

Texas Flood Response System

Developing Near-Real-Time Flood Impact Mapping in Texas

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Texas Flood Response Project

FEMA DR 4223 #001 - April 2016 to March 2018
 Led by Dr. David Maidment & Harry Evans, UT Austin and Michael Ouimet, TDEM Critical Information Systems

- Develop local prototype flood planning template
- Conduct tabletop exercises on local prototype
- Conduct stakeholder meetings at the local, regional, state and federal level
- Produce flood response maps linked to NWS flood forecast to depict likely extent of flooding on a regional basis in Texas

Texas Flood Response Project

County Partners

- Travis County Commissioners Association
- Travis County Emergency Management
- Blanco County Emergency Management
- Williamson County Emergency Management
- Williamson County Fire Chiefs
- Lower Brushy Creek Water Control District
- San Marcos Emergency Management
- Hays County Emergency Management

State Partners

- Texas Division of Emergency Management (TDEM)
- Texas Natural Resource Information Systems (TNRIS)
- Texas Water Development Board (TWDB)
- Texas Commission on Environmental Quality (TCEQ)
- Texas Department of Transportation (TxDOT)
- Texas Floodplain Management

City Partners

- City of Austin
- Austin Fire Department
- Austin Flood Early Warning System (FEWS)
- Austin Homeland Security Emergency Management (AHEM)
- Houston Office of Emergency Management

Federal Partners

- National Weather Service (NWS)
- National Oceanic Atmospheric Administration (NOAA)
- Federal Emergency Management Agency (FEMA)
- US Geological Survey (USGS)
- US Army Corps of Engineers (USACE)

Texas Flood Response System

The QUESTION: How do you go from a radar rain map to a flood inundation map showing impacts?

Keeping in mind... we're predicting a flood based on a prediction of rain, neither of which has happened

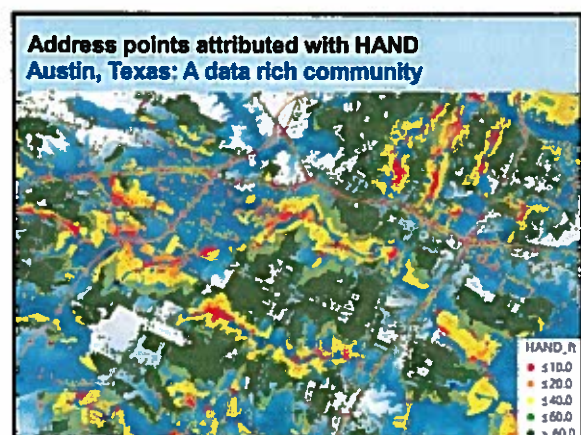
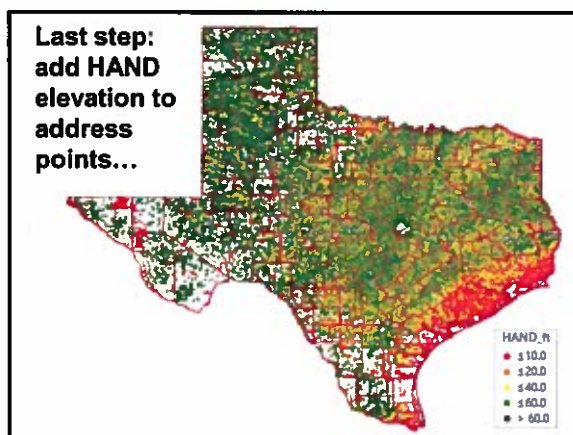
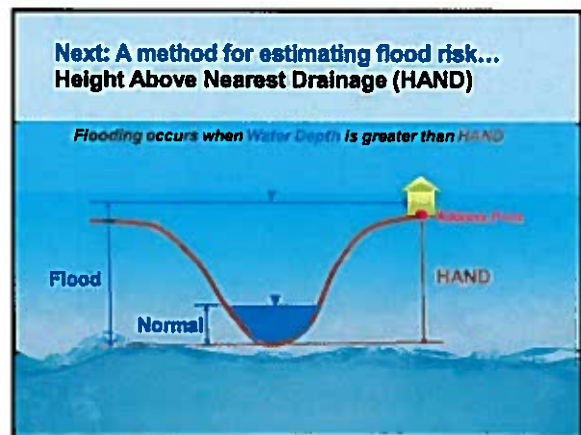
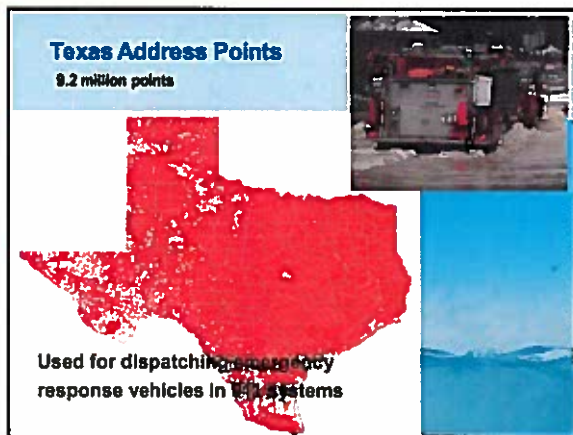
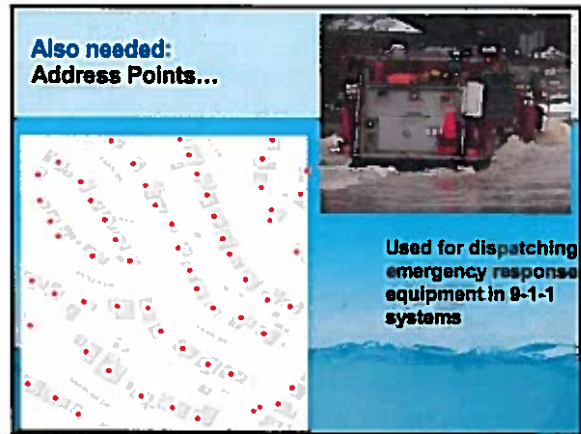
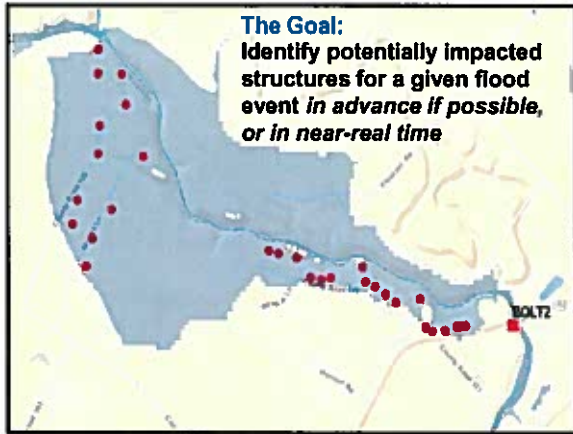
Proposed Approach

