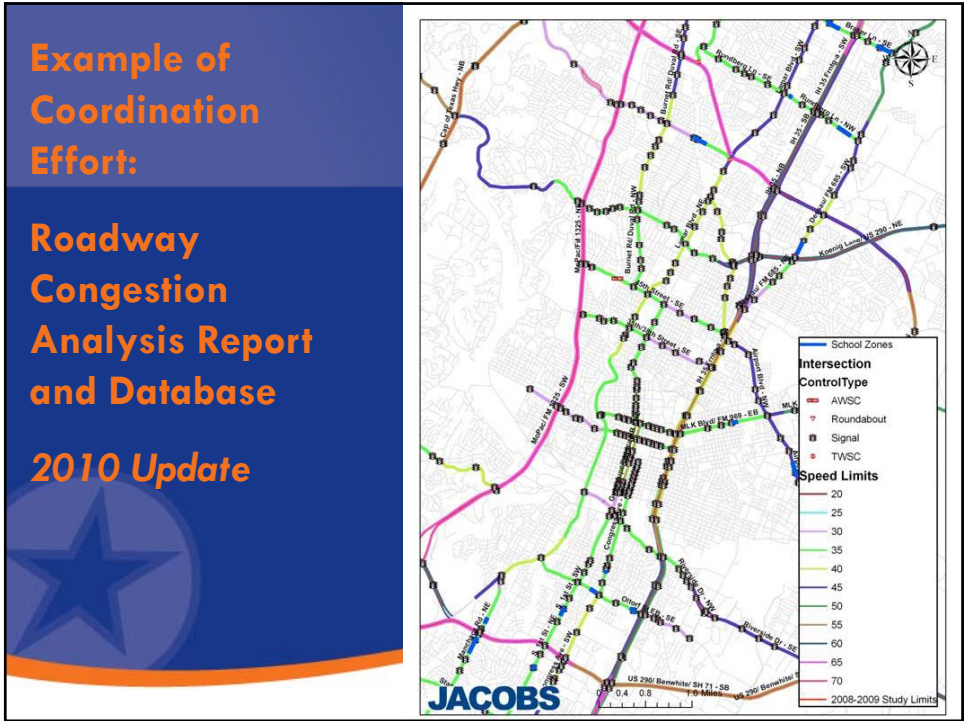
CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

