

Transportation Management Center Pooled Fund Study 2006 Annual Meeting – July 25th & 26th

**Park City Marriott Hotel
1895 Sidewinder Drive
Park City, Utah 84060**

Minutes

Tuesday, July 25th

Introductions, Welcome, & Opening Remarks

Dave Kinnecom (Utah DOT) chaired the meeting. Introductions were made.

Raj Ghaman (FHWA) welcomed everyone to the TMC Pooled Fund Study (PFS) Annual Meeting. Ghaman noted a letter would be going out to all members to solicit commitments to continue participating in the study. States can use 100% SP&R funds to participate. Ghaman also noted that due to some issues associated with the FHWA Fiscal Management Information System (FMIS), information on the funding balance was not entirely accurate. States were cautioned not to base on the FMIS records to determine the balance of their contributions. States' contributions go entirely toward TMC PFS projects. Costs associated other expenses, such as travel costs, program administration, etc., were from FHWA as part of FHWA's contribution to the study.

The agenda was reviewed.

Jeff Benson (URS) reported on the lunch arrangement. He noted the arrangement for dinner would be discussed during the lunch break. Instructions related to travel reimbursement would be covered on the second day.

Presentation – Preliminary Results of the Recovery and Redundancy of TMCs Project

Andrew Iseron (Telvent Farradyne) gave a presentation on the status and preliminary results of the Recovery and Redundancy of TMCs project. Discussion on the project included project objectives, deliverables, project progress, an overview of handbook chapters, and next steps. Iseron noted the final version of the annotated outline for the handbook has been submitted for review. The handbook would include eight chapters. The project was expected to be completed in February 2007.

Members discussed the distinct missions that TMCs might have and how such distinction might affect recovery and redundancy planning. TMCs are even more important during disasters to perform many vital functions. TMCs become an integral part of community not only focusing on traffic management but also working with other agencies for emergency situations. Members recommended that this should be explained in the beginning of the handbook.

It was inquired if a checklist would be provided to cover technical elements. Iserson responded that the handbook might not cover detailed technical checklist.

It was suggested that Chapter 5 should also discuss funding mechanisms for TMC recovery and mitigation. It would discuss how a TMC could rely not only on its own funds but also other agencies' funds for recovery and mitigation purposes.

Members also suggested including in the handbook approaches and steps to retrofit mitigation.

Presentation – Results of TMC Operations Manual Handbook Project

Ed Seymour (Texas Transportation Institute) gave a presentation on the results of the TMC Operations Manual Handbook project. The presentation covered an overview of the project, intended audience, and an overview of the handbook. This project was completed and the final handbook was available on the TMC PFS website.

Seymour noted that disaster and recovery related scenarios were not covered in this handbook. This handbook would need to be updated to include such scenarios. He also indicated that an operations manual could be used as a court document, and therefore, agencies need to be cautious in determining the level of details for inclusion in their manuals.

Seymour also stressed the importance of involving appropriate individuals in the manual development process. He noted that involving legal department could be a troublesome process but greater benefits would be realized.

Presentation – Demonstration of TMC Clearinghouse

Ming-Shiun Lee (URS) gave a brief presentation on the TMC Clearinghouse project. Lee stated that this demonstration was presented on behalf of Gary Thomas of the Texas Transportation Institute. The presentation provided an overview of the project, objectives, intended audience, schedule and key milestones, and project progress. A demonstration of the TMC Clearinghouse website was provided following the presentation.

Lee noted that the website was in its draft form. A finalized website would be made publicly available in September or October 2006. Potential enhancements of the website had been identified during the project development. Phase 2 of the project would consider those enhancements and continue improve the website. Lee also indicated that the TMC PFS Support Contractor would likely be the administrator of the website and be responsible for managing and updating the website.

Status Report on Other Current Projects

Lee gave a brief overview presentation on the status of other current projects. The presentation covered for each project the project purpose and objectives, intended audience, project deliverables, and schedule and milestones. Lee noted a quarterly progress report was also included in the meeting material binder.

Prior to the presentation, Lee distributed copies of the Coordinated Freeway and Arterial Operations Handbook and associated tri-fold brochure to participants. Three copies of the

handbook and brochure had also been mailed to all TMC PFS members. Additional copies were available upon request.

