Lee Smithson: Transportation Legacy

- Assistant Resident Construction Engineer (1957-1960)
- Resident Maintenance Engineer (1960-1963)
- Project Planning Engineer (1963-1968)
- Long Range Planning Engineer (1968-1971)
- Director of Office Maintenance (1971-1974)
- Assistant Highway Planning Surveys Engineer (1974-1976)
- Director of the Office of Regional Transportation Development (1976-1986)
- Retired as a Colonel from the Military (1986-1990)
- Retired from the Iowa Department of Transportation (1994-2014)
- Retiring from AASHTO (2002-2014)
Why Does Transportation Matter?

- Preserve Infrastructure
- Optimize Mobility
- Zero Fatalities

Strengthen the Economy
Shifting Paradigm in Transportation

- Plan
- Design
- Construct
- Maintain
Shifting Paradigm in Transportation
Why Preservation?

Preservation work should begin 7 to 10 years after initial completion.

Pavement Condition vs. Pavement Age (Years)

- Original Pavement Condition
- Minor Investment/Treatments
- Preservation $1
- Rehabilitation $4
- Major Investment/Treatments
- Reconstruction $25
Maintenance and Operations
WHEREAS, Effective Transportation System Management and Operations (TSM&O) is a major component of addressing highway system congestion, safety, and reliability, and

WHEREAS, The effectiveness of TSM&O can be significantly improved through technical leadership, sharing of best practices, research, and professional education and training to practitioners, policymakers, and researchers provided through a dedicated National Operations Center of Excellence (NOCoE); and

WHEREAS, In light of the success of similar services provided by the AASHTO Center for Environmental Excellence and the AASHTO Center for Excellence in Project Finance, the Board of Directors on May 7, 2013, adopted resolution PR-2-13, directing the Subcommittee on Systems Operation and Management (SSOM) to work with the Federal Highway Administration (FHWA), the Institute of Transportation Engineers (ITE), and the Intelligent Transportation Society of America (ITSA) to complete a business plan and develop an agreement on scope, content, and a sustaining business model for a NOCoE; and

WHEREAS, The SHRP2 Reliability research program has completed several products including a Knowledge Transfer System web portal that is foundational to the establishment of a NOCoE, and will function as the center’s actively managed website; and

WHEREAS, The SHRP2 Reliability research program is developing a mechanism of Regional Operations Forums to enhance the continued development of national peer networks that will both support and benefit from a NOCoE; and

WHEREAS, The American Association of State Highway and Transportation Officials (AASHTO), ITE, ITS America

WHEREAS, In light of the success of similar services provided by the AASHTO Center for Environmental Excellence and the AASHTO Center for Excellence in Project Finance, the Board of Directors on May 7, 2013, adopted resolution PR-2-13, directing the Subcommittee on Systems Operation and Management (SSOM) to work with the Federal Highway Administration (FHWA), the Institute of Transportation Engineers (ITE), and the Intelligent Transportation Society of America (ITSA) to complete a business plan and develop an agreement on scope, content, and a sustaining business model for a NOCoE; and

RESOLVED. That initial funding support for the NOCoE will come from FHWA and AASHTO, and therefore be it

RESOLVED. That SSOM is requested to approve the establishment of an Operations Technical Service Program at its annual meeting in Nashville, Tennessee, and therefore be it

RESOLVED. That the Standing Committee on Highways request that the AASHTO Board of Directors approve the establishment of the Operations Technical Service Program at its 2014 spring meeting, and be it further

RESOLVED. That the solicitation for the Operations Technical Service Program will be prepared and distributed to all member departments as part of the AASHTO annual TSP solicitation process requesting a $15,000 annual contribution per member department for support with at least 20 members participating in the initial solicitation; and finally be it

RESOLVED. That the NOCoE will expand member DOT support for the Operations technical service program and other offerings beyond the initial assumption of participation by participating departments to ensure that the initial subscription level for the TSP is consistent with the proposed NOCoE budget.

APPROVED BY THE AASHTO BOARD OF DIRECTORS – MAY 30, 2014
Looking Back...

Carlos Braceras, P.E.  
*(photo circa 2002)*
Executive Director,  
Utah Department of Transportation

SCOM Chairman, 2002 – 2014
... and Looking Ahead

Mark McConnell, P.E.
Deputy Executive Director,
Mississippi Department of Transportation

New SCOM Chairman, 2014
Federal Highway Administration (FHWA) Update

By Bryan Cawley
Construction Management Team Leader
Office of Infrastructure, FHWA
Objectives

- Update FHWA Activities
  - Regulation, Policy, Guidance
  - Research
  - Deployment and Technology Transfer
  - Other
Rule Making Asset Management. The NPRM is expected to be out for comment in August. The NPRM indicated that every State DOT is to develop an Asset Management Plan. (contact: stephen.gaj@dot.gov or (202) 366–1336)

Clarification Memo: Preservation and Preventive Maintenance. Looking to clarify the difference, applicability, and safety standards. (contact: bryan.cawley@dot.gov or (202) 366–1333)
Research

- Flooded Pavement Capacity Assessment
  - Contact: jim.sherwood@dot.gov, 202–439–3150

- Sustainable Pavement Solutions for Utility Cuts
  - Contact: morgan.kessler@dot.gov, 202–493–3187

- Snowplow Guidance Systems
  - Contact: morgan.kessler@dot.gov, 202–493–3187

- Integrating 3D Models into Asset Management
  - Contact: morgan.kessler@dot.gov, 202–493–3187
Deployment and Technology Transfer

- Partnered with the International Slurry Seal Association  http://slurry.org/wbt
  - Existing
    - How to construct high quality slurry seal and micro surfacing treatments (part 1 and 2)
    - How to construct high quality chip seal treatments
  - Under Development
    - Crack sealing of asphalt pavements
    - Use and maintenance of slurry and micro surfacing box

Contact:  jason.harrington@dot.gov or (202) 366–1576
Coatings Training

- Partnered with The Society for Protective Coatings
    - Safety During Bridge Preservation
    - Coating and Painting Bridge Superstructures
    - Sealing and Waterproofing Bridge Decks

Contact: romea.garcia@dot.gov or (651) 291–6125
NHI Bridge Preservation Series

1. Bridge Preservation Fundamentals – 4 hrs
2. Establishing a Bridge Preservation Program – 5 hrs
3. Communication Strategies for Bridge Preservation – 3 hrs

- **Target Audience:** includes Federal, State, and local bridge engineers and managers involved in or becoming involved in highway bridge preservation

- **Project Status:**
  - Development Completed
  - Conducting Pilot Testing----looking for volunteers

Contact: anwar.ahmad@dot.gov or (202) 366-8501
NHI Bridge Maintenance Training

- Update the Bridge Maintenance Reference Manual
- Develop new web-based training modules
- Update the Instructor-led training course – 4 days
  - **Target Audience:** Individuals involved in onsite bridge maintenance activities and those that supervise and manage these activities
  - **Project status:**
    - Target Completion Date: 2016

Contact: anwar.ahmad@dot.gov or (202) 366–8501
Extreme Weather

- Planning and System Management and Operations as Part of Climate Change Adaptation (part 1)
- Gap Analysis (part 2)
- Salt Best Management Practices
  - Clear Roads Pooled Funds Study (Minnesota DOT)
- Various documented case studies

Contact: paul.pisano@dot.gov or (202) 366–1301
Maintenance Peer Network

- Development and use of a Program Information tool to identify best highway maintenance practices.
- Hosting of 4 regional workshop events to share identified best highway maintenance practices.
- Generation of regional summary reports, summarize national report, and prepare final presentation.

Contact: Jennifer Brandenburg (jbrandenburg@ncdot.gov)
Other Items

Send letters: bryan.cawley@dot.gov
The End
TRB – Technical Activities Division Update

AASTHO SCOM

July 2014

James Bryant – TRB Staff
Maintenance & Preservation Section

AHD10  Maintenance and Operations Management
AHD15  Maintenance and Operations Personnel
AHD18  Pavement Preservation
AHD20  Pavement Maintenance
AHD25  Sealants and Fillers for Joints and Cracks
AHD30  Structures Maintenance
AHD35  Bridge Management
AHD37  Bridge Preservation (New Committee)
Maintenance & Preservation Section

AHD40  Polymer Concretes, Adhesives, and Sealers
AHD45  Corrosion
AHD50  Roadside Maintenance Operations
AHD55  Signing and Marking Materials
AHD60  Maintenance Equipment
AHD65  Winter Maintenance
AH010  Surface Transportation Weather*

*Technically AH010 is not a formal member of AHD00 but it is closely linked with AHD65
Practice Ready Papers

Practice-ready = results presented and discussed make a contribution to the solution of current or future problems or issues for practitioners and is ready for immediate implementation or requires minimal additional research or implementation effort.

http://prp.trb.org/
Getting Involved

Committee Membership

• Up to two additional members employed by state DOTs may be appointed without it counting against the 25 member limit for a committee.

  ➢ This is not intended for committees to move existing committee members into the State DOT slots.

  ➢ Intended to create space for 2 additional State DOT members
Getting Connected

Webinars

- TRB conducted a record 63 webinars in 2013
- TRB estimates over 23,000 webinar participants (over 13,00 State DOT Participants)
- TRB Webinars are free for State DOT Employees

2014: 76 planned webinars

TRB Sponsors can attend webinars at no cost and have access to all past webinars
MyTRB Goal:
To centralize the functionalities that TRB volunteers and friends need to carry out their roles within TRB. The initial launch of the system focuses on standing committee related activities; however, the functionalities the system supports is expected to expand over time.

MyTRB will allow you to do the following:
• maintain your own contact information and profile
• nominate yourself as a friend of a committee or task force
• manage your publication subscriptions
• accept invitations to join standing committees and task forces
The conference in 2015 will focus on Practical Innovations in Maintenance Operations and Management.

Abstracts Due: September 15, 2014
Abstracts Reviewed by AASHTO TWGS: September – October
Authors Notified: November 2014
Full Manuscripts Due: February 1, 2015
Registration Opens in September!
Wi-Fi Everywhere!
Bigger & Better Exhibits!
Sessions in Convention Center
Meetings in Marquis
Food & Beverage Outlets
Corridors to the Future!
James Bryant

TRB Maintenance & Preservation

Jbryant@nas.edu

202-596-2087
WVDOH System Assets

- Sixth largest state owned system in US
- 36000 CL miles of 38750 Certified Public roads, 10471 FA miles
- 32900 rural local... 1933 annexation
- 555 interstate miles plus multilane Xways
- 75000 lane miles
- 6915 bridges of 7160 vehicular bridges in WV
- 153 salt sheds
- Over 220 operations facilities >$1.5billion
- @4500 Employees
- 10540 Pieces Equipment, >$254,000,000
WVDOH System Constraints

Geography
- Only state entirely within the Appalachian Mountains
- Crossroads state – Charleston is one day drive from 65% of US population
- Two panhandles
- River Boundaries – Ohio, Potomac, Big Sandy/Tug Fork
- Elevation – 550’, 32” snow annually to 4863’ at Spruce Knob, 180 “ annually, up to 260” snow in Preston County

Climate – sub Tropical to sub Arctic plant life

WV Highway System is still a developing system

Population of 1.8 million
The Boundary of West Virginia
Operations and Maintenance

- Policies and standards
- Monitors statewide uniformity
  - Long-range maintenance goals and resource allocations
  - **Clearinghouse during emergencies**

Asset Management

- Pavement Management
- Maintenance Management Data
- Core Maintenance Performance
- SRIC Expenditures
- wvOASIS – TOM and TAI
Bridge Evaluation

Bill Varney, Section Head
NBIS Program Manager

National Bridge Inspection Standards
Load Ratings, Safety Inspections, Maintenance, and Repair
Policy Development for District Bridge Departments (BMDs)
Oversize/Overweight Vehicle Permits
Quality Assurance/Quality Control
Bridge Rating
Structural Repair/Construction/Coatings
Operations

Oil and Gas

Building and Grounds

- **220 Statewide Facilities** - District and County HQs, Substations, Rest Areas, Other

SRIC Program

Disaster Management – FEMA, FHWA-ER

Core Maintenance

Adopt-A-Highway, Make It Shine, Operation Wildflower Programs
Oil and Gas
SRIC- Winter Operations
Map generated July 2012 by Meridian Environmental Technology under funding of Clear Roads Project #10-02.

Data portrayed in this map were generated using daily snowfall data from the Snow Data Assimilation System (SNODAS) for the 2004/05 through 2010/11 winter seasons, adjusted to fit climatological snowfall data from the National Weather Service 1971-2000 Climate Normals at available observing stations across the United States. More information as to the specific process used to develop this map is available from Clear Roads.
Resource Management

Heather Huffman, Section Head

- Administrative Support
- Encroachment Permits and Surety Bonds
  - Commercial/Private Property, Marcellus Shale, Utility, Water
- Vendor Contracts
  - Aggregate, Asphalt, Crew Uniforms, Equipment Rental, Paint, Salt
Traffic Engineering Division

- Administration
- Mobility, Safety, ITS, Lighting
- Outdoor Advertising & Salvage Yards
- Strategic Highway Safety Planning
- Traffic Design
- Traffic Operations and Signal System
- Traffic Services
In the Works

Current Projects
- District One HQ - all new
- District Seven HQ - all new
- District Three – mostly new
- District Eight – new equipment shop
- Numerous County HQs, @70% NR – P3
- Numerous salt sheds, @80% NR
- Spin-up of New Operations Section
  - wvOASIS
  - MAP 21 - Performance Measures and Budgeting
In the Works

- Bridge Management System – software and procedures
- SRIC, salt brine for anti-icing and deicing
- SRIC, pursuing efficiencies. Route optimization, material use reduction
- SICOP!!! Finally!
Maintenance Peer Network
Report to AASHTO SCOM
Charleston, West Virginia
July 28, 2014
Jennifer Brandenburg, PE
Agenda

Objectives of MPN

Steering committee

Format of workshop

Selection of regions and time frame

Example of peer exchange topics

Process for attending

Questions
Sponsored by FHWA in Partnership with:

• AASHTO
• ARTBA
• AGC
• AMOTIA
What is MPN?

