MEETING SUMMARY

TOPMS-Phase 1 Advisory Group Meeting
THURSDAY, September 5, 2013
2:30 PM – 4:30 PM
Hill Farms State Transportation Building
Sheboygan Avenues
Madison, Wisconsin

ATTENDANCE ROSTER

<table>
<thead>
<tr>
<th>Name</th>
<th>Agency</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Todd Szymkowski</td>
<td>UW-Madison TOPS Laboratory</td>
<td><a href="mailto:szymkowski@engr.wisc.edu">szymkowski@engr.wisc.edu</a></td>
</tr>
<tr>
<td>Gary Brunner</td>
<td>WisDOT NW Region</td>
<td><a href="mailto:gary.brunner@dot.wi.gov">gary.brunner@dot.wi.gov</a></td>
</tr>
<tr>
<td>John Corbin</td>
<td>WisDOT BTO</td>
<td><a href="mailto:john.corbin@dot.wi.gov">john.corbin@dot.wi.gov</a></td>
</tr>
<tr>
<td>Liz Schneider</td>
<td>WisDOT BTO</td>
<td><a href="mailto:elizabeth1.schneider@dot.wi.gov">elizabeth1.schneider@dot.wi.gov</a></td>
</tr>
<tr>
<td>Paul Keltner</td>
<td>WisDOT BTO</td>
<td><a href="mailto:paul.keltner@dot.wi.gov">paul.keltner@dot.wi.gov</a></td>
</tr>
<tr>
<td>Peter Rafferty</td>
<td>UW-Madison TOPS Laboratory</td>
<td><a href="mailto:prafferty@wisc.edu">prafferty@wisc.edu</a></td>
</tr>
<tr>
<td>Manfred Enburg</td>
<td>TranSmart Technologies</td>
<td><a href="mailto:menburg@trafficonline.com">menburg@trafficonline.com</a></td>
</tr>
<tr>
<td>Dawn Krahn</td>
<td>WisDOT DTIM</td>
<td><a href="mailto:dawn.krahn@dot.wi.gov">dawn.krahn@dot.wi.gov</a></td>
</tr>
<tr>
<td>Anne Reshadi</td>
<td>WisDOT BTO</td>
<td><a href="mailto:anne.reshadi@dot.wi.gov">anne.reshadi@dot.wi.gov</a></td>
</tr>
<tr>
<td>Ken Wickham</td>
<td>WisDOT NC Region</td>
<td><a href="mailto:kenneth.Wickham@dot.wi.gov">kenneth.Wickham@dot.wi.gov</a></td>
</tr>
<tr>
<td>Jesse Patchak</td>
<td>WisDOT OAS</td>
<td><a href="mailto:jesse.patchak@dot.wi.gov">jesse.patchak@dot.wi.gov</a></td>
</tr>
<tr>
<td>Jim Krang</td>
<td>Minnesota DOT</td>
<td><a href="mailto:jim.krang@dot.state.mn.us">jim.krang@dot.state.mn.us</a></td>
</tr>
<tr>
<td>Dave Vieth</td>
<td>WisDOT BHM</td>
<td><a href="mailto:david.vieth@dot.wi.gov">david.vieth@dot.wi.gov</a></td>
</tr>
<tr>
<td>Rory Rhinesmith</td>
<td>WisDOT DTSD</td>
<td><a href="mailto:rory.rhinesmith@dot.wi.gov">rory.rhinesmith@dot.wi.gov</a></td>
</tr>
<tr>
<td>Nick Kiernan</td>
<td>TrafficCast</td>
<td><a href="mailto:n.kiernan@trafficcast.com">n.kiernan@trafficcast.com</a></td>
</tr>
<tr>
<td>Joe Nestler</td>
<td>WisDOT DTIM BSHP</td>
<td><a href="mailto:joseph.nestler@dot.wi.gov">joseph.nestler@dot.wi.gov</a></td>
</tr>
<tr>
<td>Lisa Onken</td>
<td>WisDOT BITS</td>
<td><a href="mailto:lisal.onken@dot.wi.gov">lisal.onken@dot.wi.gov</a></td>
</tr>
<tr>
<td>Lori Richter</td>
<td>WisDOT OPBF</td>
<td><a href="mailto:lori.richter@dot.wi.gov">lori.richter@dot.wi.gov</a></td>
</tr>
<tr>
<td>Tony Kratofil</td>
<td>Michigan DOT</td>
<td><a href="mailto:kratofilt@michigan.gov">kratofilt@michigan.gov</a></td>
</tr>
<tr>
<td>Angela Adams</td>
<td>WisDOT SW Region</td>
<td><a href="mailto:angela.adams@dot.wi.gov">angela.adams@dot.wi.gov</a></td>
</tr>
<tr>
<td>Adam Boardman</td>
<td>WisDOT</td>
<td><a href="mailto:adam.boardman@dot.wi.gov">adam.boardman@dot.wi.gov</a></td>
</tr>
</tbody>
</table>