TMC Business Planning and Plans Handbook

- Final handbook was submitted in December 2005.
- Outreach materials would be completed by this summer.
- The 508 version of the deliverables were under development.

Developing and Using Concept of Operations in Transportation Management Systems

- Final handbook was delivered in December 2005.
- The 508 version of the deliverables were under development.

TMC Performance Monitoring, Evaluation and Reporting Handbook

- Final draft handbook was submitted in November 2005.
- Final handbook was under final editing.
- The 508 version of the deliverables were under development.

Procuring, Managing, and Evaluating the Performance of Contracted TMC Services

- In contract process. Currently reviewing submitted proposals.
- Anticipated project initiation in the fall of 2006.
- Key products would include a technical document, a primer, a project fact sheet, a tri-fold brochure, and a presentation on the subject.

Integration of TMCs and Law Enforcement – Needs Assessment

- In contract process.
- Anticipated project kick-off in the fall of 2006.
- Key products would include a synthesis report and a findings report.

TMC Pilot Workshop Development and Delivery

- Would further investigate the target audience of the workshop before finalizing the statement of work.
- Anticipated project initiation in the winter of 2006.
- Key products would include a needs assessment white paper, a pilot workshop, and a findings report.

TMC Clearinghouse Support Services Phase 2

- Anticipated project initiation in the winter of 2006, following the completion of the TMC Clearinghouse development.

Methodologies to Measure and Quantify TMC Benefits – Phase 1

- Project was broken to two phases. Phase 1 would conduct a synthesis study and perform a feasibility assessment as related to software development.
- In contract process.
- Anticipated project initiation in the fall of 2006.
- Key products would include a synthesis report and a work plan for Phase 2.

Driver Use of Real-Time En-Route Travel Time Information

- In contract process.
- Anticipated project initiation in the fall of 2006.
- Key products would include a research report and a white paper.

Developing Travel Time Information

- In contract process.
- Anticipated project initiation in the fall of 2006.
- Key products would include a technical document, a project fact sheet, a tri-fold brochure, and a PowerPoint presentation.

Requirements and Position Descriptions for TMC Support Staff

- Currently finalizing statement of work.
- Anticipated project initiation in the fall or winter of 2006.
- Key products would include an enhanced software tool, a project report, a project fact sheet, a tri-fold brochure, and a PowerPoint presentation.

Techniques for Managing Service Patrol Operations

- Currently drafting statement of work.
- Anticipated project initiation in the winter of 2006.
- Key products would include a synthesis report, a project fact sheet, and a PowerPoint presentation.

Best Practices for Road Condition Reporting Systems

- Currently drafting statement of work.
- Anticipated project initiation in the winter of 2006.
- Key products would include a synthesis report, a project fact sheet, and a PowerPoint presentation.

Succession of Co-Chair

Manny Agah had retired from the Arizona DOT earlier this year. Jeff Galas (Illinois DOT) was recommended to serve the co-chair role. The recommendation was approved by consensus. In addition, Kinnecom agreed to stay on his role as the chair for another year to maintain the continuity of the program.

Pooled Fund Study Funding Status

Tom Granda (FHWA) reported the funding status and discussed funding related issues. He noted that commitment for 2007 has been received from several member agencies. He encouraged members whose agencies have not made commitment for 2007 to begin the process. Ghaman and Granda noted the minimum contribution was \$25,000. However, it was recognized that each agency has a different set of resources to draw from and has different priorities and levels of support for TMC projects.

Presentation – Preliminary Results of the Regional/Statewide/Multistate TMC Concept of Operations and Requirements Project

Brian Smith (University of Virginia) gave a presentation on the status and preliminary results of the Regional/Statewide/Multistate TMC Concept of Operations and Requirements project. Smith noted the project title has been modified to “Development of Guidance Materials to Support the Regional Concept of Operations.” Discussion on the project included project purpose, approach, progress to date, an overview of handbook chapters, and next steps. The handbook included seven chapters. Draft version of chapters 2 through 7 have been summated for review. The final handbook would be completed in December 2006.

It was mentioned that an updated systems engineering Vee diagram should be included in the handbook. Lee would e-mail the diagram to Smith.

Smith encouraged members to provide feedback on the draft chapters, particularly on Chapter 3.