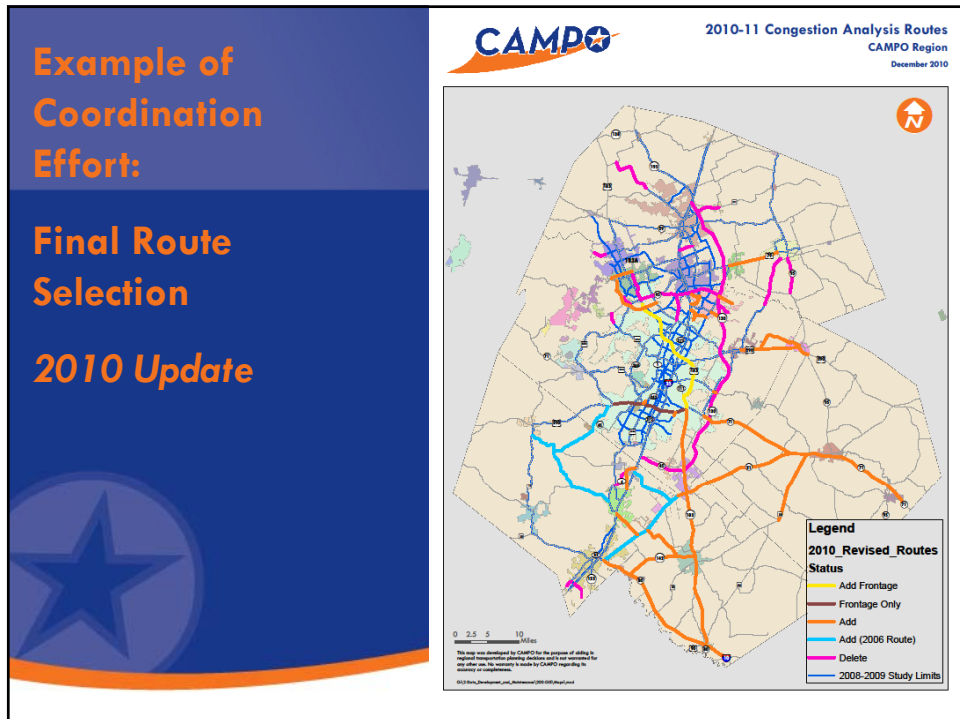
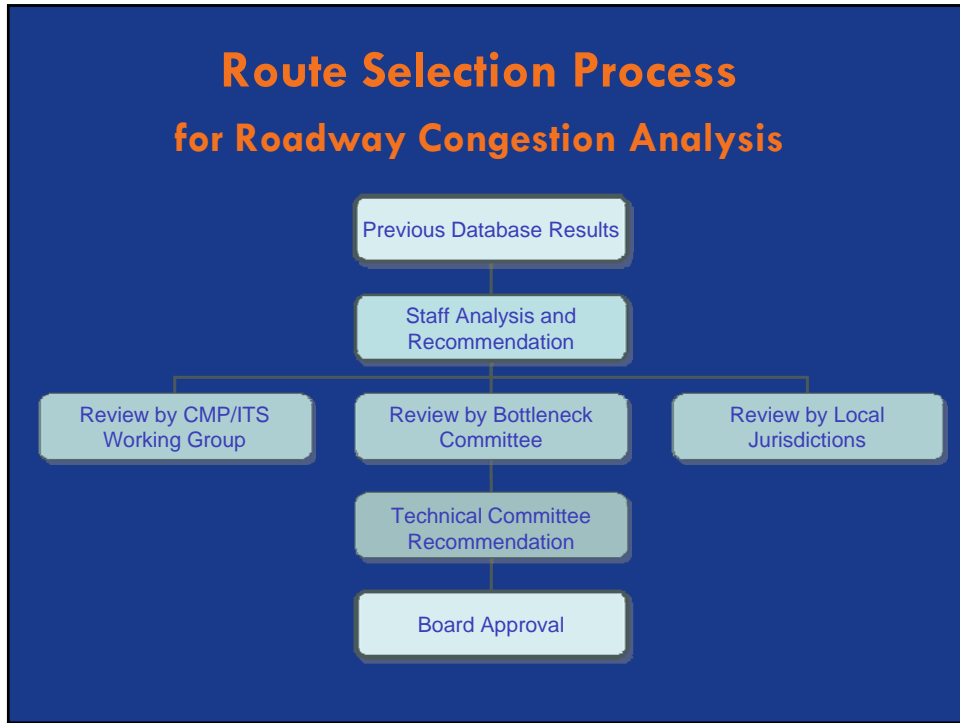
NEPA and the CMP

- **TxDOT Austin District Environmental Project Update Meeting**
 - Monthly meeting to update planners and engineers on environmental analysis
 - Consists of staff from FHWA, TxDOT and CAMPO
 - Discuss how the CMP can support purpose and need and selection of alternatives



CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION





Roadway Congestion Analysis

- Coordinated effort produces a useful tool for the entire region:
 - STP MM Project Selection
 - Bottleneck project selection and data for before/after studies
 - Routing and project planning for transit
 - TxDOT planning
 - Local jurisdiction project planning

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Contact Information

Michelle Meaux, Senior Planner

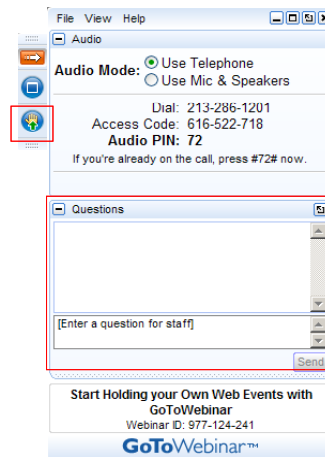
Michelle.Meaux@campotexas.org

(512) 974-6051

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Questions and Answers

- Type in question box
or
- Raise your hand



For More Information

- Egan Smith (FHWA Office of Planning)
(202) 366-6072, egan.smith@dot.gov
- Ben Williams (FHWA Resource Center)
(404) 562-3671, ben.williams@dot.gov
- John Sprowls (FTA Office of Planning & Environment)
(202) 366-5362, john.sprowls@dot.gov
- Michael Grant (ICF International)
(703) 218-2692, mgrant@icfi.com

CMP Guidebook will be available at:
<http://www.fhwa.dot.gov/planning/>

Congestion Management Process: A Guidebook
Questions and Answers from the Webinar

March 23, 2011

Note: Responses to questions were developed by webinar presenters.