- Recommendation of AASHTO SCOM
- Patterned after the Construction Peer Network
- Steering committee includes SCOM leadership
- Collect and document current good practices
- Seek out new technology & innovation
- Sharing of information among states and industry partners
- Opportunity to learn from each other
- Conference proceedings will be posted on SCOM website
Steering Committee

Jennifer Brandenburg, Chair  NCDOT
Chris Christopher         WsDOT
George Conner             ALDOT
Steve Lund                MNDOT
Steve Cook                MIDOT
Tim Cunningham            KDOT
Jerry Hatcher             TDOT
Berry Jenkins             AGC (NC)
Allison Klein             ARTBA
Chuck Henningsgaard       AMOTIA
Bryan Cawley              FHWA(DC)
William Beatty            FHWA(NC)
Marc Hoelscher            FHWA(SD)
Jason Harrington          FHWA(DC)
Jameelah Hayes            AASHTO
Tom Hufnagel              AASHTO
Format of Workshops

- Workshops held in 4 different regions of the country – Approximately 13 states per region
- 2-Day Workshops (½ day, Full day, ½ day)
- MPN covers the cost for 2 people from each state to attend - Travel, lodging, meals, workshop materials
- FHWA and industry partners are encouraged to participate
- Topics based on results from PI Tool for each region
- No more than 6 topics to allow in depth discussion
- Opportunity to bring in speakers from other regions
### Preliminary Agenda

#### SESSION 1: Afternoon, Day 1

<table>
<thead>
<tr>
<th>Duration</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 min.</td>
<td>Welcoming remarks; purpose of workshop and expected outcomes</td>
<td>Moderator</td>
</tr>
<tr>
<td>45 min.</td>
<td>Introductions and brief agency summaries</td>
<td>All Participants</td>
</tr>
<tr>
<td>15 min.</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#1: Introduction and Presentation</td>
<td>Presenter</td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#1: Q&amp;A and Roundtable Discussion</td>
<td>All Participants</td>
</tr>
<tr>
<td>30 min.</td>
<td>Exchange Topic#1: Summary, and Session Wrap-up</td>
<td>Moderator</td>
</tr>
</tbody>
</table>

#### SESSION 2: Morning, Day 2

<table>
<thead>
<tr>
<th>Duration</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>45 min.</td>
<td>Exchange Topic#2: Introduction and Presentation</td>
<td>Presenter</td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#2: Q&amp;A and Roundtable Discussion</td>
<td>All Participants</td>
</tr>
<tr>
<td>15 min.</td>
<td>Exchange Topic#2: Summary</td>
<td>Moderator</td>
</tr>
<tr>
<td>15 min.</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#3: Introduction and Presentation</td>
<td>Presenter</td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#3: Q&amp;A and Roundtable Discussion</td>
<td>All Participants</td>
</tr>
<tr>
<td>30 min.</td>
<td>Exchange Topic#3: Summary, Session summary, preview of next day and closing remarks</td>
<td>Moderator</td>
</tr>
</tbody>
</table>

#### SESSION 3: Afternoon, Day 2

<table>
<thead>
<tr>
<th>Duration</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 min.</td>
<td>Opening Remarks</td>
<td>Moderator</td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#4: Introduction and Presentation</td>
<td>Presenter</td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#4: Q&amp;A and Roundtable Discussion</td>
<td>All Participants</td>
</tr>
<tr>
<td>15 min.</td>
<td>Exchange Topic#4: Summary</td>
<td>Moderator</td>
</tr>
<tr>
<td>15 min.</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#5: Introduction and Presentation</td>
<td>Presenter</td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#5: Q&amp;A and Roundtable Discussion</td>
<td>All Participants</td>
</tr>
<tr>
<td>15 min.</td>
<td>Exchange Topic#5: Summary</td>
<td>Moderator</td>
</tr>
</tbody>
</table>

#### SESSION 4: Morning, Day 3

<table>
<thead>
<tr>
<th>Duration</th>
<th>Topic</th>
<th>Speaker</th>
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</thead>
<tbody>
<tr>
<td>15 min.</td>
<td>Opening Remarks</td>
<td>Moderator</td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#6: Introduction and Presentation</td>
<td>Presenter</td>
</tr>
<tr>
<td>45 min.</td>
<td>Exchange Topic#6: Q&amp;A and Roundtable Discussion</td>
<td>All Participants</td>
</tr>
<tr>
<td>15 min.</td>
<td>Exchange Topic#6: Summary</td>
<td>Moderator</td>
</tr>
<tr>
<td>15 min.</td>
<td>Break, Complete Workshop Evaluation</td>
<td></td>
</tr>
<tr>
<td>60 min.</td>
<td>Workshop Wrap-up, Themes, Issues and Conclusions</td>
<td>Moderator</td>
</tr>
</tbody>
</table>
MPN Regions

Number of States in Region
Northeast – 13
South – 14
Midwest – 12
West – 13
Example of Topics – Tailored to each Region

- Employee training programs
- Work zone training programs
- Implementation of management systems
- Establishing asset management plans
- Fleet management
- Electronic work crew data capture
- Tying maintenance funding to LOS
- Innovative funding
- Winter maintenance performance measures
- MQA programs
- Innovative funding
- Environmental commitments
- Use of alternate fuels
Process for Attending – State DOTs

- States to identify 2 DOT attendees
- MPN will cover the cost of travel and workshop materials for up to 2 State DOT attendees
- Event manager will contact each attendee to arrange travel and lodging
- Workshops will start at 1:00 pm on the 1\textsuperscript{st} day and end at noon on the 3\textsuperscript{rd} day to accommodate same day travel
- Event manager will work with each attendee on specifics
Process for Attending – Others

- FHWA attendees will be coordinated through Headquarters.
- Industry attendees are free to register on first come basis.
- Registered participants will receive workshop materials, workshop meals, and hotel rooms at the conference rate.
- If interested contact Lacy.love@Volkert.com
NCDOT is Proud to Host

2014 National Safety Rest Area Conference
September 29th thru October 2nd
Asheville, NC

For more information go to NCDOT.gov/Travel/Maps & Publications/NSRAC
Questions?
Extreme Weather Events and Maintenance

Date: July 28, 2014
Committee: Subcommittee on Maintenance
Presenter: Michael Meyer, Parsons Brinckerhoff
Best Practices for Extreme Weather Management

- It pays to be ready and pre-plan
- Practice, practice, practice
- Know what is out there
- Use all forms of communication media
OTHER KEY MESSAGES

• Affects operations and maintenance functions of state DOTs today and will do more so in the future
• Involves coordinated efforts on the part of numerous governmental and emergency response agencies
• Possibly changes the way one designs infrastructure
• Uses a wide range of technologies to better manage emergency response
• Relates to asset management systems
AASHTO’s Center for Environmental Excellence Initiative

Update on Federal Programs and Recent Research

SCOH SCOM STEICS SOD SOC

SOM SCOE NASTO WASHTO SASHTO
Maintenance Implications

- Culverts and Drainage Structures
- Materials and Equipment
- Debris Removal
- Contingency Plans
- Back up Power
- Back-up Communications
Maintenance Implications

- Early Warning Systems
- Harden the System
- Workforce Training
- Future Protection
• Changing climatic conditions and extreme weather events are affecting the reliability and capacity of the U.S. transportation system in many ways.
• Major coastal impacts, including both temporary and permanent flooding.
• Extreme weather events currently disrupt transportation networks in all areas of the country; projections indicate that such disruptions will increase.
• Impacts can be reduced through a wide range of adaptive actions.
The length of the frost-free season has been increasing nationally since the 1980s.

More winter and spring precipitation is projected for the northern United States, and less for the Southwest, over this century.

Winter storms have increased in frequency and intensity since the 1950s, and their tracks have shifted northward.

Extremely heavy snowstorms increased in number during the last century in northern and eastern parts of the United States, but have been less frequent since 2000.
• Heavier-than-normal snowfalls recently observed in the Midwest and Northeast U.S. in some years, with little snow in other years, are consistent with indications of increased blocking (a large scale pressure pattern with little or no movement) of the wintertime circulation of the Northern Hemisphere

• Extreme weather events currently disrupt transportation networks in all areas of the country; projections indicate that such disruptions will increase.
Extreme Events
Iowa Flood….I-680

Aftermath
Long-term Environmental Changes
KEY QUESTIONS

- How Could Changes in Temperature Affect Road Assets?
- How Could Changes in Precipitation Affect Road Assets?
- How Could Sea-Level Rise Affect Road Assets?
- How Could Greater Hurricane Intensity Affect Road Assets?
- How Could Stressors Affect Ecological Systems?
- What Are the Types of Adaptation Strategies that Can Be Considered by Transportation Agencies?
### Climate Change Stresses on Transportation (Precipitation Example)

<table>
<thead>
<tr>
<th>Climatic/Weather Change</th>
<th>Impact to Infrastructure</th>
<th>Impact to Operations/ Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Precipitation</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Greater changes in precipitation levels | • If more precipitation falls as rain rather than snow in winter and spring, there will be an increased risk of landslides, slope failures, and floods from the runoff, causing road washouts and closures as well as the need for road repair and reconstruction;  
• Increasing precipitation could lead to soil moisture levels becoming too high (structural integrity of roads, bridges, and tunnels could be compromised leading to accelerated deterioration);  
• Less rain available to dilute surface salt may cause steel reinforcing in concrete structures to corrode;  
• Road embankments at risk of subsidence/heave | • Regions with more precipitation could see increased weather-related accidents, delays, and traffic disruptions (loss of life and property, increased safety risks, increased risks of hazardous cargo accidents);  
• Closure of roadways and underground tunnels due to flooding and mudslides in areas deforested by wildfires;  
• Increased wildfires during droughts could threaten roads directly, or cause road closures due to fire threat or reduced visibility |
| **Precipitation**       |                          |                                  |
| Increased intense precipitation, other change in storm intensity (except hurricanes) | • Heavy winter rain with accompanying mudslides can damage roads (washouts and undercutting) which could lead to permanent road closures;  
• Heavy precipitation and increased runoff can cause damage to tunnels, culverts, roads in or near flood zones, and coastal highways;  
• Bridges are more prone to extreme wind events and scouring from higher stream runoff;  
• Bridges, signs, overhead cables, toll structures at risk from increased wind speeds | • The number of road closures due to flooding and washouts will likely rise;  
• Erosion at road construction project sites as heavy rain events take place more frequently;  
• Road construction activities could be disrupted;  
• Increase in weather-related highway accidents, delays, and traffic disruptions;  
• Increase in landslides, closures or major disruptions of roads, emergency evacuations and travel delays;  
• Increased wind speeds could result in loss of visibility from drifting snow, loss of vehicle stability/maneuverability, lane obstruction (debris), and treatment chemical dispersion;  
• Lightning/electrical disturbance could disrupt transportation electronic infrastructure and signaling, pose risk to personnel, and delay maintenance activity |
Highways Agency (England)

http://www.highways.gov.uk/publications/climate-change-mitigation/
<table>
<thead>
<tr>
<th>Risk</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced asset condition and safety</td>
<td>Assets deteriorate more quickly due to changes in average climatic conditions; assets are more badly damaged as a result of more extreme climatic events.</td>
</tr>
<tr>
<td>Reduced network availability and/or functionality</td>
<td>Need for restrictions on the network to maintain safety; increased need for road works.</td>
</tr>
<tr>
<td>Increased costs to maintain a safe, serviceable network</td>
<td>Construction/maintenance/repairs/renewal required more often; more extensive construction/maintenance/repairs/renewal required; new (more expensive) solutions required e.g. designs and materials/components/construction costs.</td>
</tr>
<tr>
<td>Increased safety risk to road workers</td>
<td>Increased risk to construction and maintenance workers and Traffic Officers as a result of climatic change e.g. if need to work on the network more often; if required to work on the network during extreme climatic events or if climate change requires them to perform more ‘risky’ activities.</td>
</tr>
</tbody>
</table>
Priorities for Adaptation of Highways Agency Assets
NCHRP SYNTHESIS 454

Response to Extreme Weather Impacts on Transportation Systems

A Synthesis of Highway Practice
With respect to maintenance.....
• Separate sites for debris and sand removed from streets

• Assessment of sinkhole-related issues and most appropriate traffic control measures at the local level

• Preparedness activities before a controlled release of water from dams---checking for blocked culverts, defining staging areas, and deploying ITS, such as traffic cameras that could provide a view of inundated roads
• Flexibility in determining what to ask from localities in the way of reimbursement for state DOT services provided during extreme weather events

• Equipment staging, including cones, messages boards, portable traffic lights

• Central storage location or garage for equipment needed in a major event

• Maintenance needs tracking with a view to statewide events
Under a disaster declaration, assistance to municipalities in the form of staff and heavy equipment

Re-assigned existing contracting group working on culverts in one region to respond and repair damaged roads in region affected by flooding

Employee preparedness and safety through the acquisition and pre-positioning of two response trailers with protective gear
FHWA

• Gulf Coast 2
• New Jersey/New York/Connecticut
• 19 Pilot Adaptation Studies
• Engineering Study
AASHTO RESOURCES

- Transportation and Climate Change Resource Center (See especially State DOT Climate Change Programs)
  
  http://climatechange.transportation.org/


- Impacts of Extreme Weather on Transportation: National Symposium Summary, 2013
EXTREME WEATHER & THE TRANSPORTATION SYSTEM RESOURCES

U.S. DOT:  
http://climate.dot.gov/

FHWA:  
http://www.fhwa.dot.gov/environment/climate_change/index.cfm

USGS:  

Georgetown Climate Center:  
http://www.georgetownclimate.org/resources/transportation-and-climate-change-clearinghouse-tccc

EU:  
http://ec.europa.eu/clima/policies/adaptation/index_en.htm
Extreme Weather Events and Potential Impacts on Maintenance

Extreme weather events affect nearly every state in the U.S. In 2012, a total of 133 disaster events occurred resulting in about $881 billion in damages (see NOAA NCDC graphic at right). Events ranged from hurricanes, droughts, heat waves, severe local storms, non-tropical floods, and winter storms, to wildfires and freezes. There is strong evidence that events related to heat, heavy precipitation, and coastal flooding will grow in frequency and severity in coming decades and we will likely continue to experience droughts and tropical storms. Changes in the frequency or intensity of extreme weather events could require changes in maintenance procedures. For example, how does one plan for the maintenance of assets differently provided changes in weather-related stressors like increased temperatures, precipitation, freeze-thaw cycles, wind or storm exposure?

