REAL SOLUTIONS FOR CLIMATE CHANGE

STATE DOT WORKSHOPS ON CLIMATE CHANGE

July 20, 2011

Presented by:

CINDY BURBANK, Parsons Brinckerhoff
SARAH SIWEK, Sarah J. Siwek & Associates, Inc.
CAROLINE PAULSEN, American Association of State Highway and Transportation Officials (AASHTO)
DIANE TURCHETTA, Federal Highway Administration (FHWA)
KEVIN WALSH, Massachusetts Department of Transportation
GINA CAMPOLI, Vermont Agency of Transportation
PERRY KELLER, West Virginia Department of Transportation
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Overview of 17 State DOT Climate Change Workshops

July 20, 2011

Presented by:

CINDY BURBANK
Vice President, Parsons Brinckerhoff
Purpose of the 17 State DOT Workshops

Four key purposes:

1. To build **awareness** of climate change challenges

2. To address both GHG **mitigation** and climate **adaptation**

3. To increase **capacity** of state DOTs to respond to climate change

4. To foster **collaboration** among state DOTs and their key partners
17 State DOTs Hosted Workshops

New England: CT, MASS, RI, VT
Mid-Atlantic: DC, NC, PA, WV
Southeast: GA, TN, MS
Midwest: IA, IL, MO
West: AZ, CO, HI

These 17 states selected by FHWA and AASHTO, out of 30 applications
Workshop Participants

- 40-60 participants in most states
- State DOT functions represented: planning, environment, construction, maintenance, operations, etc.
- Partners: MPOs, transit agencies, state environmental agencies, state energy offices, FHWA divisions, FTA regions, and other Federal field offices
- Others: CFO in RI, state climatologist in VT
Workshop Content and Format

• 7-8 hour, full-day workshop

• Workshop content:
  1. Climate Science, Sources, & Trends
  2. Why CC is Important for State DOTs
  3. GHG Mitigation Strategies
  4. Climate Adaptation
  5. Federal Direction - Policies, Legislation, NEPA, Planning
  6. Break Out Groups

• 1-2 hour Executive Session – focused on break-out reports and next steps
Further Information

• All 17 Workshop slide sets are on AASHTO website: http://climatechange.transportation.org/

• AASHTO contact: Caroline Paulsen

• FHWA contact: Diane Turchetta

• Workshop instructors: Cindy Burbank & Sarah Siwek *

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With presentations and assistance from Rob Kafalenos, John Zamurs, Becky Lupes, Heather Holsinger, and Mike Flood, in specific states
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AASHTO Climate Change Programs:

July 20, 2011

Presented by:

CAROLINE PAULSEN
AASHTO, Program Manager for Climate Change
Overview of AASHTO Climate Change Programs and Activities

**Complete:**

- 12 climate change and transportation webinars
- Initiation of the Climate Change Weekly Briefing – newsletter on recent climate change related news available to state DOTs who are members of AASHTO’s Climate Change Technical Assistance Program
- Launched new AASHTO Climate Change Website
- Climate Change Symposium for state DOTs, FHWA, and other agencies – held in August 2010.

**Current/Future:**

- Plug-in Electric Vehicle Action Plan effort, facilitated by the Pew Center on Climate Change
- Climate Change Adaptation Workshop/Conference – will be held in May 2012 and tailored to meet the needs of members from AASHTO’s Standing Committee on Highways
- Survey to state DOTs about AASHTO’s climate change programs and how to improve for their future needs/interests.
- Twice annual meetings for the AASHTO Climate Change Steering Committee

http://climatechange.transportation.org
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FHWA Climate Change Resources and Activities:

July 20, 2011

Presented by:

DIANE TURCHETTA
FHWA, Transportation Specialist
Overview of FHWA Climate Change Resources and Activities

Providing information, outreach; developing and promoting use of tools and methodologies; application

**Mitigation:**
- GHG Tool – for analyzing GHG reduction scenarios and alternatives (ongoing)
- GHG Mitigation Guidebook – analyzes a variety of transportation strategies (ongoing)
- GHG reduction potential from operations strategies – builds on existing information (ongoing)
- State DOT workshops/peer exchanges - both mitigation and adaptation