Q: Are the travel time runs performed at different time periods, AM, Midday, PM, offpeak?

A: Travel time runs at CAMPO are performed in the AM Peak (7 to 9 AM) and PM Peak (4 to 6 PM)

Q: Do you use fulltime or part-time staff to perform travel time studies? It is performed every two years, is that because it takes that long to collect the entire system? Approximately how many miles do you collect?

A: CAMPO hires a consultant to perform the study. For the 2010 study, we started the procurement process in spring 2010, travel time runs conducted in fall 2010 and spring 2011. Analysis and presentations will occur over the summer and the contract will end in August. I will start another procurement in spring 2012. The 2010 study will cover 108 roads and approximately 1,100 miles.

Q: Are there any agencies that have links to continuous data streams directly or via the local Traffic Departments? If there, what kind of data they obtain and the performance measures they track?

A: Several MPOs are working on mining continuous data for the CMP but in some cases, there are issues with summarizing the data in a meaningful way and with ensuring the reliability of the data.

-With the support of NY State DOT and its MIST system, CDTC has looked into summarizing and making available their region's data on a monthly basis to help inform their CMP.

-CAMPO has worked with TxDOT and TTI to try and incorporate ITS sensor data into their CMP analysis, but found that road maintenance is hard on the sensors and the data was not reliable enough for more than some limited use.

Q: Is there any discussion in the guide book about potential funding sources for CMP projects?

A: The Implementation Action in the guidebook (Action 7) provides some information on approaches MPOs have used to implement CMP strategies. In terms of funding, a common approach is to develop a "set-aside" of funding specifically for projects identified through the CMP (typically smaller projects that might otherwise slip through the cracks in terms of funding priorities)

Q: CAMPO: Can you define Congestion Index?

Q: In the 2nd presentation, how do you define Congestion Index (CI) in your area?

A: Congestion Index = actual average speed / posted speed. The threshold for congestion is defined as anything less than 0.75. More information can be found on page 22 of the report located at http://www.campotexas.org/pdfs/2008_2009_CAMPO_Report.pdf

Q: Can you suggest ways to measure non-recurring congestion on the arterial (v. freeway) system?

A: There is not the same network of ITS on arterials, which makes it more difficult than for freeways. In the research for this Guidebook, we saw MPOs using GPS runs to get some estimates of reliability. There has been some discussion of using transit vehicles as probes, even though they make more stops than a normal vehicle. The other data source much discussed is the use of cell phone data, which is available from private vendors, though not a lot of places are actually using this yet.

Q: Can you recommend strategies for working with multiple local agencies that have differing priorities and are pursuing economic development strategies that are based on market opportunities.

A: Ideally the way to deal with this issue is in the context of the metropolitan transportation plan, where a consensus is built around what is best for the region. Economic development strategies are best set in a regional context so that players are working together in a win-win for their own communities and for the region as a whole. Granted, this is challenging, but the MPO can set strategies and investment policies that support regional goals. Because all regions are different, there is no one-size-fits-all solution. But extensive public dialogue and working toward consensus is an invaluable approach.

Q: I was curious if there are MPOs across the US that do an aggressive follow up approach to see whether projects that are done complimentary to SOV expansion projects in non-attainment areas are tracked by MPOs - and what you do if projects are not implemented after the capacity expansion?

A: DVRPC in Philadelphia has a relatively aggressive tracking process. They develop a report annually that updates progress on implementing all of their major SOV project supplemental strategies, as reported to them by the various implementing agencies (they do not go out and check in person, but rely on the project managers at implementing agencies to accurately report whether they have implemented these strategies or not). For an example, see <http://www.dvrpc.org/reports/TM09013.pdf>

Q: Can you recommend strategies for balancing pedestrian safety (ie.e narrowing intersections) with the need to decrease congestion?

A: The most import principle in dealing with the need to balance pedestrian needs with auto congestion is to remember that auto congestion should not automatically trump other needs. It is

also important to recognize that sometimes it makes sense to allow congestion to occur. Too often the design process says we either have to eliminate all congestion at an intersection, or else we can't do anything. One concept we have used at CDTC is that pedestrian access will actually reduce auto congestion by reducing auto travel. However, this assertion makes more sense as a result of a cumulative strategy to provide pedestrian access throughout a community or a region. At the individual intersection level, pedestrian access may not reduce auto congestion dramatically, so a benefit cost analysis approach would have to look at the larger context. Another important consideration is--what does the community think? Public participation is important and can empower the sometimes difficult decision not to add road capacity in order to make ped access better.