How Can Maintenance Managers and Staff Prepare for Extreme Weather Events?

Although DOT experience will vary by state, below is a “Top 10” list of maintenance suggestions to better prepare for extreme weather.

1. Culverts and Drainage Structures: Keep culverts and drainage structures debris free and maintained to handle flows.
2. Materials & Equipment: Develop strategies for responding to transportation system disruptions due to weather-related events, including pre-positioning of replacement materials (e.g., culvert pipe, temporary bridge components, fuel, stone armor) and equipment (e.g., generators, chain saws, traffic control devices) for easy deployment in vulnerable areas.
3. Debris Removal: Develop agency strategies for identifying potential debris sources (i.e., survey upstream unstable bank vegetation) and for handling debris removal subsequent to an extreme weather event. Strategies could include potential stand-by contracts to increase response capacity and shorten reaction time, and coordination with environmental agencies to expedite debris removal and disposal.
4. Contingency Plans: Have contingency plans for bridge and road closures, power outages, detours, debris clearance, and routing for overweight or disabled trucks. Include pre-approved contractors and funds.
5. Backup Power: Put in place power back up for electrical devices in areas prone to extreme weather events.
6. Back up Communications: Prepare backup communications such as satellite phones, portable highway advisory radios, truck radios, and alternative networks.
7. Early Warning Systems: Incorporate “early warning indicators” such as the use of Roadway Weather Information Stations (RWIS) to plan for extreme weather-related risks. Over the longer term, incorporate indicators into maintenance management systems.
8. Harden the System: Avoid significant disruptions and maintenance demands by “hardening” such items as sign structures and traffic signal wires.
9. Workforce Training: Provide greater cross-training of staff, across the agency, to enhance the ability to adapt and mobilize for emergency situations.
10. Future Protection: Consult with designers about more durable materials and designs (e.g., paints, paving materials, drainage features), including those that can easily be modified as climate conditions change. Further, map and track maintenance costs associated with extreme weather events to inform future maintenance budgetary needs.
Maintenance Resources for Extreme Weather Preparedness

PUBLICATIONS

- Climate Change, Extreme Weather Events and the Highway System (NCHRP Report 750, Volume 2, 2014). This report presents guidance for practitioners on adaptation strategies to likely impacts of climate change in the planning, design, construction, operation, and maintenance of infrastructure assets in the U.S.

- Expedited Procurement Procedures for Emergency Construction Services (NCHRP Synthesis 438, Nov. 2012). This report explores procurement procedures being utilized by State DOTs in coordination with Federal agencies to repair and reopen roadways in emergency situations.

- Research Results Digest 378: Evaluation of Bridge Scour Research (NCHRP Project 24-27(01/02/03), Sept. 2012). Through three research projects related to bridge scour, key findings are summarized covering evaluation of processes and predictions related to pier scour, abutment and contraction scour, and geomorphic scour.

- Transportation Research Record Journal No. 2292: Maintenance and Preservation (Dec. 2012). This journal is a compilation of 20 research papers on roadway maintenance and preservation-related topics including maintenance costs of extreme weather events, climate impact on asphalt pavement preservation, and carbon emissions of road maintenance.

- Western Iowa Missouri River Flooding – Geo-Infrastructure Damage Assessment, Repair, and Mitigation Strategies (Aug. 2013). The Center for Earthworks Engineering Research report addresses the effects of the 2011 Missouri River flooding on Iowa’s geo-infrastructure systems (e.g., levees, bridge abutments and foundations, paved and unpaved roadways, culverts and embankment slopes) and offers 20 potential repair and mitigation solutions related to damage type.

GUIDANCE AND RULES

- Eligibility of Activities To Adapt To Climate Change and Extreme Weather Events Under the Federal-Aid and Federal Lands Highway Program (Sept. 24, 2012). Memo clarifies activities eligible for FHWA funding, including vulnerability assessments, design and construction of projects or features to protect assets from damage associated with climate change.


- MAP-21, Section 1511 – Special Permits During Periods of National Emergency Implementation Guidance, Revised (June 2013). Section provides policy direction on special permits for divisible loads and guidance describing the program’s purpose, permit requirements, and ineligible activities.

WEBSITES

- AASHTO Transportation and Climate Change Resource Center: Extreme Weather Symposium, 2013. Materials on recent extreme weather events, costs, and how DOTs can manage them. climatechange.transportation.org/symposium/

- FHWA Climate Change Adaptation Website: www.fhwa.dot.gov/environment/climate_change/adaptation/

- Emergency Management Assistance Compact (EMAC): http://www.emacweb.org/


OTHER RESOURCES

AASHTO’s Sustainable Transportation: Energy, Infrastructure, and Climate Solutions (STEICS) Technical Assistance Program provides timely information, tools, and technical assistance to State DOTs to manage challenging issues associated with extreme weather events. (http://climatechange.transportation.org/about/steering_committee.aspx)

For questions or for more information, please contact Gummada Murthy, Associate Program Director, Operations at GMurthy@aashto.org or Jennifer Brickett, Senior Program Manager for the Environment at JBrickett@aashto.org.

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\*Disaster events* in this context have been defined as tropical cyclones (e.g., hurricanes), droughts/heatwaves, severe local storms, non-tropical floods, winter storms, wildfires, and freezes.


\*Source: NOAA NCDC at www.ncdc.noaa.gov/billions/summary-stats
AASHTO
Subcommittee on Maintenance
Michigan Department of Transportation
and
The Winter That Was – 2013/2014
Introduction

• Much of the Midwest experienced the most severe winter in 30 years, with several blasts of arctic air and significant storms throughout winter
• After several years of below normal snowfall, the 2013-2014 winter season was one of the snowiest winters in recent history for most locations in Michigan
• Snowfall totals in the Upper Peninsula were near normal
• Majority of the Lower Peninsula experienced above normal snowfall, some areas received more than double their 30-year average
• Snowfall totals varied considerably across the state with parts of the far western edge of the Upper Peninsula receiving over 262 inches (22-feet) to Detroit that received more than double their normal (~93 inches)
31,791 Total Lane Miles

Lane Mile Responsibility

MDOT maintains 20%, Local Agencies maintain 75%, Private Contractors maintain 5% (mowing and rest area maintenance)

*22,639 by county forces, 1,671 by municipalities

7,481 lane miles maintained by MDOT forces
Maintenance Responsibilities by County

Contract Maintenance

60 County Road Commissions 170 Municipalities
Significant Snowfalls

Winter 2013/2014: M-28 along Lake Superior – 262 inches (22 feet)
US-2 Along Lake Michigan Shoreline - 180 inches (15 feet)
32.5 feet

~21 feet

14.6 feet
Managing Winter
Melting Snow Combined with Warm Rain
Salt Usage

473,000 tons—5-yr. ave.  
37% increase from 5-yr. ave.  
28% increase from previous season

Ave. price per ton over 8-years $36 to $59; 2013/2014 ave. $45

648,000 ~$32 million
Liquid and Sand Usage

**Liquid:**
- 74% increase from previous season

**Sand:**
- 105,000 tons–5-yr. ave.
- 34% increase from 5-yr. ave.
- 50% increase from previous season

---

**Gallons**
- Increase of 206%
- Increase of 145%
- Increase of 77%
- Increase of 77%
- Increase of 74%

**Tons**
- Increase of 308%
- Increase of 120%
- Increase of 57%
- Increase of 74%
- Increase of 50%
Direct Force Fuel Usage

20% increase from previous season

For 2014, about 4 times this or 6.8 million gallons for direct and indirect fuel consumption (~$24 million)
Direct Force Overtime Hours

98% increase from previous season

<table>
<thead>
<tr>
<th>Month</th>
<th>FY 2012</th>
<th>FY 2013</th>
<th>FY 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>December</td>
<td></td>
<td></td>
<td>Increase of 292%</td>
</tr>
<tr>
<td>January</td>
<td></td>
<td>Increase of 186%</td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>Increase of 121%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>Increase of 101%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April</td>
<td></td>
<td></td>
<td>Increase of 98%</td>
</tr>
</tbody>
</table>
Winter Expenditures

$85,000,000 – total 5-yr. ave. Winter Ops
36% increase from previous season

$270,000,000 – total 5-yr. ave. Maintenance Ops
Property Damage Reclamation Program

4,250 Claims–5-yr. ave.
34% increase from previous season
Winter Freeway Incidents

1,313 Incidents—5-yr. ave.
63% increase from 5-yr. ave.
48% increase from previous season

Increase of 29%
Increase of 51%
Increase of 48%

<table>
<thead>
<tr>
<th>Month</th>
<th>FY 2012</th>
<th>FY 2013</th>
<th>FY 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>December</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>January</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>February</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I-94 Coloma TSC User Delay Cost

$7,600,000 (4-yr. average)
77% increase from previous season

Increase of 148%
Increase of 140%
Increase of 89%
Increase of 84%
Increase of 77%

$0 $2,000,000 $4,000,000 $6,000,000 $8,000,000 $10,000,000 $12,000,000 $14,000,000
December January February March April

FY 2012 FY 2013 FY 2014
Providing customers with a reasonable level of service throughout an incredibly harsh winter, these tactic were utilized:

- Communication, overtime and resource sharing
- Post-storm reviews at the garages
- Technologies such as AVL and MDSS (MDOT instrumented 270 WMTs)
- Extensive training
- Adjusting shift times to treat the roads prior to the morning commute
- Best practices & innovation: Tow-plows, pre-wetting salt, anti-icing, reduced truck speed during application helped keep salt usage lower
- Public communication regarding the ineffectiveness of deicing materials in extremely cold temperatures helped educate customers and promoted realistic expectations
- The Governor, Michigan State Police and MDOT senior management extended appreciation to MDOT maintenance crews
THANK YOU!
Georgia’s 2014 Winter Weather
Dale Brantley
State Maintenance Engineer
July 27, 2014
2014 Atlanta Snow & Ice Debrief
ICY CONDITIONS EXIST
STAY IN TREATED Lanes
REDUCE SPEED
WSJ: “And the Gold Medal for Winter Weather Goes To Atlanta”
The only thing the South fears more than a distant yankee relative is an ice storm.
Wintry Weather Tuesday into Wednesday

Current forecast Snow and Ice Accumulations for Tuesday into Wednesday

Sunday January 26th @ 3:14 p.m.
Wintry Weather Tuesday into Wednesday

Current forecast Snow and Ice Accumulations for Tuesday into Wednesday

- Little to no snow accumulation
- 2 + inches of snow possible
- Highest Snow Amounts Possible
- 0.10+ inches of Ice Accumulation
- Greatest Chance for Ice Accumulation greater than 0.25 inches of ice
Significant Winter Storm Likely

**Winter Storm Watch Tuesday into Wednesday**

- Blast of winter weather is forecast for North and Central Georgia.
- Snow is likely further north while sleet and freezing rain are possible across far East Central Georgia.
- *The potential exists for significant impacts from this storm system.*
- Confidence is increasing in this event occurring.

*These values are subject to change as we approach the event*

Monday @ 6:22 a.m.
Significant Winter Storm Likely

**Winter Storm Watch Tuesday into Wednesday**

- Blast of winter weather is forecast for North and Central Georgia.
- Snow is likely further north while sleet and freezing rain are possible across far East Central Georgia.
- **The potential exists for significant impacts from this storm system.**
- Confidence is increasing in this event occurring.

