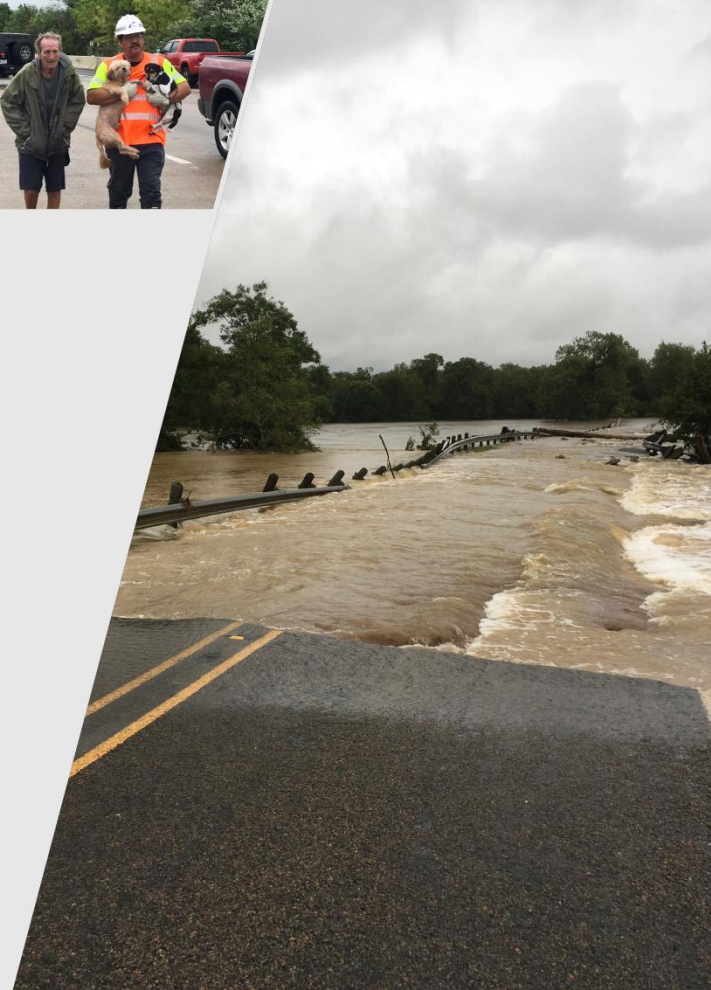




DriveTexas:

Informing the Traveling Public of Flood Hazards

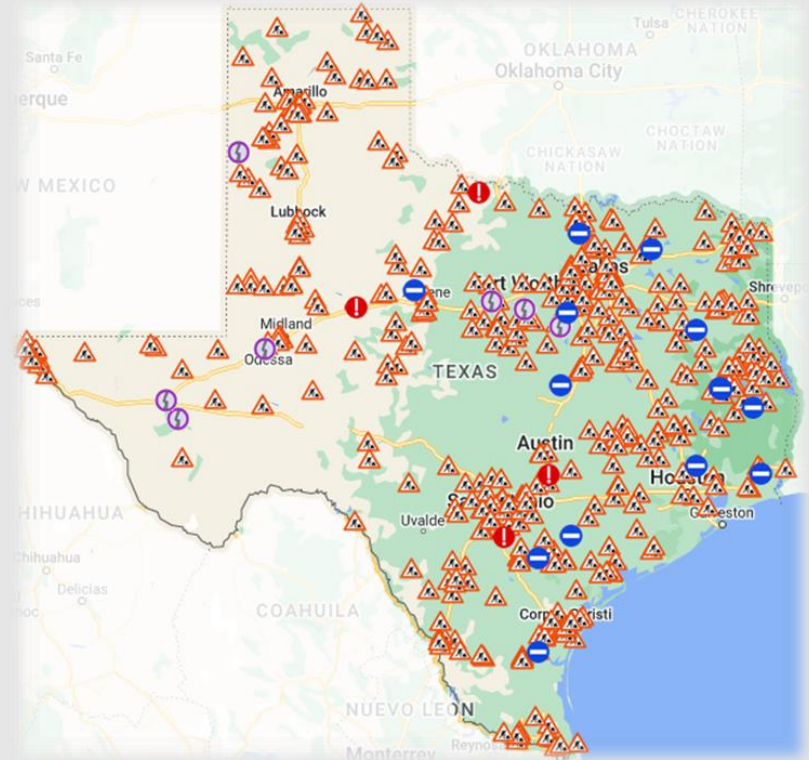
TxDOT & AppGeo

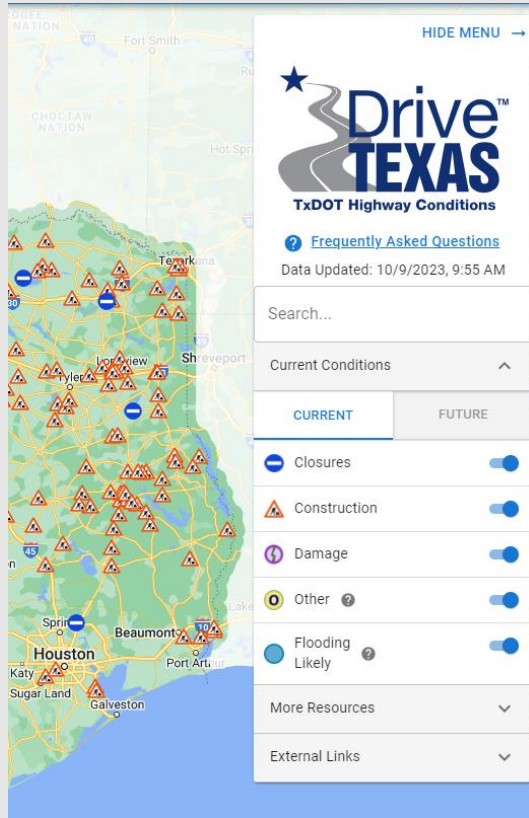


October 30, 2023

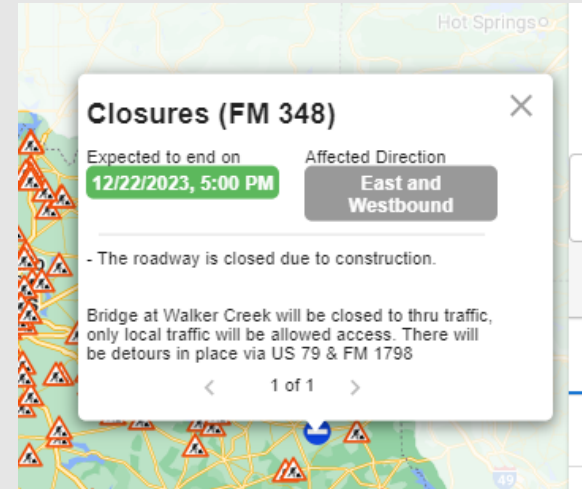
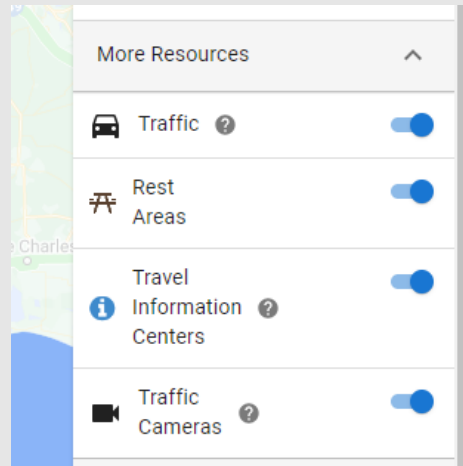


- TxDOT's public facing road condition website
- The purpose of DriveTexas is to provide accurate, timely highway conditions information. Conditions in DriveTexas are verified by TxDOT employees and contractors
- Information is updated every 5 minutes
- Viewable on any web enabled device
- Average 3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

