TRB Annual Meeting 2015 Preview:
Launching the Next Generation of TSM&O
Sponsored by:
AASHTO Subcommittee on TSM&O, Research Working Group
TRB Regional TSM&O Committee (AHB10)
TRB Freeway Operations Committee (AHB20)

December 11, 2014
11:30am – 1:00pm (EST)
2015 TRB Annual Meeting
Preview
Launching the Next Generation of TSM&O
December 11, 2014
Introduction

Objectives of the Webinar
- Preview key activities at the 2015 TRB Annual Meeting
- Anticipate & leverage momentum of related initiatives

Agenda Overview
- TSM&O Research Working Group
- TRB Committee Activities
- National Operations Center of Excellence
- SHRP2 Implementation
- Next Generation Strategic TSM&O Research

Opening Poll
1. Align TSM&O research planning within AASHTO
   - Maintenance, Traffic Engineering, Security/EM
   - Highway Transport (Freight)
   - Planning, Performance Management
2. Actively support & advise USDOT & TRB
   - TRB RTSMO & Freeway Ops Committees
   - USDOT (ITS JPO) ITS Strategic Plan
3. Impact post-SHRP Strategic TSM&O Research
4. Promote & leverage the role of the Operations Center of Excellence
TSM&O Research Working Group Activities

1. Monthly Teleconferences
   *(December 12, 11:30 a.m. Eastern)*
2. AASHTO-TRB NCHRP Problem Statements
3. Spring & Fall NCHRP 20-7 Project Support
4. Next Generation TSM&O Research Framework
5. TSM&O Research Implementation (SHRP, etc.)
6. Subcommittee on TSM&O Annual Meeting
   *(June 1-3, 2015, Pittsburgh & ITSA!!)*
7. TRB Annual Meeting – “Prep & Debrief”
TRB Annual Meeting TSM&O Highlights

Regional Transportation Systems Management and Operations (RTSMO) Committee
Les Jacobson, Chair
TSM&O Key Trends Through 2017
From RTSMO Strategic Plan

• New technology
• Improved operational data
• New forms of revenue generation
• Advancements in traveler information
  – Especially travel time related
• Identification of operations-based performance measures
• Social trends
  – Shared-use mobility concepts
  – Mobile device apps and social media
RTSMO Sponsored/Co-sponsored Sessions/Events - Workshops

• Sunday, January 11
  – 140: Freight Corridors: International and Domestic Approaches and Experiences (9:00 AM)
  – 133: Traffic Incident Management: Expanding the Conversation to Identify New Research Needs (9:00 AM)
  – 179: Understanding the Traffic Incident Management (TIM) Capability Maturity Model Framework (1:30 PM)
  – 176: Recipes for Successful System Management When There Are a Lot of Cooks in the Kitchen (1:30 PM)
RTSMO Sponsored/Co-sponsored Sessions/Events - Sessions

• Monday, January 12
  – Regional Transportation Systems Management and Operations (8:30 AM)
  – 349: Establishing Transportation Systems Management and Operations as a National Commitment, Part 1: Enabling Change and Performance Management (1:30 PM)
  – 411: Establishing Transportation Systems Management and Operations as a National Commitment, Part 2: Executive Commitment (3:45 PM)

• Tuesday January 13
  – 617: Programming for Regional Transportation Systems Management and Operations – Experiences from Across the U.S. (1:30 PM)
RTSMO Sponsored/Co-sponsored Sessions/Events - Meetings

• Wednesday, January 14
  – RTSMO Committee Meeting (Part 1 at 10:15 AM, Part 2 at 2:30 PM)

• 11 subcommittee meetings on Monday and Tuesday
  – Search “AHB10” for specifics
TRB Freeway Operations Committee
Chair: Jon Obenberger, FHWA

TSM&O Activities at the 2015 TRB Annual Meeting

Committee URL:
https://sites.google.com/site/trbfreewayops/
Annual Meeting Activities

• Sunday Workshops
  – **Workshop 133: Traffic Incident Management: Expanding the Conversation to Identify New Research Needs**, Sunday, January 11, 2015 9:00AM - 12:00PM  Convention Center, 102B
  – **Workshop 145: Freeway and Interchange Design: Applying the Science and Art of Engineering Innovation**, Sunday, January 11, 2015 9:00AM - 12:30PM  Convention Center, 204B
  – **Workshop 176: Recipes for Successful System Management When There Are a Lot of Cooks in the Kitchen**, Sunday, January 11, 2015 1:30PM - 4:30PM  Convention Center, Salon A
  – **Workshop 179: Understanding the Traffic Incident Management (TIM) Capability Maturity Model Framework**, Sunday, January 11, 2015 1:30PM - 4:30PM  Convention Center, 102B
Annual Meeting Activities (cont.)

