Using SHRP2 Innovations to Create a TSMO Culture in a Rural State

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Richard Tetreault, PE, Deputy Secretary, Vermont Agency of Transportation (VTrans)

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AASHTO

What Does TSMO Mean to Us?

TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS (TSMO) MISSION

VTrans will improve the reliability of the existing transportation system by managing delays and disruptions

GOALS

Improve reliability:

During **typical operating conditions** and **challenging weather**.

For work zones, special events and other **planned disruptions**.

For **unanticipated incidents** that cause short and long-term disruptions**.**

How Does TSMO Relate to Safety?

- Provides travelers with timely and accurate information about adverse weather conditions, traffic incidents, work zones, and other potential hazards.

- Enables faster detection, verification, response, and clearance of traffic incidents, which reduces the frequency of secondary incidents.

- Safer and more efficient traffic signal operations.

- Improved safety and mobility through work zones.

Objectives for Typical Operating Conditions

- **Every Day**
  - Provide timely and accurate traveler information
  - Optimize the operation of existing traffic controls (signals, signs, lines) to reduce delay
  - Reduce single occupancy vehicle use through Transportation Demand Management

- **Challenging Weather**
  - Use technology to better manage snow and ice control

Objectives for Anticipated Travel Disruptions

- **Work Zone & Special Events**

  - Provide timely and accurate traveler information
  - Minimize delay increase from a network/corridor perspective
  - Prevent crashes
  - Traffic Management Plans will accommodate bikes, pedestrians, transit and commercial vehicles

- **Special Event Specific**

  - Plan for all events affecting state system
  - New Special Event Permit

Objectives for Unanticipated Travel Disruptions

- **Short Term** (crash, sink hole) **and Long Term Incidents** (flood, unexpected bridge closure, transit strike)