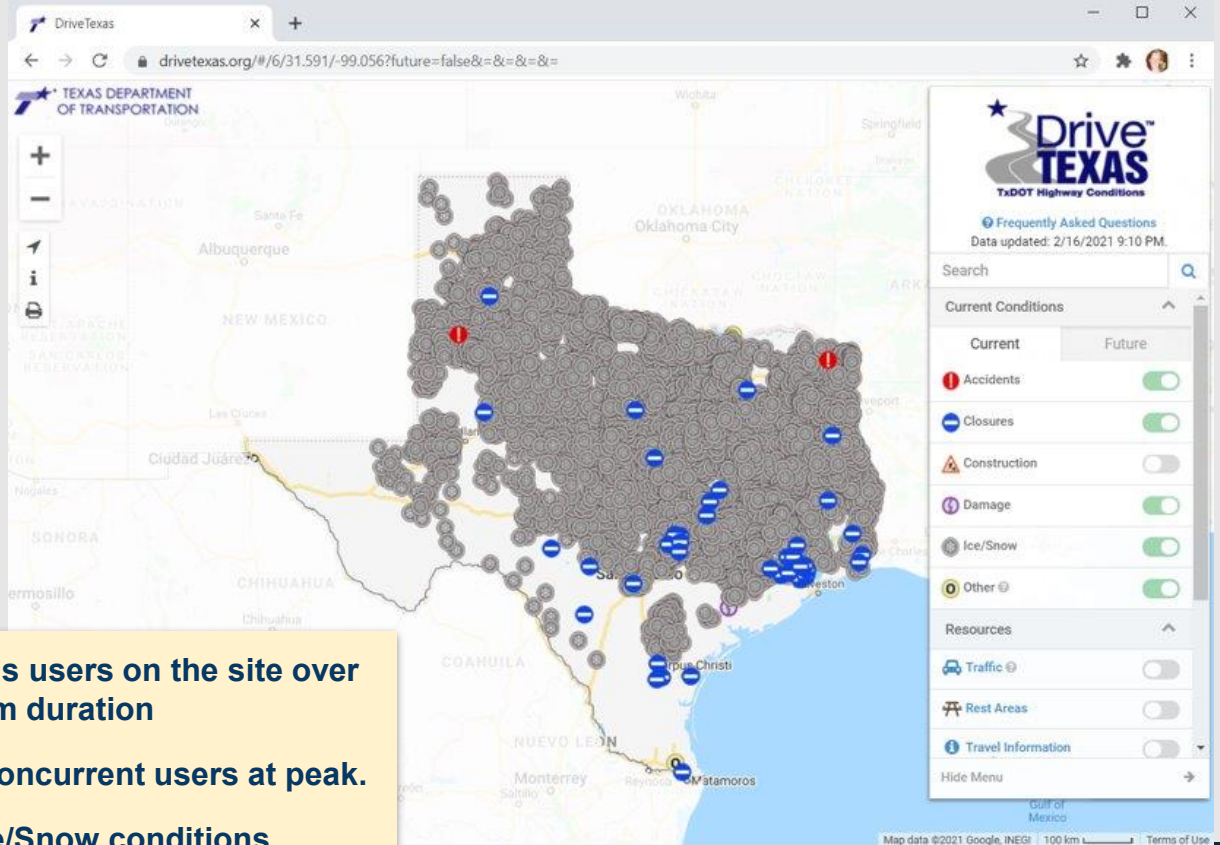




- Current and future conditions available
- All active conditions will be displayed in the menu bar and can be toggled on/off
- All conditions expand with additional details once clicked
- Additional resources are available in the menu bar