**Adaptation:**
- FHWA Agency-wide Adaptation Working Group – draft strategy underway
- Regional Climate Change Effects: Useful Information for Transportation Agencies [Climate Effects Typology] (2010)
- Vulnerability and risk assessment conceptual model (2010) and associated Pilots (ongoing)
- Gulf Coast Study: Impacts of Climate Variability and Change on Transportation Systems and Infrastructure -Phase 1 – Gulf-wide (2008); Phase 2 – Mobile, AL (ongoing)

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Key Workshop Themes and Breakout Session Ideas

July 20, 2011

Presented by:

SARAH SIWEK
President, Sarah J. Siwek & Associates, Inc.
State DOTs approach to climate change varies widely
- Understanding of climate change science and trends
- Public acceptance that climate change is real
- State policies to address climate change issues
- Approaches to mitigation and adaptation
Adaptation has emerged as the key concern of many state DOTs

- Extreme weather events have raised awareness of importance of protecting existing transportation infrastructure and planning for future
  - Record heat in many states
  - Record snowfalls
  - Intense rainfall events
  - Flooding in coastal and non-coastal states
Workshops: Breakout Session Ideas

Break-out session topics

- GHG Mitigation aimed at influencing user behavior
- GHG Mitigation aimed at state DOT activities
- Adaptation
- Communication, Outreach, Education, and Collaboration
Breakout Results: GHG Mitigation Strategies to Influence User Behavior

- Promote Eco-driving
- Promote carpooling and vanpooling programs
- Enhance transit services
- Increase bicycling and pedestrian access
- Promote complete streets concepts
- Encourage telecommuting and flexible work hours
- Target future growth in Urban Growth Boundaries
- Implement parking policies and pricing based on fuel efficiency of vehicles
Breakout Results: GHG Mitigation in Construction, Operations, Maintenance and System Management

- Better manage and dispatch DOT fleet
- Use alternative energy sources (e.g., solar) and alternative fueled vehicles
- Require LEED certification for new buildings
- Require clean construction vehicles and equipment
- Install LED lights and traffic signals
- Optimize use of signal synchronization
Breakout Results: GHG Mitigation in Construction, Operations, Maintenance and System Management

- Implement no-idling policies for DOT fleet vehicles
- Use native vegetation in ROW
- Improve re-vegetation practices to reduce erosion and potential for wildfires
- Use warm-mix asphalt
- Re-evaluate highway lighting policy
- Recycle to fullest extent possible on construction projects
- Create multi-disciplinary DOT climate change team
Breakout Results: Adaptation

- Update inventory of assets
- Assess vulnerabilities and risks
- Prioritize investments in adaptation
- Consider GHG and adaptation needs in NEPA documents
Adaptation

- Use self-sustaining grasses in ROW to withstand future climate impacts
- Update FEMA flood plain maps
- Re-examine design standards
- Establish on-going data collection on sea-level rise, extreme weather events
- Improve emergency preparedness for extreme weather events
Communication, Outreach, Education and Collaboration

- Develop consistent statewide message on climate change that all state agencies can agree to
- Educate public officials
- Define roles and responsibilities of agencies in collaboration and cooperation
- Ensure local jurisdictions are at the table in development of strategies
- Share money-saving strategies through media
- Enhance use of social media in outreach and communications
- Communicate best practices
- Use news media to communicate and educate
- Enlist schools in education effort
Communication, Outreach, Education and Collaboration

- Promote clean energy and energy efficiency to all audiences
- Document and publicize activities to reduce GHG at state DOTs
- Develop package of public education materials on climate change that all state DOTs could use
- Promote and expand awareness of 511
- Develop public education program focused on U.S. becoming less petroleum dependent ("largest transfer of wealth (to oil producing nations) in human history")
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Climate Change Adaptation and Sustainability:
Next Steps for MassDOT

July 20, 2011

Presented by:

KEVIN WALSH
Massachusetts Department of Transportation, Director of Environmental Services
Massachusetts Climate Change Workshop

Goal - Raise Awareness at all levels

- Over 60 Participants
- Broad Spectrum from MassDOT Divisions
  - Upper Management from all Districts
  - Supervisors from Bridge, Maintenance, Design
• 2008 Global Warming Solutions Act
  – Set GHG Targets
  – Required submission of Climate Change Mitigation and Adaptation Strategies

• November 2009 MassDOT Created
  – Highway Adaptation Strategies Submitted
    • Ongoing, Short-term, Mid-term, Long-term
MassDOT Sustainability & Livability Policy Framework

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Global Warming Solution Act 2008

GreenDOT

Healthy Transportation Compact
Massachusetts Clean Energy and Climate Plan for 2020
Workshop - Results