  – Provide timely and accurate traveler information

  – Develop/improve situational awareness of real time operating conditions

  – Minimize time to deploy response/mitigation

  – Minimize duration of travel restrictions and closures

  – Reduce potential for secondary crashes
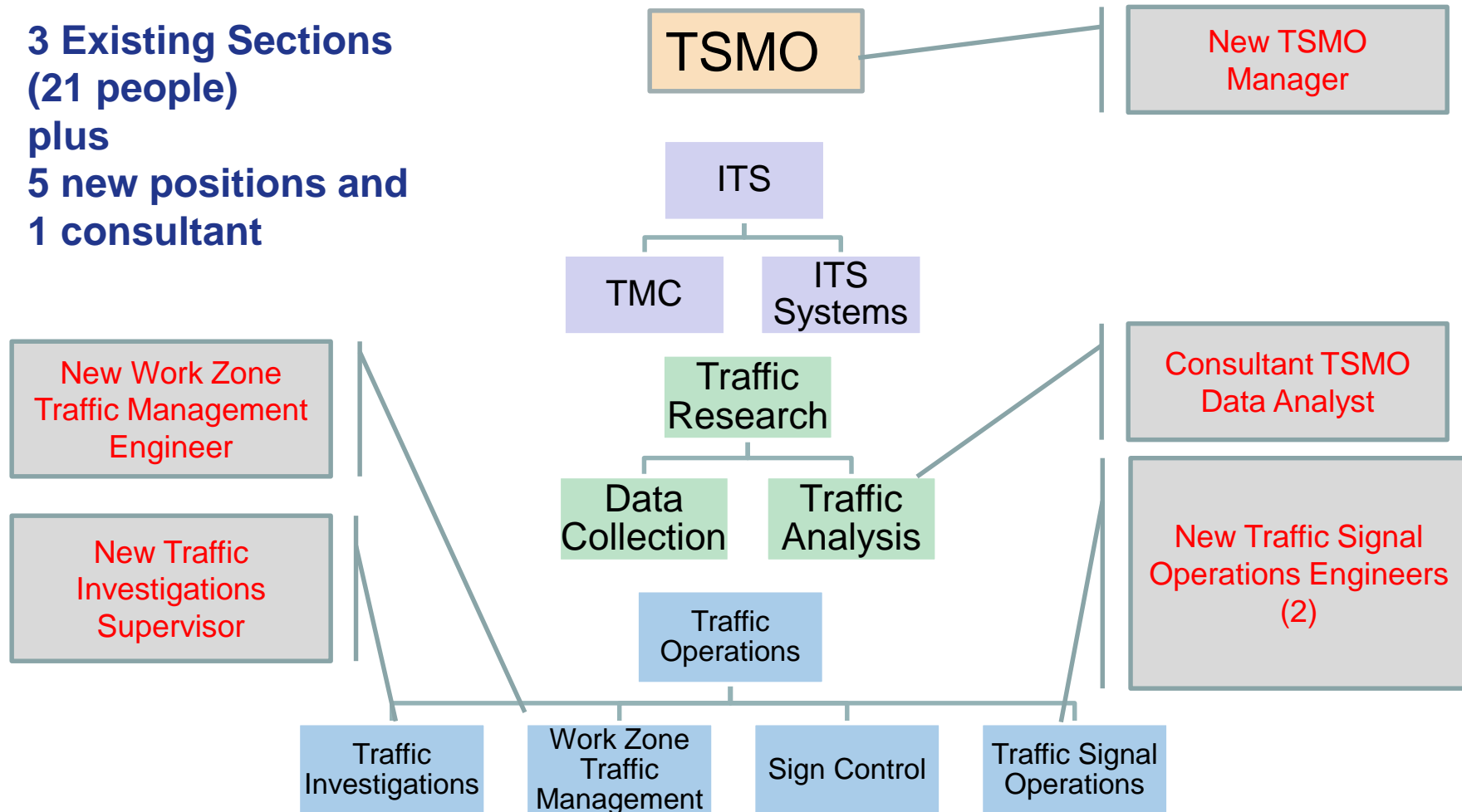
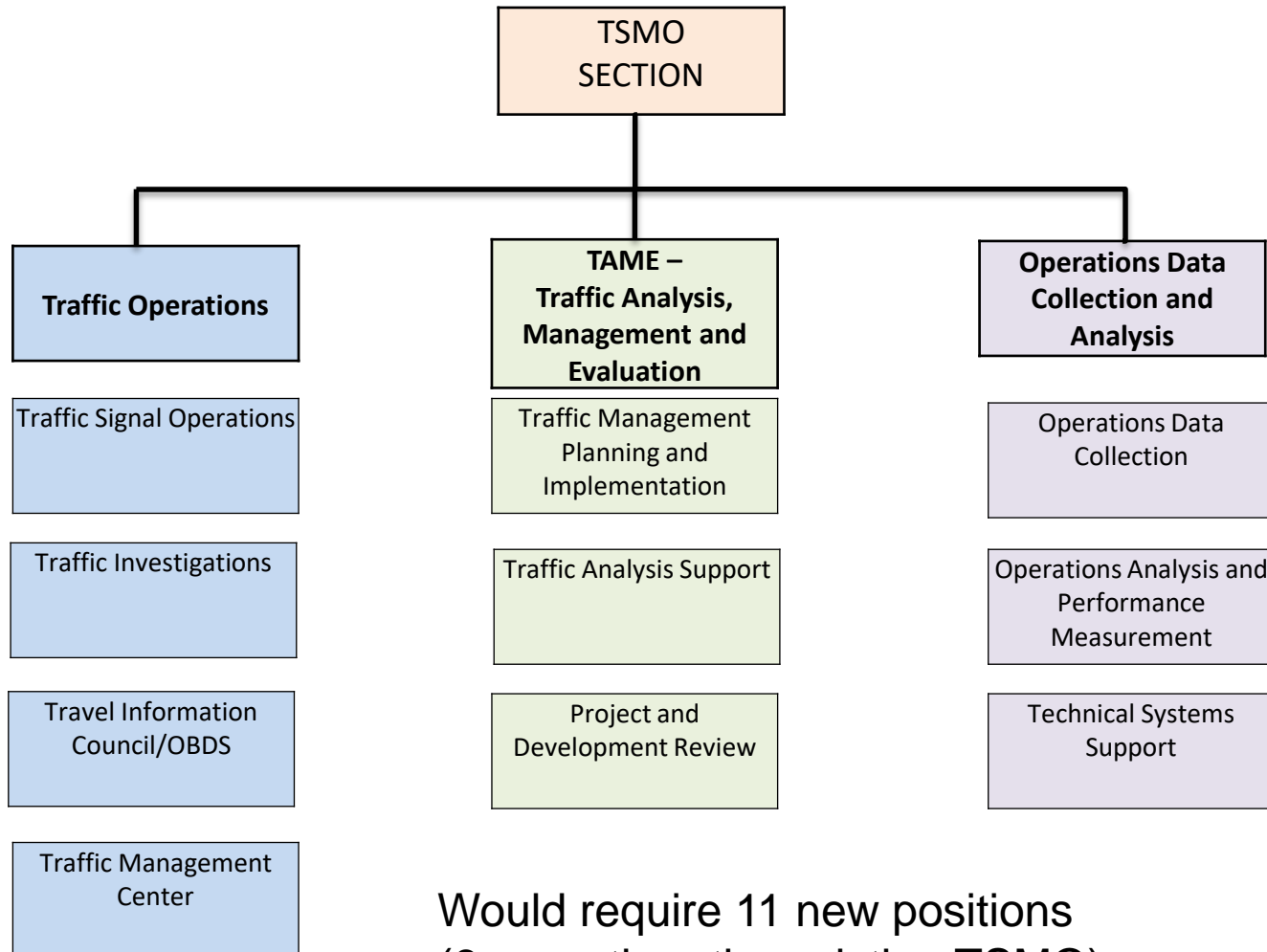 – Integrate ICS and TSMO