Q: What are some typical CMP congestion measures that are being used?

A: The guidebook provides a great deal of information on the types of measures that are/can be used. Here are some general examples:

- Volume-to-capacity measures are the most traditional, and can be based on current traffic counts or on projected traffic volumes (taken from a model). These are often shown either as a ratio (i.e. 0.9 volume-to-capacity ratio would mean the road is at 90% of capacity) or as a Level of Service letter grade (i.e. LOS "F" would indicate roadways where congestion overwhelms the capacity of the road).
- Travel time measures can include travel time from point to point, travel speed on a road segment, delay (difference between actual travel time and free flow travel time), or a travel time index (ratio of peak period to non-peak period travel time).
- Reliability measures can be based on archived travel time/speed data (such as ITS data). Many MPOs also use crash rates as a surrogate measure for reliability, as crashes are one of the primary causes of non-recurring congestion.
- Transit measures include things such as passenger crowding/utilization and reliability of performance/on-time percentage. Some advanced transit measures include re-entry delay (time lost waiting for a bus to re-enter the lane of travel), loading congestion, bus queuing congestion, or mobility device loading congestion.
- Many MPOs include measures on the availability of multimodal facilities/services within an area, such as sidewalks, bicycle lanes, multi-use paths, and bus routes/stops.
- Freight measures are usually based on one of the types of measures already discussed, but with a specific emphasis on goods movement.
- Accessibility measures describe the ability of people to reach certain locations, and include items such as the percentage of the labor force with a commute less than 30 minutes, the number of people within 30 minutes of downtown, or the number of people within a 5-minute walk of a transit stop.
- Land use measures address issues such as how well development patterns support multimodal transportation or how well different land uses are balanced and connected within an area.

Q: For Albany, how does the desire to only add capacity on highways with existing congestion work with the desire to reconstruct roads looking 20 years into the future? If a road needs to be reconstructed, don't you use the forecasts to design the highway?

A: This is a significant issue for CDTC. The design process generally encourages designing to auto level of service D or better in the PM peak hour for the 20 year design year (or in the case of bridges, the 30 year design year). This puts an inordinate priority on auto peak hour level of service. It also creates a situation where in many cases, while existing level of service is acceptable, expensive capacity is added in anticipation of future potential congestion. When this happens, future potential problems are inadvertently given priority for scarce funding over existing more severe problems; and auto level of service is given priority over bicycle, pedestrian and transit access. The CDTC CMP says that when designing a project, capacity should only be added after a risk assessment determines that capacity is warranted. To quote in part from one of our CMP principles: "In cases such as the replacement of a bridge, long-lasting decisions about capacity expansion often must be reached long before critical congestion levels are reached and before local demand management actions are in place. In order to assure consistency of these decisions with the overall Congestion Management Process, it is necessary to revise traditional design policies and procedures." Generally, the CDTC CMP is saying that the design process should allow future congestion if adding capacity to address that congestion is inconsistent with the CMP.

Q: How does CDTC implement land use plans?

Q: MPOs in my state have no land use control or planning role whatsoever legally. How should land use be addressed in the CMP - include adopted local comp plans only?

A: At CDTC, an important way is through our Linkage Program, where we partner with local communities in doing land use transportation planning studies at the local level with a regional context.

It is important to recognize that transportation investments do have an impact on communities. One of CDTC's plan recommendations is for urban reinvestment and the MPO can help ensure that there is at least equitable investment of transportation resources in the cities and that will help foster Smart Growth and economic development in the cities.

Q: IS there anybody using Dynamic Traffic Assignment for CMP?

A: In the development of our case studies (which was an admittedly small sample of MPOs), we did not come across any MPOs currently using this explicitly as part of their CMP. However, the Atlanta Regional Council did mention that they are preparing to start doing a series of corridor studies related to their arterial network planning, and were hoping to do some type of microsimulation modeling as part of that. Other MPOs may also be doing work in this area. The guidebook does note that DTA is a potential tool for use in analyzing CMP strategies and provides a link to a TMIP website with more information on DTA.

Q: This may be fundamental but what does it really mean that "project should be ADDRESSED THROUGH the CMP?

