



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

# TMCUpdate

TRANSPORTATION MANAGEMENT CENTER POOLED FUND STUDY

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## HOW TO JOIN

Agencies may join the TMC Pooled Fund Study at anytime during the year by committing funds at a level agreed upon by existing participants in the study. The TMC pooled fund study was approved for 100 percent State Planning and Research Program funding. Any noncommercial agency or organization that is responsible for the management and operation of any portion of the surface transportation system is welcome to participate.

State transportation agencies interested in joining the TMC Pooled Fund Study can submit funding commitment online at the Transportation Pooled Fund Program web site at: <http://www.pooledfund.org>. (see Solicitation No. 870; SPR-2(207))

Other agencies should complete and submit the TMC Pooled Fund Study commitment form downloadable at the TMC Pooled Fund Study web site at: <http://tmcdfs.ops.fhwa.dot.gov>.

## New Projects in 2007

The Transportation Management Center (TMC) Pooled Fund Study held its 2006 Annual Meeting on July 25-26, 2006 in Park City, Utah. Practitioners from 18 participating agencies met at the Marriott Park City Hotel to discuss the TMC Pooled Fund Study business. Thirteen potential project ideas were presented to the members for review, discussion and prioritization. Based on members' feedback and available funding, six top-ranked project ideas were selected to begin in 2007. The six projects are briefly described here:

**"TMC Infrastructure Maintenance Management System"** – Develop a software system to assist TMCs with managing infrastructure maintenance activities. Approach includes performing an assessment on available software/systems and agencies' experience. A requirements analysis will be followed to identify desired system functions and capabilities.



*Annual Meeting Participants*

**"TMC Human Factors Design Guidelines: Requirements Analysis"** – Perform a requirements analysis to identify and prioritize needs for human factors guidance in TMCs. Approach includes a workshop with 5 to 10 TMC subject matter experts to identify and prioritize the key areas where human factors guidance is most needed. Based on analysis of the workshop results, an approach will be identified for the development of a guidelines document that will best support the identified user requirements.

*See New Projects, Page 6*

# Feature Article: Ramp Management and Control Handbook

Ramp management is the “application of control devices, such as traffic signals, signing, and gates to regulate the number of vehicles entering or leaving a freeway, in order to achieve operational objectives”. Most ramp management strategies are employed to balance freeway demand and capacity, maintain optimum freeway operation, improve safety on the freeway or adjacent arterial street(s), or give special treatment to a specific class of vehicles. Ramp management strategies and the equipment/systems that support them are often implemented in conjunction with other freeway management programs to create operational efficiencies and to assist in the delivery of overall transportation management goals and objectives.

Ramp Management can offset congestion and safety problems that affect efficient and safe operation of traffic on ramps and or the facilities to which they connect. In doing so ramp management helps achieve greater return on transportation infrastructure investment and contributes to the realization of predetermined goals and objectives.

RAMP MANAGEMENT STRATEGIES					
Need/Problem	Location/Reason	Ramp Metering	Ramp Closure	Special Use Treatments	Ramp Terminal Treatments
Safety	Merge Point	•	•	•	
	Ramp Terminal		•		•
	Mainline	•	•		
Impacts	Neighborhood	•	•	•	•
	Construction	•	•	•	•
	Special Events	•	•	•	•
Congestion	Mainline	•	•		
	Ramps		•		•
	Ramp Terminal		•		•
	Arterial		•		•
Policy	Transit			•	
	HOV			•	
	Freight			•	

### Ramp Management Strategies Mapped to Needs

There are four types of strategies that are used to better manage and control traffic on ramps:

- *Ramp metering* is the application of traffic signal(s) installed at freeway entrance ramps to control the rate at which vehicles enter a freeway facility.
- *Ramp closure* is the application of gates, barriers, or other physical means to temporary or permanently re-

strict vehicle access to and from an entrance or exit ramp.

- *Special use treatments* for ramp management focus on providing preferential treatment to a specific class or classes of vehicles and can be applied to either entrance or exit ramps.
- *Ramp terminal treatments* (e.g., signal timing, ramp widening, turn lanes, additional storage on arterials, signing, and pavement markings) are geared to improving localized problems at either entrance or exit ramp terminals.