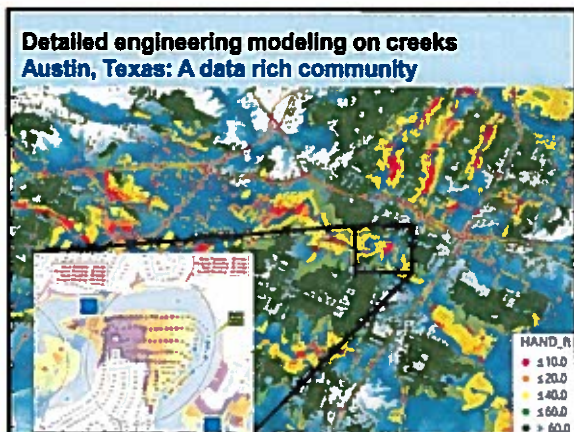
Three key elements:

- Geologic Flood Base Map
- Real-Time Inundation Map
- Flood Impact Assessment System

FEMA National Flood Hazard Layer in Texas (~ 120 counties)

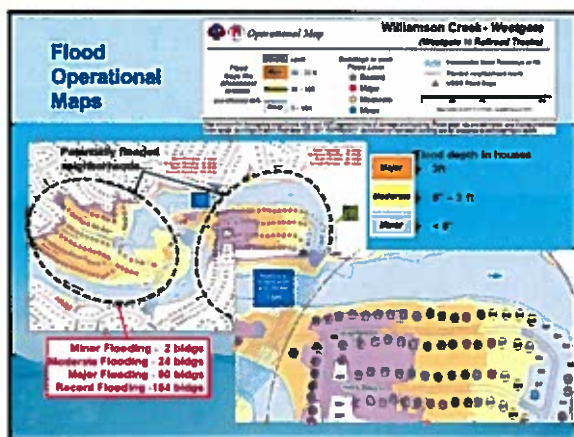
Large areas of Texas lack flood information





Operational Map

- Collaboration between Austin Fire Dept and Flood Early Warning System
- Flood operational maps for 23 Austin creeks
- Tested in six table top exercises over last 2 years
- To be deployed in fire trucks in paper and pdf format



Local/Regional Maps for First Response

Strategic Flood Maps

- Used at Emergency Operations Center
- Overview map of entire area
- Identifies scope/magnitude of overall problem
- Used to keep track of several area commands, groups of units

Local/Regional Maps for First Response

Operation Flood Maps

- Incident/Area Command
- Flood info at an area command level
- Limited for receiving situational awareness
- Able to log where units are assigned, where people have been rescued, what is remaining/what needs to be focused on

First Responder Input to Inundation Mapping

Rank on road at current water level → Point location out in by text → Inundation map

Chief Todd Poirier, Austin Fire Department