Who is VTrans TSMO?

- All of us – TSMO is a culture, not just a section
  - Project Designers
  - Resident Engineers
  - Public Information Officers
  - Snow Plow Drivers
  - Maintenance Workers
  - Regional Planners
  - Asset Management
  - IT Specialists
  - Office of Highway Safety
  - Executive Staff
- Working in concert with the TSMO section

TSMO Section (Interim)

3 Existing Sections (21 people) plus 5 new positions and 1 consultant

TSMO

New TSMO Manager

ITS

TMC

ITS Systems

New Work Zone Traffic Management Engineer

New Traffic Investigations Supervisor

Traffic Research

Data Collection

Traffic Analysis

Consultant TSMO Data Analyst

New Traffic Signal Operations Engineers (2)

Traffic Operations

Traffic Investigations

Work Zone Traffic Management

Sign Control

Traffic Signal Operations

TSMO Section (Future)

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                        │     TSMO     │
                        │   SECTION    │
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│                   │ │      TAME –       │ │  Operations Data  │
│ Traffic Operations│ │ Traffic Analysis, │ │  Collection and   │
│                   │ │ Management and    │ │     Analysis      │
│                   │ │   Evaluation      │ │                   │
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Traffic Operations	TAME – Traffic Analysis, Management and Evaluation	Operations Data Collection and Analysis
Traffic Signal Operations	Traffic Management Planning and Implementation	Operations Data Collection
Traffic Investigations	Traffic Analysis Support	Operations Analysis and Performance Measurement
Travel Information Council/OBDS	Project and Development Review	Technical Systems Support
Traffic Management Center		

Would require 11 new positions
(6 more than the existing TSMO)

VTrans' Goal

Goal: To Create a Model Operations Program

Objective: Create and Implement an Action Plan to Take Us There

Strategies:

- Developing an Implementation Plan

- Making the Case for VTrans Operations

- Identify Organization and Staffing Needs

Using SHRP2's Organizing for Reliability Tools

- **Capability Maturity Model (CMM) framework** Helps agencies evaluate strengths and weaknesses in 6 areas: business processes, systems and technology, performance measurement, culture, organization and workforce, and collaboration.

