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Subcommittee on Construction
Practitioner’s Handbooks

• Provide practical advice on a range of environmental issues that arise during the planning, development, and operations of transportation projects
• Series of 15

AASHTO PRACTITIONER’S HANDBOOK

PREPARING HIGH-QUALITY NEPA DOCUMENTS FOR TRANSPORTATION PROJECTS

This handbook describes key practices for improving the quality of environmental documents prepared for transportation projects under the National Environmental Policy Act (NEPA). Issues covered in this handbook include:

- Setting the NEPA Process
- Preparing the NEPA Document
- Planning the NEPA Document Review
- Overall Document Quality
- Page layout
- Writing and style
- Document structure
- Graphics
- Summary and abstracts
- Presentation of data
- Figures
- Visualizations

AASHTO
The Voice of Transportation
Stormwater

- Community of Practice
  - EPA Audits
- Stormwater Management Flipbooks
  - Construction
  - Maintenance
- 2014 National Stormwater Practitioner’s Meeting
  - Washington, DC July 2014
- Stochastic Empirical Loading Dilution Model (SELDM) Peer Exchanges
  - Lakewood, CO June 2015
Environmental Compliance at Highway Maintenance Facilities

• To provide information concerning environmental regulatory compliance and identify best management practices for equipment and material storage as well as for activates performed at typical permanent existing maintenance facilities
Health Impacts on Transportation

- To allow the state DOTs to share information related to opportunities, challenges and strategies for considering health in transportation and to continue to facilitate these discussions among the AASHTO committees and subcommittees.
Benefits of Transportation

- To find the existing gaps in how state DOTs and AASHTO communicate the benefits of transportation to the public and develop a roadmap to improve communication methods.
Speakers Bureau

• Support state DOT or consultant travel to important environmental meetings and conferences
Center Videos

• State DOT Programs Help Communities Become More Livable and Transportation Systems More Sustainable

• http://www.environment.transportation.org/center/products_programs/videos/
Upcoming Center Products

- Communicating the Benefits of Programmatic Agreements
- Extreme Weather and Resiliency Sessions
- Webinar on Multimodal Projects and NEPA
- Noise Practitioner Summit
- Environmental Justice Peer Exchange
Resilient and Sustainable Transportation Systems Technical Assistance Program (RSTS)
RSTS Overview

• Resilient and Sustainable Transportation Systems technical assistance program
  - Provides technical assistance to State DOTs on maintaining transportation systems that are resilient to extreme weather events, infrastructure vulnerability, energy demands, and diminishing resources
Why Extreme Weather Matters

- Extreme weather events are expensive
  - Disrupt service
  - Damage infrastructure
  - Require more frequent maintenance
- In 2013, there were nine extreme weather events that caused over $1 billion in damages each
  - 123 total deaths from these nine events
  - Total of $23 billion of damages
What is RSTS?

• Provides resources for state DOTs to better understand how to respond to/prepare for extreme weather events:
  ▪ Bi-monthly newsletter
  ▪ Breaking news stories
  ▪ On-the-scene case studies
  ▪ Travel support to RSTS-sponsored events
RSTS Steering Committee Members

- Chair (Vacant)
- Mike Baker (PA)
- Carlos Braceras (UT)
- Matt Garrett (OR)
- John Halikowski (AZ)
- Mike Hancock (KY)
- Paul Mattox (WV)
- Sue Minter (VT)
- Lynn Peterson (WA)
- Kirk Steudle (MI)
- Charles Zelle (MN)
RSTS Supports Practitioners Across Many Transportation Disciplines

- Planning
- Asset management
- Highway and bridge design
- Hydrology and hydraulics
- Materials
- Construction
- Operations and emergency response
- Maintenance
- Environment
On-the-Scene Case Studies

- Institutionalizing Resiliency: Delaware's Efforts to Address Vulnerability to Extreme Weather and Sea Level Rise
- Persuading Alabama Lawmakers to Gird For More Extreme Storms Proves Challenging
- When the Earth Moves: Learning from DOT Responses to Landslides, Mudslides
- Extreme Winter Weather: New York State DOT Learns from Seven-Foot Snow Event near Buffalo
Extreme Weather Impact on Transportation Infrastructure

Handout Series

- Highway Design
- Bridges and Structures
- Construction
- Maintenance
- Transportation Systems Management and Operations

AASHTO Extreme Weather & The Transportation System

Extreme weather events affect nearly every state in the U.S. In 2016, a total of 101 weather-related events occurred, resulting in 369 billion dollars in damages (see NOAA NCCD graph at right). Events ranged from hurricanes, droughts, heat waves, severe local storms, extreme cold, floods, and winter storms, to wildfires and blizzards. There is strong evidence that events related to heat, heavy precipitation, and extreme flooding will grow in frequency and severity as climate protection and we will likely experience more droughts and tropical storms. Changes in the frequency or intensity of extreme weather events also influence changes in design inputs and considerations for engineers. For example, how does one base an infrastructure design differently provided changes in weather-related stresses like increased wind or storm surge, extreme exposure and associated wave impacts, or increased temperatures, precipitation, and freeze-thaw cycles? And, how are the risks to existing infrastructures from increased incidences of extreme weather events?

How Can Bridge and Structural Engineers Prepare for Extreme Weather Events?

Although DOT considerations will vary by state and topic, below is a "Top 10" list of suggestions for bridge and structural engineers to better prepare for extreme weather.

1. Potential Overall Effects of Extreme Weather on Bridge Design: Consider effects (individually and combined) of extreme temperature, wind, and precipitation events on spans, pier and abutment protection, thermal expansion joints, bearings, superstructure elements, and bridge deck elevations and profiles.
2. Accelerated Bridge Construction Techniques for Bridge Replacement and Repairs: Research accelerated bridge construction techniques that allow for rapid replacement and repairs when needed.
3. Pre-Positioning of Materials & Equipment: Develop strategies for transporting bridge components due to weather-related events, including pre-positioning replacement materials in vulnerable areas.
4. Rapid Response Measures: Develop a plan of action, etc. for responding to structure damage or loss recognizing that access to the facility may be limited by potential damage. Develop closure and design plans for facilities identified after the event.
5. Risk Reduction Strategies: Structures in areas with a history of extreme events to structures in urban areas, or structures with non-stormwater topography, have a higher propensity for potential damage from extreme events (e.g., hurricanes or tsunamis). Identify existing structures that are vulnerable to extreme weather and develop appropriate strategies to minimize such risks.
6. Early Warning Indicators: Be aware of "early warning indicators" for potential extreme weather-related events in bridge management systems. Examples include establishing a target rainfall intensity value within the facility jurisdictional monitoring and use of early and flaw detection systems (RVAS) to monitor upstream storm flow conditions.
7. Workload: Protect yourself from extreme temperature and weather during bridge construction.
8. Risk Assessment for Bridge Approaches: Consider effects on, and maintenance strategies for, impacts in areas with bridges above upstream stream flow conditions.
9. Dialogue on Action: Identifying local and state agencies (e.g., Department of Transportation) that consider potential negative effect on structures.
10. Challenges to Adaptation of Bridges: Identify barriers to undertaking adaptive measures, such as the drawing of state level bridges and legal liabilities created by expanding roadway opening (which can contribute to downstream flooding).
Extreme Weather 101 Briefings

- Coastal Flooding
- Drought, Dust Storms and Wildfire
- Heat Waves
- Heavy Rainfall and Flooding
How to Join RSTS

• Contact Shannon Eggleston at seggleston@aashto.org
• Find out more about the program from our fact sheet
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