A: The general intent of this requirement is that there be a connection between the recommendations in the CMP and programmed/implemented projects. The test is essentially that there be some consistency between the two. So, for example, if your CMP said that a new SOV facility was inappropriate in a certain corridor, then you would obviously have a problem if you tried to program an SOV project there. Likewise, if your CMP indicated that congestion was not a problem in a certain area or corridor, then it would be problematic to use congestion relief as part of the purpose and need for the project. On the other hand, if your CMP indicates a need for TDM or operations strategies in a corridor in addition to capacity expansion or new transit service, then you could also push for these to be added as part of the project (see DVRPC for an example of supplemental strategies). There are not hard and fast rules about how the MPO should go about ensuring this coordination, to allow a certain degree of flexibility.

Q: Can you talk a bit more about examples out there on the application of the CMP to major transit projects?

A: The Route 5 BRT mentioned in the CDTC presentation is an example of where the Regional Plan/CMP set the priority for providing high quality transit service in the Route 5 corridor, which led to support for Transit Signal Priority in the corridor and queue jumping for BRT vehicles at two strategic intersections. These transit priority strategies might not have succeeded if they were looked at at the intersection benefit cost level, but make sense in the context of encouraging transit ridership and transit oriented development in the corridor.

Q: So what are some more examples of livability performance measures and what metrics are used?

A: Livability measures often look beyond the traditional CMP measures, looking at multimodal system performance, transit access, person delay (instead of vehicle delay), and prioritizing strategies that address person movement. CDTC has a lot of success with "community quality of life" as a performance measure, implemented at the regional, corridor, and project level. At the regional level, it's about urban vitality, suburban character and rural character and that all three of those are important and that the regional plan should advance those. This has been done more qualitatively, but we have been looking at the impact of different plan alternatives on those types of considerations. At the project level, there was a project that was going to destroy the front lawn of a local community college and they took the approach of assigning a qualitative score of A through F. At the community meetings, everyone agreed that destroying the lawn would be an F for community quality of life. This allowed us to capture that impact that a more traditional quantitative analysis would have ignored.

Q: This question is for Michelle (CAMPO). How was your travel time collected? How much was the cost?

A: CAMPO uses the floating car method, but they are looking into using historic traffic information data in the 2012 report. They do 3 travel time runs in each direction. Data is

gathered through video and GPS responders. They've found that the data they've gathered has been very useful for the direction they have gone with operational strategies. The database has been very useful for identifying operational problems. The last report cost about \$120,000 and with the addition of two new counties, the cost for 2010/2011 is \$140,000.

Q: Would you say more about evaluation of implemented strategies that takes into account other influences on change, and also understanding the anticipated effects of strategies, especially sets of strategies to understand complementary or competing effects? Thanks.

A: This issue is one of the hardest to nail down in the entire CMP process. Many MPOs have difficulty collecting good data to assess the effectiveness of implemented strategies, particularly due to the difficulty in isolating the causal relationship between the project and the result. There may be cases where it is near impossible to isolate the specific results attributable to a particular strategy, but there are methods that help provide at least some level of understanding. For example, the Southwestern Pennsylvania Commission has developed a video showing the change in travel time through one community based on a signal improvement/retiming project, and has successfully used that visual evidence to convince other communities about the potential benefits of similar projects. In SPC's case, they have not tried to collect and analyze data on every implemented project, but have instead focused on collecting data on a sample of the projects implemented locally. Some MPOs (Atlanta for example) have set aside some of their data collection budget for collecting before and after traffic data on specific large projects. In areas with extensive ITS data, it may be possible to use that data as well. This is an area where there is great potential for MPOs to test out new and innovative ideas.

Q: What are SuperStreets?

A: The Superstreet concept reconfigures a conventional intersection by removing the through and left-turn traffic from side streets and relocating it to downstream turnarounds. The CAMPO region will soon implement its first superstreet configuration at the intersection of SH 71 and FM 973 in east Austin.

Q: What or who inspired the late surge to include "Visualization" as part of the Guidebook?

A: Visualization has been an area of increased focus at FHWA, in all aspects of transportation decision making, and as such was included as an element in this project.

Q: What role does travel demand forecasting models have with congestion assessment and for predicting future congestion? (Action 5 Section)

A: There are quite a few MPOs that use their travel demand model as part of their CMP process, and they are looking at predicted future delay and congestion. Many are using the outputs from their travel demand model as inputs into the CMP. It comes back to the performance measures being used: the models are not good at dealing with non-recurring congestion or transit congestion.