- **Online Self-Assessment** – evaluated agency's institutional and process-oriented capabilities in systems management and operations.

- **CMM workshop** – used the CMM framework to assess effectiveness of our existing operations.

Reorganizing Our Operations

- **Developed Implementation Plan**
Following the CMM workshop, we developed an implementation plan, identifying specific actions to elevate the agency's capabilities to improve travel-time reliability and the efficiency of our transportation system.

We Didn't Do It Alone – TSMO Support

- New England Regional Operations Forum (May 2014) **(SHRP2)**
  - Critical introduction to concepts for future TSMO section leaders and District TSMO specialists

- TSMO CMM Workshop (Sept 2014) **(SHRP2)**
  - Highlights that TSMO activities occur throughout the Agency, not just in the TSMO section

- Vermont Operations Forum (Sept 2015) **(SHRP2)**
  - Bringing TSMO concepts to newly formed TSMO section and District TSMO specialists (Buy in)

- New England TSMO Peer Exchange (Oct 2015) **(SHRP2)**
  - Keeping in touch with neighboring states, best practices

We Didn't Do It Alone – Work Zones

- Work Zone Process Review (Feb 2014) **(FHWA)**
  - Highlighted need to coordinate projects in time and space, provide TMP training, and establish feedback loops.
- Work Zone/TMP Training (July 2014, Feb 2016) **(FHWA)**
  - Training provided to over 120 VTrans designers, maintenance technicians, and consultants with new emphasis on mobility.
- EDC-3 Smarter Work Zone Regional Peer Exchanges (Oct 2014, Oct 2015) **(FHWA)**
  - Working with neighboring states to implement best practices and provide a consistent work zone experience to the traveling public.

We Didn't Do It Alone – Signal Operations

- Traffic Signal Operations Scan Tour (Oct 2015) **(FHWA)**
  - Seeing the "Purdue Method" in action, performance measures
- Traffic Signal Operations Plan assistance (ongoing) **(FHWA)**
  - Stepping back to establish an asset management plan (you can't operate it if it isn't functional)

We didn't do it alone – Regional Collaboration

- Tri-State ATMS **(FHWA)**
  - Maine, New Hampshire, Vermont pooled fund project
  - New England Compass travel information system launches May 2016
  - NHDOT to provide off-hours TMC coverage for VTrans

- Northeast Traffic Engineers **(State Organized)**
  - NY, ME, NH, VT, CT, MA, RI meet twice a year to share traffic engineering best practices and challenges

- Northeast TSMO **(State Organized)**
  - Working to create a similar working group with neighboring states specific to TSMO

Next Steps for TSMO

- Continue to infect the Agency with the TSMO way of thinking.
- Develop new and innovative strategies to collect and use various forms of traffic data with the goal of improving mobility, and measuring the performance of VT's highway system.
- Improve statewide traffic signal operations
- Continue focus on improving work zone safety and mobility

Questions?

- **Richard Tetreault,** Deputy Secretary, VTrans
  richard.tetreault@vermont.gov

- **Joshua Schultz**, TSMO Manager, VTrans
  joshua.schultz@vermont.gov

- **Joseph Gregory**, Program Manager, SHRP2 Organizing for Reliability Tools, FHWA
  joseph.gregory@dot.gov

- **Gummada Murthy**, Associate Program Director, Operations, AASHTO
  gmurthy@aashto.org

GoSHRP2 website
www.fhwa.dot.gov/goSHRP2

- Product details
- Information about SHRP2 implementation phases

SHRP2 AASHTO website
http://SHRP2.transportation.org

- Implementation Information for AASHTO members