Review and Discuss Potential New Projects

Lee recapped the project selection results from the annual meeting in 2006. The project selection schedule and process for 2007 was reviewed. Lee also reviewed the results of the previous project prioritization exercise that was conducted in May. Thirteen potential projects were presented to the members for consideration and selection:

1. Staffing and Scheduling for Day-to-Day Operations, Phase 2: Software Development
2. TMC Data Archiving
3. Developing TMC Severe Weather Response Plans
4. Real Time Air Quality Monitoring Based on Traffic Data
5. Developing TMC Multi-year Program Plans
6. Impacts of Vehicle Infrastructure Integration on TMC Operations
7. Changeable Message Signs Format and Design Guidelines
8. TMC Relationships with Media Outlets
9. Knowledge Needs Assessment and Workshops for TMC Owners, Managers, and Operators
10. Development of a Pilot TMC Operator Training Program
11. Traffic Signal Operations Handbook
12. TMC Toolbox
13. Requirements Analysis for Human Factors Guidelines for TMCs

Lee reviewed the above thirteen project proposals. Two additional projects were proposed for discussion:

14. TMC Infrastructure Maintenance Management System
15. Incident Tracking Best Practices

The following are issues that were identified by the members to be considered for inclusion in the projects if they were considered further:

Staffing and Scheduling for Day-to-Day Operations, Phase 2: Software Development

- Feasibility and usefulness of integrating with existing TMCOps tool?

TMC Data Archiving

- Important for statewide practices. Agencies will have a lot to gain.
- Identify applications for archived data.
- Data management is a difficult task.
- Change the title to “TMC Data Capture for Performance Measures.”

Developing TMC Severe Weather Plans

- Regions have different severe weather scenarios. Not sure how this could be addressed.
- Focus on what message to put out but not how to respond to severe weather scenarios.

Real Time Air Quality Monitoring Based on Traffic Data

- Not sure how TMCs can benefit from this study.
- Include budget implications.

Developing TMC Multi-year Program Plans

- Reduce budget to \$100,000.
- Many existing references available.

Impacts of Vehicle Infrastructure Integration on TMC Operations

- Need to be careful not to overlap with other related efforts.

Changeable Message Sign Message Format and Design Guidelines

- Perform a synthesis study instead of a human factors study.
- Many existing documents.
- Reduce budget to \$100,000.

TMC Relationships with Media Outlets

- TMC and media have different concepts of operations and missions.
- Reduce budget to \$50,000 to conduct a synthesis study.

Knowledge Needs Assessment and Workshops for TMC Owners, Managers, and Operators

- A much needed project.

Developing a Pilot TMC Operator Training Program

- Develop a workshop instead of a training course/program.
- Collect and look into examples.
- Share information with practitioners.
- Develop outlines for training modules.
- Change the title to “Developing TMC Operator Training Program Guidelines.”
- Reduce budget to \$75,000.

Traffic Signal Operations Handbook

- Many existing resources.
- Focus on real-time signal operations.
- Reduce budget to \$75,000.

TMC Toolbox

- TMC clearinghouse would accomplish the same goals.
- This project was removed from the list.

TMC Human Factors Design Guidelines: Requirements Analysis

TMC Infrastructure Maintenance Management System

- Develop maintenance software/system.
- Life cycle problems with devices. There is no consistency.
- Look into configuration management.
- Preventive Maintenance:
 - Effectiveness in scheduling and tracking work orders
 - Inventory management
 - Define criteria: mean time between failure, mean time between repair, and mean time between parts replacement
 - Resource requirements
 - Warrantee tracking
- Emergency Maintenance
 - User priority process
- In-house vs. contracted maintenance.
- Focus on ITS and TMC.
- Capital expenditure consideration.
- Focus on maintenance not replacing obsolete equipment.

Incident Tracking Best Practices

- Incident activity logging.
- Center to center communications.
- Statewide incident reporting systems.
- Synthesize current practices.
- Proposed budget: \$75,000.

