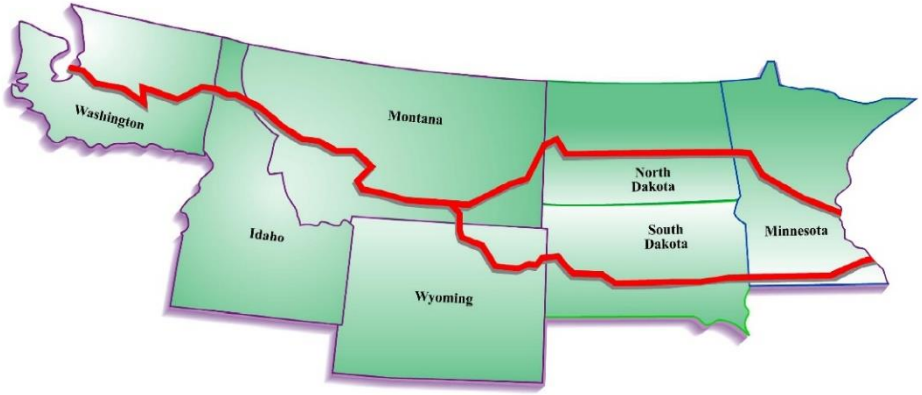
TSMO Peer Exchange



Webinar

January 23, 2019

This webinar will be recorded.

Agenda

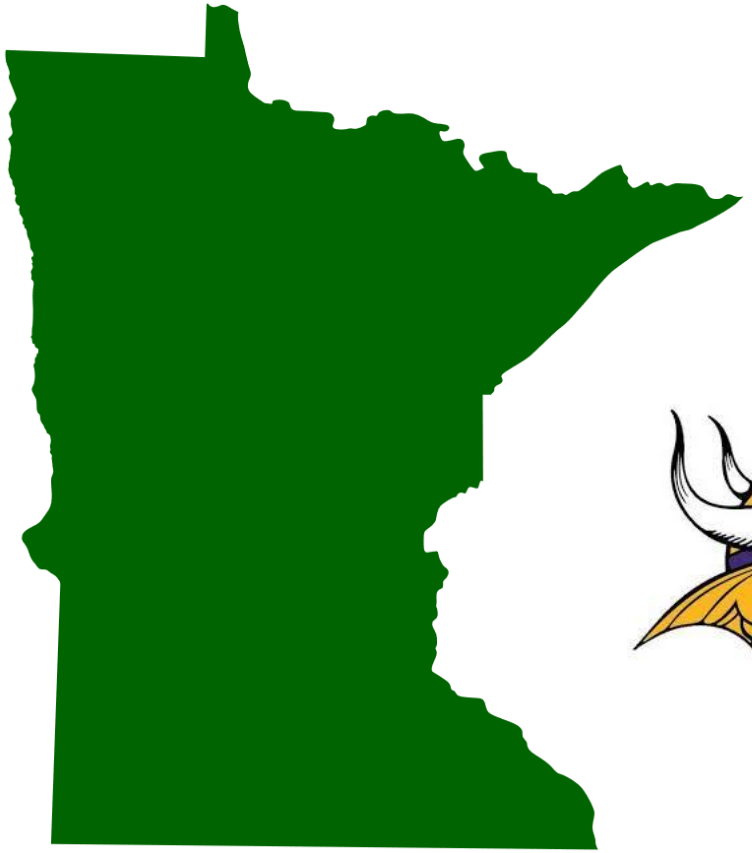
- TSMO Planning Activities
  - Minnesota DOT – Mike Schweyen
  - Washington DOT – Monica Harwood
  - South Dakota DOT – Dave Huft
- Round Robin – What is included in TSMO in your state?
- Role for North/West Passage
- Questions and Answers
- Closing

