

**Call for Papers and Presentations
Proposed Paper Session for the
2010 Transportation Research Board Annual Meeting**

***Protecting Critical Transportation Infrastructure from Effects
of Climate Change and Natural Disasters***

Sponsored by: Special Task Force on Climate Change and Energy (A0020T), Critical Transportation Infrastructure & Protection (ABE 40), General Structures (AFF10), Tunnels and Underground Structures (AFF60), Bridge Management (AHD35), Bus and Rail Terminals (AP045), Bus Transit Systems (AP050), Ferry Transportation (AP085), Intercity Rail (AR010), and Airport Terminals and Ground Access (AV050).

The Special Task Force on Climate Change and Energy (A0020T), the TRB Committee on Critical Transportation Infrastructure & Protection (ABE 40), the TRB Committee on General Structures (AFF10), the TRB Committee on Tunnels & Underground Structures (AFF60), the TRB Committee on Bridge Management (AHD35), the TRB Committee on Bus and Rail Terminals (AP045), the TRB Committee on Bus Transit Systems (AP050), the TRB Committee on Ferry Transportation (AP085), the TRB Committee on Intercity Rail (AR010), and the TRB Committee on Airport Terminals & Ground Access (AV050) invite you to submit papers for the upcoming TRB Annual Meeting in 2010.

***Protecting Critical Transportation Infrastructure from Effects of
Climate Change and Natural Disasters***

Critical Transportation Infrastructure is vulnerable to natural disasters and the effects of climate changes including rising sea levels, increases in intense precipitation events, and increases in hurricane intensity.¹ The prospect of a changing climate raises critical questions regarding how alterations in temperature, precipitation, storm events, and other aspects of the climate could affect the nation's roads, airports, rail, transit systems, pipelines, ports, and waterways.² This will require significant changes in the design, construction, operation and maintenance of transportation systems and infrastructure.

Examples of critical transportation infrastructure damaged by natural disasters or climatological events include:

1. Red River Flooding in Fargo, ND. One of several examples of recent flooding in the Midwest occurred throughout March of 2009 in Fargo, North Dakota. Flood waters from the Red River damaged roads, bridges and other critical transportation infrastructure in Fargo and the surrounding communities.³

¹ National Academies, Article on 11 Mar 08, Maureen O'Leary.

² Potter, J.R., V.R. Burkett, and M.J. Savonis, 2008: Executive Summary. In: Impacts of Climate Change and Variability on Transportation Systems and Infrastructure: Gulf Coast Study, Phase I, p. 25

³ Associated Press, March 2009.

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2. Mt. Redoubt Volcano, 2009. The eruption of Mt. Redoubt forced Chevron to evacuate an oil storage facility containing six million gallons of crude oil at Cook Inlet on the Drift River, Alaska.⁴

Contributing factors that lead to vulnerabilities in coastal-area transportation systems include projected coastal population growth, which will boost demand for transportation infrastructure and increase the number of people and businesses; and an estimated 60,000 miles of coastal highways are already exposed to periodic storm flooding.⁵

Critical infrastructure is often concentrated in small geographic areas. When infrastructure is physically concentrated in a limited geographic area it may be particularly vulnerable to geographic hazards such as natural disasters.⁶ In response to projected changes in climate and sea levels, transportation planners must consider additional risk management, adaptation and mitigation measures. In addition, transportation agencies need to ensure that the substantial investments in the region's infrastructure are protected in the future by appropriate adaptation strategies.

Strategies to protect critical transportation infrastructure that should be considered by authors should include:

- Risk management assessments for vulnerable facilities
- Adaptation measures for enhancing critical infrastructure
- Relocation of critical infrastructure to higher elevations
- Hardening of critical infrastructure
- New designs in bridges, structures, docks, tunnels and passenger facilities
- Evaluation of coastal transportation systems
- Evacuation Strategies

Papers need to be submitted by August 1, 2009 in PDF format. Questions should be directed to Marcy Schwartz (mschwartz@ch2m.com), Jeff Western (Jeffrey.western@westernconsulting.com) or David Willauer (david.willauer@iem.com).

⁴ Environment News Service (ENS) 2009.

⁵ National Academies, Article on 11 Mar 08, Maureen O'Leary.

⁶ Vulnerability of Concentrated Critical Infrastructure: Background and Policy Options, Paul W. Parfomak, September 2008.