

# Transportation Response to Flooding in the United States

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# Overview

- Flooding in the United States
- Transportation Impacts
- Case Study: Red River Flood 2009

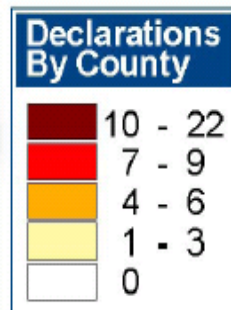
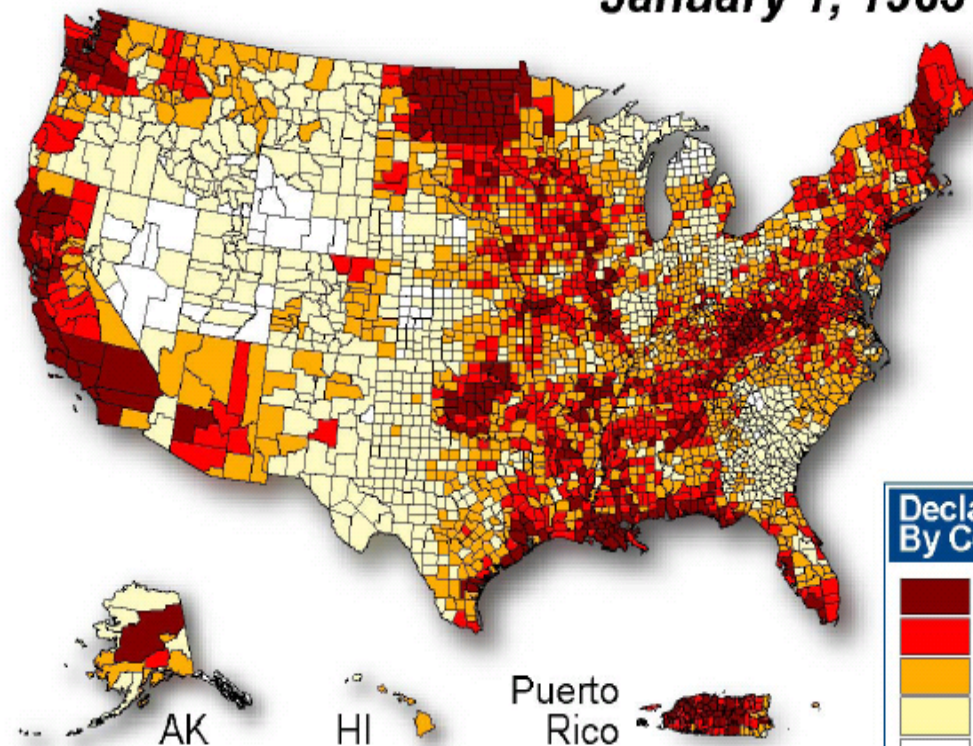
# Flooding in the United States

- Can occur during any season
- Since 1964
  - 1,944 Major Disaster Declarations
  - 1,244 flooding or flood-related
- 2009
  - 59 Major Disaster Declarations
  - 41 flooding or flood-related

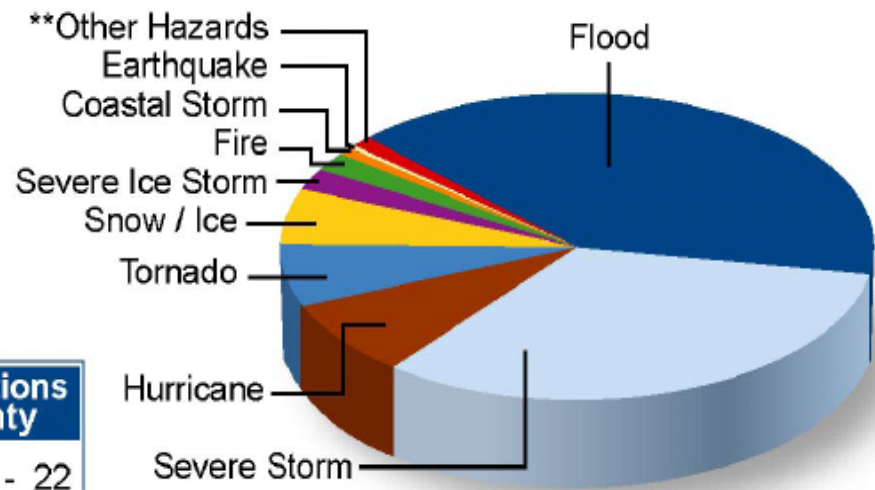
# Flooding in the United States

## Presidential Disaster Declarations

January 1, 1965 to June 1, 2003



### Disasters By Type



\*\*Other Hazards include: Drought, Volcano, Other, Freezing, Mud/Landslide, Typhoon, Human Cause, Terrorist, Dam/Levee Break, Toxic Substances

Mapped Total: 1,214\*

\* Prior to January 1, 1965, 185 declarations did not have county designations. Therefore, of the total declared disasters (1,399), only 1,214 are included in the Mapped Total.