TSMO Planning at Minnesota DOT (MnDOT)
for Northwest Passage

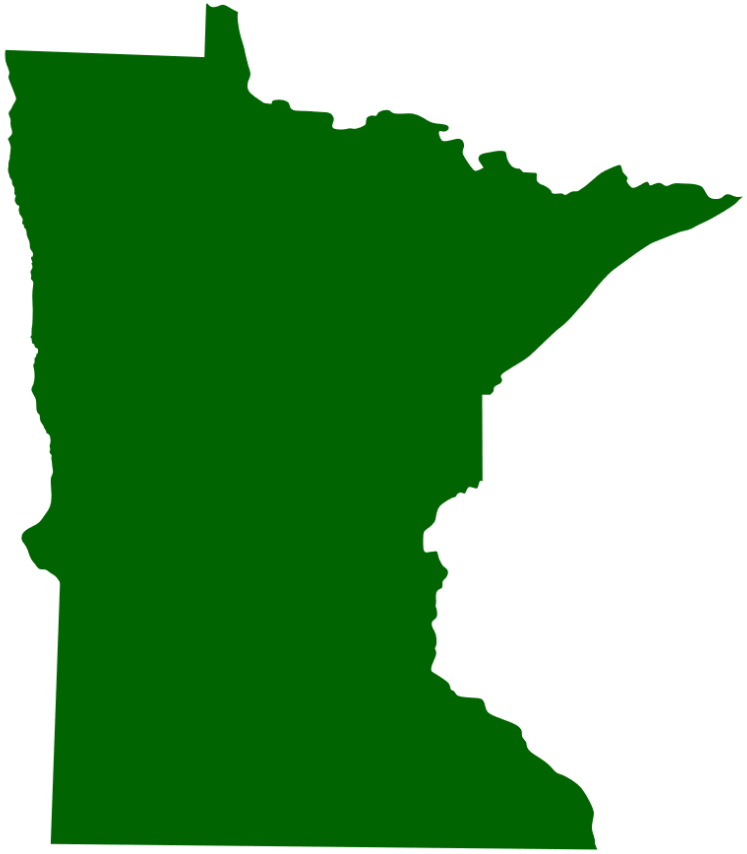
Michael Schweyen, PTOE
January 23, 2019

DEPARTMENT OF TRANSPORTATION

Minnesota – Land of 10,000 Lakes



DEPARTMENT OF TRANSPORTATION



And The Land of :

Crashes,
Incidents,
All kinds of Weather,
Congestion,
Construction,
Tourism,
Delay,
Traffic Signals,
Ramp meters,
HOT Lanes,
Transit,
Bicycles,
Pedestrians

DEPARTMENT OF TRANSPORTATION

TSMO Plan Components

TSMO Planning Process Management

- Led by Acting State Traffic Engineer
- Created a TSMO Leadership Team
- Created a TSMO Working Group
- Brought on a District Traffic Engineer as a temporary, mobility assignment
- Consultant and subconsultant brought on-board via RFP process

DEPARTMENT OF TRANSPORTATION

Strategic Plan

- Completed as first major task
- Developed by TSMO Leadership Team and TSMO Working Group
- To Define the TSMO Goals & Objectives

DEPARTMENT OF TRANSPORTATION

Minnesota TSMO Goals from Strategic Plan

Goal #1: Improve Reliability, Mobility, and Efficiency

Goal #2: Improve Safety

Goal #3: Carefully and Responsibly Manage Transportation Operations Assets

DEPARTMENT OF TRANSPORTATION

Goal #1: Improve Reliability, Mobility, and Efficiency

Example Objectives to support this goal:

- Reduce the frequency of congestion or slowed traffic on the freeways and arterials in urbanized areas throughout Minnesota
- Increase availability of information about travel times to drivers
- Reduce the impacts of snow and ice on mobility
- Reduce incident response and clearance times in the Twin Cities and Greater Minnesota

DEPARTMENT OF TRANSPORTATION

Goal #2: Improve Safety

Example objectives to support this goal:

- Reduce the crashes related to congestion in Minnesota urbanized areas
- Reduce the frequency of secondary crashes and crashes related to work zones
- Reduce responder exposure

DEPARTMENT OF TRANSPORTATION

Goal #3: Carefully and Responsibly Manage Transportation Operations Assets

Example Objectives to support this goal:

- Understand and appropriately fund the life-cycle costs of operating and maintaining the assets needed for operations activities
- Acquire, secure, and retain the data needed for MnDOT to effectively perform operations, performance management, and planning