**These values are subject to change as we approach the event**
“The biggest changes we have seen in the models is to start the precip 1-2 hours earlier and essentially move the bulk of the precip to late Tues Afternoon/early Evening instead of during the Evening/overnight hours. This doesn’t change our thinking in overall amounts and types, but rather timing”

NWS e-mail – Tuesday @ 12:40 A.M.
- Sleet will impact storm total snowfall. More sleet would mean lower snow amounts.
Precipitation Onset/types
Precip increases overall intensity after Noon areawide

Forecast Radar, 10 AM Tuesday
Forecast Radar, 1 PM Tuesday
Metro Atlanta Time Lapse Map of Vehicle Speeds

http://its.ce.gatech.edu/datafiles/archive/mark
Re-Do: Downtown Connector on February 12, 2014
Preparing for the Next Storm

- Policy Changes
  - Pretreat All Interstates in Metro Atlanta
  - Require Tire Chains
  - Use Agriculture Vendors for Salt Applications
  - Additional Salt Storage
  - Use of Equipment Tracking
  - ITS Expansion
Questions?
Alaska Department of Transportation & Public Facilities

Winter 2013-14: An Alaska Winter to Remember

Michael J. Coffey

AASHTO SCOM
July 27-30, 2014
Contrasting Winters: Alaska and the Lower 48

- Central and Eastern US experienced the most severe winter in the past decade or two
- Alaska experienced a relatively mild winter that was especially notable for the unusually warm January
- Is it a coincidence that the winters in Alaska and much of the lower 48 were so extreme in opposite ways?
- The answer is “No” – Polar Vortex
Land surface temperature January 23–30, 2014 shows how 2014 compared to the 2001–2010 average for the same week. Areas with warmer than average temperatures are shown in red.
<table>
<thead>
<tr>
<th>Station</th>
<th>Temperature Deviation (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>December</td>
</tr>
<tr>
<td>Anchorage</td>
<td>-4.3</td>
</tr>
<tr>
<td>Annette</td>
<td>-1.4</td>
</tr>
<tr>
<td>Barrow</td>
<td>5.3</td>
</tr>
<tr>
<td>Bethel</td>
<td>4.5</td>
</tr>
<tr>
<td>Bettles</td>
<td>-4.5</td>
</tr>
<tr>
<td>Cold Bay</td>
<td>6.9</td>
</tr>
<tr>
<td>Delta Junction</td>
<td>-4.7</td>
</tr>
<tr>
<td>Fairbanks</td>
<td>-0.4</td>
</tr>
<tr>
<td>Gulkana</td>
<td>-4.8</td>
</tr>
<tr>
<td>Homer</td>
<td>-2.9</td>
</tr>
<tr>
<td>Juneau</td>
<td>-2.3</td>
</tr>
<tr>
<td>King Salmon</td>
<td>2.9</td>
</tr>
<tr>
<td>Kodiak</td>
<td>0.0</td>
</tr>
<tr>
<td>Kotzebue</td>
<td>3.6</td>
</tr>
<tr>
<td>McGrath</td>
<td>2.0</td>
</tr>
<tr>
<td>Nome</td>
<td>4.9</td>
</tr>
<tr>
<td>St. Paul Island</td>
<td>4.1</td>
</tr>
<tr>
<td>Talkeetna</td>
<td>-4.5</td>
</tr>
<tr>
<td>Valdez</td>
<td>-3.3</td>
</tr>
<tr>
<td>Yakutat</td>
<td>-2.2</td>
</tr>
</tbody>
</table>
The Winter that Wasn’t

• Ridge of high pressure off the Pacific Coast pushed warm air and rainstorms to Alaska instead of California (where they belong!)
• January was the warmest winter in Alaska’s history with temperatures as much as 40°F above normal
• The all-time warmest January temperature ever observed in Alaska was tied on January 27 when the temperature peaked at 62°F at Port Alsworth / Lake Clark
• Nome, Denali Park Headquarters, Palmer, Homer, Alyseka, Seward, Talkeetna, and Kotzebue all set January records
Swollen rivers from the heat and rain filled with sediment
January 25, 2014
What Happened - Pineapple Express
Setting the Stage

• 18 day long weather system / avalanche problems

• At Thompson Pass 80” of snowfall Jan 1\textsuperscript{st} – 23\textsuperscript{rd} (250” Nov 11 to end of Jan)

• At 4000’ an estimated 5’ accumulated between 1/14\textsuperscript{th} – 17\textsuperscript{th} over cold, dry, low density 1/13\textsuperscript{th} snow

• The huge avalanche was conditioned by three consecutive days of record high or record high minimum temperatures and then triggered by days of record anomalous rainfall

• Between Jan 21 and 25, 6 to 12 inches of rain fell
Avalanche Cleanup Summary

- Road closed 13 days
- Increased AMHS Service
- Moved 200,000 CY of snow/ice
- Dammed lake covered 500,000 SY, 3M CY of water or 500 million to one billion gallon
- Five (5) days to remove debris working 24/7
- Highest point of debris over road was 140 ft
- Highest point over river was 200 ft
- 1,056 Man Hours
2013/2014- The Winter That Was…

**NHDOT Challenges**
- Frequency of Storms
- Timing of Storms
- Cold Temperatures
- Funding

**NHDOT Takeaways**
- Dedicated Winter Funding
- Legislative Buy In To Mission
Storm Frequency and Timing

• During the time period from the end of November to mid-March, NHDOT crews worked an average of 120hrs/2weeks. Some pay periods worked were in excess of 140 hours.

• Over this 10 week time period, the vast number of the crews were called into work for at least one day every weekend, except possibly one of those weekends.

• Most crews worked every day in January except New Year’s Day and MLK day
## Cold Temperatures

<table>
<thead>
<tr>
<th>Year</th>
<th>Avg High</th>
<th>Avg Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 14</td>
<td>34.8°</td>
<td>14.4°</td>
</tr>
<tr>
<td>FY 13</td>
<td>39.1°</td>
<td>20.0°</td>
</tr>
<tr>
<td>FY 12</td>
<td>45.5°</td>
<td>23.7°</td>
</tr>
</tbody>
</table>
Funding

• NHDOT created a new budget account specifically for winter maintenance.
• Unfortunately this “new” account” funding had to be based on a 3 year average expenditure (FY 10,11,12)
• Winter Severity Index
  FY 10= -15.87
  FY 11= -23.57
  FY 12= -6.05
  Avg= -15.16
  10 year Avg= -21.40
Budgeted LOS ????
Takeaways

• NHDOT changed how we ordered salt. Rather than using up what we had stockpiled in the barns and waiting until the end of the winter to purchase salt, we ordered early and often due to having dedicated winter funding.

• Legislature held true to their word that winter maintenance was top priority and authorized two transfers during the winter months that came from the highway fund and not from summer maintenance funding. Approximately $7.7 M was added to the $22.2 M appropriated in the initial winter maintenance budget.
How the barns should look

(Imagine snow on the ground.....)
Quick #’s

• **FY 13**
  – Total Cost= $36.5 M
  – Total Salt Use= 162,230 tons
  – On hand at season end= 69,390 tons
  – Snowfall= 83.2”  WSI= -25.7

• **FY 14**
  – Total Cost= $49.5 M
  – Total Salt Use= 205,690 tons
  – On hand at season end= 102,700 tons
  – Snowfall= 82.6”  WSI= -27.8
Safety: Mission ZERO

TxDOT Employee on the Job Fatalities FY1984-FY2014

Fatalities
Safety: Mission ZERO

Number of Personal Injuries at TxDOT FY1984-FY2014
Safety: Mission ZERO

Number of Vehicle Incidents at TxDOT FY1985-FY2014
Safety: Mission ZERO

FY07-FY14 TxDOT Miles Driven and Preventable/Recordable Incidents

- **Miles Driven**
- **Recordables**
- **Preventables**
TxDOT Plan For Success

1. 0.39 Lost Time-Rate
2. Leadership
3. Employee Involvement/Buy-In
4. Improved Accountability
5. Play of the Day – Recap
6. Recognition
TxDOT Plan For Success

7. Doctor’s Visit with Supervisor Presence
8. Return to Work Program for injured employees:
   - Modified duties
   - Alternate duties
   - Transitional duties
9. Introduction of Lost Production Days Goal
10. Employees take pride in Safety accomplishments
11. Collaboration between Safety and Operations
12. Mission Zero awareness
CONCERNS
Since 1938, TxDOT has suffered...

• 52 Deaths Struck by 3rd Party in a Work Zone
• 28 Deaths on the Shoulder or ROW
• 22 Deaths from Equipment Roll Overs
• 19 Deaths while Flagging Traffic
• 15 Deaths Struck by Contractor Equipment
Safety: Mission ZERO
Traffic Control Retrieval - Employee Struck By Motorist

Employee stepped off cone trailer to retrieve cone on opposite side of road. Employee stepped into open traffic lane and was struck by truck and trailer.

Traffic was not stopped on both ends.
Diagram: Debris Removal Scenario

- Employee's Personal Vehicle Facing opposite direction
- Employee Struck by motorist
- Motorist Exiting Highway; Swerves and Strikes Employee
- Debris on Road
- Assisting Motorist's Vehicle
- Assisting Motorist

Employee Exiting Highway;
Swerves and Strikes Employee
Safety: Mission ZERO
Diagram: Traffic Awareness-Staging in Gore Area

- Work Zone Staging; Attenuator in upright position
- TxDOT Employees gathered behind attenuator in gore area
Safety: Mission ZERO
Safety: Mission ZERO

TMA's Work!
HOW CAN WE MAKE A POSITIVE IMPACT?
INFLUENCE BEHAVIOR AND DEVELOP A SAFETY CULTURE
Safety awareness videos for workers and drivers.

- Attention: Work Zone Ahead-2012
- Safe Worker Awareness-2011
- Fall Protection-2010

- Crane Hand Signals-2009
- Highway Construction Work Zone Hazards-2008

http://www.youtube.com/watch?v=VrlmIaSkO4
Employee Recognition Programs

- Safety Awards Banquets
  - Opportunity to share a meal and celebrate group and individual accomplishments:
    - Safe Operator Award
    - No Injury Award
    - Group No Lost Time
Summer Awareness Campaign

- 123 Safe Days of Summer
  - May 1 thru August 31
    - Highlight top performers in franchise categories
      - Rural
      - Urban
      - Metro
    - Lowest combined incidence and recordable vehicle rates
ZERO Injuries
Better to lose one minute in life... than to lose one life in a minute.
Safety: Mission ZERO

Communication Both Ways

- Employees
- Safety Officers
- Section Directors
- Supervisors
- Area Engineers
- OCC Division
- DDO
- Administration
- Commission
- Zero
The Vision of Safety: Mission Zero

- Department Wide Commitment to:
  - Zero Injuries
  - Zero Lost-Time
  - Zero Preventable Incidents
  - Zero Fatalities

- Incorporate Safety into decision making at all levels of operations

- Ultimate Goal:
  - Prevent that “One” fatality we statistically face every year…
Safety: Mission ZERO

- Find and recognize hazards
- Openly search to correct and eliminate hazards
- Coordinate the use of resources
- Understand the risks at all times
- Safety will save your life
Communication

- PLAN
- COMMUNICATE
- FOLLOW-THROUGH
Plan Safety Into Every Job

- **Play of The Day!**
  - Discuss Traffic Control Plan
  - Discuss Internal Traffic Control Plan

- **Recap – End of the Day**

- **Safety: Every Second Every Day!!**
EVALUATE TXDOT’S DRIVER IMPROVEMENT PROGRAM
Defensive Driving
- Every three years
- All driving employees
- Classroom/Online

Safety: Mission ZERO

National Safety Council
Smith System of Driving
– 6,500 trained last three years
– Focus on building space cushion
– Reduced severity of incurred liability claims
5 Keys to Stay Alive

The Smith 5 Keys

Key 1 Aim High In Steering®
Key 2 Get The Big Picture®
Key 3 Keep Your Eyes Moving®
Key 4 Leave Yourself An Out®
Key 5 Make Sure They See You®

© 2010 Smith System Driver Improvement Institute, Inc. All Rights Reserved SSS-941 REV 05.2011
Safety: Mission ZERO

Dump Truck Roadeo
Drive Along Observation

Training Employees to be Safer Drivers

– Encompasses 100 observations of various driving skills and methods.
– All drivers complete or review the Drive Along Form prior to the drive.
– Each driver session involves a one hour office discussion about numerous safe driving issues followed by an intensive two hour on-road assessment.
– Follow up within 30 days on identified improvement areas
Accountability

- Preventable Incident Disciplinary Plan
  - Three and Out
- Backing Policy
  - Walk Around
  - Spotters
  - Avoid backing
  - Charge back
This is not a phone booth.
RETURN TO WORK PROGRAM
Return To Work: Recover on the Job

– Supervisor attends doctor’s visit
  • Discuss duties
    ▪ Modified duties
    ▪ Alternate duties
    ▪ Transitional duties

– Collaboration between Operations/HR/Safety
HOW DO YOU MANAGE AND COMMUNICATE YOUR SAFETY AND HEALTH SYSTEM?

There is a role for everyone!
Working the System

- Leadership and Management Commitment
  - Priority setting
    - Safety can suggest, so can committees
  - Policy development
    - Mission statement/goals
- Accountability
  - Pro-active discipline, and expectations
- Employee involvement
- Recognition by supervision
- Budget
Safety Culture Balance

- Outstanding Performance
  - Positive Environment
  - Trust Between Employees
  - Safety Interdependence
  - Mgt. Demonstrates Strong Leadership Qualities
  - Positive Emotional Bank Accounts
  - Peer Review (BBS)
  - Employee Involvement
  - Clear Planning

- Poor Performance
  - Negative Environment
  - Mistrust Between Employees
  - Safety Dependence - Independence
  - Poor Leadership Qualities
  - Negative Emotional Bank Accounts
  - Hide from Authority
  - No Employee Involvement
  - No Planning
Role of a Safety Professional

- Knowledge transfer: “Sell it, don’t tell it”
  - Training
  - Coaching
  - Teach others “how to fish on their own”
- Be THE resource!!
- Communicate with All Levels of Management
- Provide Check and Balance
- Team Member!
- Must spend majority of their time in the field
- PASSION FOR THE JOB! Lead By Example!
- Listen and listen well!!!!!!!!!!!!!
What Do We Need?

