

DOMESTIC SCAN 15-02

BRIDGE SCOUR RISK MANAGEMENT

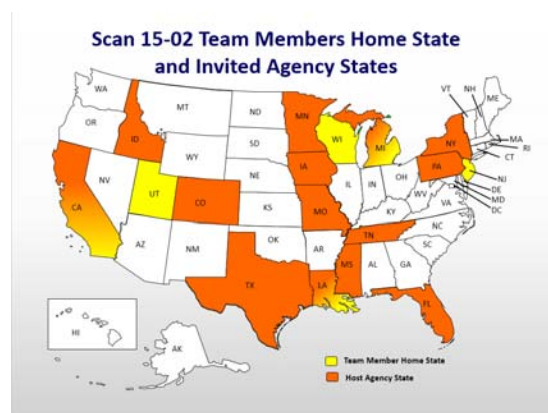
SCAN OVERVIEW



SCHOHARIE CREEK BRIDGE

PARTICIPATING STATES

The scan team engaged structural engineers (including bridge design, construction and inspection engineers), hydraulic and geotechnical engineers of 17 different States as shown in the map below to document their specific processes and procedures for scour management, mitigation, and countermeasures. The team focused on how these DOTs insure bridge safety, assess vulnerability, and manage risks due to scour.



SCAN CHARTER

Flooding and scour are recognized by the bridge community as the leading cause of bridge failures in the United States. About 83 percent of the structures listed in the National Bridge Inventory cross waterways and are thereby exposed to the threats of flooding and scour. Agencies responsible for bridge safety seek effective threat-mitigation strategies, including installation of scour countermeasures to monitor, control, inhibit, change, delay, or minimize stream instability and bridge-scour susceptibility. This scan program's aim is to gather current practices from different States, identify best practices, and propose an implementation plan to improve bridge scour management in the future.

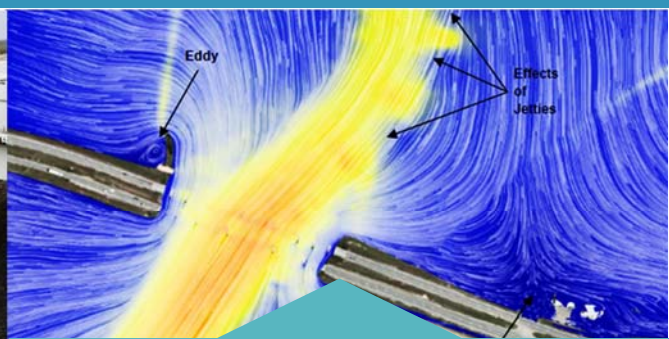
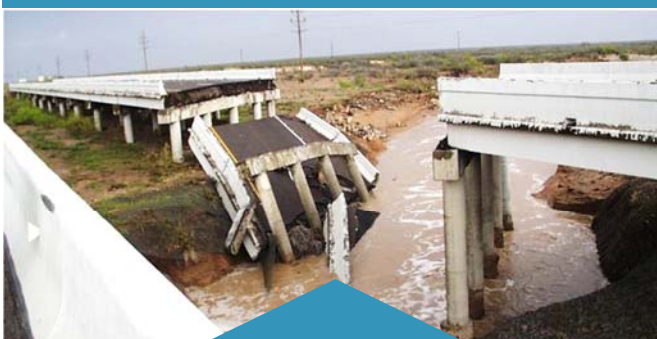
“The scan team will focus on practices for inspection, monitoring, countermeasure selection and placement, and risk management for scour-critical and scour-susceptible bridges individually and in networks of varying sizes.”

MORE INFORMATION

WWW.DOMESTICSCAN.ORG

More information including the Scan Team Members, the scan prospectus and a quick take video on findings of the scan can be found by visiting the Scan website at the above link or by using this QR code. The final report will also be available at this site later this summer.





Topic 1: General Procedures and Risk Analysis

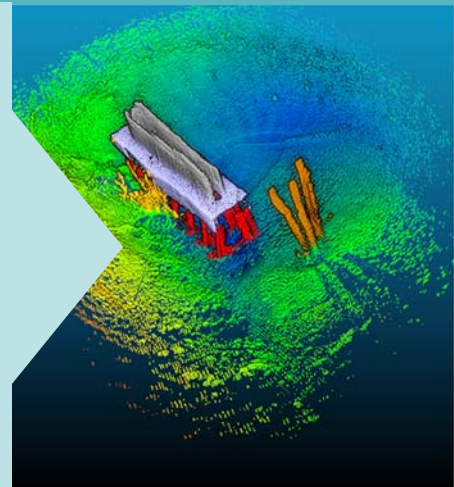
- States need to form scour committees with interdisciplinary capabilities.
- Since scour is a nation-wide threat and the number one cause of bridge failures, a scour committee at the national level is needed.
- States should consider using Risk Analysis to prioritize how to best apply their limited resources.

Topic 2: Scour Modeling and Analysis

- Materials testing for cohesive soils or rocks can be performed for more accurate results.
- States are recommended to use 2D/3D models. There is a need to identify the conditions or parameters when the 2D models can be applied.
- States are encouraged to participate in NHI courses and other training workshops.

Topic 3: Monitoring and Field Inspection of Scour Critical Bridges

- States are recommended to establish collaborative partnerships with USGS and other agencies.
- AASHTO and FHWA are recommended to establish partnerships with USGS and other agencies for innovative applications that would help advance the State-of-Art of flooding data collection on highway infrastructure.
- States should work proactively with FHWA for use and acceptance of advanced technologies for under water inspection (e.g., sonar) to improve data collection and divers' safety.
- Continued and future research are needed to enhance the capabilities of various systems to measure real-time scour. Moreover, communication and dissemination of various research projects is needed to raise awareness of accomplishments.



Topic 4: Design, Construction and Sustainability of Countermeasures

- States should have procedures for inspecting countermeasures during construction and routine inspections.
- AASHTO should establish a body to help disseminate the information related to the performance of various types of countermeasures.



Topic 5: Scour Plan of Action

- States should consider additional information to enhance their POA.
- States are recommended to develop emergency protocols for widespread flood events.
- States should create risk-based prioritization for implementing POA during flood events, which could be based on specific trigger for specific bridges.