Prioritize 2007 Projects to Initiate

Following the discussion, members proceeded with voting and prioritizing the projects to pursue in 2007. Results of the project prioritization are summarized in the table below:

Project	Score	Rank
TMC Infrastructure Maintenance Management System	59	1
Requirements Analysis for Human Factors Guidelines for TMCs	47	2

Project	Score	Rank
Staffing and Scheduling for Day-to-Day Operations, Phase 2: Software Development	25	3
Developing TMC Operator Training Program Guidelines	21	4
Knowledge Needs Assessment and Workshops for TMC Owners, Managers, and Operators	16	5
TMC Data Capture for Performance Measures	15	6
Changeable Message Signs Format and Design Guidelines	11	7
Incident Tracking Best Practices	10	8
Developing TMC Multi-year Program Plans	9	9
Impacts of Vehicle-Infrastructure Integration on TMC Operations	8	10
TMC Relationships with Media Outlets: Synthesis Study	8	10
Developing TMC Severe Weather Response Plans	3	12
Traffic Signal Operations Handbook	3	12
Real Time Air Quality Monitoring Based on Traffic Data	0	14

The group reviewed the voting results. The six top-ranked projects were selected as the priorities to consider pursuing in 2007. The group proceeded with discussion and development of the scopes of the six projects.

TMC Infrastructure Maintenance Management System

- Increase the cost to \$200,000.
- Develop a straw-man first.
- Perform an assessment on what software/systems are current available and what have been done.

Requirements Analysis for Human Factors Guidelines for TMCs

- Focus on critical elements.
- Stay away from synthesize what have been done – not to be influenced by current TMC design.
- Look into other industries.

The group proceeded with identification of project champions. The roles of project champions were discussed. Champions would involve with review of project deliverables as well as facilitation of such reviews and following up with others on the review teams to promptly review deliverables. Granda noted URS would prompt champions as to reviews not been made by review team members and champions would follow up with e-mail or calls to reminder them to review.

The results of the project prioritization and identification of project champions are summarized below:

Rank	Project	Champion
1	TMC Infrastructure Maintenance Management System	Doug Dembowski (Wisconsin)
2	TMC Human Factors Design Guidelines: Requirements Analysis	Jeff Galas (Illinois)
3	TMC Staffing & Scheduling for Day-to-day Operations, Phase 2: Software Development	Mark Demidovich (Georgia)
4	Developing TMC Operator Training Program Guidelines	Doug Tomlinson (Pennsylvania)
5	Knowledge Needs Assessment and Workshops for TMC Owners, Managers and Operators	Todd Kramasz (Minnesota)
6	TMC Data Capture for Performance Measures	John Bassett (New York)

Review Day 2 Agenda/Adjourn for Day

The meeting was adjourned for the day.

Wednesday, July 26th

Further Discussion on 2007 Projects

The group reviewed the voting results from Day 1. Top ranked six projects were selected for pursuing in 2007. The group further discussed the six projects.

TMC Infrastructure Maintenance Management System

- Bassett would share information the New York State DOT has with the group.
- Incorporate existing formulas to calculate service lives and life cycles.
- Include budget consideration.

Requirements Analysis for Human Factors Guidelines for TMCs

- Add budget for developing 2 or 3 sample guidelines. Each sample would be in 2-page format.
- Consider different types of TMCs (e.g. satellite, smaller, and large urban TMCs)
- The group agreed to increase the cost to \$50,000.

TMC Staffing & Scheduling for Day-to-day Operations, Phase 2: Software Development

- Budget seems high.

Developing TMC Operator Training Program Guidelines

- Scan existing programs.
- Certification and re-certification processes for different positions (i.e. lead operators, operators, etc.).
- Frequency of re-certification.
- Develop recommendations for the National Highway Institute to develop a training program (including certification).

Knowledge Needs Assessment and Workshops for TMC Owners, Managers and Operators

TMC Data Capture for Performance Measures

- Overlap with the current TMC Performance Monitoring, Evaluation and Reporting Handbook project?
- Perform only a synthesis study.
- Include both performance measures and mobility measures. Change title to “TMC Data Capture for Performance and Mobility Measures.”
- Could be used in many ways:
 - At system levels
 - For specific scenarios (work zones, incident management, and specific locations)

The final results of the project selection are shown below:

Rank	Score	Project (Champion)	Cost
1	59	TMC Infrastructure Maintenance Management System (Doug Dembowski)	\$200,000
2	47	TMC Human Factors Design Guidelines: Requirements Analysis (Jeff Galas)	\$50,000
3	25	TMC Staffing & Scheduling for Day-to-day Operations, Phase 2: Software Development (Mark Demidovich)	\$175,000
4	21	Developing TMC Operator Training Program Guidelines (Doug Tomlinson)	\$75,000
5	16	Knowledge Needs Assessment and Workshops for TMC Owners, Managers and Operators (Todd Kramasz)	\$125,000
6	15	TMC Data Capture for Performance & Mobility Measures (John Bassett)	\$100,000

Benson reminded the participants to review the proposals of the above six projects and provide comments to Lee by August 11th. URS would revise scopes and estimated budget for further review.

