

The City of Bryan, Texas – Flood Early Warning System (“B-FEWS”): One Year Later

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 Paul Kaspar, PE, CFM; Sam Vernon, PE, CFM (City of Bryan)

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### Motivation


Historical Flooding

Flooding forces various road closures in the Texas Valley



Oct 2019 (source: kbtv.com)

Area road closures due to high water




**ROAD CLOSURES**


LONG TRAVEL ROAD AT THE NAVASOTA RIVER CROSSING CLOSED AT FM 3179 WILCOX LANE AT WICKSON CREEK SULPHUR SPRINGS AT RIVER BLVD WICKSON AT WICKSON CREEK

May 2019 (source: kbtv.com)

Rain causes Still Creek flooding in residential areas, covering roadways



Rain causes Still Creek flooding in residential areas, covering roadways



Aug 2022 (source: kbtv.com)

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### Motivation

TWDB Flood Infrastructure Fund – Category 4

**CITY OF BRYAN**

City of Bryan receives grant for flood early warning system



source: City of Bryan

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## Motivation

General

- ◆ Inform roadway closures
- ◆ Notify at neighborhood-block levels
- ◆ Improve Citizen **MOBILITY**
- ◆ Application of Effective Low Cost water sensing
- ◆ Serve rural and under gauged urban communities
- ◆ Educate community



usa.gov

B-FEWS Community Awareness, First Fridays at Downtown Bryan

TORRES B CITY OF BRYAN 4

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## B-FEWS Project Schedule



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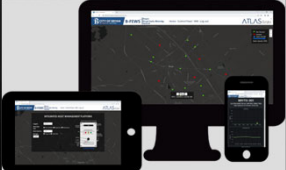
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## What is B-FEWS?

"Bryan-Flood Early Warning System"

B-FEWS is tailored to inform **flooded roadway conditions at the community level** thoroughfares and arterials to provide the City with a "bottom-up" perspective of alerting emergency responders and the public on near-real time street flooding conditions before, during, and after periods of heavy rainfall

B-FEWS will deploy **20 flood prone roadway** locations that will (1) alert emergency response crews and key personnel via **text messaging** and **real-time online map** updates for coordinating **pre-emptive roadway closures** and (2) warn drivers to **TURN AROUND, DON'T DROWN** with **automated flasher beacons** and **text/email** subscriptions. Community residents will be able to stay informed at higher levels of granularity with **neighborhood-level alerts**.



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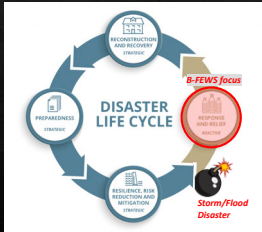
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# Disaster Life Cycle



- ◆ **Mitigation.** directly preventing future emergencies and/or minimizing their negative effects. Hazard risk analysis and the application of strategies to reduce the likelihood that hazards will become disasters.
- ◆ **Preparedness.** Disaster preparedness efforts include plans or preparations made in advance of an emergency that help individuals and communities get ready.
- ◆ **Response.** Disaster response work includes any actions taken during or immediately following an emergency, including efforts to save lives and to prevent further property damage.
- ◆ **Recovery.** Recovery happens after damages have been assessed and involves actions to return the affected community to its pre-disaster state or better – and ideally, to make it less vulnerable to future risk.

Source: Center for Disaster Philanthropy

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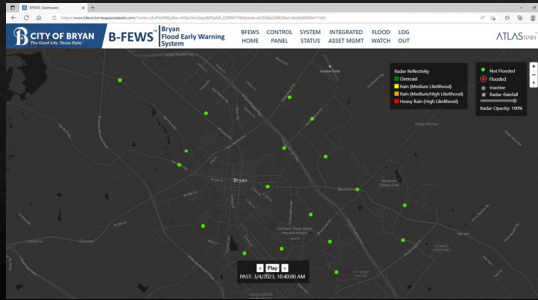
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# B-FEWS Network




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# B-FEWS Installation (Summer 2022)