- **Total Involvement**
  - Employees empowered and engaged
  - Employee ownership
  - Leadership creates and sustains a safety culture
  - Every decision involves Safety
  - Focus on “Safe Production”
- **Accountability**
  - With ourselves and each other
We Remember...
Purpose

- NAATSHO is dedicated to education, dissemination of information, increased public understanding, and promotion of safety and health practices, laws and programs for transportation industry workers.
NAATSHO
North American Association of Transportation Safety & Health Officials
Established 1987

Objectives

- The advancement of fundamental knowledge within the transportation industry, its basic qualities and physical laws governing its interaction with citizens, and workers within all aspects of transportation.
- The strengthening and building of alliances with organizations incorporating members of all professions. Dedicated to the preservation and enhancement of transportation worker health and safety.
- The improvement of the professional statue of personnel engaged in all aspects of protecting and improving transportation worker health and safety.
Just One...

It takes one minute to write a safety rule
It takes one hour to hold a safety meeting
It takes one day to hold a safety class
It takes one month to put a plan into operation
It takes one year to win a safety award
It takes one lifetime to make a safe worker
It takes one second to destroy it all with...

One Incident
SCAN 11-01
BEST PRACTICES OF PRIVATIZATION OF MAINTENANCE ACTIVITIES

NCHRP 20-68A U.S. Domestic Scan Program
2014 Subcommittee on Maintenance Meeting
Greg Duncan, Tennessee DOT
I don’t know how to put this but...

I’m kind of a big deal!

Anchorman (2004)
Ron Burgundy
Operations and Mobility Peer Exchange with WSDOT / TnDOT

Vince Fairhurst
State Incident Response Program Manager at Washington State Department of Transportation (WSDOT)

Played Defensive End at University of Notre Dame
Origin of Scan 11-01

- Problem statement originated by Utah
- Became part of NCHRP 20-68A
- One of about 24 Scan subjects
- Managed by Aurora and Associates, P.C., Lawrenceville, NJ
BASIC STEPS IN SCANNING PROCESS

- Team And Subject Matter Expert (SME) Selection
- Focus Areas
- Amplifying Questions
- Desk Scan
- Conduct Workshop
- Key Findings and Recommendations
- Summary Report and Presentation
- Implementation
- Draft and Final Report
Privatize vs. Outsource

...What should we look at?
TOPICAL AREAS

• Maintenance Functions Subject to Insourcing vs. Outsourcing

• Outsourcing Decision-Tree Factors

• Contract Specifications

• Administering Contracts

• Costs and Benefits
DOT’S INVITED TO ATTEND AND MAKE A PRESENTATION AT THE WORKSHOP

State DOT Representatives

- Utah DOT ............................. Kevin Griffin
- Wisconsin DOT ............... Todd Matheson
- Michigan DOT ................. Steven Cook
- Maine DOT ........................... Brian Burne
- Rhode Island DOT ............ Joseph Baker
- Missouri DOT ................. Elizabeth Wright
- Virginia DOT .................... Rob Prezioso
- Maryland DOT ............... Russ Yurek
- Nevada DOT .................... Anita Bush
- Georgia DOT ..................... Eric Pitts
- Pennsylvania DOT ....... Charles Goodhart

Scanning Team Members

- Tennessee DOT ...................... Greg Duncan
- Florida DOT ........................... Tim Lattner
- New Hampshire DOT .......... Caleb Dobbins
- Louisiana DOT ...................... Leslie Mix
- North Carolina DOT .... Jennifer Brandenburg
- Texas DOT ............................. Carolyn Dill
- California DOT ................. Agustín Rosales
- Washington DOT ............ Chris Christopher

Plus one session with AMOTIA, representing the contracting industry
Scan 11-01 Workshop in Anaheim, CA
August 20-22, 2012

19 States Presenting Reports at Workshop
Team Photo

Workshop Participants, Anaheim, Ca, August 20-22, 2012
CONSIDERATIONS FOR OUTSOURCING

- Maintenance Functions Suited
- Factors Likely to Influence the Decision
- Motivations for Large-Scale Outsourcing
- Essential Precursors to Large-Scale Outsourcing
- Making the Decision to Outsource Maintenance
- Contract Practices
- Success Factors
- Benefits and Concerns
BASIC TYPES OF CONTRACTS

- Output vs. Outcome
- Activity Based
  - Pay Items
  - Task work orders
  - Directed work
- Performance Based
DOT’s that do Performance Based Contracts

States who have experience with one or more performance based contracts
INITIAL FINDINGS

1. Risk to the contractor needs to be taken into consideration
2. Self-assessment will help in making decisions on best type of contract to use
3. Asset inventory and condition of asset is necessary
4. Training and education is critical
5. Desired level of service - needs to be defined and evaluated and must be similar for state employees as well as contractor
6. Consider reasons for contracting – political climate, resources, funding, laws, unions, etc.
7. It takes time to implement contracts: communications with stakeholders, contractors, internal customers, unions, etc.
8. Outsourcing is a partnership with the contractor
9. Penalty to contractor should be commensurate to the risk
RECOMMENDATIONS

1. Form a performance measures and contracts technical services program
2. Web upload of specifications
3. Develop PBMC training
4. Biennial MQA/contracting workshop
1. NHI Webinar ........................................................................................................... ASAP
2. AMOTIA Presentation .......................................................................................... Sept 2012
3. SASHTO Maintenance Presentation ................................................................... Oct 2012
4. TRB: Provide the results of scan to TRB maintenance liaison ......................... Jan 2013
5. WASHTO Maintenance Presentation .................................................................. Mar 2013
6. AASHTO SCOM presentation ............................................................................. July 2013
7. Pursue pilot state to determine internal costs (i.e. Michigan) ....................... Summer 2013
8. Engage AASHTO SCOM leadership ................................................................... Summer 2013
9. APWA and NACE Presentation .......................................................................... 2013
10. Consider a survey to track implementation of best practices ....................... 2014
11. Publish summary in technical magazines ....................................................... Ongoing
Summary

And

Questions
AASHTO
Update and Priorities

King W. Gee
Director of Engineering and Technical Services
American Association of State Highway and Transportation Officials

July 2014
Overview - Context

1. AASHTO Centennial Year
2. AASHTO News & Strategic Plan
3. MAP-21 & HTF
4. SHRP-2
5. Toward Zero Deaths
6. Maintenance Issues
AASHTO Centennial Year

http://centennial.transportation.org/
AASHTO News

- **e-Publishing – Top Ten Titles**
  - Partnership with ASTM
  - On-Demand Online Access

- **Strategic Planning**
  - SWOT Analysis
  - Draft with Four Tentative Goals
  - Will Guide Review of Committees
  - Will Determine Direction of TSPs
AASHTO Draft Vision

The American Association of State Highway and Transportation Officials supports members in the development of transportation solutions that create economic prosperity, quality of life, and safety in our communities.
Draft Plan Goals

• Provide Value to Members
• Provide Innovative Technical and Professional Services and Products
• Be a Leader in National Transportation Policy Development
• Communicate the Value of Transportation
Next Steps

• Strategic Plan review session at each Regional Meeting over the summer
• Synthesize comments and develop final draft Strategic Plan in September 2014
• Distribute the final draft to CEOs (Oct)
• Approve the Strategic Plan at the Annual Meeting (November 2014)
Overview - Context

1. AASHTO Centennial Year
2. AASHTO News & Strategic Plan
3. MAP-21 and HTF
4. SHRP-2
5. Toward Zero Deaths
6. Subcommittee Issues
MAP-21 Putting Performance into Action

Moving Ahead for Progress in the 21st Century Act (MAP-21) creates a performance-based and multimodal program to strengthen the U.S. transportation system. By focusing on national goals, increasing accountability, and improving transparency, these changes will improve decision-making through better informed planning and programming.

The U.S. Department of Transportation (USDOT) is implementing the new MAP-21 performance requirements through nine rulemakings released in several phases.

Resources:
www.dot.gov/map21
www.fhwa.dot.gov/tpm/

Contact Us:
Performancemeasuresrulemaking@dot.gov
# USDOT Implementation of MAP-21 Performance Provisions: Ten Interrelated Rules

## Planning

### Metropolitan and Statewide Planning Rule
- Establish a performance-based planning process at metropolitan and state level.
- Define coordination in the selection of targets, linking planning and programming to performance targets.

## Highway Safety

### Safety Performance Measure Rule
- Propose and define fatalities and serious injuries measures, along with target establishment, progress assessment and reporting requirements.
- Discuss the implementation of MAP-21 performance requirements.

### Highway Safety Improvement Program (HSIP) Rule
- Integration of performance measures, targets, and reporting requirements into the HSIP.
- Strategic Highway Safety Plan updates.

### Highway Safety Program Grants Rule *
- State target establishment and reporting requirements.
- Highway safety plan content, reporting requirements, and approval.

* Interim Final Rule issued by NHTSA in January 2013.

## Highway Conditions

### Pavement and Bridge Performance Measure Rule
- Propose and define pavement and bridge condition measures, along with minimum condition standards, target establishment, progress assessment and reporting requirements.

### Asset Management Plan Rule
- Contents and development process for asset management plan.
- Minimum standards for pavement and bridge management systems.

## Congestion/System Performance

### System Performance Measure Rule
- Define performance of the interstate system, non-interstate national highway system, and freight movement on the interstate system.
- Finalize interpretation of scope of CMAQ performance requirements, including congestion and on-road mobile source emissions.
- Summarize MAP-21 highway performance measure rules.

## Transit Performance

### Transit Asset Management Rule
- Define state of good repair and establish state of good repair performance measures.
- Require transit providers to set targets and report on progress.
- Transit asset management plans.

### National Transit Safety Program Rule
- Define transit safety criteria and standards.
- Include definition of state of good repair.

### Transit Agency Safety Plan Rule
- Transit safety plan content and reporting requirements.
- Target setting requirements for transit agencies and States.

---

[Diagram of implementation timeline]

- Indicates the comment period

- Anticipated Coordinated Performance Measure Effective Date
FY 2014 Projected Estimates for End-of-Month Cash Balances (as of 6/27/2014) ¹/²/³/

Highway Account of the Highway Trust Fund (Includes FHWA, FMCSA & NHTSA)

- Actual
- Projected

Billions of Dollars

<table>
<thead>
<tr>
<th>Oct 15</th>
<th>Nov 15</th>
<th>Dec 15</th>
<th>Jan 16</th>
<th>Feb 16</th>
<th>Mar 16</th>
<th>Apr 16</th>
<th>May 16</th>
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<th>Jul 16</th>
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<th>Sep 16</th>
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¹/ Graph reflects actual data through 6/27/14 and end-of-month projections for the remainder of the fiscal year.
²/ Total receipt and outlay projections are based on FY 2015 Mid-Session Review assumptions. Projected monthly receipt and outlay rates are based on historic averages.
³/ Range of anticipated shortfall: Green brackets denote the estimated window of when the anticipated shortfall will occur.

Source: FHWA
Highway Trust Fund Outlays Estimated to Outpace Revenues by $15 Billion or More Per Year

Highway Trust Fund Receipts and Outlays Discrepancy

Excludes $8.017 billion transfer from General Fund to Highway Account of HTF in September 2008; $7 billion transfer from General Fund to Highway Account of HTF in August 2009; $19.5 billion transfer from General Fund to Highway and Mass Transit Accounts of HTF in March 2010; $2.4 billion transfer from Leaking Underground Storage Tank Trust Fund to HTF in July 2012; $6.2 billion transfer from General Fund to Highway Account of HTF in FY 2013; $10.4 billion transfer from General Fund to Highway Account of HTF in FY 2014; $2.2 billion transfer from General Fund to Mass Transit Account of HTF in FY 2014.
Without a strong transportation network, America goes nowhere.
And without federal investment, our system falls apart.

What happens to our economic future if the Highway Trust Fund (HTF) dead-ends?
$51 BILLION
IN MAP-21 funding will expire in FY2014. The HTF is projected to be insolvent by September 2014.

54% OF AMERICA'S MAJOR ROADS are rated POOR OR MEDIocre.

55% STATE SHARE WITH MAP-21
100% STATE SHARE WITHOUT MAP-21

SUPPORT THE HIGHWAY TRUST FUND. And help move our nation forward.

A CENTURY OF ACHIEVEMENT FOR A BETTER TOMORROW
GRIDLOCK Ahead

Loss of MAP-21 funding and HTF insolvency will endanger our economy and mobility.
GROW AMERICA Act

• Four Year - $302 Billion Surface Transportation
• $150 Billion Transfer from General Fund
• Increased Funding Mostly for New Programs
  ▪ Core: Expanded Eligibilities & Sub-allocations
  ▪ New Discretionary Grant Programs
• New Transportation Trust Fund
  ▪ Highway/Transit/Rail/Multimodal Accounts
• Interstate Tolling Pilot Extended to All States
Senate & House Proposals

- **House Leadership**
  - Short-term extension with $11 billion HTF bailout
  - Funded with Eliminating Saturday Mail Delivery
  - Extends MAP-21 through May 2015

- **Senate (EPW → Finance) HR + 4 Amendments**
  - Six Year Highway Bill → Short Term Extension
  - $265 Billion – Flat-line with Some Inflation
  - Retains MAP-21 Programs with New Freight Program
Strategic Highway Research Program (SHRP2)

- Large scale program to make significant advances in challenging areas
- A nine-year, $232 million research program
- Over 100 research contracts
- Research is about 3/4 complete
- Implementation activities are underway for the highest priority products

http://shrp2.transportation.org/
**SHRP2 Focus Areas**

**Safety**: fielding the largest-ever naturalistic driving study to reduce crashes and save lives through understanding driver behavior

**Renewal**: making rapid, innovative construction possible for “ordinary” projects

**Reliability**: Providing management and technical tools to reduce congestion through operations

**Capacity**: Systematizing collaborative decision making to achieve better, faster project decisions
SHRP2 is in gear!

- 27 SHRP2 products are on the street
- All 50 states plus the District of Columbia are engaged
- State visits, product showcases, training, and workshops are underway and action plans being developed
- Products in all four focus areas are advancing
Upcoming Showcases

Preservation Treatments for High-Traffic-Volume Roads (R26)

• Open House: Minnesota – September 3 – 4, 2014

Innovative Bridge Designs (R04)

• Showcase: Missouri – August 28, 2014
• Showcase: Rhode Island - Fall 2014
• Showcase: Gila River Indian Reservation (Arizona) – Early December 2014

Route B Bridge in Columbia, Missouri
What’s Ahead?