Source: FEMA's National Emergency Management Information System

# Transportation Impacts: Highways and Roads

- Road and bridge damage
- Federal money to assist states
- Alternate routes
- Transportation waivers



*Aerial view of Nashville (AP Jeff Roberson)*

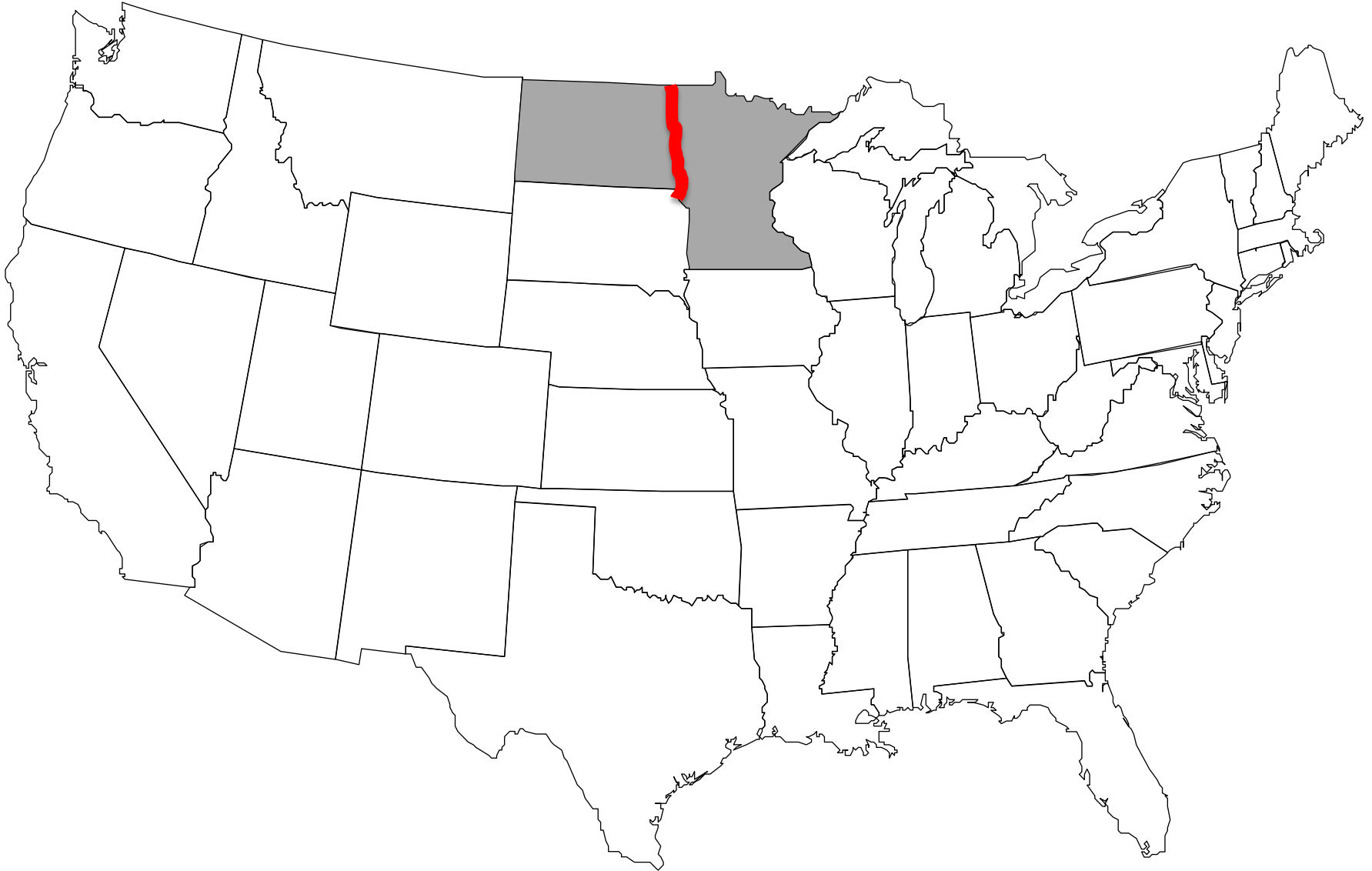
# Transportation Impacts: Airports and Airspace