DEPARTMENT OF TRANSPORTATION

Implementation Plan

- Identify prioritized set of TSMO strategies to accomplish TSMO Goals and Objectives, from Strategic Plan
- Obtained input from multiple sources, including :
  - District Offices – Traffic, Maint., Construction
  - Central Offices, including
    - Freight, Transit, Pedestrians, Bicycles, Planning, Construction, Maintenance, etc.
- Face-to-face outreach sessions
  - Asking for concerns, priorities, ideas – brainstorming
  - Used Goals & Objectives from Strategic Plan
  - Excellent discussions
  - Provided for “voting”

DEPARTMENT OF TRANSPORTATION

Implementation Plan

- Consultant and MnDOT staff combined ideas from outreach meetings and prepared draft strategy descriptions
- Draft strategy descriptions circulated for feedback
- Webinar with all interested parties was conducted
- Final scored and prioritized list of strategies was created.

DEPARTMENT OF TRANSPORTATION

Scoring Criteria

- Used to rank potential TSMO strategies
  - Strategy Impact
  - Planning Consistency
  - Geographic Scale and Balance
  - Coordination & Synergy
  - Level of Investment/Ease of Implementation
  - Maintainable Scale
  - Accessibility
  - BONUS: Research, Innovation and Technology (up to 5% additional)

DEPARTMENT OF TRANSPORTATION

Strategy #	Title	Brief Description	Score	Initiation Timeframe
1	Update Signal Timing and Coordination	Identify ways to address operational issues at signalized intersections and implement improvements to signal timing and coordination, especially in urban areas within Greater Minnesota districts.	460	Short-term (1-2 years)
2	Increase MnDOT Usage of 3rd Party Data and Increase Sharing with Traveler Information Disseminators (e.g. Google, WAZE, INRIX, HERE)	Continue and expand activities MnDOT currently performs to enter and maintain event reports (incidents, work zones, detours, other activities) in the MnDOT traveler information system and to share these events with 3rd party information disseminators.	440	Short-term (1-2 years)
3	Develop Regional Traffic Incident Management (TIM) Programs	Apply multi-agency coordination to improve traffic incident management (TIM) processes by developing regional traffic incident management (TIM) Programs to improve response efforts and incident clearance times.	430	Short-term (1-2 years)

Next Step – Business Planning

- Workshop to be held
- To include upper management, District Engineers, Traffic engineers, etc.
- To determine business processes & organization
  - Ask for more FTEs ?
  - Change our organization ?
  - Ask for dedicated funding ?
    - Operations funds ?
    - Program Delivery funds ?

DEPARTMENT OF TRANSPORTATION

QUESTIONS FOR MIKE?

Transportation Systems Management & Operations

Challenges & Lessons Learned

Monica Harwood Duncan, PE, PTOE
Statewide Traffic Operations Engineer
January 22, 2019

What is Practical Solutions?

- Addressing congestion within available resources
- It's the right investment, in the right location, at the right time
- It's not about fixing a problem on the state highway system, but instead, advancing to the next generation of transportation investment
- Becoming stewards of the transportation system rather than "just" delivering projects
- We have a huge asset that we need to keep in state of good repair – make sure it operates safely – operates efficiently – manage demand – and at times, add capacity

Practical Solutions

A Focus on Transportation Systems Management and Operations

Managing safety and capacity as an asset

EXAMPLE STRATEGIES

PLANNING, PARTNERING, AND POLICY DEVELOPMENT	ITS IMPROVEMENTS	TRAVEL DEMAND MANAGEMENT	COOPERATIVE AUTOMATED TRANSPORTATION	TRADITIONAL TRAFFIC OPERATIONS
Land Use Planning	Road Weather Information Systems	Multi-Modal Development – Transit – Bicycle – Pedestrian – Ferries – Freight – Rail	Traffic Signal Communications to Vehicles	Access Management
Utilization of Regional Trails, Sidewalks, and Roadway Network	Ramp Metering	Commute Trip Reduction	Truck Platooning	Signal Operations/ Optimization
Policy Implementation	Traffic Incident Management/IRT	Managed Lanes – High Occupancy Vehicle – Tolled – Multi-Modal Shoulder Driving	Autonomous Truck Mounted Attenuators	Safety Analysis/ Countermeasures
Agreement Development	Wrong-way Driver Notifications	High Occupancy Tolling/ Express Toll Lanes	Work Zone Warning and Management	Signage & Striping
Data Sharing	Regionwide Communications	Land Use Development	Tolling Vehicle Occupancy Detection	Speed Management
System and Corridor Planning – Multi-Modal – Corridor Sketch Maintenance – Joint Planning – State Facility Action Plan	Work Zone Management	Integrated Multi-Modal Traveler Information and Fare Collection Systems	Rest Area Truck Parking Applications	Minor Geometric Modifications – Channelization – Pedestrian Island – Compact Roundabouts
Integrated Scoping	Adaptive Signals		Winter Operations and Rural Traveler Information	Multi-Modal System Enhancement
Community Engagement	Intersection Conflict and Trail Crossing Warning Systems		Pedestrian in Crosswalk Warning	At-Grade Rail Crossings
	Weigh in Motion			
	Online Truck Permitting			

