DriveTexas:
Informing the Traveling Public of Flood Hazards

TxDOT & AppGeo
DriveTexas.org

- TxDOT's public facing road condition website
- The purpose of DriveTexas is to provide accurate, timely highway conditions information. Conditions in DriveTexas are verified by TxDOT employees and contractors
- Information is updated every 5 minutes
- Viewable on any web enabled device
- Average 3 million sessions/yr
DriveTexas Functionality

- Current and future conditions available
- All active conditions will be displayed in the menu bar and can be toggled on/off
- All conditions expand with additional details once clicked
- Additional resources are available in the menu bar
February 2021: Winter Storm Uri

3 millions users on the site over the storm duration
45,000 concurrent users at peak.
5,800 Ice/Snow conditions across the entire State of Texas
Hurricane Harvey – August 2017

With more than 500 state roadway closures during the height of Hurricane Harvey, DriveTexas.org was visited more than 5 million times as drivers checked road conditions and closures on state roadways.
Hurricane Harvey – August 2017

Flooding in Port Arthur, Texas, on August 31, 2017

Image Source: Wikipedia, South Carolina National Guard

Hurricane Harvey (2017)
Precipitation in Nederland, TX

Data Source: National Hurricane Center
Flooding in Texas

- Hurricane Ike (September 2008): storm surge exceeded 17ft
- Tropical Storm Allison (June 2001): heavy rainfall peaked at over 40 inches
- Tropical Storm Hermine (September 2010): 10 to 15 inches of rain
- Other Record Rainfall:
  - October 2018 - 12+ inches (Central, TX)
  - May 2015 – 14.98 inches (Dallas, TX)
  - May 2015 – 17.59 inches (Austin, TX)
  - March – May 2016 – 24.84 inches (Houston, TX)
Flooding in Texas

- Texas has the highest number of flood fatalities and vehicle-related flood fatalities in the United States
- Vehicle-related flood fatalities represent 58% of all flooding fatalities

https://www.mdpi.com/2073-4441/12/10/2884

98,541
Flood conditions reported in DriveTexas since December 2016
Early Flood Warning for the Public

- In 2018, Texas A&M Transportation Institute (TTI) partnered with TxDOT, Harris County and City of Houston
- If an area receives eight-tenths of an inch of rain in 15 minutes, a “flooding likely” warning is published via API
- In 2023 the data was also incorporated into DriveTexas

https://tti.tamu.edu/news/tti-helps-develop-innovative-flood-warning-system-for-houston/

Flooding Likely Real-Time Data

- Real time data is collected by rainfall and stream elevation sensors.
- Sensors that exceed a threshold are published to the TTI API.
- Points within the API are consumed by DriveTexas and buffered.
- Data is displayed with DriveTexas and updated every 5 minutes.
Flood Data Symbology on DriveTexas

- Named layer "Flooding Likely"
- Decided on a polygon representation to signify a general area where flooding is likely
- Used transparent shading for polygons so conditions could still be seen underneath
Looking ahead

- Initially deployed in the Beaumont and Houston districts
- Since initial deployment we have brought on additional sensors in the Corpus Christi, Yoakum, and Laredo districts, plus NOAA sensors
- Hopeful to scale statewide
Thank you!

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