



# Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation

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Jill Shaw

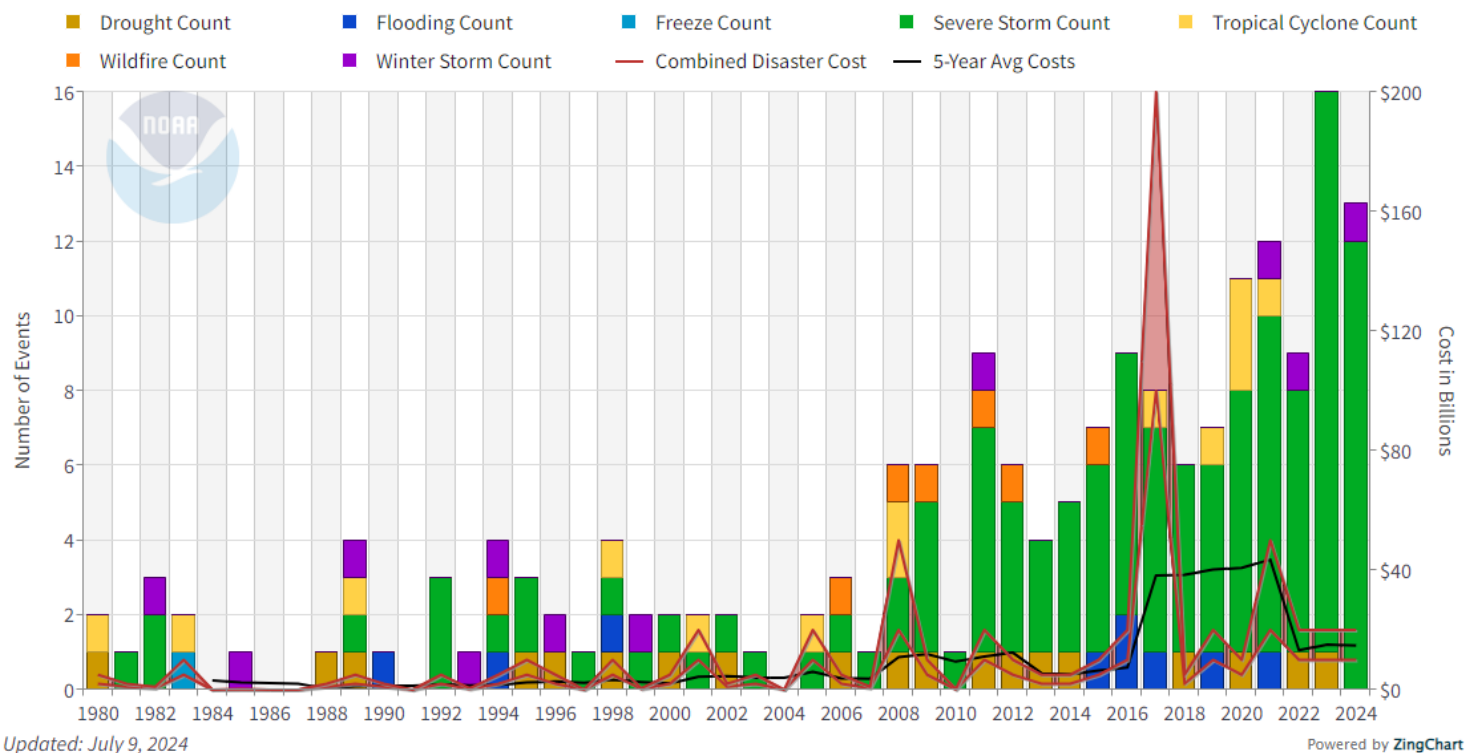
Emergency Preparedness Manager



# Texas Summary

From 1980–2024 (as of July 9, 2024), there have been 183 confirmed weather/climate disaster events with losses exceeding \$1 billion each to affect Texas. These events included 19 drought events, 9 flooding events, 1 freeze event, 122 severe storm events, 14 tropical cyclone events, 7 wildfire events, and 11 winter storm events. The 1980–2023 annual average is 3.9 events (CPI-adjusted); the annual average for the most recent 5 years (2019–2023) is 11.0 events (CPI-adjusted).

