MEETING SUMMARY

TOPMS-Phase 1 Advisory Group Meeting
THURSDAY, September 5, 2012
2:30 PM – 4:30 PM
Hill Farms State Transportation Building
Sheboygan Avenues
Madison, Wisconsin

ATTENDANCE ROSTER

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

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).

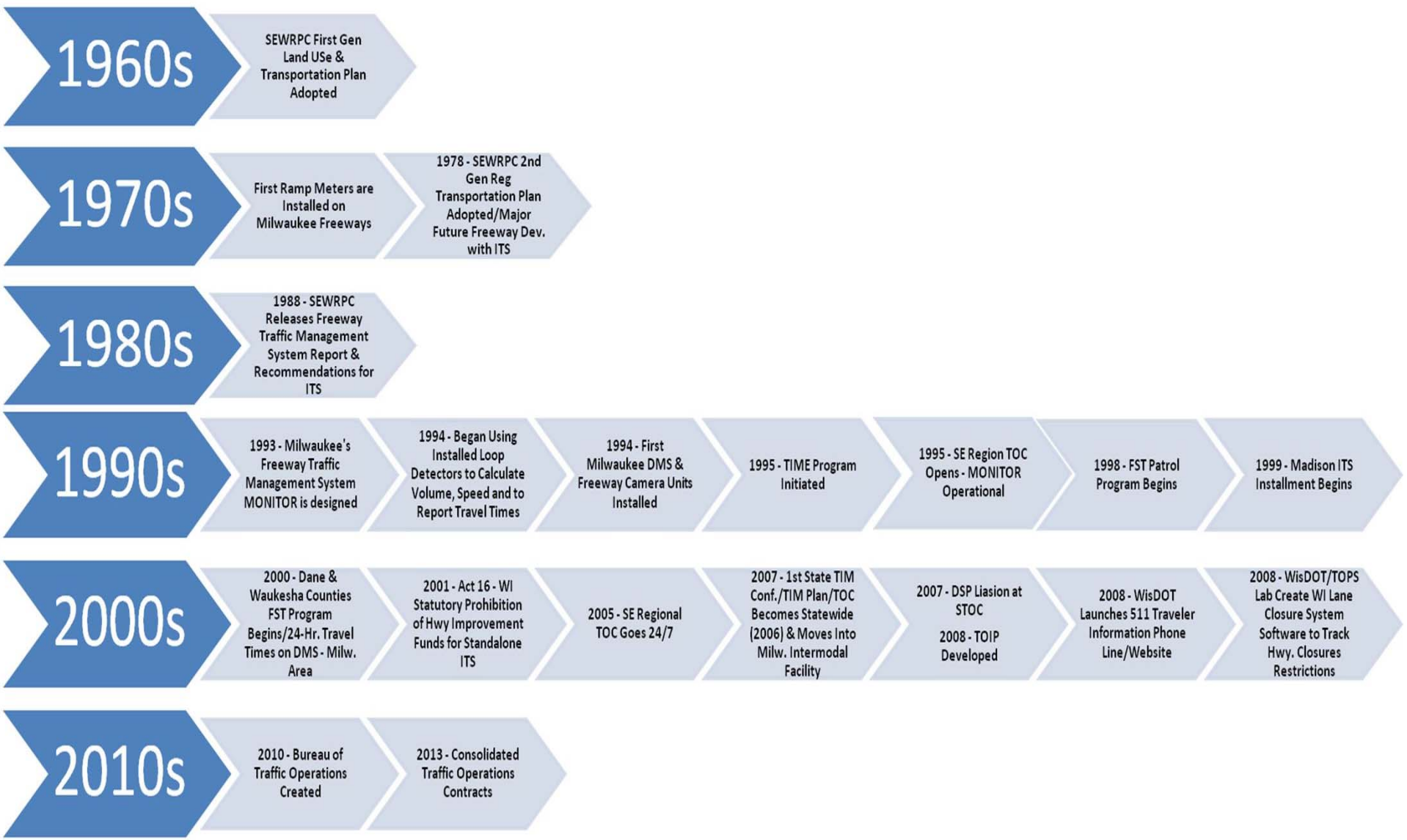
Wisconsin Traffic Operations Performance Management System (TOPMS)-Phase 1