CORRIDOR AND SYSTEM MANAGEMENT

Challenges and Lessons Learned

- **Establish a base understanding of TSMO among those responsible for leading the effort**
  - **Education needed (website, curriculum, outreach, etc.)**

Challenges and Lessons Learned

- Establish a base understanding of TSMO among those responsible for leading the effort
  - Education needed (website, curriculum, outreach, etc.)

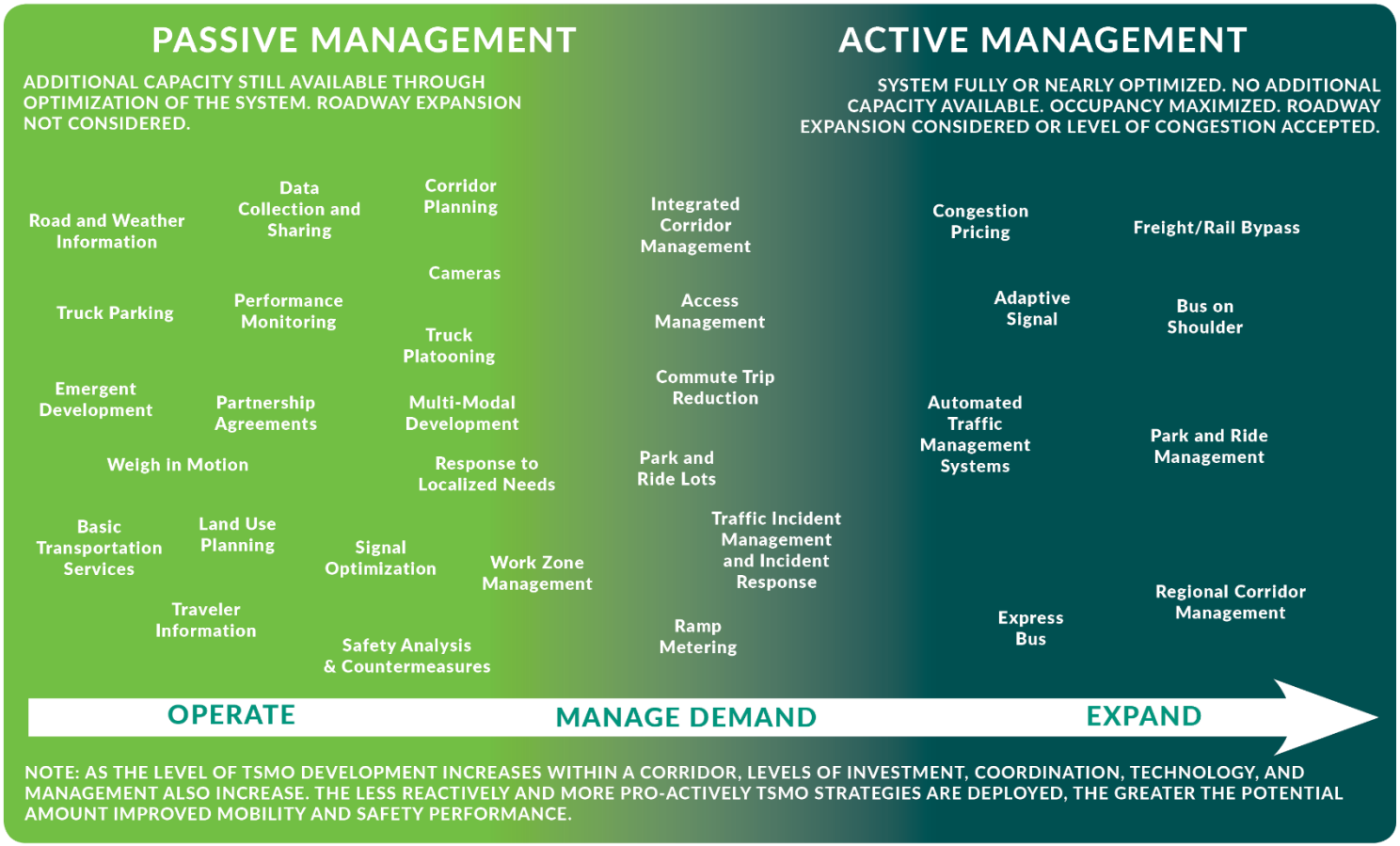
- **Give guidance to how TSMO is implemented**
  - **Integrate into business processes (planning, programming, performance, etc.)**