Ghaman noted that TMCs are more important than just daily operations. Case studies and show cases could help demonstrate the importance of TMCs and how TMCs work with emergency management for emergency situations. He inquired how the group could address this with the TMC PFS projects. Stephany Hanshaw (Virginia DOT) indicated that Virginia DOT has involved in hurricane planning for 7 or 8 years. As a result, TMC has become a central piece of emergency management.

The group also discussed TMCs’ experience and practices in performing outreach and public education. Ghaman noted that FHWA could develop a generic tri-fold brochure on TMCs. California pointed out that they have used tours and videos for such purposes. Washington State has worked with media to perform outreach and public education. The group also discussed other possible channels, including Newspapers, CNN and AAA, for outreach and educating the public.

FHWA Program Plan, Road Maps & Feedback on FHWA Freeway Management Program

Jessie Yung (FHWA) reported on the FHWA Office of Operations current program activities. Discussion included initiatives related to freeway management and traffic operations, managed lanes, and HOV lanes. Highlights of the discussion include:

- Freeway Management Program Road Map:
 - Focus areas of the current version include:
 - Freeway Management and Operations (including TMCs)
 - Managed Lanes and HOV Lanes
 - Road map would be available on the Office of Operations website.
- The new Operations website would be on-line this fall.
- The TMC PFS website has moved to the Operations website. As a result of the migration, posting documents on the TMC PFS website might take longer than before. The TMC PFS may undergo redesign to meet FHWA webpage requirements. Lee would keep members posted on the progress.
- The Ramp Management and Control Handbook has been published.
- The Freeway Management and Operations Handbook would be updated to include the information in the Ramp Management and Control Handbook.
- A pilot HOV Facility Training Course was held in Las Vegas in May 2006. The course would be available for scheduling soon.
- The HOV Pooled Fund Study was soliciting members for participation. Agencies interested in joining the study should contact Lee.
- Draft version of the TMC Migration Planning Handbook was ready for review. Yung would forward the handbook to Lee for distribution.
- Yung inquired agency TMC's practices related to construction and lane/road closures.
 - California has a statewide program. TMCs approve construction and lane closures. If construction has significant impacts on traffic, TMC could remove the construction.
 - New York's practices were similar to that of California.
 - TMCs also handle special events in Washington.
 - Utah TMC has monthly meetings to pre-plan construction activities and closures.
 - TMCs receive notices from maintenance in Tennessee.

Status Report and Feedback on FHWA Programs

Granda reported on the status of current FHWA initiatives related to human factors and safety. He showed a few video footages related to highway/intersection safety and signing design. He noted some of the initiatives that FHWA was working on to address such issues. Granda also discussed and demonstrated traffic simulation on a diverging diamond interchange design. Granda further reported that FHWA has a state-of-the-art driver simulator that has been used for human factors studies. A video clip was demonstrated to show driving simulation on a two-lane highway.

Ghaman reported on the FHWA current program activities:

- Section 1201 – Real-time System Management Information Program: A webcast was held with members a couple months ago. Ghaman would arrange another webcast and send an announcement to the members for participation.
- Integrated Corridor Management Systems: Selections of the Phase 1 sites have been made. An announcement would be made soon. This program would also present opportunities to the signal control community.
- Clarus – National Surface Transportation Weather Observing and Forecasting System: FHWA was currently developing strategies for the system.
- CICAS – Cooperative Intersection Collision Avoidance Systems.
- VII – Vehicle Infrastructure Integration: Focused areas included taking data from VII for signal control; determining O-D pairs; and developing an expert system.
- ACS-Lite: Tests have been conducted in:
 - Houston (with Eagle controllers)
 - Virginia Beach/Hampton Roads (Econolite controllers)
 - California (Peek controllers)
 FHWA has received 13 applications for additional testing. Current version was limited to 12 signals.