*“Our region first installed ramp metering in our state’s largest urban area in the early 1980s and we have steadily expanded the system since then. Other, smaller cities in our state have seen the benefits and are planning ramp meter systems. Every evaluation of the system has shown reduced accidents, reduced delay and increased volumes when metering was installed. No other traffic management strategy has shown the consistently high level of benefits in such a wide range of deployments from all parts of the country.”*

– Pete Briglia, Puget Sound Regional Council and Chair of the TRB Freeway Operations Committee

Ramp management goals, objectives (and the strategies to achieve them) should be consistent with regional transportation goals and objectives and must support the mission and vision of the operating agency. Ramp management goals, objectives and strategies should be defined at the regional level and should fit into the context of the broader transportation planning process including the freeway management program.

The selection and implementation of ramp management strategies must be based on needs. A set of needs must exist that can be addressed through ramp management approaches in order for ramp management to be effective and to justify the investment in these strategies.

*“Ramp Management is one of the most powerful tools for managing freeway operations within an urban area. When asked which ITS element it would choose (if Mn/DOT was allowed only one) an official from Mn/DOT (Glenn Carlson-Twin Cities Metro District) said “ramp metering”, without question. A recent “test” in the Twin Cities, where the ramp meters were turned off and then turned back on (after the public demanded it), seems to confirm that perception.”*

– Joel Marcuson Chair, Freeway Management and Operations Committee

To better manage and control traffic on freeway entrance and exit ramps, the Federal Highway Administration (FHWA) has developed the *Ramp Management and Control Handbook* providing guidance and recommended practices on managing and controlling traffic on ramps with freeway facilities. This comprehensive technical reference discusses the impacts that roadway improvement planning, designs, roadway and traffic monitoring, real-time operation, evaluation, and reporting have on the performance and management of traffic at freeway ramps. The use or application of these recommended practices will, in time, serve to enhance the use and effectiveness of various ramp management and control operational strategies and techniques.

This handbook consists of 11 Chapters grouped into four sections and an Introduction (i.e., Chapter 1). Section 1 (Chapters 2-4), titled Getting Started, presents all the processes and issues an agency should consider and/or complete before ramp management strategies are developed and implemented. Issues and activities relevant to traffic managers, which they may or may not be able to control, are discussed. Section 2 (Chapters 5-8), titled Decision Making, provides all the information that a traffic manager needs to develop, implement, operate and maintain ramp management strategies. Section 3, titled Visibility (Chapter 9), provides guidance on how to monitor, evaluate, and

report the impacts associated with the implementation of selected ramp management strategies. The last section, titled Influences (Chapters 10 and 11), provides design considerations and case studies that may be used by practitioners seeking assistance in implementing ramp management strategies.

This handbook also describes in greater depth the issues and concepts specific to ramp management and control that were presented in Chapter 7 of the *Freeway Management and Operations Handbook*. The *Freeway Management and Operations Handbook* was released by FHWA in September 2003, and has since been updated to summarize the guidance presented in this handbook.

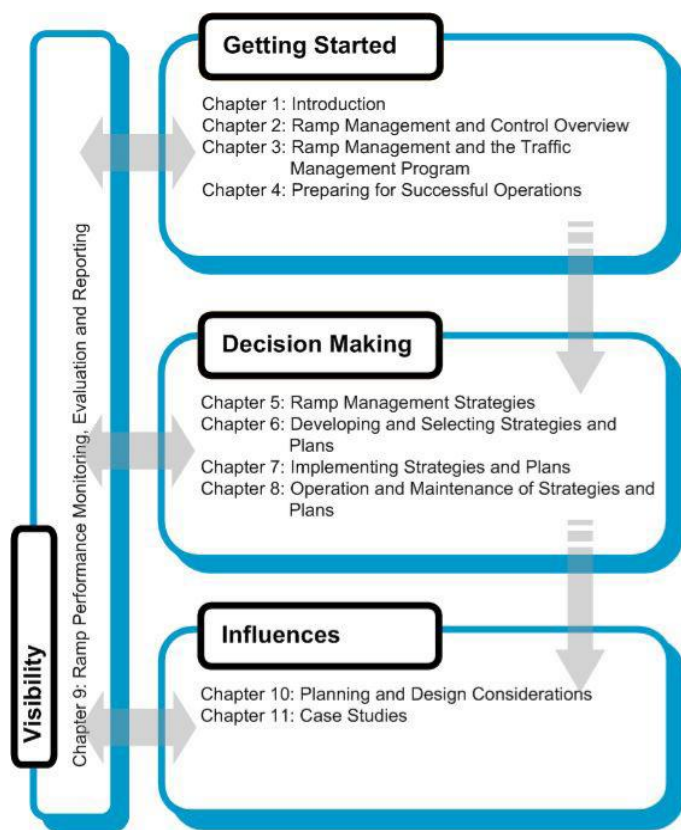
Location	Benefit
Portland, OR	43% reduction in peak period collisions.
Minneapolis, MN	24% reduction in peak period collisions.
Seattle, WA	39% reduction in collision rate.
Denver, CO	50% reduction in rear-end and side-swipe collisions.
Detroit, MI	50% reduction in total collisions and 71% reduction in injury collisions.
Long Island, NY	15% reduction in collision rate.