- Expanded Awareness of Climate Change Policies and Strategies
- Identified Existing Tools
  - GIS
  - Wildlife Guidance

http://www.mhd.state.ma.us/default.asp?pgid=content/environ/envpublications02&sid=about
Workshop: Next Steps

- Formalize Adaptation Policy for MassDOT
  - Develop Adaptation Policy for Divisions
- Apply Draft Policy to Projects on Case by Case
- Form Working Groups
  - Adaptation and Mitigation/Sustainability Review
- Energy Audits of all Facilities
- Identify Solar/Wind - Facilities & ROW
Workshop: Next Steps Cont.

- Complete Lidar Survey – USGS, EEA
- Survey and Mapping of Flood Prone Areas
  - Highway Flood Inventory
- Training & Outreach
  - Divisions, Districts, MPO’s
  - Climate Change & Sustainability Fact Sheets
Highway Flood Inventory and Climate Change
Prepared by Katrina Crocker
Current Flooding

- At least **32** MassDOT highways already experience repeat flooding (**70+** locations)

- These locations can be considered vulnerable to more future flooding
Findings: Frequency

Locations of Repeat Flooding

LEGEND
Flood Locations
Frequency/ yr
- 6-10x
- 3-5x
- 2
- 1
- 1/3-1/2
- 1/5
- 1/8
- <1/8

Interstate Hwy
Flood Inventory: Next Steps

• More Data Needed

• Prioritize Evaluation of High-risk Locations
  – Incorporate in climate adaptation plan
  – Routine maintenance of debris & sediment
  – Resize culverts and/or drainage structures
  – Provide guidance to cities and towns

• Progressively Adapt
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VTrans Climate Change Workshop
Approach and Results

July 20, 2011

Presented by:

GINA CAMPOLI
Environmental Policy Manager
Vermont Agency of Transportation
Policy, Planning and Inter-modal Development Division
Workshop Timing Was Right

- New administration
- Legislative session completed
- Climate Cabinet kick-off incorporated in workshop

- Consultant provided basic climate change science and a summary of the previous day’s deliberations to agency heads
VTrans Climate Change Workshop

• Pre-workshop Planning

• Workshop Purpose:
  – Bring upper level managers up to speed on the science and state and federal policy contexts
  – Engage in small group discussions:
    1. Climate change adaptation
    2. Land use and transportation
    3. More efficient transportation options
Workshop Success

- Over 50 active participants, primarily VTrans managers
- Breakout sessions’ results to guide future research and planning efforts
Adaptation Break Out:

- Short and long term planning needs

- Better data and information for engineering analyses related to flood vulnerability

- Resource constraints associated with building bigger (culverts, bridges, and stormwater capacity)

- Mapping exercise to correlate expenditures with weather events
Transportation and Land Use Break Out:

- Build on existing planning efforts
- Commitment to strategically invest in rural transit
- Need for metrics
VTrans Climate Change Workshop

More Efficient Transportation Break Out:

- Need to maintain commitments to existing programs
- Role for VTrans in the promotion of alternative fuels and fueling infrastructure deployment?
- Efficacy of public education regarding more efficient car purchases and vehicle maintenance and operation
Workshop Follow-Up to Date: Adaptation

- Data collection and mapping
- Investigate risk analysis appropriate for Vermont
- Update inter-agency white paper
VTrans Climate Change Workshop

Workshop Follow-up to Date – Comprehensive Energy Planning

- VTrans is the lead for the CEP due in the early fall
- Clear connection to climate change mitigation planning - Addressing petroleum dependency by shifting to less carbon-intensive fuels and using fuels more efficiently to move people and goods
- Economic competitiveness component – addressing energy security, the cost of energy, and green jobs growth
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West Virginia Climate Change Activities:

July 20, 2011

Presented by:

PERRY KELLER
Statewide and Urban Planning, Unit Leader
Virginia Department of Transportation
Program Planning and Administration Division
West Virginia DOT Activities

- Promote and enhance bicycling opportunities
- Investigate use of solar power where possible
- Enhance emergency preparedness for extreme weather events
- Intra-City transit service
AUDIENCE Q&A
To access copies of this webinar’s materials, recordings, and/or to access the State DOT Workshops’ materials, please visit AASHTO’s climate change website, where you can also find more information on climate change:

http://climatechange.transportation.org/state_dot_workshops/

Thank you!