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 Programmatic Development Timeline



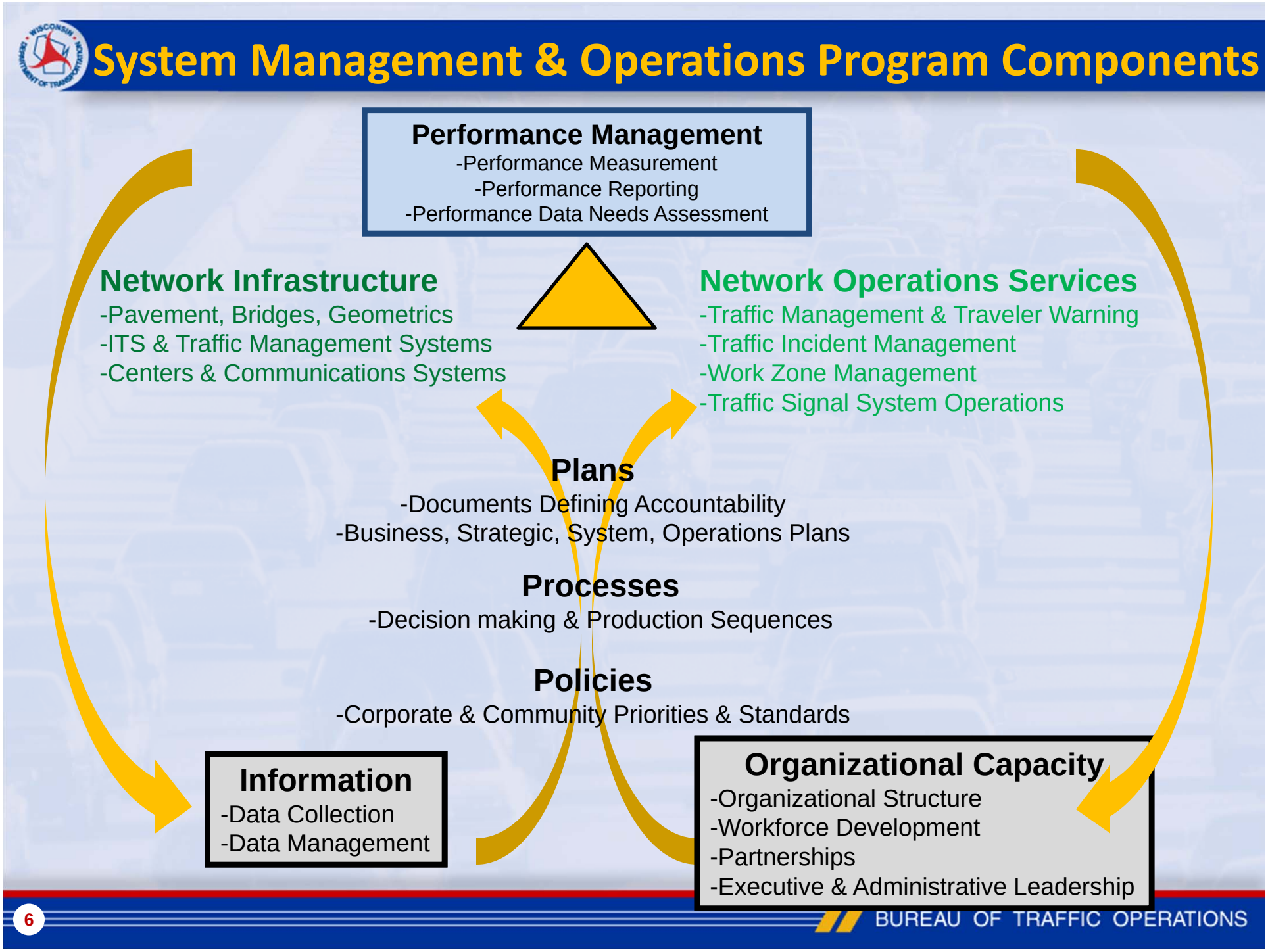
Traffic Operations Program Areas

1. ITS Planning & Design (TOIP)
2. STOC Control Room & IT Systems
3. Traveler Information
4. Emergency Traffic Operations & Traffic Incident Management
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
11. Traffic Operations Program Support

