

# DHS Science and Technology Directorate Flood Apex Program

## Introduction

Floods are the most common and destructive natural disaster in the United States—90 percent of all national disasters involve flooding. Following a flood event, there is very little time to ensure future community investment decisions are informed by lessons-learned, state-of-the-art engineering solutions and technologies. Decisions made in the compressed response timeframe can shape a community's resilience for years to come. Sound post-event decisions benefit from an integrated understanding of the critical systems that enable communities to thrive and afford citizens the quality of life that they desire.

## Program Overview

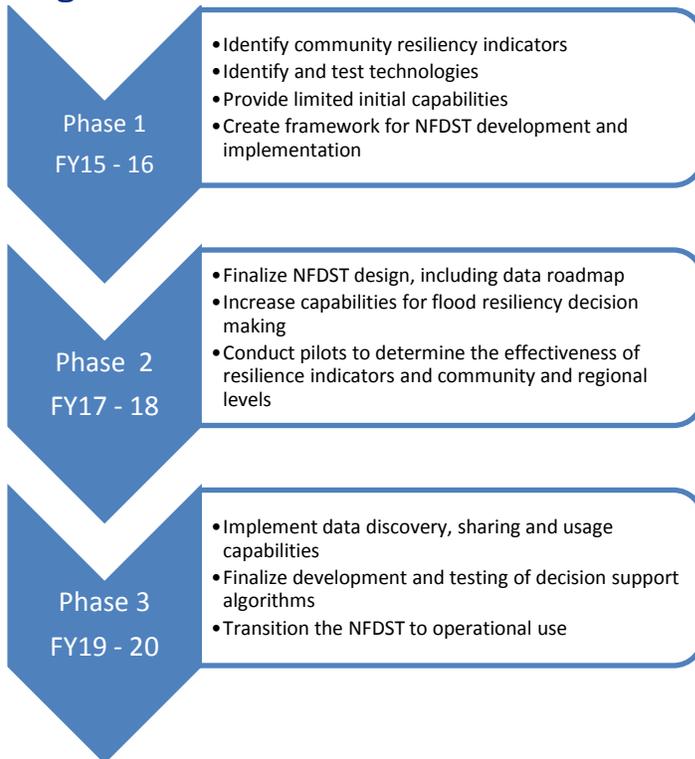
The goal of the Flood Apex program is to create a decision support system-of-systems for community risk assessment and resilience planning to save lives, reduce property loss, and enhance resilience to disruptive events. The community-centric metrics enabled by the Flood Apex will support improved pre- and post-flood investment decision-making.

With support from DHS' Science and Technology Directorate (S&T), the Federal Emergency Management Agency (FEMA) will be able to: 1) leverage existing data sources to create multi-dimensional representations of community functions, following a flood event, using an integrated, system-of-systems approach; 2) enhance whole community collaboration around flood disaster risk reduction; 3) identify indicators of flood resilience and opportunities to introduce advanced technology solutions; 4) empower communities with a flood decision support tool to enable both pre-event and post event resiliency planning; and 5) enable faster decision-making.

The Flood Apex envisions three phases with projects within each phase informing and enabling future projects. It will culminate in the development of the National Flood Decision Support Toolbox (NFDST). The NFDST will enable the translation of science into actions that reduce risk exposure and enhance

resilience in communities with known and potential flood hazards. When developed, the NFDST will be transitioned to FEMA to assist federal, state, local, tribal, and territorial users in making investment decisions related to floods.

## Program Timeline



## Strategic Alignment

The Flood Apex program aligns with and supports implementation of Presidential Policy Directives 8 (*National Preparedness*) and 21 (*Critical Infrastructure Security and Resilience*) and Executive Order 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*.

The Flood Apex program supports FEMA Strategic Priority #4 (*Enabling Disaster Risk Reduction Nationally*) and links directly to the S&T *Enable the Decision Maker* and *Resilient Communities* Visionary Goals.



Homeland  
Security

Science and Technology

To learn more about the Flood Apex Program, contact the Science and Technology Directorate at [First.Responder@hq.dhs.gov](mailto:First.Responder@hq.dhs.gov).