MEETING DISCUSSION

1. Welcome and Introductions

Paul Keltner of BTO provided welcome comments and coordinated self-introductions for those in attendance and on the webinar.

2. Project Background and Rationale

John Corbin of BTO provided brief project background and rational comments. John discussed the history of traffic operations in Wisconsin, the wide range of BTO Program Areas, and BTO’s emerging initiatives. TOPMS is one of the emerging initiatives highlighted in the recently published Strategic Traffic Operations Program Plan (STOPP). More specific
to the TOPMS project, John indicated “if you can’t report credible performance within a corporate framework, proper resourcing is challenging.”

3. Project Approach and Schedule

Paul Keltner and Liz Schneider discussed the project approach, individual task descriptions and the schedule (See attached presentation).

Comments provided throughout the presentation include:

Jim Kranig – Mixing quantitative and qualitative data can be challenging – e.g., ramp meters; Need to recognize need to integrate public perception.
Joe Nestler – How do we best understand and incorporate the cycle of technology? Nick Kiernan suggested standards-based approaches can be technology “agnostic”.
Include Identify user delay and reliability oriented data to feed MAPSS
Tony Kratofil – Reliability is hard for front-line staff to react to. Michigan has introduced an element of cost into user delay.
Rory – Long-term, it’s in the Department’s interest to report reliability at the corporate level.

4. Early Project Activities

Paul Keltner highlighted some of the early project activities where members of the Advisory Group may be engaged including:

1. BTO and Other Staff Interviews
2. Three Upcoming Webinars
   - Regional Peer Exchange
   - National Best Practices Public Agency Peer Exchange
   - Private/Quasi-Private Sector – Not Necessarily Transportation Sector
3. Pilot Area / 1st Batch of Detectors Determination
4. Existing Data Report

5. Opportunities for Cross Bureau and Division Benefits

John Corbin facilitated discussion related to how the project may benefit other bureaus or divisions. Comments from the group include:

- Lori Richter – Keep an eye on MAP-21 requirements.
- Jim Kranig – Look at measures that make a difference and support the right decision.
  Also, MnDOT has used iPeMS (http://iterisprojects.com/pems/) and could share recent experiences and lessons learned.
- Tony Kratofil – MAP-21 may be too high of level, don’t limit yourself.
- Lisa Onken – Any use of social media/crowdsourcing anticipated for project? Nick Kiernan response: not right now, but will look at for future phases.
- John Corbin - Incident, event and lane closure information is still a responsibility of the public sector.
- John Corbin – how do you meaningfully integrate weather information?
• Lori Richter – Do you see WisDOT supporting TOPMS in-house? John Corbin: indicated more likely a service.