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
6. **Traffic Operations Performance Management System**
7. Traffic Analysis & Traffic Management Systems Design
8. Traffic Infrastructure & Critical Infrastructure Protection (Alternate/Evacuation Route Planning)

System Management & Operations Program Components



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

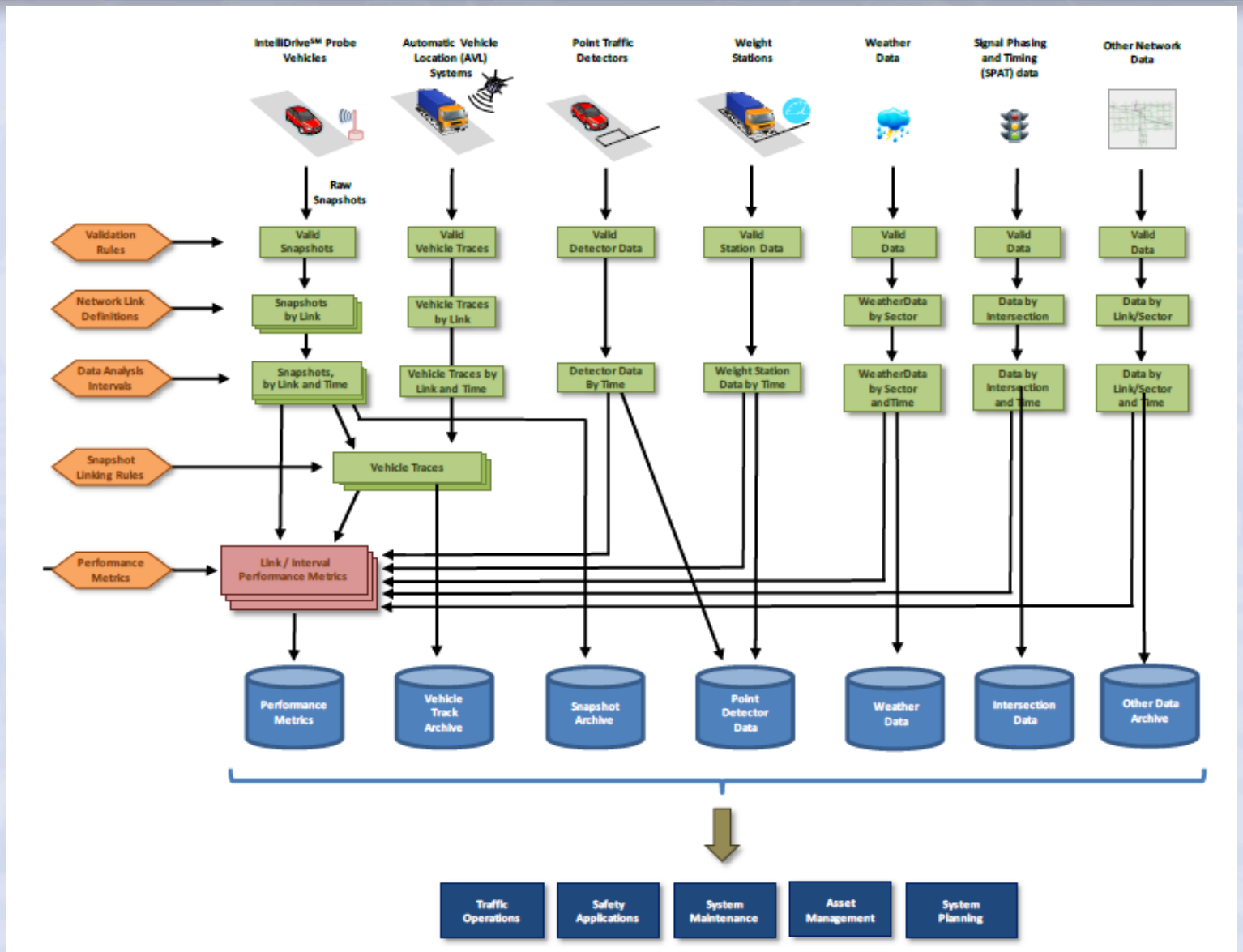
Deliverables: Planning for and conducting webinars

