CDTC New Visions 2050 Plan Update

• We are updating the New Visions Plan and the CDTC Congestion Management Process

• **Travel Reliability** – An important performance measure for CDTC and required by the FAST Act

  • *We can’t eliminate all congestion, but we can manage congestion.*
Congestion Management Process: Eight Steps

1. Develop Regional Objectives
2. Define CMP Network
3. Develop Multimodal Performance Measures
4. Collect Data/Monitor System Performance
5. Analyze Congestion Problems and Needs
6. Identify and Assess Strategies
7. Program and Implement Strategies
8. Evaluate Strategy Effectiveness
Congestion Management Network: the Intelligent Transportation System Priority Network
Planning and Investment Principles

Travel Reliability – Reliable traffic flow is more important than reducing congestion – traffic congestion is often a sign of an area’s economic vitality.

• Managing traffic flows on the Capital Region expressway and arterial system is critical for both economic and social reasons.

• Congestion Management is much more cost effective than highway capacity increases or new lanes. Congestion alone does not justify increasing highway capacity or adding new lanes.

• Congestion management actions will include traffic management center improvements, incident management, managed lanes, managed tolls, traffic information technology, traffic signal coordination, parking management, and travel demand management strategies such as supporting more transit, pedestrian, and bicycle travel, carpooling, vanpooling, carsharing, bikesharing, and flexible work hours.

• Some congestion is acceptable when the community deems it acceptable, or when it results from balancing the needs of other transportation modes such as pedestrian, bicycle, and transit.
CDTC New Visions 2050 Plan Update

• **Travel Reliability** – An important performance measure for CDTC and required by the FAST Act

  • *We can’t eliminate all congestion, but we can manage congestion.*
  • *Non-recurring delay is more disruptive to travel.*
  • *If you know your trip home is five minutes longer every day during peak hour, you can plan around that. If it is five minutes longer one day and an hour longer the next day, that is much less tolerable.*
The National Performance Management Research Data Set (NPMRDS) uses anonymous data from a variety of GPS devices carried by both trucks and cars to record highway speeds. Data is collected under contract with the Federal Highway Administration twenty-four hours a day, 365 days a year, for both passenger cars and trucks.

The Albany Visualization and Informatics Lab (AVAIL) at the University at Albany, under contract with New York State Department of Transportation, has developed a powerful tool to summarize and analyze the NPMRDS data. This tool is used by CDTC to better understand congestion and to support congestion management in our region.
AVAIL NPMRDS Tool
Performance Measures: Measures of Reliability

- LOTTR (Level of Travel Time Reliability) and TTTR (Truck Travel Time Reliability)
- For corridor level analysis CDTC has used the Planning Time Index (PTI) measure of reliability:
  - For the PM Peak, PTI is defined as:
    \[ PM \text{ Peak } 95\% \text{ travel time} / \text{freeflow travel time} \]
- Reliability is a difficult concept to explain to the average person, so NPMRDS graphs really make it clear.
Northway, Exit 1-9, Weekday PM Peak Period, Northbound

PTI= 3.24

2017-2018 Travel Time by Day of Year

Northway, Exit 9-1, Weekday PM Peak Period, Southbound

PTI= 1.35

2017-2018 Travel Time by Day of Year
Route 7 from I-787 to Northway Northbound, Weekday PM Peak Period

2017-2018 Travel Time by Day of Year

PTI = 4.83

Route 7 from Northway to I-787, Weekday PM Peak Period

2017-2018 Travel Time by Day of Year

PTI = 1.45
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<th>AM Peak Hour</th>
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Performance Measures: Peak Hour Excessive Delay

- This measure is calculated using the NPMRDS data.
- Excessive delay means the extra amount of time spent in congested conditions defined by speed thresholds that are lower than a normal delay threshold. The speed threshold used by CDTC is 20 miles per hour or 60 percent of the posted speed limit, whichever is greater.
- So for example, if the speed limit on an expressway is 65 mph, the threshold for calculating excess delay would be 39 mph.
Peak Hour Excessive Delay (PHED) - 2018
NY Capital Region ITS Architecture

- Covers the four-county CDTC planning region
- Update completed in 2016
- Update included Concept of Operations (ConOps) document detailing roles and responsibilities of all regional stakeholders
- Key stakeholders include:
  - The Capital District Transportation Authority (CDTA)
  - The Capital District Transportation Committee (CDTC)
  - Municipalities with Transit Signal Priority, which at this time are Albany and Schenectady, but can be expanded as transit signal priority expands.
  - New York State DOT Region 1
  - New York State Thruway Authority (NYSTA)
- Recent ITS projects included in the architecture:
  - Computer Aided Dispatch / Automatic Vehicle Location (CAD-AVL), Bus Rapid Transit projects, Transportation Management Center (TMC) Operations, and others.
Congestion Management Strategies