6. Other Questions and Next Meeting

The proposed schedule shows an Advisory Group Meeting in January. However, the Advisory Group suggested an additional check-in in Early December (Date TBD).
Wisconsin Traffic Operations
Performance Management System (TOPMS)-Phase 1

September 5, 2013
2:30-4:30 PM
WisDOT Central Office
Room 419
Agenda

- Welcome and Introductions
- Project Background and Rationale
- Project Approach and Schedule
- Early Project Activities
- Opportunities for Cross Bureau and Division Benefits
- Questions and Next Meeting
Traffic Operations Program Areas

1. ITS Planning & Design (TOIP)
2. STOC Control Room & IT Systems
3. Traveler Information
5. Work Zone Management & Operations
6. Signal, Electrical & Lighting Operations, Maintenance & Communications
7. Signing
8. Pavement Marking
9. Traffic Engineering Data & Analysis
10. Traffic Safety Engineering & Speed Management
STOPP Emerging Initiatives

1. 511 & FST Service Sponsorships
2. Supporting Mega Projects
3. Connected Vehicle Integration
4. Commercial Vehicle Operations
5. Surveillance Data Procurement & Partnering
7. Traffic Analysis & Traffic Management Systems Design
8. Traffic Infrastructure & Critical Infrastructure Protection (Alternate/Evacuation Route Planning)
Project Approach

3-Phase, 3-Year Project to Design and Build TOPMS

- Phase 1 – Planning/Design, Conceptual and Investigative Prototype
- Phase 2 – Prototype Refinement, Geographic Expansion and Interim Evaluation
- Phase 3 – Statewide TOPMS and Evaluation

Phase 1 Providers

- Cambridge Systematics - National and International TOPMS Expertise
- TranSmart with partner TrafficCast - Wisconsin based Technology Companies with products to support project
- TOPS Laboratory - Traffic Data Assessment, Peer Exchange Coordination, Project Team Coordination
Project Tasks

1. WisDOT Traffic Operations Data Inventory
2. Midwest Regional & National Peer Exchange Webinars
3. “State of the Art” Investigation
4. “State of the Practice” Evaluation
5. Investigative Prototype Design & Deployment
6. TOPMS Organizational Mapping
7. Strawman User Interface & Visualization Development
1. WisDOT Traffic Operations Data Inventory

- Inventory and document existing Traffic Ops Related Data Sources:
  - Type (traffic flow, incidents, traveler information, camera images, weather, lane closures, special events, safety)
  - Format(s) (XML, JPEG, GIS shape files, etc.)
  - Frequency of update
  - Data Steward (WisDOT, TOPS, NWS, Private Sector, etc.)
  - Associated Standards (IEEE, SAE, NEMA, NTCIP, etc.)

Deliverables: Draft and Final Report
2. Peer Exchange Webinars

- Regional Peer Exchange
  - Leverage Partnerships with GLRTOC, Northwest Passage, and Lake Michigan Interstate Gateway Alliance
  - Snap shot of current and future TOPMS activities
- National Peer Exchange
  - Select model public and private sector companies to share experiences

Deliverables: Planning for and conducting webinars
3. “State of the Art” Investigation

- Literature Search on Domestic and Foreign Applications
  - Improving operational performance
  - Planning for new operational strategies
  - Enhancing work zone planning and real-time information
  - Documentation of operational system benefits
  - Continuous Improvement Techniques that optimize resources
- Focused Investigation of 5-10 organizations

Deliverables: Draft and Final Report (Combined with Task 4)
3. “State of the Art” Investigation

Source: VII Data Use Analysis and (DUAP) Final Project Report, UMTRI, 2011
3. “State of the Art” Investigation

Source: VII Data Use Analysis and (DUAP) Final Project Report, UMTRI, 2011
4. “State of the Practice” Evaluation

- FHWA Section 1201 and emerging Performance Measurement Guidance Assessment
- Scan of Private Sector Products
- RFI and/or targeted vendor presentations to WisDOT
- Identification of best practices that can be implemented short-term within WisDOT

Deliverables: Draft and Final Report (Combined with Task 3)
5. Investigative Prototype Design & Deployment

Real-time User Interface to access existing/evolving data sources in Southern Wisconsin

- Cross reference ‘live’ or archive data where feasible, otherwise point toward development opportunities
- Support visualization of “Strawman” platform

Preliminary Draft ‘TrafficCaster’ implementation
Supplementary Vehicle probe data via Bluetooth detection