TSMO

Managing safety and capacity as an asset

TSMO INTEGRATION

Phases of Development



Challenges and Lessons Learned

- Establish a base understanding of TSMO among those responsible for leading the effort
  - Education needed (website, curriculum, outreach, etc.)

- Give guidance to how TSMO is implemented
  - Integrate into business processes (planning, programming, performance, etc.)

- **Institute TSMO sustainability**
  - **TSMO Plan must be developed and implemented**

How is TSMO being integrated in WSDOT?

WSDOT has a long standing history of advanced traffic operations.

- Capability Maturity Model Assessments (2014 & 2017)
- Defined: What does TSMO mean to WSDOT?
- TSMO Program Plan workshop (2018)
- TSMO workforce development (website, eLearning, conference presentations, etc.)
- Incorporation of TSMO philosophy into WSDOT business processes (Corridor Sketch, Integrated Scoping, Multi Modal Technical Forum, etc.)

today

- Statewide TSMO Working Group
- TSMO Program Plan
- TSMO Decision Framework
- TSMO Workshops

And much, much more!

Resources

- WSDOT TSMO Website
  http://fratis.trac.washington.edu/TSMO/?loc=Home.html
  or just search ‘fratis TSMO’
  NOTE: New and improved website coming SPRING 2019

- Consortium for Innovative Transportation Education (CITE)
  http://www.citeconsortium.org/
  NOTE: For access to WSDOT TSMO eLearning, contact Monica

Monica Harwood Duncan
Statewide Traffic Operations Engineer
509-844-5228
harwoom@wsdot.wa.gov

QUESTIONS FOR MONICA?

South Dakota DOT

Connecting South Dakota and the Nation

SDDOT Transportation Systems Management & Operations Program Plan

David Huft, Research Program Manager

Northwest Passage Webinar

January 23, 2019

WSP | PARSONS BRINCKERHOFF | Athey Creek CONSULTANTS

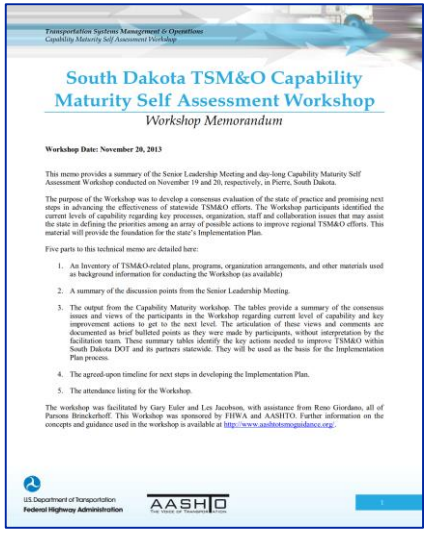
SHRP2 SOLUTIONS

TOOLS FOR THE ROAD AHEAD

Genesis of the Program Plan

- Develop a comprehensive Transportation Systems Management and Operations (TSM&O) Program Plan

- CMM Workshop: November 2013
- CMM Implementation Plan: March 2014
- TSMO Program Plan: July 2015 – June 2016



Transportation Systems Management & Operations
Capability Maturity Self Assessment Workshop

South Dakota TSM&O Capability Maturity Self Assessment Workshop

Workshop Memorandum

Workshop Date: November 20, 2013

This memo provides a summary of the Senior Leadership Meeting and day-long Capability Maturity Self Assessment Workshop conducted on November 19 and 20, respectively, in Pierre, South Dakota.

