Active Transportation Demand Management Framework

NYSDOT's ATDM Statewide Initiative

Prepared for:
MMN/ITS Group Meeting

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Project Scope and Background

- Develop a framework that NYSDOT and its partners could use in the flexible and efficient deployment of ATDM strategies in New York State

- Project Goals:
  - **Understand ATM, TDM and ITS/TMC** deployment in New York State, and their interconnections
  - **Identify opportunities** for enhanced integration, including use for multi-modal optimization in congested corridors, during planned construction, and for special events
  - **Develop a holistic framework** for deploying ADTM solutions and procedures

Project Summary - Tasks

- **Task 1:** Conduct an National/International ATDM Best Practices Scan
- **Task 2:** Conduct an ITS and TMC Assessment in NYS
- **Task 3:** Identify and Develop Profile Scenarios for ATDM Deployment
- **Task 4:** Develop Comprehensive Scenarios at Three Candidate Locations
- **Task 5:** Develop Framework for Optimal Deployment of ATDM in NYS

Task 3 – Purpose and Approach

- **Purpose:** Identify and develop profile scenarios for deployment
- **Approach:**
  - Developed list of scenarios based on *real world examples* identified in Task 2 interviews, and *potential situations* identified in best practices scan
  - Short list vetted by NYSDOT
  - Updated list based on *types of locations/facilities* and *types of situations*
  - Finalized scenarios with examples based on *size of region* (small, medium, large)

Task 3 – Scenarios Developed

Scenario Framework	Examples (Large, Medium, Small)
Complex, urban congested corridor	• **Large:** Cross Bronx Expressway, LIE, I-684 Corridor w/ Parallel Metro-North Rail • **Medium**: I-490 corridor in Rochester and I-81 corridor in Syracuse • **Small**: N/A (generally, no recurring congestion or complex freeway systems)
Urban arterial network	• **Large:** NYC's 5 Boroughs • **Medium**: CBDs in Syracuse, Rochester, Buffalo and Albany • **Small**: N/A (generally, not urban)
Bottlenecks and crossings	• **Large:** Queens-Midtown Tunnel, Lincoln Tunnel and Holland Tunnel • **Medium:** US-Canada Border Crossing • **Small:** N/A (generally, no recurring bottlenecks)
Seasonal, recurring off-peak congestion	• **Large:** Typically more appropriately characterized under first or last scenarios • **Medium**: I-87 Expressway in Albany during seasonal tourism • **Small:** Finger Lakes (summer), Lake Placid (winter), Lake George (summer)

Task 3 – Scenarios Developed (cont'd)

Scenario Framework	Examples (Large, Medium, Small)
Major emergencies & weather	• **Large:** Hurricane Sandy evacuations in Downstate metro area • **Medium:** Storm preparations in upstate NY (Rochester, Buffalo, Syracuse) • **Small:** Hurricane Irene flooding in upstate NY
Construction	• **Large:** Tappan Zee Bridge construction or K Bridge construction • **Medium:** I-787 construction in downtown Albany, or Twin Bridges in Albany • **Small**: Prospect Mountain Bridge construction, Lake Champlain Bridge
Special events	• **Large**: UN Assembly, POTUS, major sporting event (NYC Marathon, Super Bowl) • **Medium**: Buffalo Bills Football Game or Syracuse NYS Fair • **Small**: Festivals and special events in Finger Lakes region (such as wine festivals)

ATDM Suite of Strategies

Active Traffic Mgmt	Active Demand Mgmt	Active Parking Mgmt
Adaptive ramp metering	Dynamic fare reduction	Dynamic overflow transit parking
Adaptive signal control	Dynamic HOV / Managed lanes	Dynamic parking reservation
Dynamic lane reversal	Dynamic pricing	Dynamic wayfinding
Dynamic merge/junction control	Dynamic ridesharing	Dynamic priced parking
Dynamic shoulder lane and lane use control	Dynamic routing	
Dynamic speed limits	Dynamic transit capacity assignment	
Queue warning	On-demand transit	
Speed harmonization	Predictive traveler information	
Transit signal priority	Transfer connection protection	
Variable speed limits		

Task 3 – Scenario Profile Example (p.1)

Scenario 6: Major Construction Project

About

Major construction projects can exacerbate traffic delays on already congested routes or create congestion where none existed. The strategies used will depend on the congestion conditions, the infrastructure and services available, and the ability of partners to implement ATDM on a somewhat temporary basis. Congestion related to construction can be caused by reduced capacity and reduced speeds in work zones, and can affect all times of the day and night. It can affect the facility under construction as well as connecting or alternative routes, as well.