- Increased traffic in airspace
- Airports usually not Federally-owned
- Temporary Flight Restrictions



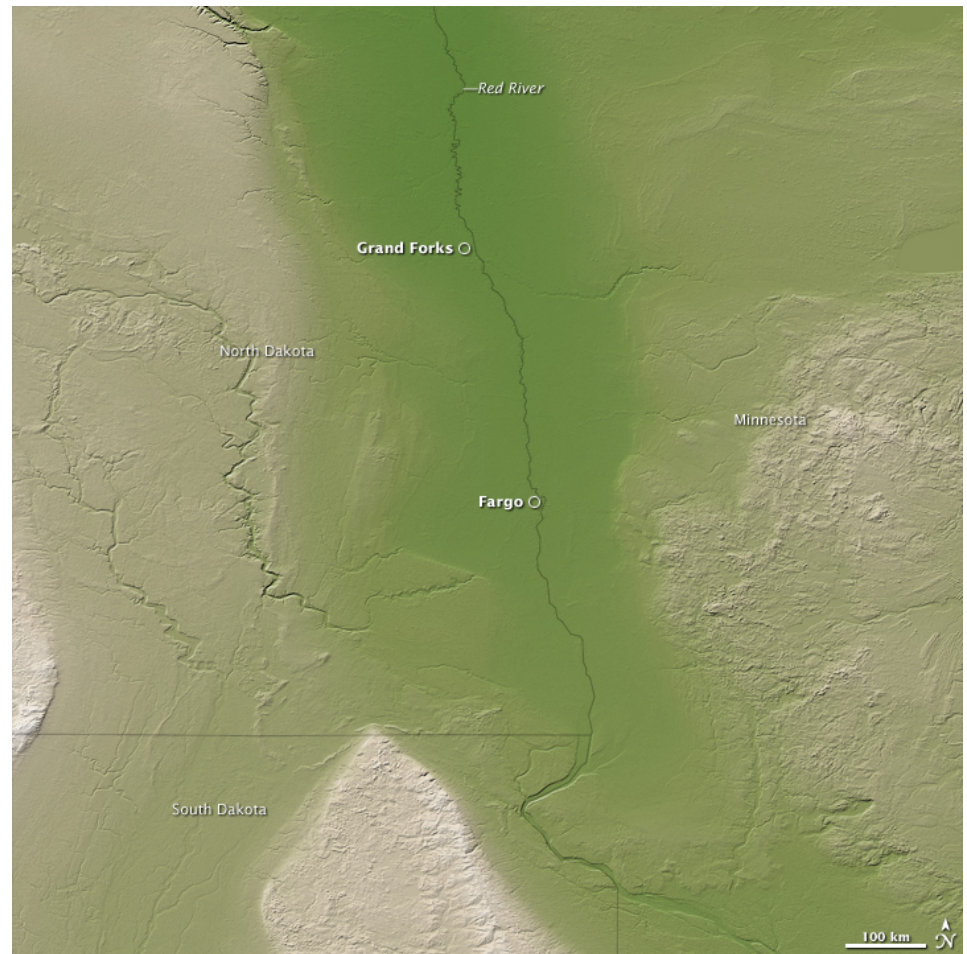
*Image courtesy of NOAA*

# Case Study: Red River of the North



# Case Study: Red River of the North

- 885 KM long
- Border between North Dakota and Minnesota
- Historic floods in 1826, 1897, 1950, 1997, and 2009



*Image courtesy of NASA Earth Observatory*



# Case Study: Red River of the North

- 2009 Flood
  - Crested at 12.44 meters; Flood Stage is 5.49 meters.
- Declared Major Disaster March 25, 2009 (FEMA-1907-DR)



*Image courtesy of NASA Earth Observatory*

# Case Study: Red River of the North

- Mitigation Efforts include transportation and other infrastructure
- Coordination with Canada on downstream effects

# Conclusion

- Response requires coordination of local, state, private, tribal and Federal resources
- DOT provides assistance, advice and legal authorities
- Can expect floods to happen again