• More SHRP2 Solutions Available in 2015
• More Funding and Technical Assistance Opportunities
• Peer Exchanges
• Workshops and Training
• Showcases

http://shrp2.transportation.org/
Multi-Association Initiative

**National Strategy Document - Ready**

**Key Areas:**

<table>
<thead>
<tr>
<th>Safer Drivers &amp; Passengers</th>
<th>Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safer Vulnerable Users</td>
<td>Enhanced EMS</td>
</tr>
<tr>
<td>Safer Vehicles</td>
<td>Improved Safety Management</td>
</tr>
</tbody>
</table>

→ **Safety Culture**
Overview - Context

1. AASHTO Centennial Year
2. AASHTO News & Strategic Plan
3. MAP-21 & HTF
4. SHRP-2
5. Toward Zero Deaths
6. Maintenance Issues
Nationwide Highway Bridges by Age and Condition

Age Category in Years
0-4  5-9  10-14 ... 90-94  95-100 >100

Number of Bridges
No Deficiencies  Functionally Obsolete  Structurally Deficient

A CENTURY OF ACHIEVEMENT FOR A BETTER TOMORROW

American Association of State Highway and Transportation Officials
THE VOICE OF TRANSPORTATION
Electric Vehicles: rage of the day not so long ago
Today’s rage: Connected and Autonomous Vehicles

Image: Eric Risberg/Associated Press

Image: Volpe Center, USDOT

Image: Eric Risberg/Associated Press
QUESTIONS/DISCUSSION
Contact Info:

King W. Gee
Director of Engineering and Technical Services
American Association of State Highway and Transportation Officials
kgee@aashto.org
Implementing Transportation Performance Management


AASHTO SCOM Meeting
July 30, 2014
Peter Stephanos, PE
Federal Highway Administration
MAP-21 Performance Management Overview

- How is performance incorporated into MAP-21 and how will regulations be implemented?
- How does the infrastructure rulemaking relate to other rulemakings?
- What was proposed in the first stage of rulemakings?
- How did FHWA study condition assessment options for pavements and bridges?
How is performance incorporated into MAP-21 and how will regulations be implemented?
MAP-21 Background-Performance Elements

- National Goals
- Measures
- Targets
- Plans
- Reports
- Accountability and Transparency

www.fhwa.dot/map21
**USDOT Performance Measure Areas**

- **National Highway Traffic Safety Administration - Highway Safety Grant Programs**
  - Fatalities
  - Serious Injuries

- **Federal Highway Administration - Federal-aid Highway Programs**
  - Pavement Condition
  - Bridge Condition
  - System Performance
  - Traffic Congestion
  - On-road Mobile Source Emissions
  - Freight Movement on the Interstate
  - HSIP
  - NHPP
  - CMAQ

- **Federal Transit Administration - Public Transportation Programs**
  - State of Good Repair
  - Safety Criteria
10 Inter-related Rulemakings

- Highway Safety Grant Programs
  - NHTSA: 1 Rule
- Federal-aid Highway Programs
  - FHWA: 6 Rules
- Public Transportation Programs
  - FTA: 3 Rules
US DOT Issues Proposed Rules in Three Stages

1. Safety Proposals
   Statewide and Metro Planning

2. Infrastructure Condition
   Asset Management

3. System Performance+
   Public Transportation Proposals
FHWA Proposal Comment Periods – 2014 & 2015

Stage 1
- Asset Management
- HSIP
- Safety PM
- Planning

Stage 2
- Infrastructure Condition PM

Stage 3
- System Performance+ PM
How does the Infrastructure PM NPRM relate to other performance management provisions?
Three Infrastructure-Related Rulemakings

§134 §135 Statewide & Nonmetropolitan & Metro Planning (Planning)

§150 §119 Infrastructure Condition Performance Measures (Infrastructure Condition PM)

§119 §150 Asset Management Plan (AMP)
MAP-21 Performance Elements

- National Goals
- National Measures
- State/MPO Targets
- State/MPO Plans
- State/MPO Reporting
- State/MPO Accountability

Transportation Performance Management Overview

PLANNING

INFRASTRUCTURE CONDITION PM

AMP
## Stage 2 – NPRM and TPM Relationship

<table>
<thead>
<tr>
<th>TPM Element</th>
<th>Planning</th>
<th>Infrastructure Condition PM</th>
<th>AMP</th>
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<tbody>
<tr>
<td>National Goals</td>
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<td>State/MPO Targets</td>
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<td>State/MPO Accountability</td>
<td>✔️</td>
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</tbody>
</table>
What was proposed in the first stage of rulemakings?
Summary of Safety Proposal

- Measures
  - 4 Measures – fatalities and serious injuries
  - Common serious injury definition

- Targets
  - Coordinated between MPO and State
  - Annual targets – identical to NHTSA for equivalent measures
  - Optional urbanized/non-urbanized targets
  - All public roadways regardless of ownership
  - MPO options – quantifiable target or supportive of State

- Reporting
  - States - Annual reporting
  - MPOs - System Performance Report in LRP

- Assessment
  - Progress assessment based on actual & predicted performance
**Related Elements of Planning NPRM**

- Support of national goals
- Coordination of targets
- Integration of other performance based plans
- Reporting on performance
- MPO planning agreements
- STIP/TIP discussion
- Transition period
- Webinars on June 13 and 24
Target Establishment Timeline

**Spring, 2015**
Measure rules are effective.

**July 1, 2016**
State GHSO reports 2017 targets to NHTSA in HSP

**August 31, 2016**
State DOT reports 2017 targets to FHWA in HSIP

**March, 2017**
MPO reports 2017 targets to State DOT

**2015-2016**
DOTs, GHSOs, MPOs, and others coordinate on selection of targets for the end of 2017
Late 2019
HPMS and FARS data finalized and accessed to view progress at end of 2017

October 1, 2020
Obligation authority spent on safety projects

August 31, 2018
State reports on 2017 progress

Early 2020
States notified of significant progress determination for 2017

Performance Management Overview
How did FHWA study condition assessment options for pavements and bridges?


Pilot Studies Conducted

• 1st Pilot Study - 2010
  – Objective – Evaluate how 3 states report pavement and bridge performance for the same corridor
  – Corridor – I-95 in DE, MD, and VA

• 2nd Pilot Study - 2011
  – Objective – Test out Tier 1 and 2 approaches to report pavement and bridge condition for the same corridor
  – Corridor – I-90 in WI, MN, and SD
Transportation Performance Management

**I-95 Corridor Study - Goals**

- Integrate pavement and bridge performance data from a multi-state corridor
- Facilitate analysis of performance measures
- Evaluate how performance data can be used for corridor management.

http://www.fhwa.dot.gov/asset/hif10015/
I-95 Corridor Study - Findings

- Sufficiency rating typically not used to qualify Good-Fair-Poor condition
- Use element level data to develop a national bridge health index
- Develop a new composite pavement measure using HPMS 2010+ data
- Evaluate importance of infrastructure to better define Good-Fair-Poor thresholds
I-95 Corridor Study - Findings
I-95 Corridor Study - Findings
**I-90 Corridor Study - Objectives**

- Define a consistent and reliable method to document infrastructure health
  - Focus on pavements and bridges
  - Initial focus on IHS, but with possible expansion to NHS
- Develop tools to provide FHWA and State DOTs ready access to key information
I-90 Corridor Study – Goals

• Bridge
  – Validate structurally deficiency as a Tier 1 measure
  – Advance potential Tier 2 measure

• Pavement
  – Validate IRI as a Tier 1 measure
  – Advance potential Tier 2 and 3 measures

• Key questions
  – Do different data sources tell us the same thing?
  – Do different metrics help us better understand pavement and bridge conditions?
Interstate Bridge Conditions

- Structurally deficient – 9%

2. Minimum Rating
3a. Weights, based on HI
3.b Weights, based on SR
3.c Equal weights
3.d Variable weights

Performance Management Overview
IRI Comparison – Summary

Do HPMS, state, and field data collection methods tell us the same thing?
Comparing Good/Fair/Poor Options
National Workshop Reactions

• Tier 2 - Sufficiency ratings can work at a national level, but...
  – Need to verify Good/Fair threshold
  – Need to utilize element level data to develop health index

• Tier 1 – IRI – can work for now, but...
  – Clearly communicate that this is not the measure typically used by State’s to drive investment decisions
  – Express as a “Ride Quality Indicator” rather than a “Pavement Performance Indicator”
  – Identify how data can be processed and stored in the HPMS to closely replicate State data
  – Develop methods to ensure that the HPMS includes data as current as a State’s database
TPM Related Initiatives

- TPM Implementation Activities
- Performance-based Planning Workshops/Guides
- Asset Management Plan Pilots
- Travel Time Dataset
- Measuring Freight Performance
- Improving Transportation Operations
Submit comments to:

www.regulations.gov

Safety PM Docket Number:
FHWA-2013-0020

http://www.regulations.gov/#!docketDetail;D=FHWA-2013-0020

HSIP Docket Number:
FHWA-2013-0019

http://www.regulations.gov/#!docketDetail;D=FHWA-2013-0019

Planning Docket Number:
FHWA-2013-0037

http://www.regulations.gov/#!docketDetail;D=FHWA-2013-0037
Ingraining Asset Management Permanently

Jason Bittner
Cambridge Systematics
Preview

- TAMPs generally
- Conference Themes & Takeaways
- Next Frontiers and Activities for the TAM Community
First, Some Questions

- How many of you attended the 10th National Conference?
- How many of you are waiting for federal rules before moving further on TAMPs?
- How many of your efforts are being led from Planning group?
TAMPs

- MAP-21 Rulemaking
- Good Business Practice
- Nearly 20 years in the making in the US
- 34 states have current efforts; at least two dozen MPOs
Conference Overview

- 6 tracks, 30 sessions, over a dozen workshops & meetings

- Final Registration: Record attendance of 468

- Three challenges met:
  - Share Latest Information
  - Build Relationships
  - Explore Resources
Conference Tracks

- *Tools and Technology* to Assist Decision Making
- *Adaptation* to Extreme Weather Events and Climate Change
- Transit *State of Good Repair*
- *Performance Measures* for Asset Management
- *Implementation* Within and Across Organizations
- Establishing, Using, and Monitoring Asset Management *Plans*
Cross-Cutting Challenges and Opportunities for TAM

- Data and Information
- Organizational Issues: Culture, Climate, and Change
- Risk: Assessment, Management, Mitigation, and Understanding
- Telling the Story: Communication and Collaboration
Data and Information

The Infogineering Model
- Data (facts)
- Information (captured data and knowledge)
- Knowledge (our map of the world)
- Decisions (informed actions)
Data – the Big Issues

- Smart Data (Not Dumb Data!)
- Collect Once, Use Many Times!
- Innovative Data Collection; don’t wait until you get the data perfect
- Integrating data sources
- Data and information have to be managed as an asset that has value
- Traditional data is not adequate
Organizational Issues: Culture, Climate, and Change
Organizational: Big Issues

- No single best way to implement
- Executive participation and buy-in is an important success factor
- Staffing Requirements for TAM Activities; building organizational capacity
Building the Right Crusader

New Skill Sets
- Data Analytics
- Economics
- Finance
Risk: Assessment, Management, Mitigation, and Understanding
Risk: Big Issues

- Look Beyond Transportation
- Incorporating Obsolescence

Cost of *not* adapting:
- More rapid replacement, maintenance cycles
- Traffic delays, economic losses
Telling the Story: Communication and Collaboration
Telling the Story: Big Issues

- Portray the need for funding and the consequences if not provided.
- TAMP development creates an opportunity for internal conversation to break down silos (cylinders of excellence)
- Technology is the Great Equalizer
The total cost of owning an asset throughout its useable life includes not only the *initial capital expenditure*, but also *future capital costs*, *maintenance costs*, and *operational costs* - the sum total of which often greatly exceeds that of the initial capital cost.
Other Lessons

I will adopt Best Practices
I will adopt Best Practices
I will adopt Best Practices
I will adopt Best Practices
I will adopt Best Practices
I will adopt Best Practices
I will adopt Best Practices
I will adopt Best Practices
I will adopt Best Practices
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I will adopt Best Practices
I will adopt Best Practices
I will adopt Best Practices
I will adopt Best Practices
Other Lessons

Measures must be:
- Meaningful
- Measurable
- Manageable

It’s about more than MAP-21

Guidance is needed
Next Steps

- Pooled Fund Efforts
- Committee research
- Bringing TAMPs on-line
The Next (Final?) Frontier

Challenges remain

- Including maintenance in capital decisions
- Expanding assets included in the TAMP
- How to incorporate risk into decisions
- Determining how to value the system
- Evaluating trade-offs across assets
Looking to 2015 and beyond