Summary of Ramp Metering Safety Benefits

This handbook will benefit individuals that are involved in the planning, design, monitoring, operation, evaluation, and reporting of the performance and influence of managing traffic at freeway ramps. These individuals may be classified as either primary or secondary users.

- |  |  |
|--|--|
| <b>Primary Users</b> <ul style="list-style-type: none"> <li>• TMC Managers</li> <li>• Decision Makers</li> <li>• Engineers</li> <li>• Planners</li> <li>• Operations Staff</li> <li>• Designers</li> </ul> | <b>Secondary Users</b> <ul style="list-style-type: none"> <li>• Consultants</li> <li>• Contractors</li> <li>• Researchers</li> </ul> |
|--|--|

The Handbook, support documents, and associated outreach materials can be accessed through the TMC Pooled Fund Study maintained project webpage at [http://tmcdfs.ops.fhwa.dot.gov/cfprojects/new\\_detail.cf?m?id=58&new=2](http://tmcdfs.ops.fhwa.dot.gov/cfprojects/new_detail.cf?m?id=58&new=2) or the FHWA Freeway Management Program website at [http://www.ops.fhwa.dot.gov/freewaygmt/pubs.htm#ramp\\_mgmt](http://www.ops.fhwa.dot.gov/freewaygmt/pubs.htm#ramp_mgmt).



Handbook Organization by Main Section

## Quarterly Progress Report

Ongoing TMC Pooled Fund Study projects are briefly described in the following paragraphs. A complete quarterly project progress report can be accessed on the TMC Pooled Fund Study Website: <http://tmcdfs.ops.fhwa.dot.gov>.

### “Developing and Using Concept of Operations in Transportation Management Systems”

Purpose: Develop a document that describes the need for a concept of operations for a transportation management system and provides technical guidance and recommended practices for developing and using a concept of operations throughout the system’s life cycle.

Champion: Manny Agah, Arizona DOT

Status: Final handbook has been completed; Deliverables are undergoing 508 compliance review in preparation for web posting

Completion Date: Spring 2007

Contact: Emiliano Lopez: 410-962-0116; [emiliano.lopez@fhwa.dot.gov](mailto:emiliano.lopez@fhwa.dot.gov)

### “Transportation Management Center Business Planning and Plans Handbook”

Purpose: Produce a handbook that provides guidance and best practices on how to develop a TMC business plan. The handbook will also outline business-planning models that were successfully employed by transportation agencies to ensure the long-term sustainability of TMCs and associated ITS applications.

Champion: Monica Kress, California DOT

Status: Deliverables are undergoing 508 compliance review in preparation for web posting

Completion Date: Spring 2007

Contact: Raj Ghaman: 202-493-3270; [raj.ghaman@fhwa.dot.gov](mailto:raj.ghaman@fhwa.dot.gov)



### “TMC Performance Monitoring, Evaluation, and Reporting Handbook”

Purpose: Develop a handbook that explains the need for performance monitoring and provides guidance and recommended monitoring practices. The handbook will advise how to initiate, sustain, and use information generated from monitoring,

evaluating, and reporting on TMC performance and describe roles, responsibilities, functions, and support services as they relate to traffic management.

Champion: Mark Newland, Indiana DOT

Status: Final editing of the handbook is on-going

Completion Date: Spring 2007

Contact: Raj Ghaman: 202-493-3270; [raj.ghaman@fhwa.dot.gov](mailto:raj.ghaman@fhwa.dot.gov)

### “TMC Clearinghouse Development and Initiation”

Purpose: Establish a central, one-stop clearinghouse at a Web site that houses a comprehensive database of TMC-related resources. The TMC clearinghouse will facilitate the sharing of information among practitioners and the dissemination of innovative tools, processes, problem-solving efforts, and capacity-building efforts to assist TMC practitioners in performing their duties and achieving the goals of their TMCs.