### Texas Billion-Dollar Disaster Events 1980-2024 (CPI-Adjusted)



Updated: July 9, 2024

Powered by ZingChart

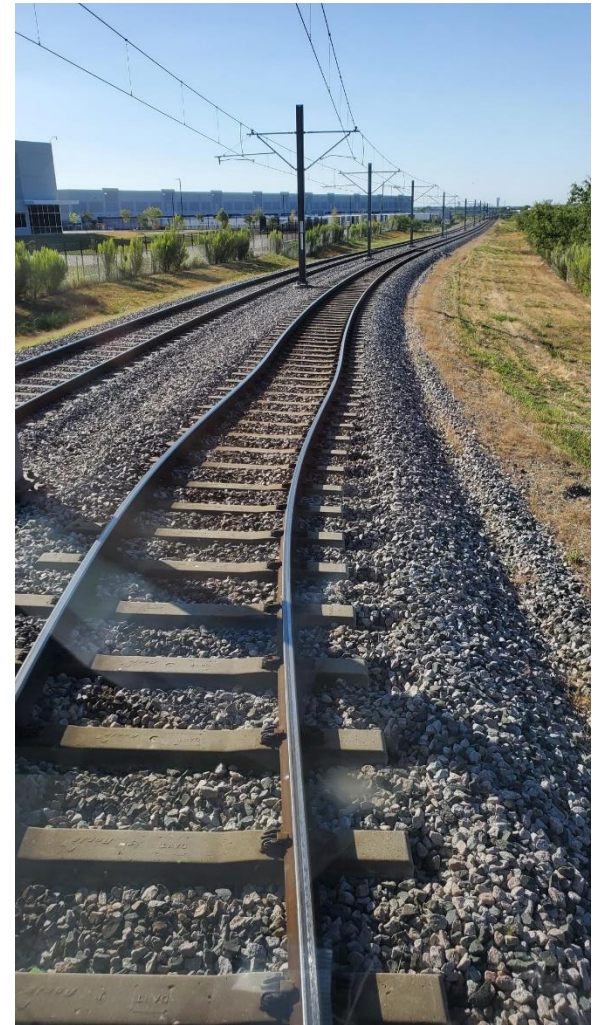
NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2024). <https://www.ncei.noaa.gov/access/billions/>, DOI: [10.25921/stkw-7w73](https://doi.org/10.25921/stkw-7w73)



# DART and Climate Resiliency

DART has initiated the following projects to address the extreme weather increasingly hampering our ability to provide reliable service:

- Increase battery backup power capacity by replacing UPS at major interlockings
- Replace/refurbish air supply units (ASU) – doors, brakes, horns
- Automatic tensioning for catenary wires
- Ice inhibitor system for catenary





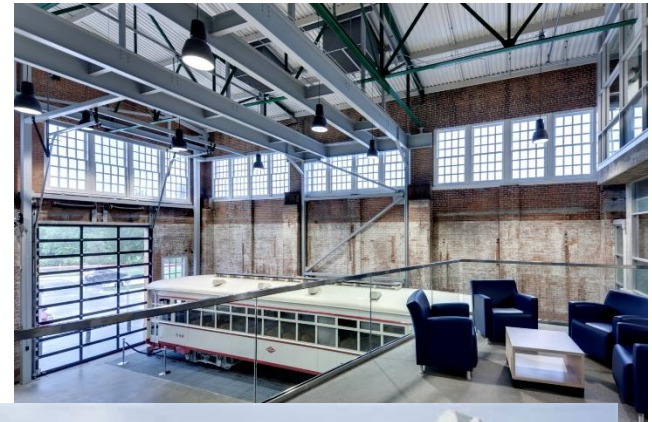
# Resiliency needs at DART

Weather isn't our only challenge – our system is aging - many assets hitting a lifespan of 20 to 30 years

Most of our facilities were acquired from DTS

Our facilities are in older areas with older city infrastructure

Unique station construction and art is difficult to maintain



# PROTECT Grant FHWA

Under the Bipartisan Infrastructure Law (BIL), the [Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation \(PROTECT\) Grant program](#) provides funding to ensure surface transportation resilience to natural hazards including climate change, sea level rise, flooding, extreme weather events, and other natural disasters through support of planning activities, resilience improvements, community resilience and evacuation routes, and at-risk coastal infrastructure.

How could DART use PROTECT funds?



Source: APTA 2019 Leadership Team 1 Study



# Flooding

Not an issue unique to transit.

Identified as the #1 hazard in the TxDOT Statewide Resiliency Planning meeting last year



# DART PROTECT Grant Award

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DART was awarded funding for a two-year license to test a flood intelligence software tool that uses historical rainwater and flood information to identify flood-prone areas, develop better evacuation routes, and pinpoint areas where stormwater drainage can be improved.