- **2015 1-day workshop in conjunction with TRB Performance Measures Conference**
  - Tentative Location: Denver
  - Bring together performance measurement, performance management, and asset management communities
  - States can join the pooled fund to participate
    - pooledfund.org, Solicitation #1364

- **2016 11th National Conference on Transportation Asset Management**
  - Tentative Location: Minneapolis
Conference History


1999 Scottsdale, Arizona “Using Past Experiences to Shape Future Practice”

2001 Madison, Wisconsin “Taking the Next Step in Asset Management”

2003 Atlanta, Georgia & Seattle, Washington “Moving from Theory to Practice”

2005 Kansas City, Missouri “Making Asset Management Work in Your Organization”

2007 New Orleans, Louisiana “New Directions in Asset Management and Economic Analysis”

2009 Portland, Oregon “Putting the Asset Management Pieces Together”

2011 San Diego, California “Making Asset Management Work in Your Organization: A Focus on Implementation”

2014 Miami, Florida “The Next Frontier In Asset Management: MAP-21 and Beyond”
Contact Information

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Pump Stations
State of Good Repair

Gary Mayes P.E.
Michigan DOT
Maintenance Services Engineer
Overview

• History/Background
Overview

• History/Background
• Asset Management Process
The Importance of Pump Stations!
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The Importance of Pump Stations!
Background

- Oldest station built in 1923, newest 1995
- 71% built between 1950 & 1970 (64 to 44 yrs old)
- Life expectancy of the pumps and controls is 25 to 30 years
- Two MDOT maintenance crews
- One county crew
- $2.8 million maintenance costs
- $389K Operations
- 2004 Capital Rehab Program $4.0 M
Asset Management Process

1. Condition Assessment
2. Level of Service
3. Prioritization
4. Minimize Life Cycle Cost
5. Long Term Funding Plan
1. Condition Assessment
- Mechanical
- Electrical
- Structure
- Site condition
## 1. Condition Assessment

<table>
<thead>
<tr>
<th>Rating Region</th>
<th>Structure #</th>
<th>Route</th>
<th>Road Name</th>
<th>Address</th>
<th>Cross Road</th>
<th>Pwr Co &amp; volts yr built/rehabd</th>
<th># of pumps Total HP</th>
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<tbody>
<tr>
<td>Superior</td>
<td>D01 of 21025</td>
<td>M-35</td>
<td>12th St</td>
<td>RR</td>
<td>UPPCO</td>
<td>1986 ???</td>
<td>45 51' 10.1&quot; N</td>
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<td>North</td>
<td>D01 of 45012</td>
<td>M-22</td>
<td>Pine St</td>
<td>60003 Pine St.</td>
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<td>Grand</td>
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<td>M-11</td>
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<td>2707 S. Division</td>
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<td>M-64</td>
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<td>I-75</td>
<td>G-3425 Arlene</td>
<td>Arlene Dr</td>
<td>Arlene Dr</td>
<td>CMS 480v</td>
<td>1957 4 @ 40hp</td>
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<td>D01 of 73101</td>
<td>I-675</td>
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<td>I-75</td>
<td>G-3161 US-23</td>
<td>I-69</td>
<td>I-69</td>
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<td>D01 of 25132</td>
<td>I-75</td>
<td>3517 S. Grand Traver</td>
<td>Bristol Road</td>
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<td>1968 / 2006 4 @ 75hp</td>
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<td>8th Street</td>
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<td>1221 RT Longway</td>
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<td>Southwest</td>
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<td>631 E Saginaw</td>
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<td>Saginaw</td>
<td>BWL 480v</td>
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<td>13201 E. US-223</td>
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<td>I-96 BL</td>
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<td>DE 480</td>
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<td>Cone Road</td>
<td>Cone Road</td>
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<td>Milan-Oakville Road</td>
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<td>8 Mile Rd.</td>
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<td>Joseph Camps JOS. Campau</td>
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<td>1012 Fisher Fwy.</td>
<td>Chrysler Fwy.</td>
<td>Fisher Fwy.</td>
<td>PLD 480</td>
<td>1963 5 @ 60hp</td>
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<td>M-153</td>
<td>15525 Ford Rd.</td>
<td>Greenfield Rd</td>
<td>Ford Rd.</td>
<td>CMS 480v</td>
<td>1962 3 @ 20hp</td>
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2. Level of Service

Good/Fair condition rating of 90%
2. Level of Service

Good/Fair condition rating of 90%

- Good: 22%
- Fair: 20%
- Poor: 58%
3. Prioritization

- Lowest Condition Rating
3. Prioritization

- Lowest Condition Rating
- Proximity to other pump stations (economies of scale)
3. Prioritization

- Lowest Condition Rating
- Proximity to other pump stations in need of repair (economies of scale)
- Location on corridors of high significance
3. Prioritization

- Lowest Condition Rating
- Proximity to other pump stations in need of repair (economies of scale)
- Location on corridors of high significance
- Proximity to major road projects
4. Minimize Life Cycle Costs

- Reduce Maintenance Cost
4. Minimize Life Cycle Costs

- Reduce Maintenance Cost
- Increase pump efficiency
5. Minimize Life Cycle Costs

- Reduce Maintenance Cost
- Increase pump efficiency
- Preventive Maintenance
5. Minimize Life Cycle Costs

- Reduce Maintenance Cost
- Increase pump efficiency
- Preventive Maintenance
- Improve reliability and reduce traffic delays
Supervisory Control and Data Acquisition (SCADA)
SCADA
Long Term Funding

Strategic 20-Year Plan
Pump Station Capital Rehabilitation Program
Questions?
mayesg@michigan.gov
MONDAY, JULY 28, 2014

SCOM Opening Session: Carlos Braceras, UT – Presiding

Welcome: Paul Mattox, WVDOH, Commissioner of Highways; West Virginia recently hosted USDOT Secretary, Anthony Fox and others to talk about the needs for investment in transportation. Congress is working on an extension bill and a long term highway bill and working to bring security to the Highway Trust Fund. West Virginia has 36,000 miles of state maintained roads of which 27% is eligible for federal-aid funds. Based on current funding levels, WV is looking at a 28 year repaving cycle. The budget remains the same from year to year but costs are up 35%. We are looking into a State Road Fund. WV has $1.1 B in needs for a small rural state and may only get 10% of what we’ve asked for. The possibility of tolling or raising the gas tax just won’t work but we need to do something. Thank you for your part in making the system stronger and helping us to bring recognition to the challenges and possible solutions. Welcome to West Virginia and enjoy the capital city.

A Transportation Legacy: Carlos Braceras – Utah DOT; Carlos noted that nothing gets done without people. He highlighted the career of Lee Smithson and noted that he is retiring after providing over 57 years of public service in transportation. Lee was given a standing ovation by subcommittee delegates. Lee retired from the Iowa State Highway Commission in 2002 and from AASHTO in 2014. His leadership efforts with SICOP are commendable. Lee thanked everyone and said that it’s been a long career marked with working with great people like Carlos. After going on an International Scanning Tour in 1994, Lee began to understand that we (USA) are no longer the leaders in transportation. We have accomplished the easy stuff but the hard stuff is still ahead. APWA also recognized Lee for his many years of distinguished service and mentorship. We salute him for a job well done and thanks for helping us to honor such a great man.

SCOM Update: Carlos Braceras – Utah DOT, SCOM Chair; The AASHTO Board of Directors is developing a new Strategic Plan that was shared at the Spring Business Meeting. Now is your opportunity to provide input to assure that we capture and present the maintenance role. A vote for approval of the plan is scheduled for November 2014. Our goal is to provide you with the tools you need to work together and deliver the program and to do a better job while building a world class transportation system. We help the mobility of this country, the economy, and with moving goods. What we do is about preserving our infrastructure. The Operations Technical Service Program is new. I encourage you to get involved and help deliver these services. We are a transportation agency and safety is number one. We need to optimize the existing system to ensure our quality of life and to meet our transportation plans. It’s about
keeping our good roads in optimal condition, and monitoring pavement condition vs age and getting the highest return on investment for the public. It is critical that we communicate our business practices to our customers so they understand why it is we do what we do. Investing in pavement preservation saves money. It’s easier to get capital investment funds than to hire additional employees. We must also leverage resources with the private sector (i.e., weather forecasting). AASHTO has several centers of excellence which compete for grants, work with partners, do research, and provide training to help states. By asking questions and participating we have and will continue to see tremendous benefits.

New SCOM Chair: Carlos Braceras – Utah DOT; Carlos accepted a two year assignment as chair many years ago and stayed for 12 years. Carlos handed over the chair position to Mark McConnell from Mississippi DOT. Mark is the Deputy Executive Director at MDOT. He served on numerous committees and is congratulated on his new assignment as SCOM chair. Mark said that this is one of his favorite committees and that he is humbled to be selected as the new chair. Maintenance is very important. Funding is short and we have lots of needs. Today, our maintenance folks are in the field more. It’s hard to convince people to invest funds on good roads but it must be done. My goal this week is to get to know folks, participate in TWGs, and find out what’s important. I want to hear from you and I am in this with you. Please provide me with comments and recommendations as we go forward. Maintenance is very important and it will remain on the plate no matter what. This is the top committee in AASHTO.

FHWA Update: Bryan Cawley – FHWA; FHWA is in the midst of a rule making process related to the development of several national performance measures as required by MAP-21. An NPRM for Asset Management is scheduled for release later this year. A clarification memo is under development to document the difference, applicability, and safety concerns associated with preservation and preventative maintenance. Research is ongoing related to flooded pavement capacity, sustainable pavement solutions for utility cuts, snowplow guidance systems, and integrating 3D models into Asset Management. FHWA has partnered with the International Slurry Seal Association to provide technology transfer on new and existing products. Coatings training and safety awareness during bridge preservation activities is ongoing. The NHI Bridge Preservation Series presents bridge preservation fundamentals, how to establish a bridge preservation program, and communicate strategies for bridge preservation. The Bridge Maintenance Manual is also being updated. With more and more extreme weather events, things are changing. Awareness training to give states more time to prepare is ongoing. The Maintenance Peer Network program is underway. The goal of the program is to host regional workshops, develop program information, and prepare regional summary reports. Butch Wlaschin recently announced his retirement as of the end of August 2014.

TRB Technical Activities Division Update: James Bryant – TRB; James noted that the latest of 15 committees to be developed is the Bridge Preservation Committee. TRB is looking for Practice Ready Papers. Delegates can make contributions at the following website: http://prp.trb.org/. Practice ready means results are ready to be presented and discussed to make a contribution to the solution of current or future problems. Papers from 2006 until now are available on line. Delegates are encouraged to get involved as two additional slots for State DOTs have been
added. In the past year TRB hosted 63 webinars with over 13,000 State DOT attendees participating. The [http://Mytrb.org](http://Mytrb.org) website allows access to points of contact and information on TRB’s standing committees, project-based communities and panels, and governing committees, as well as to lists of TRB sponsors, affiliates, and representatives. Abstracts and/or presentations are due by September 15, 2014 for the 2015 AASHTO/TRB Conference on Transportation Infrastructure, Maintenance and Operations with full manuscripts due by February 2, 2015. Please work thru your TWG chairs during this call for papers. Registration opens in September for the January 2015 TRB Session in Washington D.C. All meeting locations will be accessible via the Metro system. Wi-Fi will be available everywhere, and there will be bigger and better exhibits in the Convention Center. The theme of this year’s event is, “Corridors to the Future”. Feel free to contact me at jbryant@nas.edu.

West Virginia Division of Highways – Operations and Maintenance Update: Kyle Stallings, WVDOH – Director of Maintenance; Kyle thanked his team members for their efforts to help plan and set up this event and said that they are doing a tremendous job. As far as Operations and Maintenance, West Virginia has the 6th largest state owned transportation system in the U.S. Information is kept on centerline miles, rural vs. local, interstate miles, lane miles, number of bridges, salt sheds, operation facilities, on the number of employees (4,500), and pieces of equipment. System constraints include geography were WV is contained within the Appalachian Mountains. Climate includes subtropical to subarctic plant life with an overall population of about 1.8 million. Fracking and natural gas piping is impacting the transportation system. The roads are not designed, constructed, or maintained to handle the loads from the fracking equipment. This has caused a lot of emergency maintenance repairs. We have a lot of major river crossings and bridges and up to 250 inches of snow annually in eastern WV. Kyle gave an overview of the Operations and Maintenance Section and the Bridge Evaluation Section and what they both work on. He noted that they have three snooper trucks to do bridge inspections and how they are busy over 40 weeks a year. The Traffic Engineering Division is very important as well. WV is also looking at MAP-21 to see how Asset Management will be affected.

Maintenance Peer Network Update: Jennifer Brandenburg – NC DOT; Jennifer noted that the MPN is a spinoff of the Construction Peer Network. The MPN is a recommendation that came out of the SCOM meeting in Seattle. We have a steering committee that is responsible for collecting good practices, new technologies, and sharing information. Conference proceedings will be posted on SCOM website. Steering Committee membership is made up of folks from all five TWGs, Industry, AGC, ARTBA, FHWA, AMOTIA, and AASHTO. The country is divided into four regions with approximately 13 states each. These will be two day meetings with topics based on a pre-workshop survey. There is also an opportunity to bring in speakers from other regions. The western workshop is scheduled for Sep14 in Phoenix, and Dec14 in Raleigh. The Midwest and Northeast workshops are scheduled for spring 2015. Topics of interest include: employee and WZ training, management systems, fleet management, electronic data capture, innovative funding to LOS, winter maintenance performance measures, MQA program, environmental commitments, and use of alternative fuels. Topics will be prioritized and held to 6 topics per workshop. Two State DOT attendees will be invited per state. The event manager
will help with travel. FHWA participation will be coordinated by FHWA HQ. Industry participants will also be able to register. Contact Lacy Love for additional details, lacy.love@volkert.com.