- Eighty sensor deployments, over three phases
- Priority for Milwaukee, Madison corridors, projects
- Data provided through TrafficCast BlueTOAD technology
- Integrate and cross reference speed/travel time/route choice content with available/prospective metrics

BlueTOAD sensor unit, as installed on backside of typical Interstate signage.
5. Investigative Prototype Design & Deployment

Prototype Analysis, Archive Access, Refinement Roadmap

- Functioning Travel Time/Speeds
- Draft congestion metrics, analytics
- Route Choice Behavior Data (via archive)
- Data archive model, coordination; WisTransPortal
- Propose/mock-up refinements

Road Speed “Heat Map” derived from BlueTOAD data

- Visualization of congestion build with causal references
- Example of potential Performance Management tool to be included within Prototype Interface
6. TOPMS Organizational Mapping

- BTO Organizational Mapping to connect goals, objectives, functions and staffing:
  - Infrastructure/facilities
  - Software/technology
  - Traveler warning and information services
  - Innovation/Change Management
- Extend mapping into WisDOT where appropriate
- Data Flow Diagrams and Gap Analysis
- Identify Synergistic Opportunities
- Deliverables: Interviews, Draft and Final Reports
7. Strawman User Interface & Visualization Development

- Design Refinement Guidance
  - Outputs
  - Reports
  - Frequency Requirements (Real-time, weekly, monthly, etc.)

- Future Data Needs Assessment
  - Existing data needing modification
  - Data available from private sector
  - Data not available, but could be developed

