National Symposium: Impacts of Extreme Weather Events on Transportation

Session IVa: Designing for Extreme Weather Events

Rick Land, Vice Chair
AASHTO Highway Subcommittee on Design
## Input from Subcommittee On Design
(Design Engineers)

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<th>California</th>
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<td>Idaho</td>
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Is your state doing anything specific in design to increase the ability to withstand significant weather events?

• Using a higher design storm than surrounding states
• Using 500-year flood event when designing for scour at bridges
• Considering sea level rise for design of longer-life assets
• Addressing concerns with a few significant projects (case-by-case)
• Cut & fill slopes are now 3 to 1 versus 2 to 1 (flatter)
• Discussed raising the grade in flood-prone sections of the interstate; no specific action taken yet
How do you identify what facilities are "critical"?

- Highest ADT routes without reasonable detours; Emergency/evacuation routes
- Establish designated routes that are of high national importance (e.g., freight corridors)
- National Highway System or Interstate routes?
- Critical is going to be different for each state
- May be different based on the event (wildfires/high heat versus floods)
- Use a risk-based approach.
Input from Subcommittee On Design  
(Design Engineers)

If historical data doesn’t match predictions, what data do we need to justify adjusting design standards?

• Keep updating rainfall data. As rainfall data modifies intensity charts, this should take care of itself
• Acquire the best practical climate projections and ensure regional agreement on accepted science
• Predictable intensity, duration and frequency of events.
• Better forecasting models or better information on what to expect from these extreme weather events
• A study that analyzed what all states have done for each type of extreme weather event with some type of ranking of benefits or outcome.
To reduce the risk of potential damage, are there some straight-forward changes we should consider making in how we design some of our facilities?

• Use larger hydraulic event values for designing critical routes
• We are learning from each large event and adjusting where we can.
• Need to assess system redundancies and emergency response strategies
• The potential for extreme weather events should already be incorporated into the risk analysis for specific projects
• We need the ability to ER funds to build back what’s needed, not just replace “in kind”
• Consider best practices from other states. Knowing what others have done can provide us information to work with.
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