Extreme Weather Events/Lessons Learned: Michael Meyer – Parsons Brinkerhoff; One year ago AASHTO sponsored an event on Extreme Weather Events where we learned that it pays to be ready, and that we need to practice, practice, practice. States decided they want to be updated regularly on federal programs and research related to extreme weather and climate change as it applies to maintenance activities. A National Climate Assessment was completed in 2014. In general, changing climate conditions and extreme weather events are affecting the reliability and capacity of the U.S. transportation system. Issues were raised by the science group. See NCHRP 750, Vol 2 for additional details. How could changes in temperature, precipitation, sea level rise, and hurricane stressors effect the transportation system? What are the potential impacts on O&M? A Climate Change Risk Assessment was completed in August 2011. Maintenance implications, risk and examples were shared to include reduced asset condition and safety, network availability and functionality, and increased costs. Lessons learned included using separate sites for debris and sand removal, sinkholes, reimbursement, equipment staging, assistance to cities, and flooding and wildfires. Various Pilot Adaptation and Engineering Studies are scheduled for completion by the end of 2014. For additional information see; http://climatechange.transportation.org & http://climate.dot.gov/.

The Winter That Was (2013-2014): (GA), (MI), (NH), (AK);
(Georgia) gave a 2014 winter weather Atlanta snow and ice debrief and noted that they rarely gets snow but they do get ice that typically melts and refreezes. Atlanta has had 3 ice events during the last 4 years. The beltway around Atlanta was gridlocked for a day and a half. Some people sheltered in place and others just left their cars. The biggest change we have seen in the models is that we need to start our maintenance 1-2 hours earlier than forecasted. Any snow in metro Atlanta brings general panic to most drivers. Policy changes are: let state government workers out early, pretreat all interstates, require tire chains, use salt applications, additional salt storage, use of equipment tracking, and an expansion of ITS technologies.
(Michigan) had extreme conditions this winter with higher snow totals and a polar vortex. We were getting used to and counting on milder winters. This year we doubled our winter maintenance costs. It was tough on our budgets and crews and some areas had over 260 inches of snow. Taking care of winter first is our main goal. We have over 31,000 total lane miles to take care of. Use of contract maintenance vs direct forces varies by county. We use snow blowers, wing plows, and salt delivery systems to combat the snow. When the snow melted we then had runoff and pothole issues. Our salt usage was up by 40%. For extreme cold temperatures we used chemicals and sand instead of salt. Fuel usage was up by 20%. Overtime was up by 98% and property damage claims were 34% higher. Our goal is to provide our customers with a reasonable LOS. We did numerous things to help out: additional communication with partners/county/counties/press on maintenance practices, resource sharing, use of temporary employees, post storm reviews of problems, AVL and MDSS, extensive training for technologies, shared best practices, reduced truck speeds, and kept use of salt to a minimum. We received a lot of appreciation after it was all said and done.
New Hampshire noted some of its challenges as: frequency and timing of storms, cold temperatures, and funding. Some takeaways include: pursuing dedicated winter funding, and getting legislative buy in on the mission. It just got colder and it never went away for the entire winter. NH just tells people to stay home if it’s going to be bad. With various ice dams some roads just became lakes. NH has used salt/sand since the 1940s. Takeaways: be proactive and order salt as you use it, share costs and statistics for FY13/14. When people see things on message boards they know we mean it.

(Alaska) had a winter to remember. We had floods, freezing rain, fire warnings, and avalanches. January 2014 was very mild with above normal temperatures which set all sorts of records across the state. We had lots of rivers that were swollen with rain and snow melt and had numerous sediment issues. Thompson Pass typically gets 80 feet of snow per year so we began to prepare for avalanches a few weeks early but when 12 inches of rain fell in 3 days it was too much to handle. ADOT triggered additional avalanches themselves to minimize the risks of additional avalanches during clean-up operations. The largest clean up involved an avalanche that was 200 feet high and over 2,000 feet long. Some avalanches blocked rivers that were typically frozen but due to the mild temperatures caused lots of flooding issues. We also experienced lots of media requests and hired a video company to document our clean up efforts. This was not business as usual but we treated it as so. We also did a weekly operations report to let the public know what was going on. “Road Open - Business as Usual”

WEDNESDAY, JULY 30, 2014

SCOM General Session: Jennifer Brandenburg, NC – Presiding

Mission Zero: Howard Hall & Jerral Wyer, TX; Howard said that in 2006 he went to the funeral of one of the TXDOT employees and two additional maintenance employees were killed in the past two years. These things scar us. We spent an afternoon talking about employee safety, and contractor fatalities. Work zones are dangerous but we don’t accept that some employees will not go home. Even with a good safety record employees are still dying. TXDOT changed its operations. We provide anything that is identified with safety. We changed numerous business practices and made it safer for employees where possible. We host weekly safety briefs. The unity between Safety and Operations has helped us to change our safety program. Jerral said that if you average losing one employee per year, who do you want to put in that chair next? These deaths have a lasting impact on us. Take defensive driving on line. Every supervisor evaluates employee driving habits. Our employees are everything to someone and we care about our people. We strive to save lives and make a difference and we are beginning to have an impact. Include your employees in the process to do something about it. Encourage your Safety and Operations employees to work together and solve the problem. If you don’t have to be on or near the road get out of the way. Look to see what’s coming at you and don’t forget what can happen. There are numerous safety awareness videos for workers and drivers on YouTube. It’s better to lose one minute in life than a life in one minute. Make it part of everyone’s job by planning safety into everything you do, even for your office employees. Eliminate preventable incidents! Pay attention or pay the price.
2012 Contract Maintenance Scan Tour: Greg Duncan, TN; Scan 11-01 Best Practices of Privatization of Maintenance Activities / NCHRP 20-68A U.S. Domestic Scan Program. Greg shared the basic steps in the scanning process. Privatization of maintenance functions is controversial. What maintenance do you outsource and what are the considerations for outsourcing? Focus on cutting your staff and cutting your maintenance costs. Document your internal costs. You must know what assets you have, and what condition they’re in. Recommend use of a Maintenance Quality Assurance (MQA) program. Legislative types or upper management may tell us to outsource. Dig into the numbers. You have to know what’s going on. Try to understand the contractor’s risk and how we will be paying for it in the end. Ensure agency staff is trained. How do you assign and allocate risk? What’s the accountability? Benefits include: labor cost reductions, assets are improved, equipment costs decline, and expertise is available upon demand. Concerns include: reduced staff equals reduced internal capabilities and flexibility. Outsourcing sometimes threatens staff morale. Recommendations: engage your contractors, work towards statewide consistency, and work towards making your inspectors successful in their jobs, especially on large scale contracts.

AASHTO Update and Priorities: King Gee, AASHTO; I am impressed with the dedication and passion you all have in your jobs. This is the one hundredth year of AASHTO. Where would we be today without the MUTCD? You are AASHTO. We are celebrating what you have all done. Strategic Planning – a review of the subcommittees will be done next year to help determine the direction we need to take the Technical Service Program’s. Downsizing and lack of resources has led to this. We need to talk about transportation solutions including transit. We are in competition for dwindling resources with other agencies. We must communicate the value of what we do. Performance management is cyclical. It’s important to look at life cycle costs. Customize your input to the MAP-21 NPRM’s. The Highway Trust Fund is a long term problem. Money collected now is paying old bills. A brief overview of the proposed GROW AMERICA Act was given. Toward Zero Deaths is about a safety culture. AASHTO has a TSP to help you respond to extreme weather events. Thank you for what you do for your states and for your efforts through groups like this.

MAP-21 An Overview of Implementation of MAP-21 Performance Provisions: Pete Stephanos, FHWA; Information is contained throughout MAP-21. Background performance elements include six steps. Various measures were noted to help assess performance. It is a challenge to implement these new requirements via the various rule makings by NHTSA, FHWA, and FTA. Comments asked for a stricter assessment of progress and whether or not it’s significant. Asset Management and infrastructure condition are due out in October 2014. How will the states use management systems to improve overall performance? Linking targets for the highway side and the transit side will be difficult. Pilot studies have been completed for pavement and bridges. Reporting on pavements is inconsistent while reporting on bridges is consistent. Measures that states use are very different for good, fair, and poor pavement condition levels. This can’t be the case for the national level. How can this be applied to the entire NHS? IRI doesn’t tell the whole story. Most states are doing their own thing. Transportation Performance Management website is found at: www fhwa dot gov/tpm. Please submit comments to the various dockets.
Ingraining Asset Management Permanently: Lessons from the 10th National Asset Management Conference: Jason Bittner, Cambridge Systematics; Asset Management is a mindset and attitude. We must be willing to ask for help. Some states are waiting for federal rules before moving further on Transportation Asset Management Plans (TAMPs). The TAMPs provide guidance. It is a good communication tool and each TAMP is going to be unique. There were six conference tracks and lessons learned from earlier pilot projects. Cross cutting challenges and opportunities for TAM were shared. The big issues regarding data were discussed. A comprehensive guide to data will be shared thru NCHRP later. Culture, climate, change, and organizational issues were covered. It all comes down to money. Communication is critical in building the right crusader with the right skill sets. A risk based approach to decision making is being looked at when making funding decisions. We need to use TAMP to communicate “What if”. We must adopt best practices. Next steps were shared as well. A TAMP builder is also available to help bring these on line.

Pump Stations – State of Good Repair: Gary Mayes, MI; Pump stations are one of our assets that people don’t even know are there. They don’t’ gain a lot of attention until one fails and then people ask a lot of questions. We have a capital rehabilitation team that works on the management of this asset. This is our first capital asset management program for maintenance and it has worked out pretty good. We already had an inventory on this asset. We did various types of assessments on condition, level-of-service, prioritization of maintenance needs, and minimizing life cycle costs. Using submersible pumps and a preventative maintenance program have been very helpful. Our goal is to get them up to 90% in fair or good condition. You can determine what the critical faults are and have them automatically forwarded to you and know who to send out to the station to work on it. Michigan developed a 20 Year Plan for Pump Stations. For any questions please contact Gary at mayesg@michigan.gov.

THURSDAY, JULY 31, 2014

SCOM Business Meeting: Chris Christopher, WA & Jennifer Brandenburg, NC - Presiding

State Roll Call: Tom Hufnagel, AASHTO; Determination of a quorum. (Note: this is not the official list of states that Tom Hufnagle took.) AL, AZ, CO, CT, GA, ID, IA, KS, AK, KY, LA, ME, MN, MO, NE, NV, NH, NC, ND, OH, OK, OR, PE, SC, ND, TX, VA, WA, WV, WI, FL, CA (Approximately 35 States were present); Without a quorum the resolutions will be reviewed and no official ballot will be taken. This will officially be done later by an email vote.

Thank You Resolutions (West Virginia, Lee Smithson, Carlos Braceras, and Butch Wlaschin): Mark McConnell, MS - Presiding

Future Meetings: 2015 Iowa Subcommittee on Maintenance Update: Bob Yonnie – Joint TRB Subcommittee Meeting. Iowa DOT has a contract signed with the Downtown Marriott. Bob showed a promotional video and invited everyone to come catch us in Des Moines next year. Additional SCOM meetings are scheduled for 2016(NV), 2017(RI), 2018(NC), and 2019(MI).
2013 Resolution Recap: Tom Hufnagel – AASHTO; 6 resolutions were forwarded last year in VT and 5 were passed. A summary of those that passed was provided.

Resolutions: Maintenance Quality Assurance TSP – Jennifer Brandenburg & Research Liaison – Chris Christopher; both resolutions were reviewed and no vote/official ballot was taken without a quorum. Discussion on the research liaison resolution noted that Joe Baker from RI is a possible candidate for this position.

Research Ballot: Chris Christopher; a vote was taken on what is the importance of this research to each of the state’s present. A benefit cost analysis chip seal binder alternatives problem statement was added in lieu of the current #3 on the research ballot.


TWG Presenters for Report Outs:
Bridge TWG: Jeff Milton, VA – Chair
Equipment TWG: Tim Cunningham, KS – Vice Chair
Pavement TWG: George Conner, AL – Chair
Roadway/Roadside TWG: Thomas Liden, OH – Vice Chair
Highway Safety and Reliability: Steve Lund, MN – Chair

Update to SCOM Strategic Plan: 20-7 Proposal, Mark/Jennifer/Chris; review of draft resolution on North American Association of Transportation Safety & Health Officials Invitation – July 2014. TWG Chairs, Vice Chairs and Leadership teams are working on an update. AASHTO is continuing to update its Strategic Plan over the next few months. SCOM 20-7 is a proposed two day facilitated meeting to work on the update of the SCOM Strategic Plan. If funded, this will probably be scheduled for Spring 2015 with a report out during the 2015 summer meeting. This information should be added to the SCOM Work Plan. Chris asked FHWA to prepare the Draft SCOM Work Plan based on the report out slides.

TRB and NCHRP Update: James Bryant, TRB; Review of TRB information for January 2015. Registration opens up in September, change from earlier. 2015 AASHTO/TRB Conference.

Other Business: Mark McConnell, Thank you to everyone for your assistance on everything.

West Virginia/Iowa Transition Meeting: This was held with SCOM Leadership Staff to help prepare Iowa for expectations for the 2015 next summer meeting.