



XIII
INTERNATIONAL
WINTER ROAD
CONGRESS

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Québec 

SUSTAINABLE WINTER SERVICE FOR ROAD USERS

*Development of a Strategy to Address Adaptation to
Climate Change*

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FHWA ADAPTATION WORKING GROUP

- Formed in Fall 2008
- FHWA Office representation:
 - Environment, Planning and Realty
 - Infrastructure
 - Operations
 - Safety
 - Federal Lands Highway
- Primary activity to date:
 - Develop the Adaptation Strategy

FHWA ADAPTATION STRATEGY

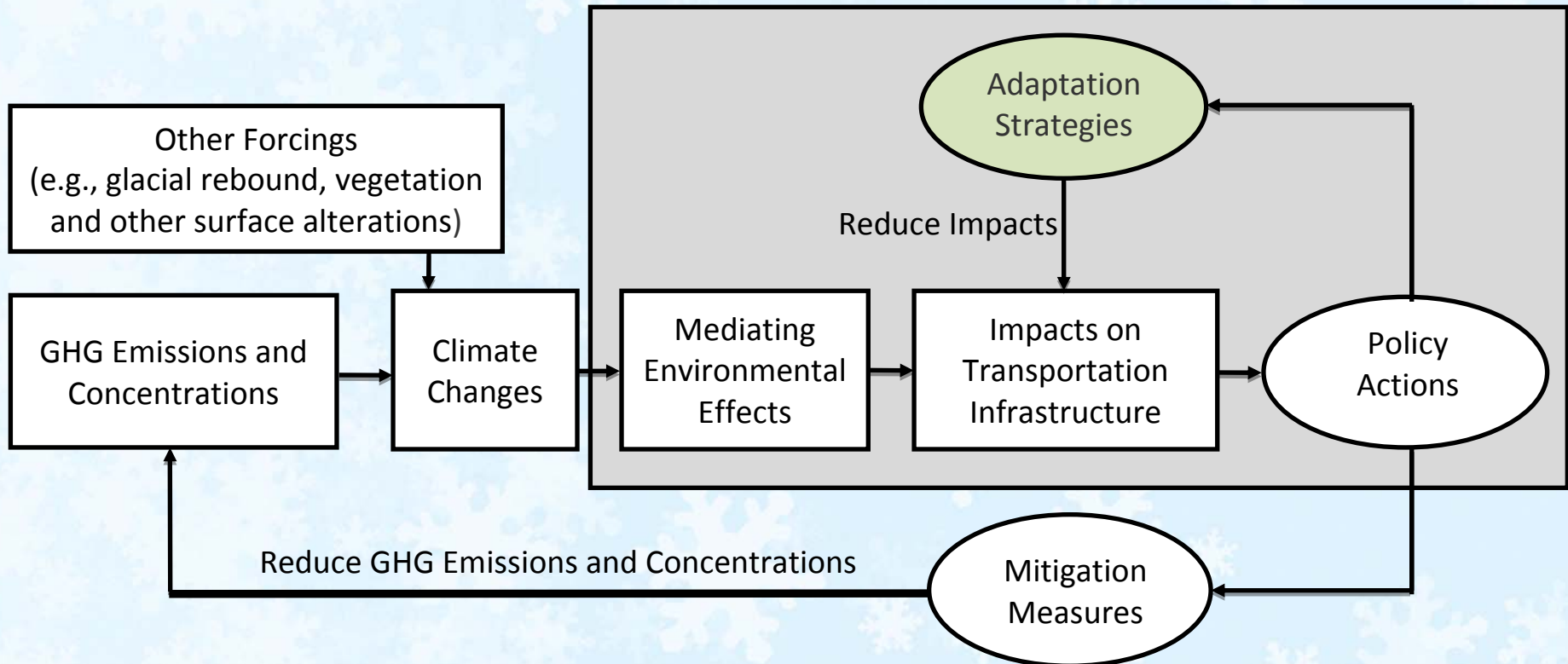
Purpose

- Establishes FHWA **policy** on adaptation
- Provides strategic foundation for future activities
- States FHWA objectives in short-, medium- and long-term

Status

- Internal draft currently under review

FHWA ADAPTATION STRATEGY



STRUCTURE OF THE STRATEGY

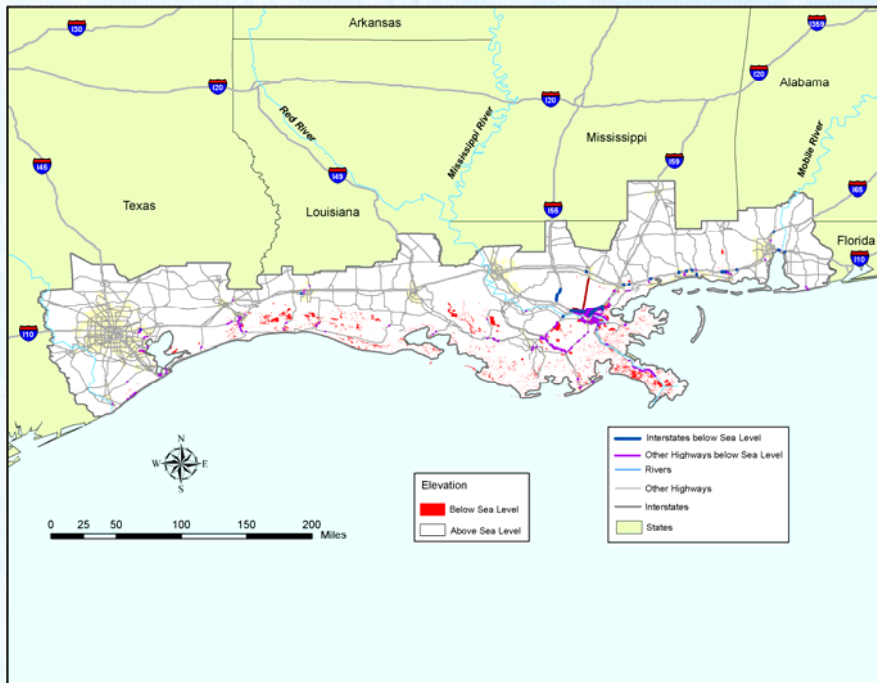
- Climate Change Effects
- Impacts to Highway Infrastructure
- Potential Adaptation Responses
- FHWA actions and objectives for each program area