Examples

- **LARGE**: The **Tappan Zee Bridge**, a toll bridge that carries I-87/I-287 across the Hudson River, connects New York City's bustling northern suburbs in Rockland and Westchester counties. Operated by the NY Thruway Authority, the Tappan Zee is the only bridge serving a 33-mile stretch of the Hudson River. The facility is also a major interstate trucking route, connecting the Mid-Atlantic and New England regions via I-95. The Tappan Zee Bridge operates at or near capacity throughout the day, especially during the AM and PM peaks. Now past its expected useful life, the bridge carries substantially more traffic than it was originally designed to carry. Concern about the bridge's structural integrity spurred a bridge replacement project, which will result in the construction of the New NY Bridge, a dual-span bridge north of the current structure, beginning in 2013 and ending in 2017. Other examples include the **Kosciuszko ("K") Bridge**, which connects Queens and Brooklyn and is slated for replacement because it is too narrow to accommodate current traffic levels.

- **MEDIUM:** The Southern Portion of **Downtown Albany's I-787** is currently under construction to improve overall safety. As part of the work, the concrete will be resurfaced and six bridges along the interstate will be rehabilitated. The work is being coordinated with other construction projects in the region to reduce the impact on motorists. However, two lanes will be closed at night and one during the day.

- **SMALL: Prospect Mountain** is at the junction of State Route 17 and I-81 in Binghamton. Under normal circumstances, the Route 17/I-81 interchange area has sufficient capacity throughout the day and provides a high level of service. However, the construction project, which began in the Spring of 2012 and is scheduled to be completed by the end of 2015, could have the potential to increase traffic congestion. It has not yet done so in part due to use of a wide range of strategies, including using social media (Facebook page) to alert motorists of daily construction activities. Other examples include the current project to convert Route 17 to I-86.

Task 3 – Scenario Profile Example (p.2)

Developing an ATDM Approach: Strategies to Consider for a Major Construction Project

ATDM strategies can be deployed as mitigation during the construction project. In addition, some strategies can become an integral part of operations after the project is complete by incorporating equipment and design elements that will support continued use of ATDM strategies. This will require a well conceived, comprehensive concept of operations for both the construction period as well as on-going operations once complete because the set, nature, and operating conditions will vary for each.

Strategy Type	ATDM Strategy	Cost Estimate	Small or Rural Area	Medium Metro Area	Large Metro Area
Demand	**Dynamic Transit Capacity Assignment** *Added bus service frequency, shuttles on alternative routes or detours*	$	X	X	X
Traffic	**Real-time traveler information** *In medium and large areas with multimodal options, include info on transit and other modes. In small areas, include information on arterials. Can include info on approaches and alt. routes.*	$	X	X	X
Demand	**Dynamic routing** *System may include routing to arterials, particularly in small/rural areas with limited freeway options*	$$	X	X	X
Demand	**Incentives for avoiding peak travel during construction** *Start with "low tech" solutions, such as online calendar tied to incentives*	$		X	X
Demand	**Dynamic ridesharing** *Adaptive telework during reconstruction and special apps to encourage shared travel*	$		X	X
Traffic	**Variable Speed Limits and Queue Warnings** *Speed limits tied to safe operation during construction*	$$		X	X
Traffic	**Dynamic Shoulder Lanes** *Use during construction; potential use after project completion in large areas*	$$		X	X
Traffic	**Adaptive Ramp Metering** *Could be tied to construction only or added as part of completed facility*	$$		X	X
Demand	**Dynamic pricing** *Could add differential tolls for time of day and occupancy on existing tolled facilities; incentives could be provided for transit, vanpools, carpool and bicycles*	$			X
Demand	**Dynamic HOV or Managed Lanes** *Could operate HOV or HOT lane on temporary basis during reconstruction (i.e., T-Rex)*	$$$			X

Task 4 – Purpose and Approach

- **Purpose:** Select three candidate locations and develop specific project profiles.
- **Approach:**
  - Select three corridors with input from NYSDOT
  - Establish which stakeholders should be invited to workshops for each scenario chosen
  - Complete background research on each chosen scenario
  - Hold a workshop at each scenario location
  - Develop corridor plan based on background research and input from stakeholder group