- Committee Meetings
  - Freeway Operations Committee, Tuesday, January 13, 2015, 8:00 am & 7:30 pm, Marriott Marquis
  - Active Traffic Management Joint Subcommittee of AHB20, AHB35, Wednesday, January 14, 2015 8:00 am, Marriott Marquis

- Subcommittees – Sunday, January 11th
  - 2-3 pm Emerging Freeway Operations Concepts Subcommittee, AHB20(6)
  - 3-5 pm Freeway Management Handbook Subcommittee, AHB20(1)
  - 5-6:30 pm Freeway Operations Research Subcommittee, AHB20(3)
  - 6:30-8 pm Freeway Operations Planning and Meetings Subcommittee, AHB20(4)
  - 8-9:30 pm Freeway Simulation Subcommittee, AHB20(2)
Annual Meeting Activities (Cont.)

• Sessions
  – Session 243: Freeway Operations, Monday, January 12, 2015, 8:30 am
  – Sessions 349 & 411: Establishing Transportation Systems Management and Operations as a National Commitment Monday, January 12, 2015, 1:30 & 3:45 pm
  – Session 444: Incident Management, Monday, January 12, 2015, 4:15 pm
  – Session 686: Wrong Way Driving: What We Know, What We Are Doing, and Where Are We Going, Tuesday, January 13, 2015, 3:45 pm
Research Circular Purpose & Objectives

• To document the identification and prioritization of research needs for submittal to funding sources (NCHRP, FHWA, Pooled Fund Studies, etc.)

• Strategically focus on areas that are of importance to the TSM&O community based on advancing State of Practice and State of Art

• Partner with
  – Other TRB Committees (RTSMO, HCQS, Managed Lanes, Traffic Control Devices, etc.)
  – AASHTO SSOM Subcommittee, TIM Network, ITE
Key Research Areas for Circular

1. Active traffic management (ATM)
2. Integrated corridor management (ICM)
3. Managed lanes
4. Traffic incident management (TIM)
5. Performance data, monitoring & management
6. Traffic management centers (TMCs)
7. Detection & surveillance
8. Traffic control devices for freeways
Desired Outcomes

• Systematic involvement and feedback on research needs, priorities and development of proposals
• Research proposals jointly developed and supported by TRB Committees and organizations
• Advance and obtain support from sponsors to initiate priority research proposals
• Additional collaboration on future research
• Integrate research into future activities (e.g., update of FMOH, MUTCD)
Research Circular Status

• Feedback on research needs priorities (Jan-March 2015)
• Prepare final draft of Research Circular (April-June 2015)
• Develop additional draft research problem statements (July - Sept. 2015)
• Draft Circular is available at:
  – https://sites.google.com/site/trbfreewayops/sub_committees/research

TRB Freeway Operations Committee (AHB20)
Background

KTS
- Developed under SHRP2 Project L17

EKTS
- Developed Under SHRP2 L17 Implementation Efforts
- Is The Foundation for NOCoE

NOCoE
- Rollout At TRB
- FHWA, AASHTO, ITE and ITSA Commitment
NOCoE Products & Services

- Host and actively manage EKTS website with a suite of services
  - Updated, comprehensive set of key TSM&O resources (knowledge synthesis)
  - Cross citation of best practices
  - Moderated discussion forums where practitioners can exchange technical information and advice
  - Identify research needs
  - Social media connections
  - Links to other websites
  - Comprehensive Calendar and E-newsletter
NOCoE Products & Services

• Provide Technical Services Program
  – Regional TSM&O best practice peer exchanges
  – National TSM&O summits
  – “Lead state and best practices” peer exchange webinars
  – Training and workshops
  – Development of case studies
  – Capturing best practices and research needs
  – Assessing initial state of TSM&O R&D in the United States
  – Ongoing support for selected SHRP2 products
Timeline for Delivery

**EKTS**
- Built enhanced web portal (Jul to Dec 2014)
- Beta tested web portal (Dec 2014)
- Revise web portal based on test feedback (Dec 2014-Jan 2015)
- Launch EKTS (Jan 11, 2015)
- Conduct day-to-day management of EKTS (Jan-Oct 2015)
- Continue to build out site content (Jan-Oct 2015)
- Complete transition to NOCoE operation (Oct 2015)