The purpose of the Workshop was to develop a consensus evaluation of the state of practice and promising next steps in advancing the effectiveness of statewide TSM&O efforts. The Workshop participants identified the current levels of capability regarding key processes, organization, staff and collaboration issues that may assist the state in defining the priorities among an array of possible actions to improve regional TSM&O efforts. This material will provide the foundation for the state's Implementation Plan.

Five parts to this technical memo are detailed here:

1. An Inventory of TSM&O-related plans, programs, organization arrangements, and other materials used as background information for conducting the Workshop (as available)
2. A summary of the discussion points from the Senior Leadership Meeting.
3. The output from the Capability Maturity workshop. The tables provide a summary of the consensus issues and views of the participants in the Workshop regarding current level of capability and key improvement actions to get to the next level. The articulation of these views and comments are documented as brief bulleted points as they were made by participants, without interpretation by the facilitation team. These summary tables identify the key actions needed to improve TSM&O within South Dakota DOT and its partners statewide. They will be used as the basis for the Implementation Plan process.
4. The agreed-upon timeline for next steps in developing the Implementation Plan.
5. The attendance listing for the Workshop.

The workshop was facilitated by Gary Euler and Les Jacobson, with assistance from Reno Giordano, all of Parsons Brinckerhoff. This Workshop was sponsored by FHWA and AASHTO. Further information on the concepts and guidance used in the workshop is available at http://www.aashtotsmoguidance.org/.

U.S. Department of Transportation Federal Highway Administration

AASHTO

Transportation Systems Management & Operations
Capability Maturity Self Assessment Workshop

South Dakota
Transportation Systems Management & Operations
Capability Maturity Implementation Plan

Approved

Signature: _____ Date: 03/06/2014
Darin Bergquist
Secretary, Department of Transportation

Signature: _____ Date: 03/06/2014
Trent Jones
Secretary, Department of Public Safety

U.S. Department of Transportation Federal Highway Administration

AASHTO

SD2014-06-P

South Dakota Department of Transportation Office of Research

U.S. Department of Transportation Federal Highway Administration

SHRP2

SDDOT Transportation Systems Management & Operations Program Plan

Study SD2014-06

Prepared by
WSP | Parsons Brinckerhoff
One Penn Plaza
New York, NY

June 2016

Results of CMM Workshop

Dimension	Level (1-4)	Priority Actions
Planning & Programming	1.5	• Develop a Statewide ITS/TSM&O Plan • Reexamine Statewide Incident Management Plan
Systems & Technology	2.0	• Leverage outcomes of the North/West Passage study with respect to TMC functions in rural applications
Performance Measurement	1.0	• Develop TSM&O Performance Measurement Plan
Culture	2.0	• No priority action
Organization/ Staffing	1.5	• Examine and define how SDDOT's organizational structure can be improved to advance TSM&O
Collaboration	2.0	• No priority action

TSM&O Program Plan

- Makes SDDOT's informal TSM&O program more formal and effective
- Incorporates TSM&O into SDDOT mission, goals and objectives
- Recommends
  - Actions & Tasks
  - Implementation Steps
- Audiences
  - Executive leadership
  - Implementation team
  - Partner agencies
  - DOT staff

Culture, Organization & Staffing

Culture

- Establish TSM&O Business Case
- Establish Appropriate Level of TSM&O Program Status
- Align SDDOT Mission, Vision, Objectives with TSM&O
- Customer Outreach to Support TSM&O

Organization & Staffing

- Establish TSM&O Structure
  - Executive Leader
  - TSM&O Manager
  - Implementation Team
- Develop Staff Capability
  - Division of Operations
  - Department-wide training

Implementation

Business Processes, Systems & Technology

Business Processes

- Establish Planning, Project Development Processes for TSM&O/ ITS Projects
  - Planning
  - Program Development
  - Project Development