Deliverables: Draft and Final Reports
<table>
<thead>
<tr>
<th>Schedule</th>
<th>WISCONSIN TRAFFIC OPERATIONS PERFORMANCE MANAGEMENT SYSTEM - PHASE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Task</strong></td>
<td><strong>Level</strong></td>
</tr>
<tr>
<td><strong>Key Project Meetings</strong></td>
<td></td>
</tr>
<tr>
<td>1. Schedule Coordination Meeting</td>
<td>TOPS</td>
</tr>
<tr>
<td>2. WisDOT Management Briefing</td>
<td>TOPS</td>
</tr>
<tr>
<td>3. Secretary's Office Briefing</td>
<td>TOPS</td>
</tr>
<tr>
<td><strong>Task 1. WisDOT Traffic Operations Inventory</strong></td>
<td></td>
</tr>
<tr>
<td>1.1 Develop WisDOT Traffic Operations Data Inventory Report</td>
<td>TOPS</td>
</tr>
<tr>
<td>1.2 Review Draft Report</td>
<td>TOPS</td>
</tr>
<tr>
<td>1.3 Submit Final WisDOT Traffic Operations Data Inventory Report</td>
<td>TOPS</td>
</tr>
<tr>
<td><strong>Task 2. Midwest Regional &amp; National Peer Exchange Webinar</strong></td>
<td></td>
</tr>
<tr>
<td>2.1 Plan for Midwest Peer Exchange Webinar</td>
<td>TOPS</td>
</tr>
<tr>
<td>2.2 Conduct Midwest Peer Exchange Webinar</td>
<td>TOPS</td>
</tr>
<tr>
<td>2.3 Plan for National Peer Exchange Webinar</td>
<td>TOPS</td>
</tr>
<tr>
<td>2.4 Conduct National Peer Exchange Webinar</td>
<td>TOPS</td>
</tr>
<tr>
<td>3.1 Literature Review</td>
<td>CS</td>
</tr>
<tr>
<td>3.2 Develop Candidate List of Agencies/Companies to Interview</td>
<td>CS</td>
</tr>
<tr>
<td>3.3 Approval from WisDOT</td>
<td>TOPS</td>
</tr>
<tr>
<td>3.4 Conduct Interviews</td>
<td>CS</td>
</tr>
<tr>
<td>3.5 Identify Section 1201 and MAP-21 Gaps</td>
<td>CS</td>
</tr>
<tr>
<td>3.6 Targeted &quot;Innovator&quot; Presentations to WisDOT</td>
<td>CS</td>
</tr>
<tr>
<td>3.7 Develop State of the Art Investigation/State of the Practice Report</td>
<td>CS</td>
</tr>
<tr>
<td>3.8 Review Draft Report</td>
<td>WisDOT</td>
</tr>
<tr>
<td>3.9 Submit Final Report</td>
<td>CS</td>
</tr>
<tr>
<td><strong>Task 5. Investigative Prototype Design and Deployment</strong></td>
<td></td>
</tr>
<tr>
<td>5.1 Real-Time GUI for Southern Wisconsin w/ existing Data Development</td>
<td>TS/TC</td>
</tr>
<tr>
<td>5.2 Proposal of Bluetooth detector locations including complimentary locations</td>
<td>TS/TC</td>
</tr>
<tr>
<td>5.3 WisDOT approval of detector locations</td>
<td>WisDOT</td>
</tr>
<tr>
<td>5.4 Deployment of Bluetooth detector locations</td>
<td>TS/TC</td>
</tr>
<tr>
<td>5.5 Functioning cluster Time-Specific Information</td>
<td>TS/TC</td>
</tr>
<tr>
<td>5.6 Functioning Route Choice Behavior Data</td>
<td>TS/TC</td>
</tr>
<tr>
<td>5.7 Overall data archival &amp; coordination</td>
<td>TS/TC</td>
</tr>
<tr>
<td>5.8-a Probe Based Data Archiving Integration into WisDOT/Portal</td>
<td>TS/TC</td>
</tr>
<tr>
<td>5.8-b Function Prototype Mock-up</td>
<td>TS/TC</td>
</tr>
<tr>
<td>5.8-c Mock-up Refinements</td>
<td>TS/TC</td>
</tr>
<tr>
<td><strong>Task 6. TOMP Organizational Mapping</strong></td>
<td></td>
</tr>
<tr>
<td>6.1 Analyze Current BTO Performance Measures</td>
<td>CS</td>
</tr>
<tr>
<td>6.2 Perform In-Person Interviews</td>
<td>CS</td>
</tr>
<tr>
<td>6.3 Map BTO Activities to Current and Proposed Performance Measures</td>
<td>CS</td>
</tr>
<tr>
<td>6.4 Develop Management Strategies to actively react to Performance Measures</td>
<td>CS</td>
</tr>
<tr>
<td>6.5 Develop Draft Report</td>
<td>CS</td>
</tr>
<tr>
<td>6.6 Review Draft Report</td>
<td>WisDOT</td>
</tr>
<tr>
<td>6.7 Submit Final Report</td>
<td>CS</td>
</tr>
<tr>
<td><strong>Task 7. Strawman User Interface &amp; Visualization Development</strong></td>
<td></td>
</tr>
<tr>
<td>7.1 Develop Design and Interface Refinement Requirements for Investigative Prototype</td>
<td>CS</td>
</tr>
<tr>
<td>7.2 Develop Draft Report</td>
<td>CS</td>
</tr>
<tr>
<td>7.3 Review Draft Report</td>
<td>WisDOT</td>
</tr>
<tr>
<td>7.4 Submit Final Report</td>
<td>CS</td>
</tr>
</tbody>
</table>
Early Project Activities

1. BTO and Other Staff Interviews

2. 3 Webinars
   - Regional Peer Exchange
   - National Best Practices Public Agency Peer Exchange
   - Private/Quasi-Private Sector – Not Necessarily Transportation Sector

3. Pilot Area / 1st Batch of Detectors Determination

4. Existing Data Report
1. Do you have data readily available that could enhance TOPMS?

2. Are you planning on developing or buying data that could enhance TOPMS?

3. What current business practices in your bureau could be enhanced by having information fused within TOPMS?

4. Are there key constituencies we need to talk to?
1. Webinars
   - Regional Peer Exchange - October
   - National Best Practices Public Agency Peer Exchange - November
   - Private/Quasi-Private Sector - November

2. Next Advisory Group Meeting - Late January