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

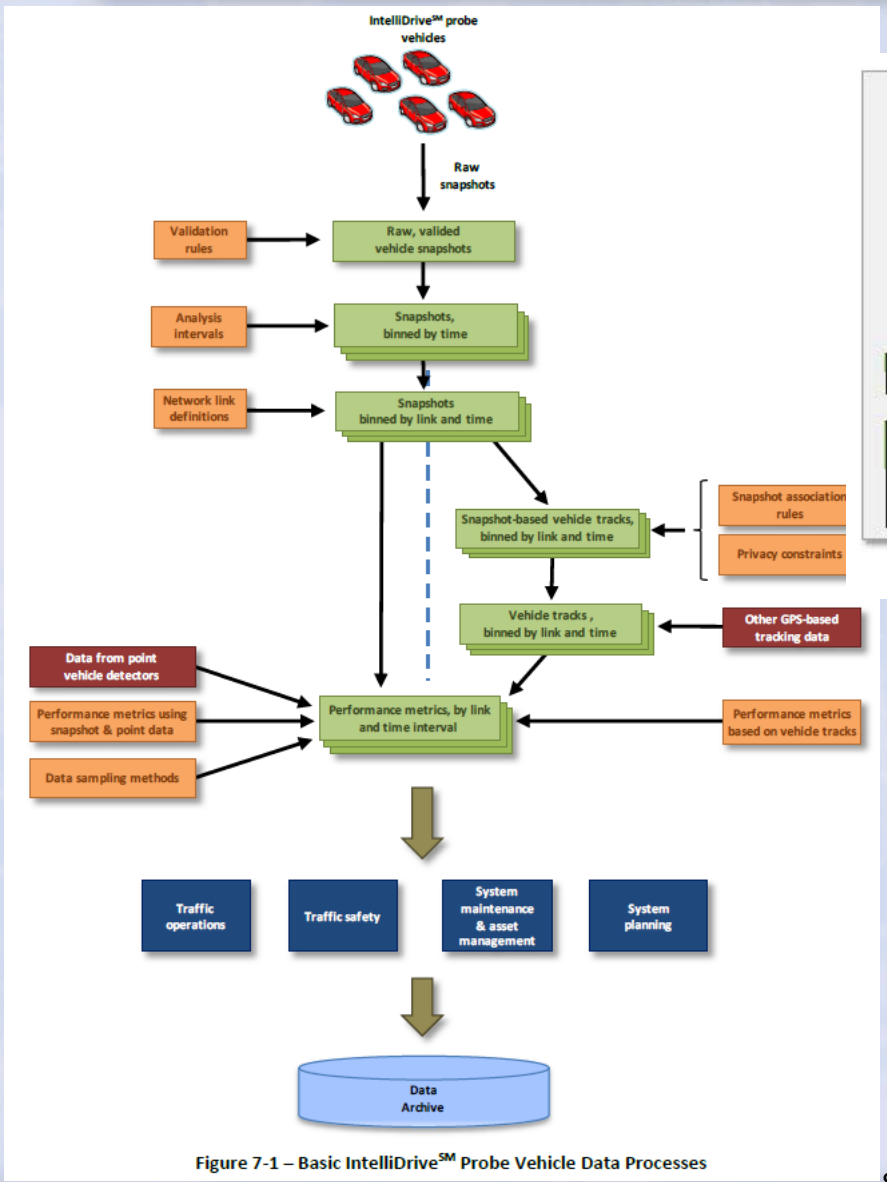
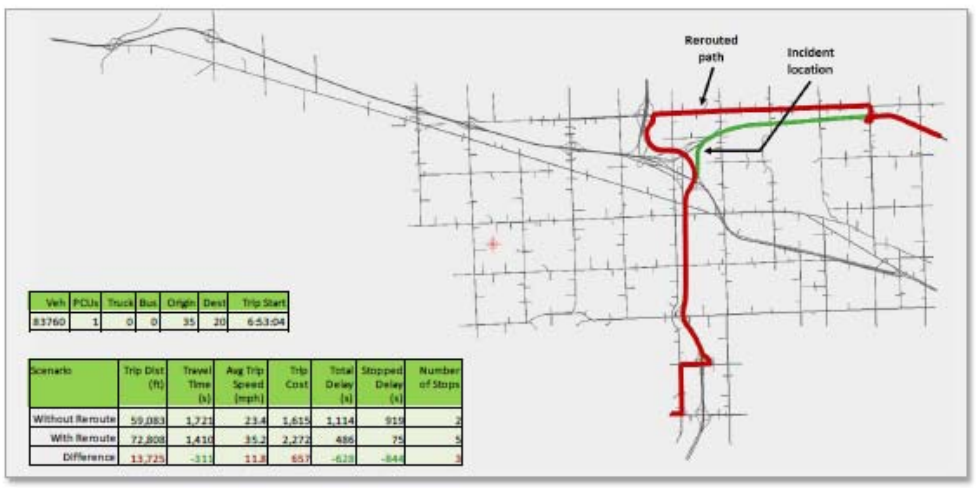