Systems & Technology

- Update Statewide ITS Architecture
- Systems Engineering Guidance & Training
  - Training
  - Guidance
- TOC Functions, Roles, Responsibilities and Protocols
- Operations Guidance for Using Technology

Implementation

Performance Measurement, Collaboration

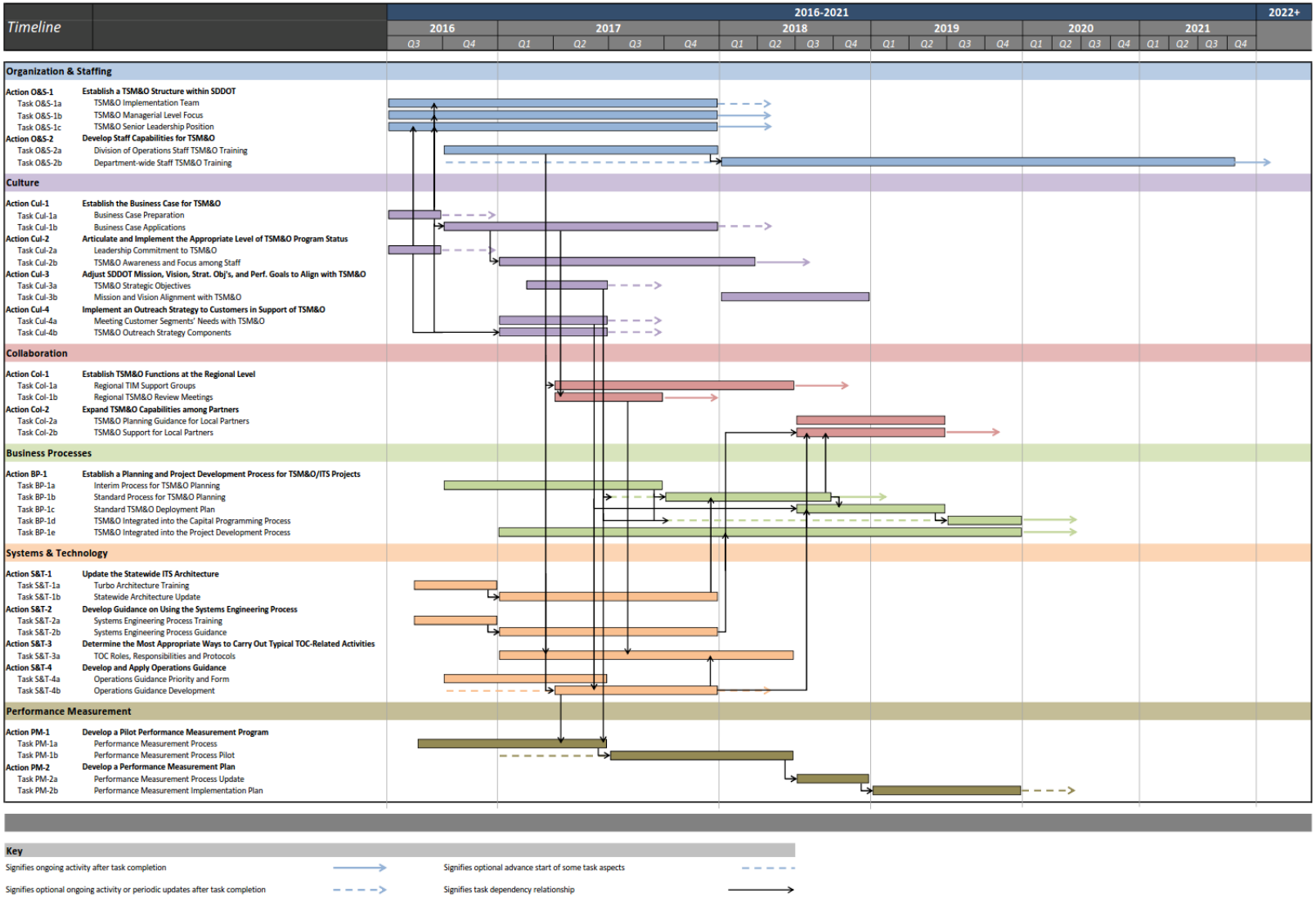
Performance Measurement

- Measurement Plan
  - Federal rules
  - Other measures
- Measurement Program

Collaboration

- SD Department of Public Safety
- Regional Traffic Incident Management

Implementation Schedule



Implementation Strategy

- Establish priorities in terms of sequence and dependencies
- Maintain flexibility for leadership priorities, resource availability, outside factors
- Focus on
  - Capability building
  - Feasibility and resource implications
  - Staff roles, SDDOT and partners
- Evaluate organizational structure
- Add an ITS Deployment Plan

Questions?

