

DHS Science and Technology Directorate

Kentucky Dam Safety Project – Reducing Unknown Risks in Critical Infrastructure

Critical Risks

Much of our nation's most critical infrastructure is at risk and subject to damage from flooding. Repair costs for critical infrastructure, such as roads, bridges, dams and levees, make up a significant portion of public assistance costs.

The Federal Emergency Management Agency (FEMA) seeks to reduce these disaster-related costs. Large, federally owned dams often have advanced monitoring and alert systems, whereas smaller state, local, and privately-owned dams do not. An affordable and simple solution is necessary for the thousands of dams that lack monitoring and warning systems.

Partnering on Multiple Levels

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T), along with FEMA and the DHS National Protection and Programs Directorate (NPPD), is partnering with the Kentucky Division of Water and private consulting partner Stantec Consulting Services, Inc. to investigate new and emerging technologies in dam-related flood monitoring and warning to help protect lives and the nation's critical infrastructure, while reducing the cost of such a disaster if it were to occur.

Currently, there is no national standard for the assessment, monitoring, and reporting of state and municipally owned dams that have some capacity for instrumentation.

With the Critical Infrastructure and Flood Risk Management project, S&T's Flood Apex Program will research existing standards and requirements for dam conditions to support monitoring and rapid detection of flood related conditions affecting dam safety.

The primary objectives laid out for this effort are:

- Reducing or avoiding injuries, fatalities and property losses due to dam-related flood events;
- Increasing community resilience to disruptions from flooding or loss of critical infrastructure;

- Improving analytical tools to support community flood risk assessments and warning scenarios; and
- Developing better investment strategies to prepare for, respond to, recover from and mitigate flood hazards.

A Four-Phased Approach

A phased approach breaks the project into four different segments within a 24-month period. Over the next 10 months, the project will center on researching dam instrumentation, pilot site selection and the development of a prototype dam breach warning system. This project seeks instrumentation which will support condition monitoring and real-time communication to dam stakeholders.



Most critical infrastructure is at risk from flooding. High risks may be present, but may be unknown or rapidly develop.

The final phase of the project will be dedicated to producing an Executive Summary Report. The findings and lessons learned from this project support research priorities for the National Dam Safety Program, provide excellent situational awareness on critical infrastructure risks, and will be shared with stakeholders and other communities at risk across the nation.

Partners

- FEMA
- NPPD
- Kentucky Division of Water
- Stantec



Homeland Security

Science and Technology

To learn more about the Kentucky Dam Safety Project, contact Flood.Apex@hq.dhs.gov.