



Transportation and Climate Change Resource Center

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

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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

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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

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- 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

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- 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

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- 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 *

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

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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

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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)

<http://www.fhwa.dot.gov/hep/climate/index.htm>





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Key Workshop Themes and Breakout Session Ideas

July 20, 2011

Presented by:

SARAH SIWEK

President, Sarah J. Siwek & Associates, Inc.



Workshops: Key Findings

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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

Workshops: Key Findings

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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

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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

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- 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

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- 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

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- 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

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

Adaptation

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- 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

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- 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

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- 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

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Goal - Raise Awareness at all levels

- Over 60 Participants
- Broad Spectrum from MassDOT Divisions
 - Upper Management from all Districts
 - Supervisors from Bridge, Maintenance, Design



Massachusetts Climate Change Overview

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- 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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Massachusetts Clean Energy and Climate Plan for 2020

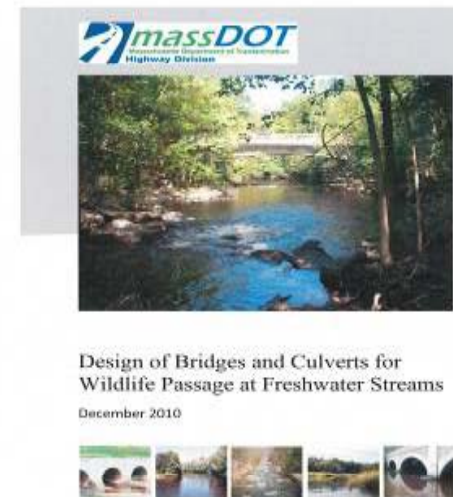
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Workshop - Results

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



<http://www.mhd.state.ma.us/default.asp?pgid=content/enviro/envpublications02&sid=about>

Workshop: Next Steps

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- 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.

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- 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



photo: Dist. 4

Current Flooding

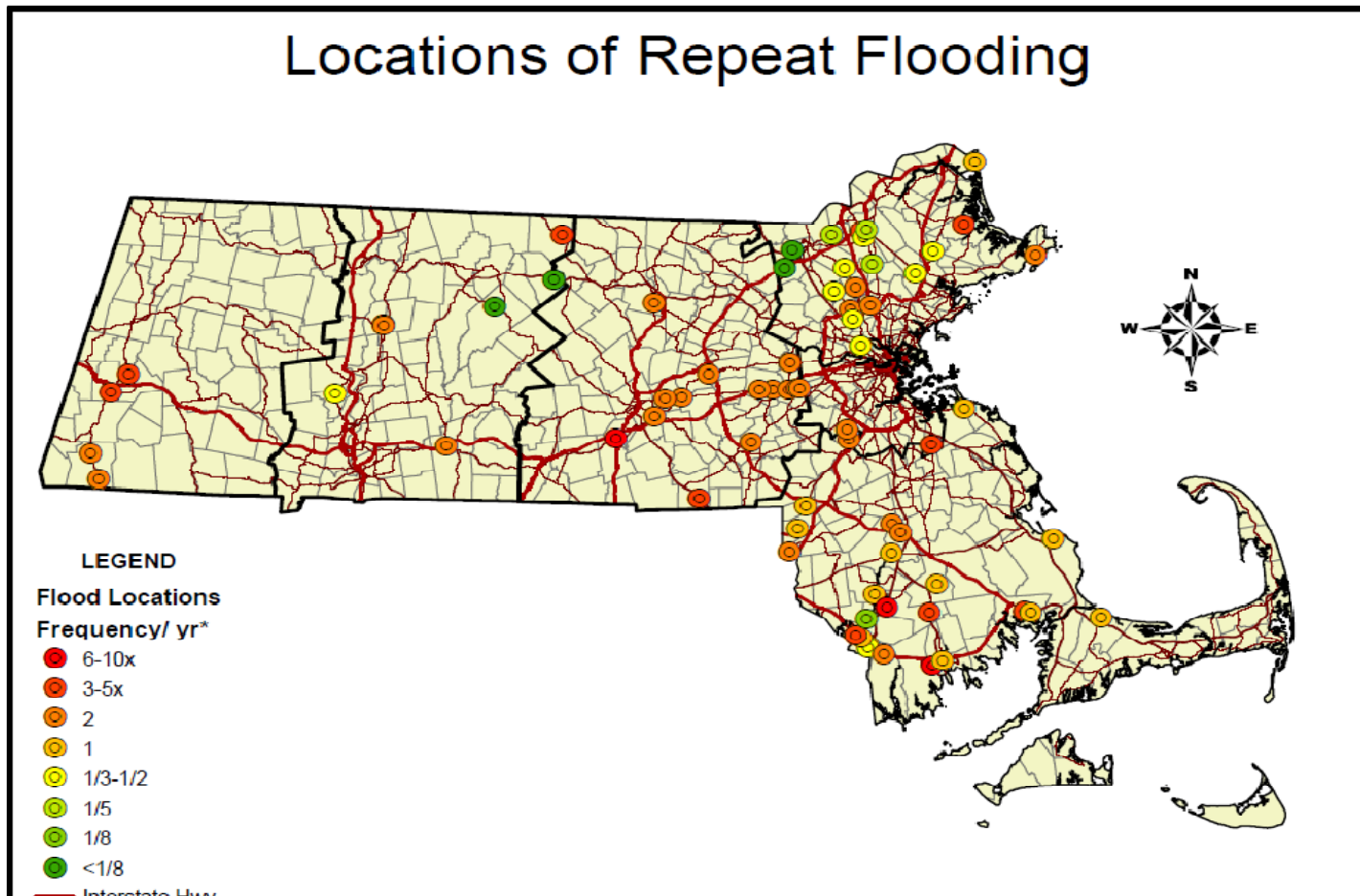
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- At least **32** MassDOT highways already experience repeat flooding (**70+** locations)
- These locations can be considered vulnerable to more future flooding