**NOCoE**
- Completed Executive Director selection process (Oct 2014)
- Executive Director began working off-site (Nov 2014)
- Executive Director begins working on-site (Jan 2015)
- Opening Ceremony/NOCoE Open for Business (Jan 11, 2015)
- Conduct day-to-day operation of NOCoE
Board of Directors

EKTS
- Don Hunt, Executive Director, CODOT and STSMO Chair (AASHTO)
- Jennifer Toth, (formerly) AZDOT and Now Maricopa County DOT (AASHTO)
- Abbas Mohaddes, Iteris (ITSA)
- Doug Wiersig, City of Fort Worth, Texas (ITE)
- Associate Administrator for Operations, FHWA, Non-Voting

NOCoE
- Don Hunt, Executive Director, CODOT and STSMO Chair (AASHTO)
- Shailen Bhatt, CEO DE DOT and SCOT Chair (AASHTO)
- John Barton, Deputy Director, TXDOT and SCOTE Chair (AASHTO)
- Greg Johnson, Chief Engineer and Deputy Director, MIDOT (AASHTO)
- Abbas Mohaddes, President and Chief Executive Officer, Iteris (ITSA)
- Harry Voccola, Corporate Transportation Consultant, HERE (ITSA)
- Doug Wiersig, Director or Transportation and Public Works, City of Fort Worth, Texas (ITE)
- Laurie Matkowski, Manager, Office of Transportation Operations Management, Delaware Valley Regional Planning Commission (ITE)
- Associate Administrator for Operations, FHWA, Non-Voting
NOCoE Website

http://www.transportationops.org
Longer Term Opportunities for Coordination and Leveraging of Resources

- Coordination with USDOT
  - FHWA Operations programs including ICM, ATM, etc.
  - Tolling and Pricing Programs
  - RITA on Connected Vehicle Programs
- Coordination and alignment with National Operations Academy
- Corridor Coalitions – I-95 CC, I-90 CC etc.
- Other Agencies – AAMPO, NACO, APTA, UTC, & Others
- Private Sector
- Research Institutes/Academia
5:00pm Ribbon Cutting at TRB Trade Exhibit
SHRP2 Implementation & Next Generation TSM&O Research Directions

Jeff Lindley, FHWA
December 11, 2014
Creating strong organizational capabilities for reliability and TSM&O

- Organizational assessment tools (L01/06)
- Outreach to leaders and others (L31)
- Business process support (L01/L34)
Advancing systems management and operations by:

Providing tools to support measurement, analysis, and effective decision-making that considers TSM&O

- Data monitoring (L02)
- Analysis tools (L04, L07, L08, C11)
- Reliability measures in planning/programming (L05)
- Freight data and modeling (C20)
- Freight in highway capacity planning (C15)
- Work zone sequencing/coordination (R11)
Advancing operations strategies and practices

- TIM training (L12/L32)
- Capabilities of operations programs (follow-on to L01/L06)
- Communicating Travel Time Reliability (L14)
Advancing systems management and operations by:

Increasing and sharing knowledge

- Knowledge transfer system (L17) to an Operations Center of Excellence
  - Data sharing (L13A)
  - SHRP2 advanced search tool (L17)
- Training & peer exchange (L36)
SHRP2 on the Web

- goSHRP2 website
  www.fhwa.dot.gov/goSHRP2
  - Product details
  - Information about SHRP2 implementation phase

- SHRP2 @TRB
  www.TRB.org/SHRP2
  - Information about research phase

- SHRP2 @AASHTO
  http://SHRP2.transportation.org
  - Implementation information for AASHTO members
NCHRP 20-07 / TASK 359 - NATIONAL TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS (TSM&O) RESEARCH PROGRAM

TRB ANNUAL MEETING PREVIEW WEBINAR

DECEMBER 11, 2014
PRESENTATION OVERVIEW

• Project Need
• Research Objective
• Overview of Concepts for TSM&O Research Framework
• Moving Forward
NEED FOR TSM&O RESEARCH PROGRAM

- TSM&O Continues to Emerge as Core Business Area
- National Program Structure for TSM&O is Evolving
- SHRP 2 TTR TSM&O Tools & Resource Implementation
- Transformational Changes Since Initial Planning for SHRP 2
- Parallel Work on CV/AV Research Roadmap
- Rapidly Emerging Industry R&D Interest (Vehicle, Data, etc.)
- Opportunistic Timing
  - National Operations Center of Excellence Implementation
PROJECT OBJECTIVE

Research Objective:
“To create a plan for developing a sustainable transportation system management and operations (TSM&O) research program.”