- Contact

David L. Huft
SDDOT Office of Research
700 East Broadway
Pierre, SD 57501-2586
Phone: 605.773.3358
Fax: 605.773.4713
dave.huft@state.sd.us

Thank You!!

Round Robin

- TSMO as is a set of integrated strategies to optimize the performance of existing infrastructure through the implementation of multimodal and intermodal, cross-jurisdictional systems, services, and projects designed to preserve capacity and improve security, safety, and reliability of the transportation system.
- Examples TSMO strategies include:
  - Incident management/emergency response
  - Planned special events
  - Integrated corridor management
  - Road weather management
  - Traveler information
  - Freight management
  - Work zone management
  - Arterial management
  - Multimodal coordination
  - Active traffic management (e.g. managed lanes, congestion pricing)
  - Emerging technologies (e.g. Connected and Automated Vehicles, Smart Cities)

Round Robin

- What are 1-2 TSMO strategies that have been successful in your agency?
- What current issues might TSMO strategies help address?
- How does your agency talk about TSMO? Is a formal TSMO program in-place?
- Have you made (or do you envision) any organizational changes to support TSMO?

WSDOT - What does TSMO represent?

It’s not just about:

- Mobility
- SOVs
- Urban Corridors
- Traffic Operations
- State DOTs
- People
- Technology
- Typical Users

Transportation Systems Management & Operations (TSMO)

Managing safety and capacity as an asset

EXAMPLE STRATEGIES

PLANNING, PARTNERING, AND POLICY DEVELOPMENT	ITS IMPROVEMENTS	TRAVEL DEMAND MANAGEMENT	COOPERATIVE AUTOMATED TRANSPORTATION	TRADITIONAL TRAFFIC OPERATIONS
Land Use Planning	Road Weather Information Systems	Multi-Modal Development – Transit – Ferries – Bicycle – Freight – Pedestrian – Rail	Traffic Signal Communications to Vehicles	Access Management
Utilization of Regional Trails, Sidewalks, and Roadway Network	Ramp Metering	Commute Trip Reduction	Truck Platooning	Signal Operations/ Optimization
Policy Implementation	Traffic Incident Management/IRT	Managed Lanes – High Occupancy Vehicle – Tolled – Multi-Modal Shoulder Driving	Autonomous Truck Mounted Attenuators	Safety Analysis/ Countermeasures
Agreement Development	Wrong-way Driver Notifications	High Occupancy Tolling/ Express Toll Lanes	Work Zone Warning and Management	Signage & Striping
Data Sharing	Regionwide Communications	Land Use Development	Tolling Vehicle Occupancy Detection	Speed Management
System and Corridor Planning – Multi-Modal – Corridor Sketch Maintenance – Joint Planning – State Facility Action Plan	Work Zone Management	Integrated Multi-Modal Traveler Information and Fare Collection Systems	Rest Area Truck Parking Applications	Minor Geometric Modifications – Channelization – Pedestrian Island – Compact Roundabouts
Integrated Scoping	Adaptive Signals		Winter Operations and Rural Traveler Information	Multi-Modal System Enhancement
Community Engagement	Intersection Conflict and Trail Crossing Warning Systems		Pedestrian in Crosswalk Warning	At-Grade Rail Crossings
	Weigh in Motion			
	Online Truck Permitting			

CORRIDOR AND SYSTEM MANAGEMENT

Closing

- Contacts for more information
  - Mike Schweyen, Minnesota DOT
    - michael.schweyen@state.mn.us
  - Monica Harwood, Washington State DOT
    - HarwooM@wsdot.wa.gov
  - Dave Huft, South Dakota DOT
    - dave.huft@state.sd.us
  - Brandon Beise, North Dakota DOT
    - bbeise@nd.gov

www.nwpassage.info