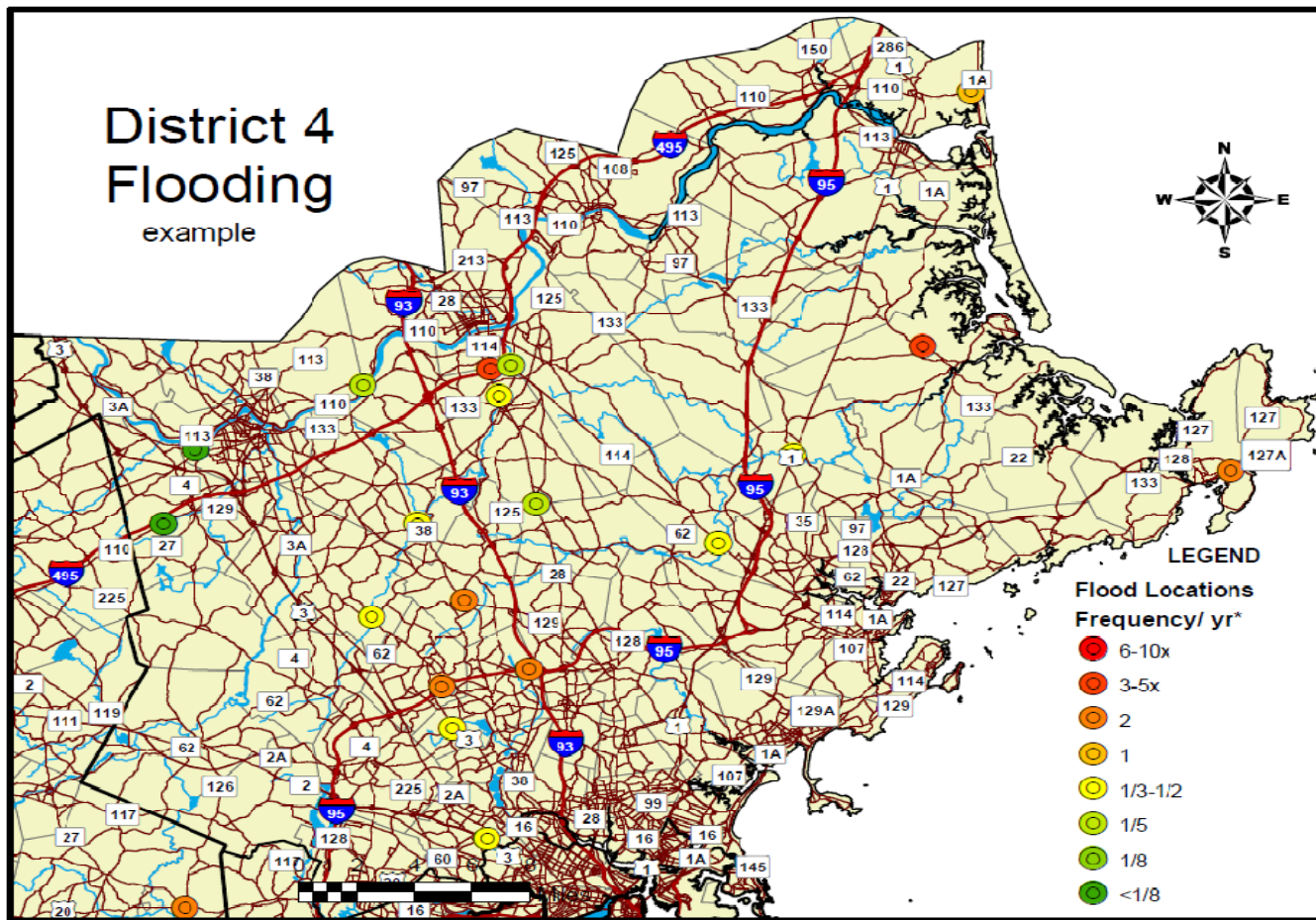
Findings: Frequency

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Findings: Frequency Map D4

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Flood Inventory: Next Steps

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- 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



VTrans Climate Change Workshop

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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

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- Pre-workshop Planning
- Workshop Purpose:
 - Bring upper level managers up to speed on the the science and state and federal policy contexts
 - Engage is small group discussions:
 1. Climate change adaptation
 2. Land use and transportation
 3. More efficient transportation options

VTrans Climate Change Workshop

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Workshop Success

- Over 50 active participants , primarily VTrans managers
- Breakout sessions' results to guide future research and planning efforts

VTrans Climate Change Workshop

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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

VTrans Climate Change Workshop

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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

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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

VTrans Climate Change Workshop

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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

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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

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- Promote and enhance bicycling opportunities
- Investigate use of solar power where possible
- Enhance emergency preparedness for extreme weather events
- Intra-City transit service



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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!