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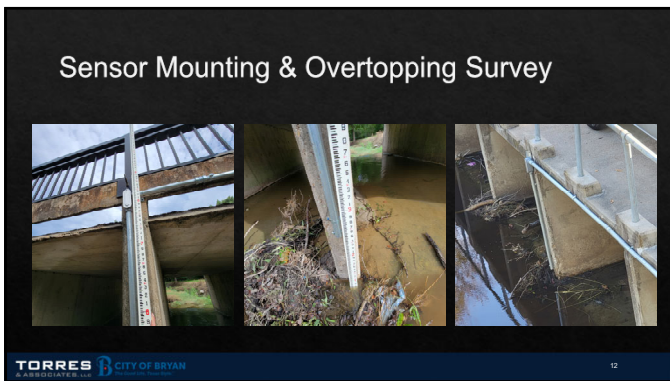
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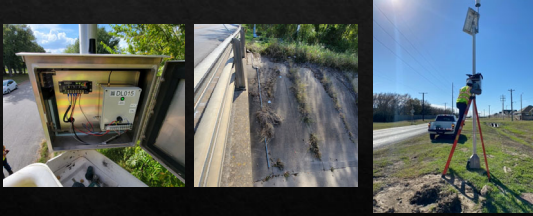
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### Example of Finished Gauges (2022)



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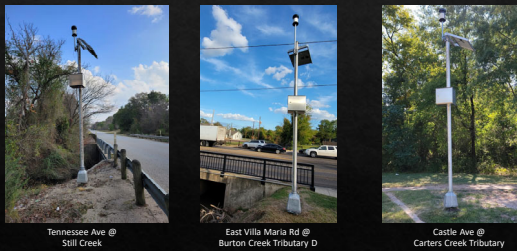
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### Example of Finished Gauges



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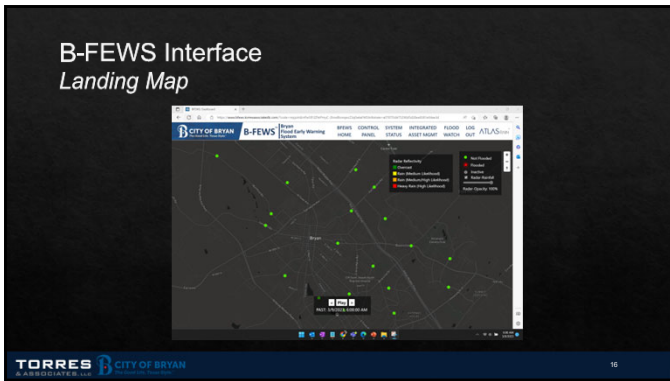
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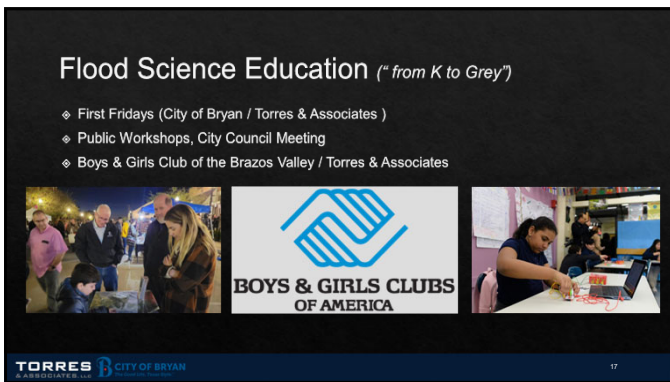
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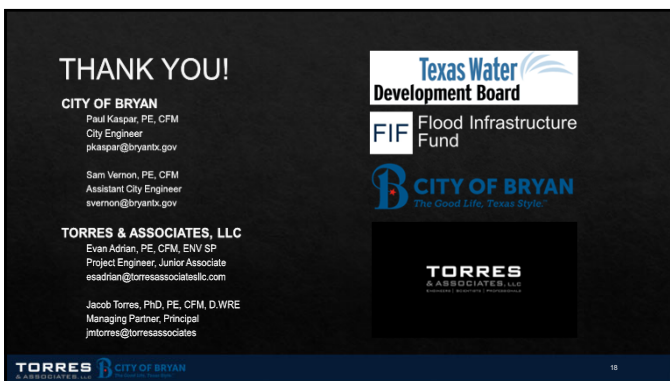
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