Champion: TMC Pooled Fund Study Co-Chairs

Status: The Clearinghouse Website is available online; currently developing strategies for long-term support and maintenance of the clearinghouse

Completion Date: February 2007

Contact: Raj Ghaman: 202-493-3270; [raj.ghaman@fhwa.dot.gov](mailto:raj.ghaman@fhwa.dot.gov)

### “Regional, Statewide, and Multi-State TMC Concept of Operations and Requirements”

Purpose: Building off the existing *Developing and Using Concept of Operations in Transportation Management Systems Handbook*, this project will develop a document that will provide detailed guidance on how to develop and use concept of operations and system requirements as it applies to the life cycle of a regional, statewide, or multi-state TMC.

Champion: Jim McGee, Nebraska DOR

Status: Draft handbook is available on project webpage

Completion Date: February 2007

Contact: Raj Ghaman: 202-493-3270; [raj.ghaman@fhwa.dot.gov](mailto:raj.ghaman@fhwa.dot.gov)

### “Recovery and Redundancy of TMCs”

Purpose: Develop a technical document that will synthesize current practices and state of the practices, highlight technical issues, lessons learned, and recommended practices, and detail how to plan, develop and implement redundancy design and recover plans for TMCs and transportation management systems.

Champion: Monica Kress, California DOT

Status: Draft document is under review

Completion Date: February 2007

Contact: Raj Ghaman: 202-493-3270; [raj.ghaman@fhwa.dot.gov](mailto:raj.ghaman@fhwa.dot.gov)

### “Procuring, Managing, and Evaluating the Performance of Contracted TMC Services”

Purpose: Develop a technical document that will provide guidance and recommended practice to TMC owners and managers in making decisions related to outsourcing portions, or in entirety, of their TMC or transportation management system operation to a private contractor or contractors.



Champion: John Bassett, New York State DOT  
Status: Annotated outline of the technical document is anticipated in January 2007  
Completion Date: February 2008

Contact: Raj Ghaman: 202-493-3270; raj.ghaman@fhwa.dot.gov

#### “Integration of TMC and Law Enforcement: Needs Assessment”

Purpose: Assess the current practices and identify issues, needs, and challenges that all involving agencies are facing in integrating TMCs and law enforcement. The results of this effort will lead to identification of a list of topics and issues to be addressed and a series of next steps to be considered in a further study that is intended to develop a product to provide necessary guidance to address agencies’ needs.

Champion: John Domina, Nevada DOT  
Status: Project kick-off anticipated in spring 2007  
Completion Date: Fall 2007  
Contact: Tom Granda: 202-493-3365; thomas.granda@fhwa.dot.gov

#### “TMC Pilot Workshop Development and Delivery”

Purpose: Promote the TMC Pooled Fund Study effort and increase awareness of the Study’s products and tools to a broader audience base. The focus of this project is a pilot TMC workshop that focuses on current and future TMC Pooled Fund Study activities and other topics that are recommended.

Champion: John Corbin, Wisconsin DOT  
Status: Project kick-off anticipated in spring 2007  
Completion Date: Winter 2007  
Contact: Raj Ghaman: 202-493-3270; raj.ghaman@fhwa.dot.gov

#### “TMC Clearinghouse Support Services, Phase 2”

Purpose: Enhance and improve the support services for the TMC clearinghouse website that will be available online in Spring/Summer 2006. The study will also evaluate consumer feedback and recommendations for enhancing and improving the features and contents of the clearinghouse.

Champion: TMC Pooled Fund Study Co-Chairs

Status: Project kick-off anticipated in spring 2007  
Completion Date: Spring 2008  
Contact: Raj Ghaman: 202-493-3270; raj.ghaman@fhwa.dot.gov

#### “Methodologies to Measure and Quantify TMC Benefits, Phase 1”

Purpose: Gain a better understanding of and to quantify benefits in traffic operations due to the implementation of TMCs and the systems, infrastructure, and functions associated with their operations. Phase 1 of the project will synthesize methodologies for measuring, quantifying, and evaluating costs and benefits of TMCs, as well as assess the feasibility of developing a software tool for quantifying TMC benefits.