Figure 7-1 – Basic IntelliDrive℠ Probe Vehicle Data Processes



Veh	PCUs	Truck	Bus	Origin	Dest	Trip Start
83760	1	0	0	35	20	6:53:04

Scenario	Trip Dist (ft)	Travel Time (s)	Avg Trip Speed (mph)	Trip Cost	Total Delay (s)	Stopped Delay (s)	Number of Stops
Without Reroute	59,083	1,721	23.4	1,615	1,114	919	3
With Reroute	72,808	1,410	35.2	2,272	486	75	5
Difference	13,725	-311	11.8	657	-628	-844	3

Figure 5-20 – Incident Rerouting Example

Source: VII Data Use Analysis and (DUAP) Final Project Report, UMTRI, 2011

4. “State of the Practice” Evaluation

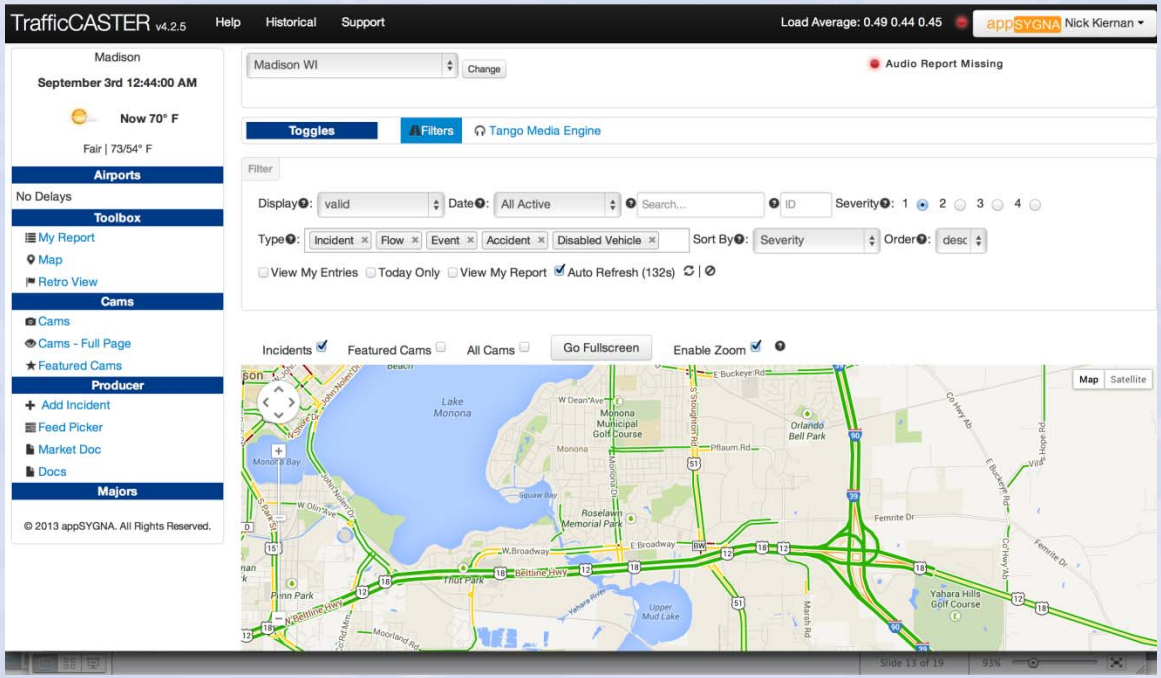
- FHWA Section 1201 and emerging Performance Measurement Guidance Assessment
- Scan of Private Sector Products
- RFI and/or targeted vendor presentations to WisDOT
- Identification of best practices that can be implemented short-term within WisDOT