February 2021: Winter Storm Uri

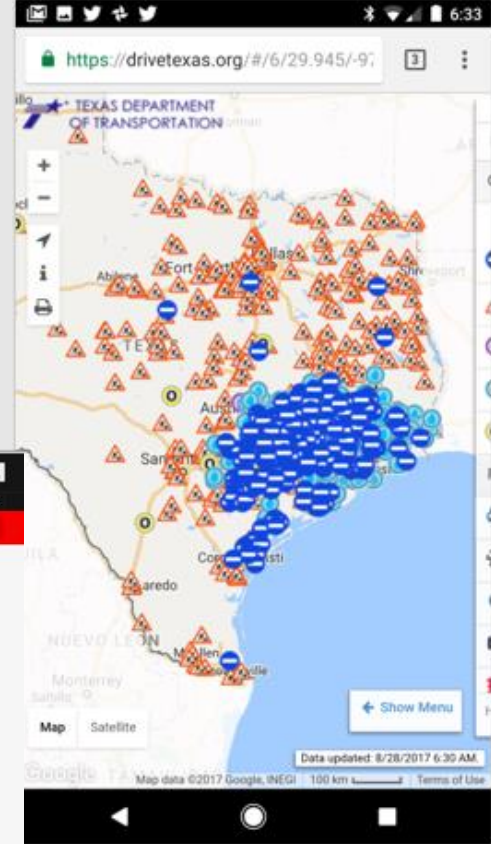
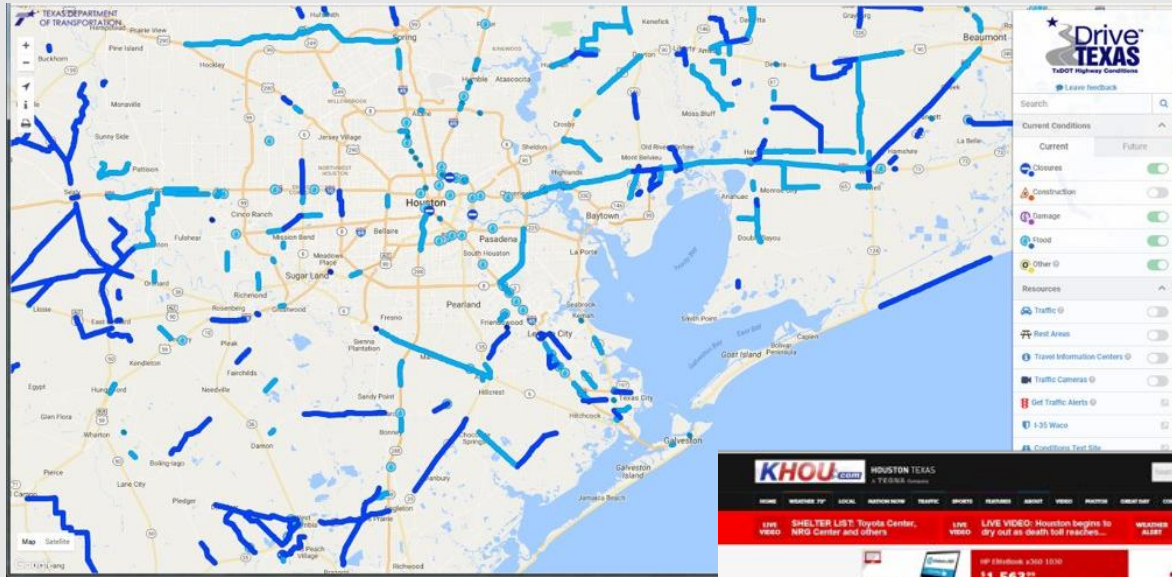


3 millions users on the site over the storm duration

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.

A screenshot of the KHOU website. The top navigation bar includes links for HOME, WEATHER, LOCAL, NATIONAL, TRAFFIC, SPORTS, FEATURES, ABOUT, VIDEO, PHOTOS, and CONTACT US. The main content area features a 'WATCH LIVE: KHOU Live Video' section with a map of Houston and a 'DriveTexas' logo. Below the video section, there is a 'BREAKING' news banner with the text 'HEAVY RAINING ANOTHER LANDFALL ROADS BEGINNING TO REOPEN'. The KHOU logo is also visible in the bottom right corner.

Hurricane Harvey – August 2017



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



Image Source: Wikipedia, South Carolina National Guard

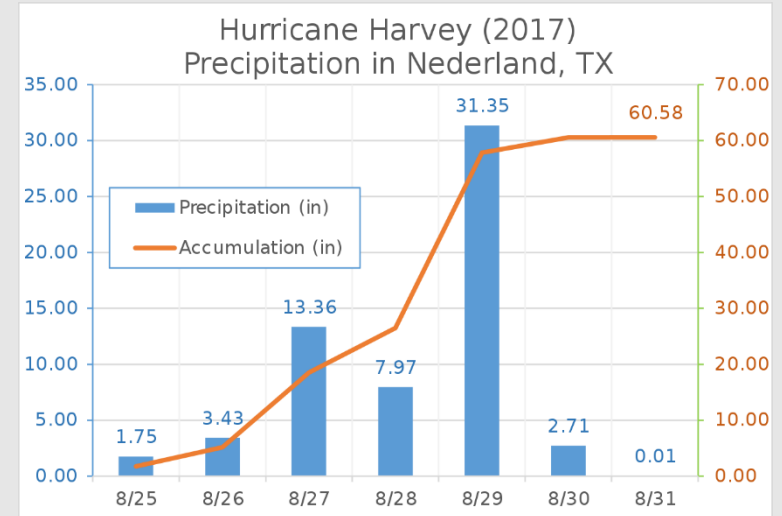


Image Source: Wikipedia, Phoenix777
Data Source: National Hurricane Center



- 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**

Source: Han, Z., & Sharif, H. O. (2020). Vehicle-related flood fatalities in Texas, 1959–2019. *Water*, 12(10), 2884.
<https://www.mdpi.com/2073-4441/12/10/2884>