1. The Capital Region Transportation Management Center - incident management
2. Travel Demand Management: transit, pedestrian, bicycle modes; carpooling, vanpooling, carshare, bikeshare
3. Traffic Signal Technology and Intersection Improvements
4. Arterial Management and Land Use Planning
5. The I-87/US 9 Integrated Corridor Management Plan

Pictured: Region 1 TMC in Latham, NY
Implementation of the Congestion Management Process: Recommendations

• **Funding for Operations** – CDTC should continue to support funding for operations, including the TMC, traffic signals, ITS innovations, improved project selection process for ITS/signals. At a minimum, funding should continue at existing levels. While existing funding at the federal and state level is often set up for capital projects, funding for operations provides essential improvements to traffic flow and traffic reliability, as well as improvements to transit systems.

• **Major Highway Expansion Should Not Be Considered** – CDTC should continue its strong policy that congestion management is much more cost effective than highway capacity increases or new lanes; and that congestion alone does not justify increasing highway capacity or adding new lanes. Because of other less expensive strategies, and because of changing transportation technologies, major highway expansion (adding through lanes for several miles or more) should not be considered. CDTC policy does not support increasing road capacity by constructing new lanes. Strategic removal of bottlenecks can be considered without major highway expansions.

• **Right-size our existing roadways** – Because some of the roads in our region were built years ago based on higher-than-actual forecasted traffic, some of these roads have unused capacity. These roads should be right-sized so that underutilized right-of-way can be used to improve access for other modes of transportation, such as pedestrian, bicycling, and transit.
Implementation of the Congestion Management Process: Recommendations

• **Community Traffic Engineering Services Program** – CDTC should explore the option of establishing a community traffic engineering services program. Under this potential program, CDTC would partner with a municipality to hire a traffic engineering consultant to provide intersection signal analysis, traffic counts, or analysis of potential operational improvements or ITS improvements. Municipalities would need to apply for funding for this program.

• **Regional Traffic Signal Timing Program** – CDTC should establish a Regional Traffic Signal Timing Program to conduct a data-driven, performance measure-based screening of regional arterials to determine which would benefit most from timing optimization. The program can also ensure that safe pedestrian crossing intervals are present at all signalized intersections. The program should also proactively monitor signal performance and make timing changes in response to land use changes or shifting travel demand.

• **Active Traffic Management Strategies** – CDTC should further evaluate active traffic management (ATM) strategies, including speed harmonization and Dynamic Lane Assignment (DLA) for the Northway as national experience increases. Further national experience will help NYSDOT and CDTC determine if ATM strategies are a good fit for the Capital District.
Recommendation: Traffic Incident Management Committee

As discussed at prior ROSAC meetings:

• A Traffic Incident Management Committee should be formed that will meet regularly and assess management of recent incidents and plan for upcoming events.
• Emergency service providers, State Police, NYSDOT staff and others should be included.
Recommendation: Inventory of signalized intersections

- Signals are a crucial component of the transportation system
- Inventory could include:
  - Type of signal
  - Operating agency
  - Type/age of controller
  - Type of timing plan
  - Presence/functionality of vehicle detection
  - Support structure
  - Safety features (head type, backplates)
  - Bike/ped facilities

CDTC recommends:
- Soliciting signal operators for data
- Compiling region-wide geodatabase
- Gap assessment
- Form plan to fill gaps (based on received data)
Implementation of the Congestion Management Process: Recommendations

• **Classification of Signalized Arterials** – CDTC should adopt a data-driven approach to prioritizing corridors for traffic signal upgrades and transit ITS deployment. Signalized arterials should be mapped and classified based on traffic volumes, transit use, access management, signal delay, travel time reliability, safety, and other factors.

• **Automated Traffic Signal Performance Measures Pilot** – Signals with vehicle detection can record and archived high-resolution operations data when the appropriate software is installed on the controller. This data can be used for modeling purposes, signal retiming, and for planning future improvements.

• **Regional Transportation Systems Management Operations (TSMO) Plan** – CDTC will develop a Regional Transportation Systems Management Operations Plan. The TSMO Plan would be developed in accordance with Federal guidance on Advancing Metropolitan Planning for Operations.