USDOT/FHWA Support and Guidance

M. Myint Lwin, Director
FHWA Office of Bridge Technology
Washington, D.C.
First Responders

- **USDOT:** Secretary Mary Peters
- **FHWA:**
- **Field Office**
  - Tom Sorel, Division Administrator
  - Robin Schroeder, Assistant Division Administrator
- **HQ**
  - Rick Capka, Administrator
  - Bud Wright, Executive Director
  - King Gee, Associate Administrator
  - Dwight Horne, Director (ER Funds)
Failure Investigation
August 1

- NTSB – Dispatched Go Team Evening of Aug 1
- Gary Van Etten – Investigator-in-Charge
- Chairman Mark V. Rosenker – Spokesman
- Terry Williams – Press Officer
Mission: Work together to Rebuild Bridge, Re-establish Community, and Regain Confidence

Members traveling to MN:
- Secretary Mary Peters
- Rick Capka, Administrator
- Tom Everett, Principal Bridge Engineer

Others: MN Congressional Delegation
Secretary Mary Peters Offered
August 2

- Full financial and technical support
- Administrator Rick Capka to stay in MN
- Bridge and Engineering Staff
- Initial Distribution of $5.0M
  - restore traffic
  - clear debris
  - set up detours
  - begin repair work.
Failure Investigation
August 2

- NTSB requested FHWA’s help:
  - Dr. Joey Hartmann
  - Dr. Bill Wright
- FHWA Roles:
  - Provide engineering expertise
  - Assist in field investigation
  - Assist in recovery operations
  - Analyze structures, fracture surfaces and failure mechanism
FHWA HQ Support Team
August 2

- Bud Wright – Executive Director and Leader
- **Rick Capka – Administrator (on the phone)**
- Associate Administrators:
  - Public Affairs
  - Office of Chief Counsel
  - Finance
  - Infrastructure
  - ..........
- The HIBT Team
FHWA HQ Support Team

- Provide support to the field
- **Respond to questions**
- Prepare for Congressional Hearings
- Provide financial and Technical Support
- Assist with investigations and audits
HIBT Response Organization

Myint Lwin
202-366-4590
- Policy, & Regulation
- Guidance

Ben Tang
202-366-4592
- Bridge Repl Coordinator
- GAO New Assignment Support-I35W Reconstruction
- Technical Advisory 5140.27 Support

Jorge Pagan
202-366-4604
- Librarian of I-35W Documents
- Congressional Q&A Coordinator
- Hydraulics and Geotech Support

Tom Everett
202-366-4675
- NTSB Investigation Support
- OIG Review Support
- GAO New Assignment Support – Bridge Inspection

Steve Ernst
202-366-4619
- Q&A Manager
- Librarian of Q&A’s
- QC/QA
- Inter-Office Coordinator

08/05/07
08/28/07
Technical Advisory 5140.27

Immediate Inspection of Deck Truss Bridges

August 2
NTSB Update:

NTSB’s Go Team is now 19 strong

Parties to NTSB’s Investigation are:

- FHWA, MNDOT, and Progressive Construction, Inc

Investigators’ Observations

- Several tensile fractures
- Design issue with gusset plates
- Heavy construction equipment and raw materials
FAILURE INVESTIGATION
August 8 (Cont.)

- NTSB Update:
- Review construction records
- Take core samples of bridge deck
- Review footage of video showing bridge collapse
- FHWA/NTSB work on structural analysis and computer model:
  - A detailed finite element model is now operational
Characteristics of FHWA Model

- Full geometric and material non-linear capabilities
- **Sequential accumulation of dead load to match the construction sequence**
- Calibration based on live load data measured by the Univ. of Minn. in 2002 (Dexter, et.al.)
- **Weight calibration compared to detailed calculation of shop drawing member weights.**
Technical Advisory 5140.28

Construction Loads on Bridges

August 8
Aug 10: Secretary announces $50M ER for Minneapolis
  - Clean up
  - Recovery work
  - Design of new bridge

Aug 11: The President and Secretary toured the incident site.

Earlier the President signed legislation authorizing an additional $250M in relief for Minneapolis
Failure Investigation
August 22

- NTSB Update:
  - Updated finite element model
  - Modified model to match condition on August 1
  - Received records from the bridge designers
  - Verified construction materials and equipment weight on bridge = 575,000 #
Failure Investigation
September 5

- NTSB Update:
- Part of Superstructure is still underwater
- NTSB has not recovered all gusset plates yet
- NTSB is studying damage in some gusset plates
- Perform finite element analysis to determine effects of 575,000 # of construction materials and equipment
Failure Investigation
January 15 (cont.)

- **NTSB Update:**
  - Undersized gusset plates found at 8 of 112 joints
  - These plates were fractured
  - Plates were about half the thickness required
  - NTSB emphasizes that there is no evidence to suggest the design deficiencies are widespread
  - NTSB recommends performing load rating to verify adequacy of design.
Technical Advisory 5140.29

Load-carrying Capacity Considerations of Gusset Plates in Non-load-path Redundant Steel Truss Bridges

January 15, 2008
Failure Investigation
March 17

➢ NTSB Update:

➢ Public Docket:
  • Completed investigative reports
  • Photos
  • Information submitted by parties

➢ More work on computer models
  • Examine failure scenarios
  • Identify cause of collapse

➢ Final report before end of the year
  • Cause of collapse
  • Additional safety recommendations
Proposed National Bridge Report

- Proposal presented at the recent SCOH Meeting
- A National Report on “State of America’s Bridges” to be published in July
- Proactive approach to inform public and news media
- FHWA is in support of the report
Guiding Principles

- Be timely
- Be patient
- Be flexible
- Be courteous
- Be respectful
- Be responsible
- Don’t speculate
- Communicate with others
- Stay within the bounds of your responsibilities