Champion: Jim McGee, Nebraska DOR  
Status: Project kick-off anticipated in spring 2007  
Completion Date: Winter 2007  
Contact: Raj Ghaman: 202-493-3270; raj.ghaman@fhwa.dot.gov

#### “Driver Use of Real-Time En-Route Travel Time Information”

Purpose: Assess impacts of en-route real-time travel time/delay/speed information on drivers; define the most effective way to provide en-route real-time travel time information; and develop preliminary guidance to practitioners for delivering en-route travel time information.



Champion: Gene Donaldson, Delaware DOT  
Status: Project kick-off anticipated in January 2007  
Completion Date: December 2008  
Contact: Tom Granda: 202-493-3365; thomas.granda@fhwa.dot.gov

#### “Developing Travel Time Information”

Purpose: Synthesize the state of the practice, successful stories, and lessons learned as well as develop a technical document that provides guidance and recommended practices on the concepts, methods, techniques, and procedures for TMCs to collect, calculate, and predict travel time information.

Champion: Jeff Galas, Illinois DOT  
Status: Project kick-off anticipated in February 2007  
Completion Date: April 2008  
Contact: Raj Ghaman: 202-493-3270; raj.ghaman@fhwa.dot.gov

### "Requirements and Position Descriptions for TMC Support Staff"

Purpose: Build off information already compiled for operators in a previous effort and compile the needed information related to KSA's for other tasks and services required to support TMCs.

Champion: Mark Demidovich, Georgia DOT  
Status: Project kick-off anticipated in March 2007  
Completion Date: August 2008  
Contact: Tom Granda: 202-493-3365;  
thomas.granda@fhwa.dot.gov

### "Techniques for Managing Service Patrol Operations"

Purpose: Identify and synthesize current best practices, state of the practices, and models and innovative techniques for managing service patrol operations.

Champion: Mia Silver, Michigan DOT  
Status: Currently finalizing statement of work  
Completion Date: Spring 2008  
Contact: Raj Ghaman: 202-493-3270;  
raj.ghaman@fhwa.dot.gov

### "Best Practices for Road Condition Reporting Systems"

Purpose: Synthesize current best practices and state of the practices in planning, design, and operation of road condition reporting systems as well as in integrating such systems with other road weather information/ management systems.

Champion: Jim McGee, Nebraska DOR  
Status: Currently finalizing statement of work  
Completion Date: Spring 2008  
Contact: Raj Ghaman: 202-493-3270;  
raj.ghaman@fhwa.dot.gov ☐

## New Projects

*Continued from Page 1*

"TMC Staffing & Scheduling for Day-to-Day Operations, Phase 2: Software Development" – Build upon previous effort and develop an interactive software tool that TMC managers, supervisors and human resources personnel can use to quickly and easily assess available staffing resources and needs, perform the workload analysis, and make scheduling and shift operation decisions for immediate and future needs.

"Developing TMC Operator Training Program Guidelines" – Develop training and capacity building guidelines for TMC operators. These guidelines will include outlines of training modules. Processes for certifica-

tion and re-certification for different operator positions will be analyzed. The project will also develop recommendations for the National Highway Institute to develop a comprehensive training program

"Knowledge Needs Assessment and Workshops for TMC Owners, Managers and Operators" – Conduct a comprehensive assessment on knowledge needs for TMC owners, managers and operators to effectively and efficiently perform their day-to-day tasks. The project will also identify issues and needs and outline strategies and recommended initiatives to address the needs and issues.

"TMC Data Capture for Performance and Mobility Measures" –Synthesize best practices and lessons learned related to collecting and archiving TMC operation data for monitoring, evaluating and reporting performance and mobility measures at system levels as well as for specific scenarios or locations.

Detailed descriptions of these projects will soon be available on the TMC Pooled Fund Study website at: <http://tmcdfs.ops.fhwa.dot.gov>. ☐

## Event Calendar

January 21-25, 2007	TRB 86 <sup>th</sup> Annual Meeting, Washington, DC
March 25-28, 2007	ITE Technical Conference and Exhibit, San Diego, California
April 10-12, 2007	ITS Heartland Annual Meeting, Omaha, Nebraska
May 20-23, 2007	Freeway and Tolling Operations in the Americas, Houston, Texas
June 4-6, 2007	ITS America Annual Meeting and Exposition, Palm Springs, California
July 10-12, 2007	TRB Traffic Signal Systems Committee Summer Meeting, Woods Hole, Massachusetts
August 5-8, 2007	ITS Annual Meeting and Exhibit, Pittsburgh, Pennsylvania
October 7-10, 2007	National Rural ITS Conference, Traverse City, Michigan
October 9-13, 2007	14 <sup>th</sup> World Congress on ITS, Beijing, China

