

2018 Midwest Geotechnical Conference

National Highway Performance Management Program

Naser Abu-Hejleh, Ph.D. P.E.

Geotechnical Engineering Specialist

FHWA Resource Center

Presentation Goals

To recognize that:

- Federal Laws requires “National Highway Performance Management Program” for NHS
- FHWA supports States in development of performance management programs for their highway geotechnical structures.

“National Highway Performance Management Program”

This new program for NHS is required in two Federal Laws:

1. MAP-21 Moving Ahead for Progress in the 21st Century Bill, www.fhwa.dot.gov/Map21 (2012)

2. FAST: Fixing America’s Surface Transportation Act, www.fhwa.dot.gov, (2015)

State Highway Agencies need to implement these laws

National Highway Performance Management Program?

- Achieves a desired set of national performance goals
- Makes investment and strategic decisions for the NHS using their performance information
- Demonstrates that investment of federal dollars by states lead to improved performance of NHS



Make the connection between asset management for NHS and higher level performance requirements for better management of NHS

Elements of the National Highway Performance Program

- *National Goals*
- *National Measures*
- *Targets*
- *Plans*
- *Reports*
- *Accountability and Transparency*



National Performance Goals for NHS

1. Safety
2. Infrastructure Conditions: State of Good Repair
3. Congestion Reduction
4. System Reliability- improve efficiency
5. Freight Movement and Economic Vitality
6. Environmental Sustainability
7. Reduced Project Delivery Delays



State Highway Agencies to need to meet these goals

States Implementation of Federal Laws for National Highway Performance Program

- 1. Set performance targets based on national performance goals and measures**
- 2. Develop a risk-and performance-based plan to preserve and improve assets of the NHI system and meet national performance goals:**
 - Allocate resources and inventory
 - Collect/analyze/predict performance over time
 - Evaluate: Have performance targets met? Risk?
 - Decision Making: prioritization and optimization, investment, costs
 - Report

Develop a Risk-and Performance-Based plan to Preserve and Improve Assets of the NHI system and Meet National Performance Goals

In development of this plan by states, the Federal Laws

- **Specify** pavements and bridges on the NHS
 - Must be addressed
- **Encourage** to include other infrastructure assets within the highway right-of-way (e.g., walls & slopes)
 - Management of geotechnical features is recommended

Great Impact of Geotechnical Features on Performance of NHS



Why Covering Geotechnical Asset & Performance Management?

- Geotechnical features cover critical links in a transportation system (e.g., corridor)
 - One broken link in a transportation system can change performance of the entire system



- The law goals may fail if we don't manage all assets in NHS, including geotechnical features

Key National Activities on Geotechnical Asset & Performance Management

- **Alaska Geotechnical Asset Management program**
- **Slopes:**
 - WFLHD/FLMA Slope Management Plan
 - NC Slope Management Plan
- **Retaining Walls:**
 - Colorado and North Carolina DOTs, and FHWA Federal Land

Key Midwest Activities on Geotechnical Asset & Performance Management

- **Indiana:** Great geotechnical asset management program
- **Michigan.** Failures of two sections of retaining walls along M-10 state highway led to the:
 - Active research study to develop for retaining walls:
 - Rapid assessment, and
 - Risk-based asset management plan
- **Ohio.** Developed a program for Inventory and risk-based rating of geohazards (e.g., rock slopes)

FHWA Activities on Geotechnical Asset & Performance Management

- Many performance management activities are covered in the 2018 FHWA Geotechnical Roadmap
- Participation in ASCE, TRB, & AASHTO activities
- **FHWA supports states in development of performance management program for their highway geotechnical structures:**
 - Dr. Abu-Hejleh is the lead in the FHWA RC office
 - Midwest states meeting is planned....
 - Sponsored the 2018 Midwest workshop.....

Questions?

Naser Abu-Hejleh, Ph.D., P.E.
FHWA Resource Center

naser.abu-hejleh@dot.gov; (708) 283-3550