This is for the WHOLE region – not just DART.

PROTECT funds will also be used for an agency resiliency assessment.



# Flood Intelligence

- Flood intelligence seeks to describe flood behavior and its effects on the community.
- Flood intelligence is the product of a process of gathering and assessing flood-related data to enable emergency managers to determine the extent of actual or likely effects of flooding on a community. It helps emergency managers understand the behavior and consequences of flooding, aiding informed decision-making during flood emergencies. Reliable flood intelligence minimizes risks to the community by providing essential information. (1)

In essence, it's about understanding flood behavior and its impact on communities, allowing for better planning and response strategies.

1. FLOOD INTELLIGENCE: WHAT IT IS, WHY IT MATTERS AND HOW IT IS GENERATED – LESSONS FROM LOCKHART AND URANA SHIRE FLOODS 2010-2012 M Morgan S Yeo , M Walsh



# Flood Intelligence

Responding – sandbags, widespread warnings, evacuation

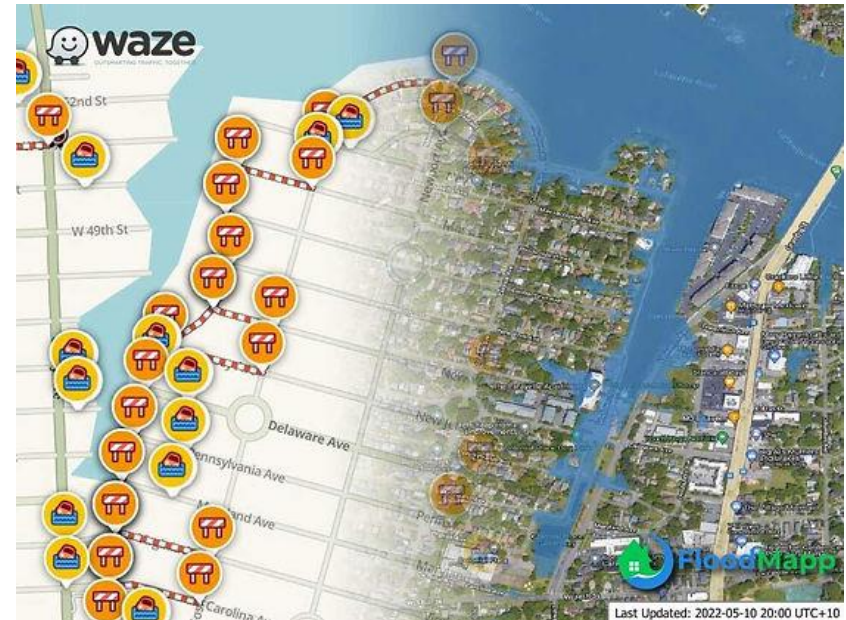
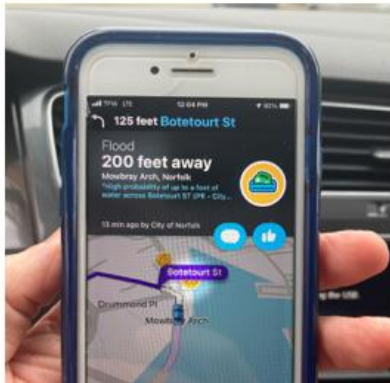
Planning – using information from past events and predictive programs to identify potential flood areas. Using this information to protect critical assets and create evacuation plans

Responding – using models along with local hydrology data to determine likely impacted areas and issue effective warnings down to street level



# My Why

Flood information would also be available to both emergency personnel and drivers - assisting in keeping vehicles out of low water crossings




# My Why

- Urban to Rural – flooding is an immediate threat
- Everyone is affected and coordination is needed *before* flooding events - get us out of our “silos”





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- [Billion-Dollar Weather and Climate Disasters | Disaster Cost and Frequency | National Centers for Environmental Information \(NCEI\) \(noaa.gov\)](#)
  - [Billion-Dollar Weather and Climate Disasters | Summary Stats | FAQ | National Centers for Environmental Information \(NCEI\) \(noaa.gov\)](#)
  - [Billion-Dollar Weather and Climate Disasters | Texas Summary | National Centers for Environmental Information \(NCEI\) \(noaa.gov\)](#)
  - [Draft 2024 State Flood Plan \(texas.gov\)](#)
  - [Statewide Resiliency Plan \(txdot.gov\)](#)



# Questions?

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