## Now Available

“New York State Department of Transportation Region 4 ATMS Local Evaluation Report” (July 2005, FHWA-JPO-06-059) - In March, 1996, the Rochester Area-wide Advanced Transportation Management System (ATMS) Report established the need for an ITS as well as a strategic implementation/deployment plan. This Region 4 ATMS Local Evaluation Report provides an evaluation of the ITS program implemented to date along with a discussion of institutional issues. This evaluation is followed by a study to reevaluate the Rochester Area-wide ATMS Report in the light of current experience, and to modify the strategic implementation /deployment plan accordingly. Available at: [http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS\\_TE/14305.htm](http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE/14305.htm).

“S.R. 0202, Section 404 Intelligent Transportation System (ITS) Deployment” (June 2005, FHWA-JPO-06-062) - This document serves as FHWA’s Final Report for the S.R. 0202, Section 404 ITS project. The Route 202, Section 404 Roadway Reconstruction Project included the installation of a new ITS system along sections of S.R. 0202, S.R. 422, I-476 and I-76 in the Philadelphia metropolitan area. This report provides an overview of the project and a complete summary of the implementation process. It also presents an analysis of the project’s compliance with the Project Work Plan. The direct and indirect benefits of the deployment also are presented, as well as a section on lessons learned. Available at: [http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS\\_TE/14309.htm](http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE/14309.htm).

“FY00 Treasure Valley ITS Deployment Project Advanced Traffic Management System (ATMS) Software Procurement and Implementation Process” (August 2006, FHWA-JPO-07-005) - The primary purpose of this project was to procure a fully functional Advanced Transportation Management System (ATMS) control software package which contains all required functionality to control existing and planned ITS devices on the Treasure Valley freeway and arterial street system. The ATMS software package was also needed to allow TMC operators to post incidents and construction events on a GIS based mapping system. The Ada County Highway District (ACHD), located in Boise, Idaho, was the lead agency for this project funded through the Federal Highway Administration (FHWA), with the addition of other local funds. Available at: [http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS\\_TE/14322.htm](http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE/14322.htm).

“Computer-Aided Dispatch – Traffic Management Center Field Operational Test (FOT) Final Report: State of Utah” (July 2006, FHWA-JPO-07-007) and Final Report: Washington State” (July 2006, FHWA-JPO-07-008) – These reports demonstrate how the integration of CAD and TMC systems can improve incident response capabilities and how institutional barriers can be overcome. The U.S. DOT ITS Joint Program Office sponsored two field operational tests through the ITS Public Safety Program that integrated CAD-TMC systems in Utah and Washington State, respectively. Through the CAD-TMC systems, integrated transportation and public safety incident management information networks were developed and implemented for enhanced information-sharing capabilities between multiple incident management response agencies across multiple jurisdictions. The integrated systems provide a new information exchange mechanism to complement those that were previously in place. Available at:

[http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS\\_TE/14324.htm](http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE/14324.htm) (State of Utah)

[http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS\\_TE/14325.htm](http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE/14325.htm) (Washington State).

“Integrated Corridor Management Concept Development and Foundational Research, Technical Memorandum, Task 5.5 – Identification of Analysis Needs” (August 2006, FHWA-JPO-06-041) - The purpose of this document is to identify current modeling tools and analysis capabilities that support the evaluation of various corridors “types” and Integrated Corridor Management (ICM) operational strategies, and to conduct a gap analysis to determine what tool modifications or new developments are needed to provide the analysis capabilities necessary to fully support ICM operational strategy analysis and evaluation. Available at: [http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS\\_TE/14280.htm](http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE/14280.htm).

“Planned Special Events: Checklists for Practitioners” (October 2006, FHWA-HOP-06-113) - This document presents a total of six checklists on event-specific planning for planned special event travel management. These checklists follow the order in which the topics are presented in Chapters 4, 5, 6, 7, 8, 9, and 10 of the Federal Highway Administration handbook, *Managing Travel for Planned Special Events*. Each checklist provides common, sequential steps for plans and activities that practitioners may use for most significant planned special events, regardless of the event or area type. However, considering that no two events have the same effect on surface transportation operations, each step incorporates several assessments designed to address the effects that planned

special events may have on traffic, parking, pedestrian, and transit operations that are attributable to variables such as travel demand, road/site capacity, event operation, available resources, and external factors. Available at: <http://www.ops.fhwa.dot.gov/publications/psechecklists/index.htm>.