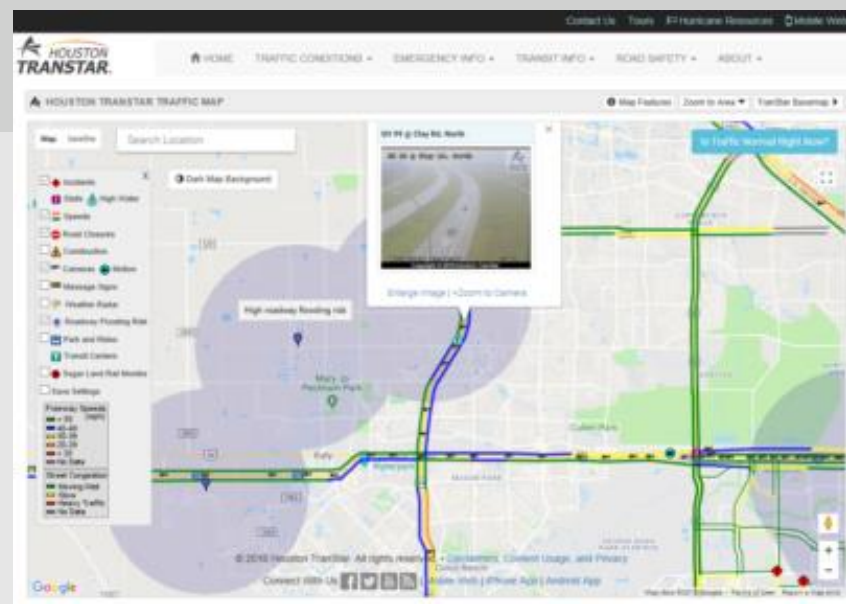
98,541

Flood conditions reported in DriveTexas
since December 2016



Early Flood Warning for the Public

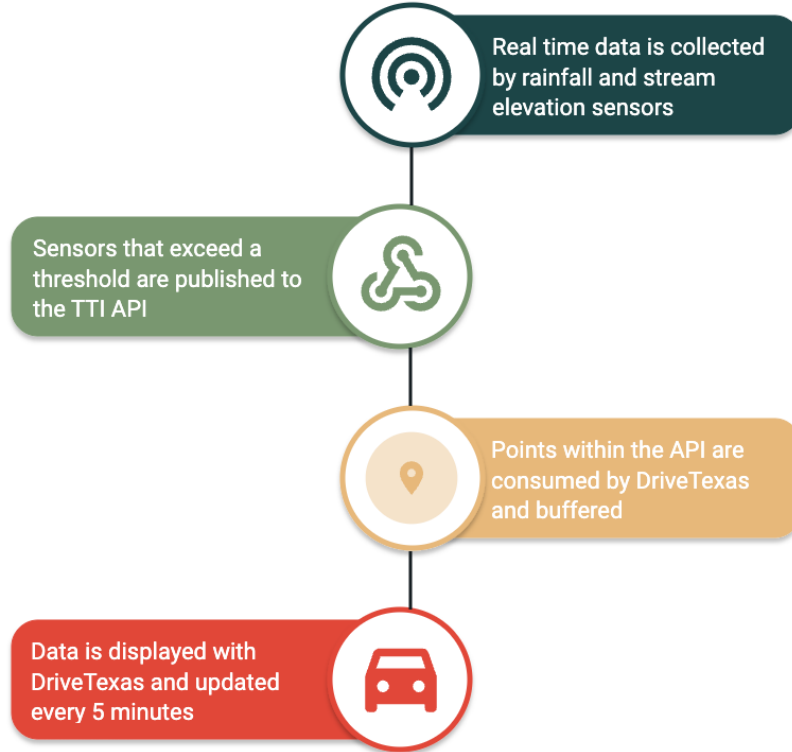
- In 2018, Texas A&M Transportation Institute (TTI) partnered with TxDOT, Harris County and City of Houston
- If an area receives eight-tenths of an inch of rain in 15 minutes, a “flooding likely” warning is published via API
- In 2023 the data was also incorporated into DriveTexas