Final Report Deliverable:
“Plan for Developing a Sustainable TSM&O Research Program”
DEFINING A TSM&O RESEARCH FRAMEWORK

**FIGURE 2-1** Schematic representation of the research functions of a national research framework.

**FIGURE ES-1** Steps leading to a new national research framework.
TSM&O RESEARCH PROGRAM FRAMEWORK CONCEPT

• Key Considerations
  • Maintain momentum of SHRP benefits & impacts
  • Realize synergies with TRB & AASHTO committees alignment (e.g. Design)
  • Access & leverage immediately available funding
  • “Bridge” and evolve towards a future strategic TSM&O research program
  • Balance “Top Down” and “Bottom Up” approaches
TSM&O RESEARCH PROGRAM FRAMEWORK CONCEPT

• Organizational Responsibility for TSM&O Research Program?

• Setting the TSM&O Research Program Agenda?
  • Research Program Goals
  • Research Focus Areas & Communities of Practice
  • Process & Schedule for Managing

# TSM&O Research Program Framework Concept

## Annual TSM&O Research Plan Process

**Research Plan Goals**
1. Identify TSM&O Research Needs and Develop Research Needs and Problem Statements
2. Find Organizations to Fund and Conduct Necessary Research and Work Through Relevant Processes
3. Track Previous, Ongoing, and Upcoming Research

**Research Plan Metrics**
- Number of Research Ideas Considered
- Number of RNS Entered into RNS Database
- % RNS Reviewed and Updated
- Number of Problem Statements Submitted
- Number of Problem Statements Funded

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<thead>
<tr>
<th>Roadmap</th>
<th>WHAT:</th>
<th>WHO:</th>
<th>WHEN:</th>
<th>HOW:</th>
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<tbody>
<tr>
<td>JANUARY</td>
<td>Identify Potential TSM&amp;O Research Ideas &amp; Review Existing RNS’s</td>
<td>RTSMO with TRB Joint TSM&amp;O Research Task Force</td>
<td>TRB Annual Meeting</td>
<td>Formal Part of TRB Committee and Subcommittee Agendas &amp; Meeting of Joint TSM&amp;O Research Task Force</td>
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<td>JULY</td>
<td>Maintain Prioritized List of Ideas – Identify Potential RNS/RPS &amp; Synthesis Topics</td>
<td>RTSMO with TRB Joint TSM&amp;O Research Task Force</td>
<td>By Mid-February</td>
<td>Via Conf Call/Webinar</td>
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<td>Draft New RPS &amp; Submit to AASHTO STSMO RWG for Review</td>
<td>STSMO Research Task Force</td>
<td>Submit 1 month prior to TRB Summer Meeting</td>
<td>ID Need for New RPS by reviewing related research needs, RIP and completed</td>
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<tr>
<td>DECEMBER</td>
<td>Review &amp; Priorize TSM&amp;O RPS for NCHRP (other) Submission</td>
<td>AASHTO STSMO RWG</td>
<td>TRB Summer Meeting</td>
<td>NCHRP staff support to work with AASHTO STSMO and relevant TRB Committees to review/finalize RPS's as necessary</td>
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</tbody>
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**Research Plan Process**

- **WHAT:** Identify Potential TSM&O Research Ideas & Review Existing RNS’s
- **WHO:** RTSMO with TRB Joint TSM&O Research Task Force
- **WHEN:** TRB Annual Meeting
- **HOW:** Formal Part of TRB Committee and Subcommittee Agendas & Meeting of Joint TSM&O Research Task Force

- **WHAT:** Maintain Prioritized List of Ideas – Identify Potential RNS/RPS & Synthesis Topics
- **WHO:** RTSMO with TRB Joint TSM&O Research Task Force
- **WHEN:** By Mid-February
- **HOW:** Via Conf Call/Webinar

- **WHAT:** Draft New RPS & Submit to AASHTO STSMO RWG for Review
- **WHO:** RTSMO with TRB Joint TSM&O Research Task Force
- **WHEN:** Submit 1 month prior to TRB Summer Meeting
- **HOW:** Use CRC Resources Quick Guide – How to Write and Effective RPS