WHY DO WE CARE ABOUT ADAPTATION? EXAMPLE: VULNERABILITY OF GULF COAST

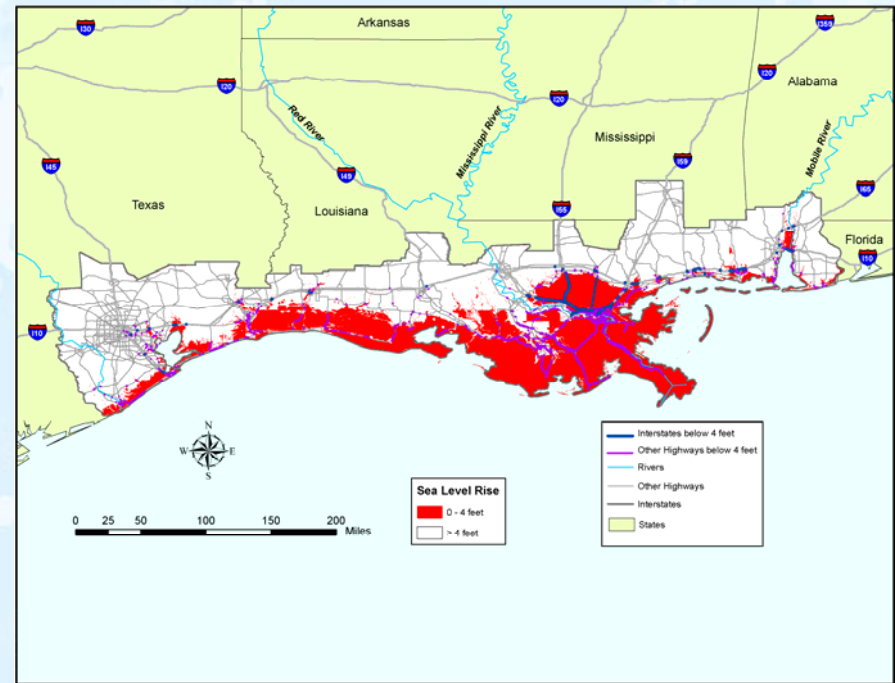
- Relative sea level rise of 4 feet – due to climate change and subsidence – could permanently flood:
 - 24% of interstate miles, 28% of arterial miles, New Orleans Transit
 - 72% of freight / 73% of non-freight facilities at ports
 - 9% of the rail miles operated, 20% of the freight facilities, no passenger stations
 - 3 airports
- Temporary flooding due to increased heavy downpours will broaden affected areas
- Given connectivity of intermodal system, a small flooded segment may render larger portion of infrastructure inoperable

HIGHWAYS VULNERABLE TO RELATIVE SEA LEVEL RISE

Baseline (Present Day)



4 Feet of Sea Level Rise



Source: Cambridge Systematics analysis of U.S. DOT Data.

WHAT ARE POSSIBLE ADAPTATION RESPONSES?

- **Maintain & Manage**
 - Continue maintenance and repair after storms
- **Protect, Strengthen**
 - Sea walls and buffers
 - Design changes when rebuilding
- **Relocate & Avoid**
 - Move key facilities, site new facilities in less vulnerable locations
- **Abandon and Disinvest**
- **Enhance Redundancy**



STRATEGY – EXAMPLES OF DRAFT FHWA OBJECTIVES

- Cross-cutting: Collect, synthesize, disseminate climate data scaled for State & Local transportation agency use
- Transportation Planning: Implementation of system-level vulnerability and risk assessment tools to support investment decisions
- Asset Management: Maximized performance and minimized life-cycle costs of existing system

STRATEGY – EXAMPLES OF DRAFT FHWA OBJECTIVES

- Preliminary Engineering/Project Development: Reduce project delivery delays resulting from late consideration of GCC impacts, address during preliminary engineering and alternatives analysis in NEPA
- Operations: Ensure that Maintenance and Emergency Management strategies consider variable and extreme weather events
 - Build flexibility, redundancy into plans

STRATEGY – EXAMPLES OF DRAFT FHWA OBJECTIVES

- Design and Construction: Consideration of GCC impacts on:
 - the application of design standards and choice of materials,
 - methods for assessing pavement damage due to prolonged inundation, rising water tables and increased freeze/thaw-cycle frequency

NEXT STEPS

- Finalize the Strategy
- Conduct internal and external training
- Conduct pilots of vulnerability and risk assessments (incl. Gulf Coast Phase 2)
- Review current policies, programs with regard to Adaptation considerations
- Coordinate with other Climate Change activities
 - International Scan in 2011

THANK YOU!

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