Remaining TMC PFS Activities for 2006

Members discussed potential locations for the annual meeting next year. Candidate locations included Los Angeles, Las Vegas, Seattle, Michigan (Detroit, Grand Rapids, and/or Traverse City), Chicago, Virginia Beach, and Coeur D'Alene (Idaho). The group recommended Los Angeles as the location for the next annual meeting. Ghaman suggested that the TRB facility in Irvine (Beckman Center) could be used for the meeting and the Hyatt Hotel nearby could be arranged for accommodation. Lee would work with Caltrans for arranging a tour of the new TMC in Los Angeles. The meeting would likely be held in late June or July.

The next quarterly conference call would be in late September or October. Lee would send a notice to the group.

Travel expense report forms were distributed to participants. Lee provided instructions on how to complete the form. Lee would provide M&IE breakdown to participants via e-mail.

The group proceeded with round table discussion. Highlights of the discussion are summarized in the following:

- Individuals who would like to participate in the ITS America TSOP (Transportation System Operations and Planning) program/forum should contact Mia Silver (Michigan DOT).
- Michigan DOT has published performance measures on-line.
- Silver would share contracts for service patrol and maintenance with the group.
- Rhode Island would procure an operational support contract and were looking for examples and input from other agencies. Hanshaw indicated a performance based contract was used in Virginia. Kinnecom noted that Utah stayed away from consulting based support and maintenance contractors mainly due to higher overhead.

- Integrated Corridor Management was one of the focus areas for the Washington State DOT.
- Tennessee's main focuses include rural ITS (CCTV and CMS), before and after study, and maintenance contract.
- Utah DOT's main initiatives include operator training and expertise, funding for maintenance (moving toward contracting out maintenance), and uniformity of 511 data.
- Kansas DOT was working on procuring a statewide DMS contract.
- ITS Heartland Annual Meeting would be in Omaha, Nebraska next year after Easter.
- New York State DOT was working on CMS messaging. The state was also looking for travel time information guidelines and policies. Ghaman suggested contacting Al Kosik of Texas DOT for information.
- Virginia has collected huge amount of data and was investigating how the data could be used. Data quality issues would also be investigated. The Smart Travel Lab developed an archived data management system tool that was available on the University's website.
- Pennsylvania was looking for information related to HOV lane control standards.

Adjourn

Kinnecom and Galas thanked participants for their participation and encouraged them to stay involved in projects. The tour of the Utah DOT Traffic Operations Center in Salt Lake City followed immediately after the lunch. Meeting was then adjourned.

**Transportation Management Center Pooled Fund Study
2006 Annual Meeting – July 25th & 26th
Attendees**

<u>Name</u>	<u>Organization</u>
Scott Nodes	Arizona Department of Transportation
Sergio Venegas	California Department of Transportation
Bob Koeberlein	Idaho Transportation Department
Jeffrey Galas	Illinois Department of Transportation
Mike Floberg	Kansas Department of Transportation
Mia Silver	Michigan Department of Transportation
Todd Kramasz	Minnesota Department of Transportation
Troy Pinkerton	Missouri Department of Transportation
Jim McGee	Nebraska Department of Roads
John Bassett	New York State Department of Transportation
Dominic Munizza	Pennsylvania Department of Transportation
Cynthia Levesque	Rhode Island Department of Transportation
Alireza Farhangi	Tennessee Department of Transportation
David Kinnecom	Utah Department of Transportation
Bryan Chamberlain	Utah Department of Transportation
Chris Siavrakas	Utah Department of Transportation
Stephany Hanshaw	Virginia Department of Transportation
Vinh Dang	Washington State Department of Transportation
Doug Dembowski	Wisconsin Department of Transportation
Tom Granda	Federal Highway Administration
Raj Ghaman	Federal Highway Administration
Jessie Yung	Federal Highway Administration
Jeff Benson	URS Corporation
Ming-Shiun Lee	URS Corporation
Jeffrey Arch	Telvent Farradyne
Ed Seymour	Texas Transportation Institute
Brian Smith	University of Virginia