- **WHAT:** Review & Priorize TSM&O RPS for NCHRP (other) Submission
- **WHO:** AASHTO STSMO RWG
- **WHEN:** By Sept 15th of each year
- **HOW:** Through formal submission process

- **WHAT:** Submit RPS’s to NCHRP
- **WHO:** NCHRP Staff with TRB Committees
- **WHEN:** Prior to Next TRB Annual Meeting
- **HOW:** Update RIP and related databases as appropriate, Develop Circulars, Update TSM&O Research Ideas Database

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**Notes:**
- Draft TSM&O Research Plan Process v.10082014

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**Contact:**
TSM&O RESEARCH PROGRAM FRAMEWORK CONCEPT

- Conduct of TSM&O Research
  - Coordination of TSM&O Research Projects
- Dissemination of TSM&O Research Results
  - Leverage dissemination mechanisms already in use by existing research programs (e.g., TRB)
- Implementation of New TSM&O Knowledge
- TSM&O Research Evaluation
- Funding the TSM&O Research Program
TSM&O RESEARCH PROGRAM
FRAMEWORK CONCEPT

Linkage to C/AV Research Roadmap: Possible Deliverable Themes

[NCHRP 20-24(98, 100), NCHRP 20-102]

1. Programmatic C/AV Research Synthesis, Administration & Support
3. National Transportation Policy Agendas for State & Local Transportation Agencies
4. National Transportation Organizations Institutional Framework
MOVING FORWARD

TSM&O Research Program Implementation “Action Plan”

• Immediate (now to end of CY 2015)
  • Get input/support from NOCoE Board
  • Continue to refine/update framework concepts with NOCoE and stakeholder community

• Ongoing
  • Maintain & build upon “casual processes” underway
    • Coordination/collaboration of TRB RTSMO, Freeway Ops and AASHTO STSMO
    • Create joint TRB TSM&O Research Task Force

• Longer-Term (by end of CY 2016)
  • Full implementation of vetted TSM&O Research Program
Connected Vehicles and Automated Vehicles at TRB

Ray Derr

Dec 11, 2014
TRB CV/AV Meeting Sessions
(partial listing)

• Findings from the 2014 Automated Vehicles Symposium (Sun 9:00-Noon, Workshop 132)
• The Future is Here: Autonomous Vehicles and Us (Mon 1:30-3:15PM, Session 329)
• National Road Vehicle Automation Research and Demonstration Programs from Around the World (Mon 3:45-5:30PM, Session 412)
• Current Projects and New Developments in Vehicle-Highway Automation Showcase/Recent Progress in Vehicle-Highway Automation (Mon 7:30-9:30PM, Poster Sessions 469 & 470)
• Alternative Deployment Strategies for Using Vehicle Automation to Produce Transportation Benefits (Tue 10:15-Noon, Session 564)
• Vehicle-Highway Automation Committee (Tue 1:30-5:30PM, AHB30 Committee Meeting)
Private Sector Activities

- Vehicle Manufacturers
- Original Equipment Manufacturers (OEMs)
- Third-Party Vendors
- Crash Avoidance Metrics Partnership (CAMP)
- Many Others
U.S. DOT Activities

- NHTSA Rule Making Process and Status
- Research (e.g., cooperative adaptive cruise control, speed harmonization, truck platooning, eco drive)
- V2I Deployment Guidance (planned for late 2015)
- Connected Vehicle Model Pilot Deployment Program (solicitation in early 2015)
AASHTO Activities

• Connected Vehicle Pooled Fund Study (e.g., multi-modal intelligent traffic signal system, traffic management centers in a connected vehicle environment)

• Connected Vehicle Executive Leadership Team and Technical Working Group (including Footprint Analysis)

• V2I Deployment Coalition
TRB Activities

• 2014 Automated Vehicles Symposium
• Conference on Connected-Automated Vehicles (Jul 20-24, 2015 in Ann Arbor, MI)
• Connected/Automated Vehicle Research Roadmap for AASHTO, NCHRP 20-24(98)
• Impacts of Connected Vehicles and Automated Vehicles on State and Local Transportation Agencies, NCHRP 20-102
Wrap Up

• Key Points & TRB Annual Meeting Opportunities

• TSM&O Research Working Group Teleconference
  TOMORROW, December 12, 11:30 a.m. Eastern

• Exit Survey
  - Feedback on this webinar
  - Interest in TRB Annual Meeting “debrief” webinar

• Thank you!!