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

5. Investigative Prototype Design & Deployment

Supplementary Vehicle probe data via Bluetooth detection

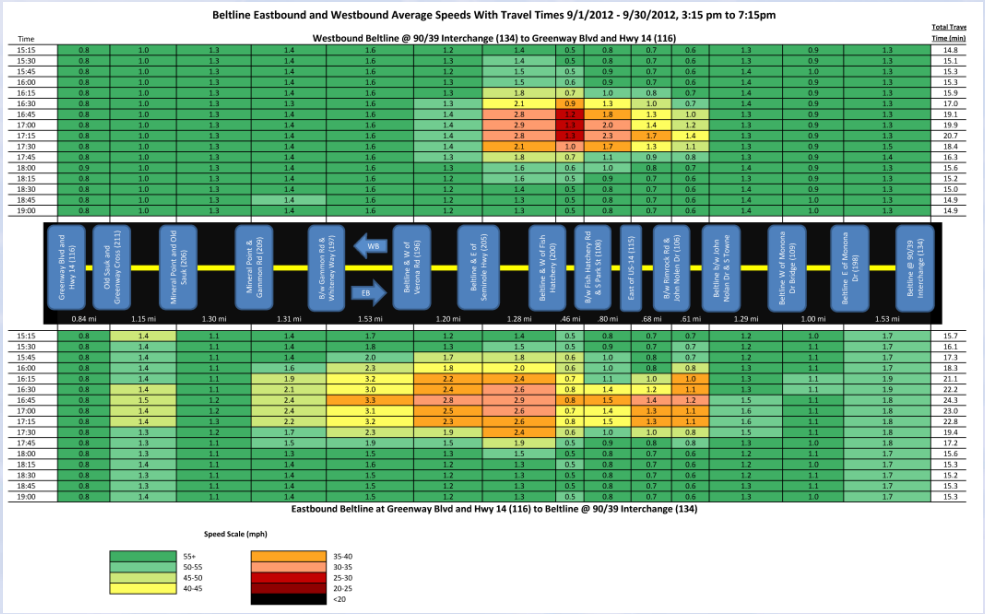
- Eighty sensor deployments, over three phases
  - Priority for Milwaukee, Madison corridors, projects
  - Data provided through TrafficCast BlueTOAD technology
  - Integrate and cross reference speed/travel time/route choice content with available/prospective metrics