“Signal Timing on a Shoestring” (March 2005, FHWA-HOP-07-006) - This report examines various cost-effective techniques that can be used to generate good signal timing plans that can be employed when there are insufficient financial resources to generate the plans using conventional techniques. This effort places a primary emphasis on updating the signal timing in an arterial corridor. In short, this effort investigates how signal timing plans can be developed and updated efficiently at the lowest possible cost. Available at: [http://www.ops.fhwa.dot.gov/publications/signal\\_timing/00\\_index.htm](http://www.ops.fhwa.dot.gov/publications/signal_timing/00_index.htm).

“Working Paper – National Costs of the Metropolitan ITS Infrastructure: Updated with 2005 Deployment Data” (July 2006, FHWA-JPO-07-006) - The purpose of this report is to update the estimates of the costs remaining to fully deploy Intelligent Transportation Systems (ITS) infrastructure elements in the 75 largest metropolitan areas in the United States. Updates to this working paper coincide with the results from tracking the deployment of the integrated ITS infrastructure in the United States. To date, deployment tracking results are available for 1997, 1999, 2000, 2002, 2004, and 2005. With the 2005 deployment tracking data available, the national deployment cost estimate can be updated again. As with the fourth revision, the new cost estimate is documented here as a standalone report. Available at: [http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS\\_TE//14323.htm](http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE//14323.htm). ☐

## Member News

Virginia DOT Initiates Pilot Program on Overhead Signs - Beginning at noon on Wednesday, December 20, the Virginia DOT (VDOT) launched a pilot program on the overhead message signs. During the pilot program, the time delays typically posted on the signs will be replaced with the backup in miles and road name. VDOT is launching this program to see if this method of posting delays is more useful to motorists. At the end of the pilot program, VDOT is going to review all of the feedback they receive on the new messages. If the test is successful and citizens are pleased with the change, this method of posting delays will likely be expanded throughout Hampton Roads.

Tennessee DOT SmartWay Camera System Now Available for Chattanooga Area - Tennessee DOT (TDOT) officials launched Chattanooga's SmartWay traffic camera system. Motorists can now access traffic cameras in the Chattanooga area online through the TDOT website, [www.tn.gov/tdot/tdotsmartway](http://www.tn.gov/tdot/tdotsmartway). The cameras are still in the testing phase, so there may be occasional interruptions in service. Currently there are 59 cameras along major travel routes in the Chattanooga area, with four additional cameras scheduled to go online by summer. TDOT plans to add more cameras, along with overhead dynamic message signs that display real-time traffic information, in the future.

Database Aids Rhode Island TMC in Measuring Performance - The Rhode Island TMC has recently implemented an interactive, easily managed database that has built upon past efforts and is being made available to the transportation system users. This data collection tool is meant to provide statistical reports to accurately show the tangible benefits of RIDOT's technology-based program. Although the TMC has been collecting incident information since it opened in 1998, the original database was primitive. This tool allows TMC staff to measure instrumented roadways as well as to gauge the reliability of equipment. Data output (the reports posted monthly on the web site) is based on valid data entries and, of course, requires a trained and dedicated staff of TMC operators.

*TMCUpdate* is a quarterly newsletter produced by the Transportation Management Center (TMC) Pooled Fund Study. This quarterly publication highlights major TMC Pooled Fund Study activities and achievements and shares TMC related news and resources. Reproduction (in whole or in part) and broad distribution of this newsletter is strongly encouraged. The TMC Pooled Fund Study invites inquiries about articles and suggestions for TMC developments and advancements to be covered in future issues. For more information, please contact the Program Administrators, Raj Ghaman at Tel: 202-493-3270, E-mail: [raj.ghaman@fhwa.dot.gov](mailto:raj.ghaman@fhwa.dot.gov); or Tom Granda at Tel: 202-493-3365, E-mail: [thomas.granda@fhwa.dot.gov](mailto:thomas.granda@fhwa.dot.gov); or the newsletter editor, Ming-Shiun Lee at Tel: 612-373-6335 or E-mail: [ming\\_shiun\\_lee@urscorp.com](mailto:ming_shiun_lee@urscorp.com).