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

<https://www.txdot.gov/content/dam/docs/programs/houston-transtar-roadway-flood-warning-system-fy2022.pdf>

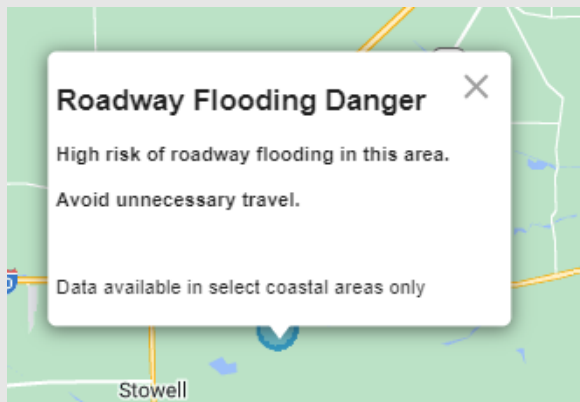
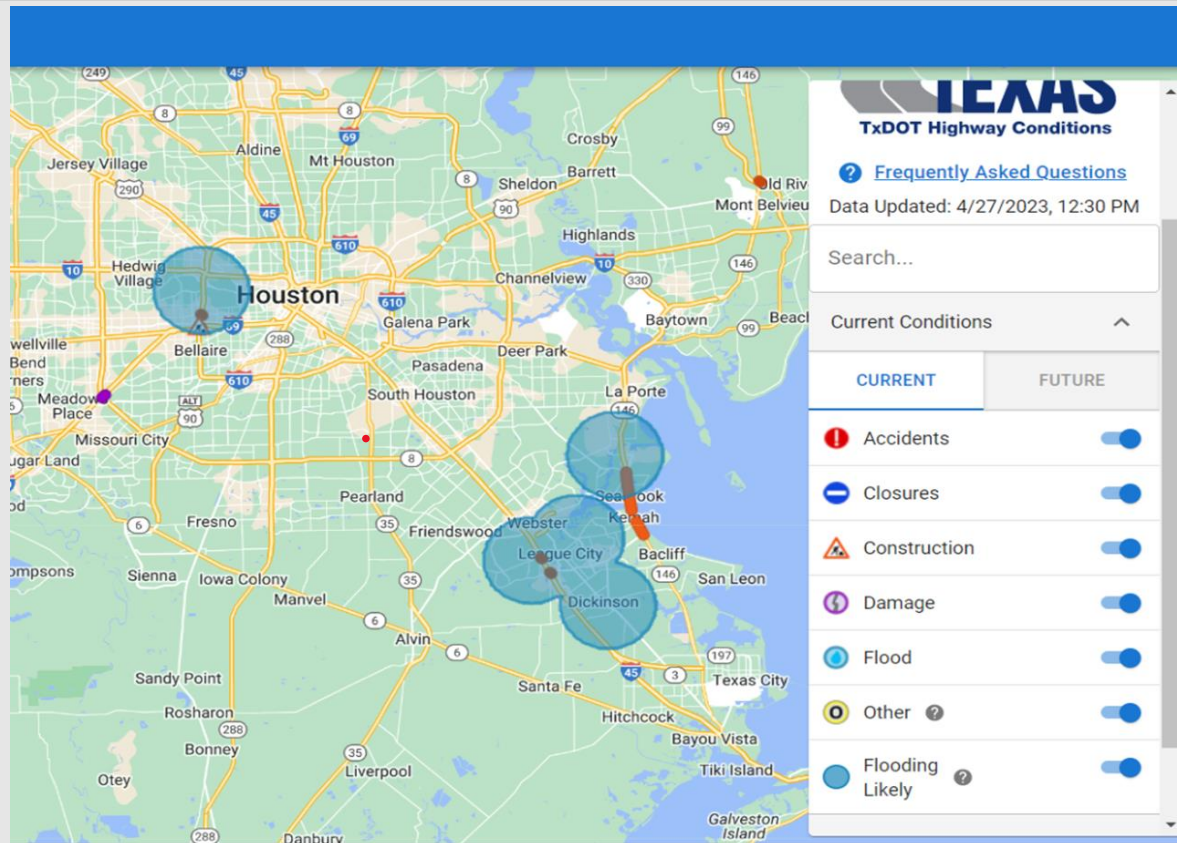




Flood Data Symbology on DriveTexas



- 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





- 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!

Sarah Berryhill

Morgen Healy