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

Schedule

WISCONSIN TRAFFIC OPERATIONS PERFORMANCE MANAGEMENT SYSTEM - PHASE 1

Last Updated: 9/3/13

Task	Lead	Support	Sept				Oct				Nov				Dec				Jan				Feb				Mar				Apr				May				June				July				Aug			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
KEY PROJECT MEETINGS																																																
BTO Project Coordination Meeting	TOPS																																															
BTO Management Briefing	TOPS																																															
Advisory Group Meeting	WisDOT																																															
Secretary's Office Briefing	WisDOT																																															
Task 1. WisDOT Traffic Operations Inventory																																															
1.1 Develop WisDOT Traffic Operations Data Inventory Report	TOPS																																															
1.2 Review Draft Report	TOPS																																															
1.3 Submit Final WisDOT Traffic Operations Data Inventory	TOPS																																															
Task 2. Midwest Regional & National Peer Exchange Webinar																																															
2.1 Plan for Midwestern Peer Exchange Webinar	TOPS																																															
2.2 Conduct Midwestern Peer Exchange Webinar	TOPS																																															
2.3 Plan for National Peer Exchange Webinar	TOPS	CS																																														
2.4 Conduct National Peer Exchange Webinar	TOPS																																															
Task 3. State of the Art Investigation and Task 4. State of the Practice Evaluation																																															
3.1 Literature Review	CS	TOPS																																														
3.2 Develop candidate list of Agencies/Companies to Interview	CS	TOPS																																														
3.3 Approval from WisDOT	WisDOT																																															
3.4 Conduct Interviews	CS	TOPS																																														
3.5 Identify Section 1201 and MAP-21 Gaps	CS	TOPS																																														
3.6 Targeted "Innovator" Presentations to WisDOT	CS	TOPS																																														
3.7 Develop State of the Art Investigation/State of the Practice Report	CS	TOPS																																														
3.8 Review Draft Report	WisDOT																																															
3.9 Submit Final Report	CS																																															
Task 5. Investigative Prototype Design and Deployment																																															
5.1 Real-Time GUI for Southern Wisconsin w/ existing Data Development	TS/TC			Draft Data Integration, Presentation,				IT & Distribution (See 5.7, 5.8)																																										
5.2 Proposal of 80 Bluetooth detector locations including complimentary locations	TS/TC																																															
5.3 WisDOT approval of detector locations	WisDOT																																															
5.4 Deployment of 80 Bluetooth detector locations	TS/TC							Ph.1-20u					Ph.2 10-40u TBD															Ph.3 20-40u TBD																						
5.4-a Functioning Travel Time/Speeds Alternates	TS/TC											Speeds/Travel Times																																								
5.4-b Travel Time/Road Speed/Congestion Analytics	TS/TC															"Heat Mapping" Proto																																		
5.4-c Functioning Route Choice Behavior Data	TS/TC																			Route Choice Proto																														
5.5 Overall data archiving & coordination	TS/TC	TOPS										Definition-Spec				Architecture Draf				Prop. Budget																														
5.5-a Probe based Data Archiving Integration into WisTransPortal	TOPS (unscoped)	TS/TC														Definition-Spec																																	
5.7 Functioning Prototype Mock-up	TS/TC	CS										See 5.1															Co-ord w/ Strawman Interface Dev'p																						
5.8 Mock-up Refinements	TS/TC																																															
Task 6. TOPMS Organizational Mapping																																															
6.1 Assess Current BTO Performance Measures	CS	TOPS																																														
6.2 Perform In-Person Interviews	CS																																															
6.3 Map BTO Staffing Functions to Existing and Proposed Performance Measures	CS	TOPS																																														
6.4 Develop Management Strategies to actively react to Performance Measures	CS	TOPS																																														
6.5 Develop Draft Report	CS																																															
6.6 Review Draft Report	WisDOT																																															
6.7 Submit Final Report	CS																																															
Task 7. Strawman User Interface & Visualization Development																																															
7.1 Develop Design and Interface Refinement Requirements for Investigative Prototype	CS	TOPS																																														
7.2 Develop Draft Report	CS																																															
7.3 Review Draft Report	WisDOT																																															
7.4 Submit Final Report	CS																																															

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

Opportunities for Broad Department Benefits

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?

Questions/Upcoming Meetings

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