



North Central Texas  
Council of Governments

# Integrating Planning for Transportation and Stormwater Infrastructure

Regional Stormwater Management Coordinating Council | February 21, 2024

Jai-W Hayes-Jackson

# Project Overview

WHY THE REGION NEEDS A STUDY ON INTEGRATING  
TRANSPORTATION AND STORMWATER INFRASTRUCTURE

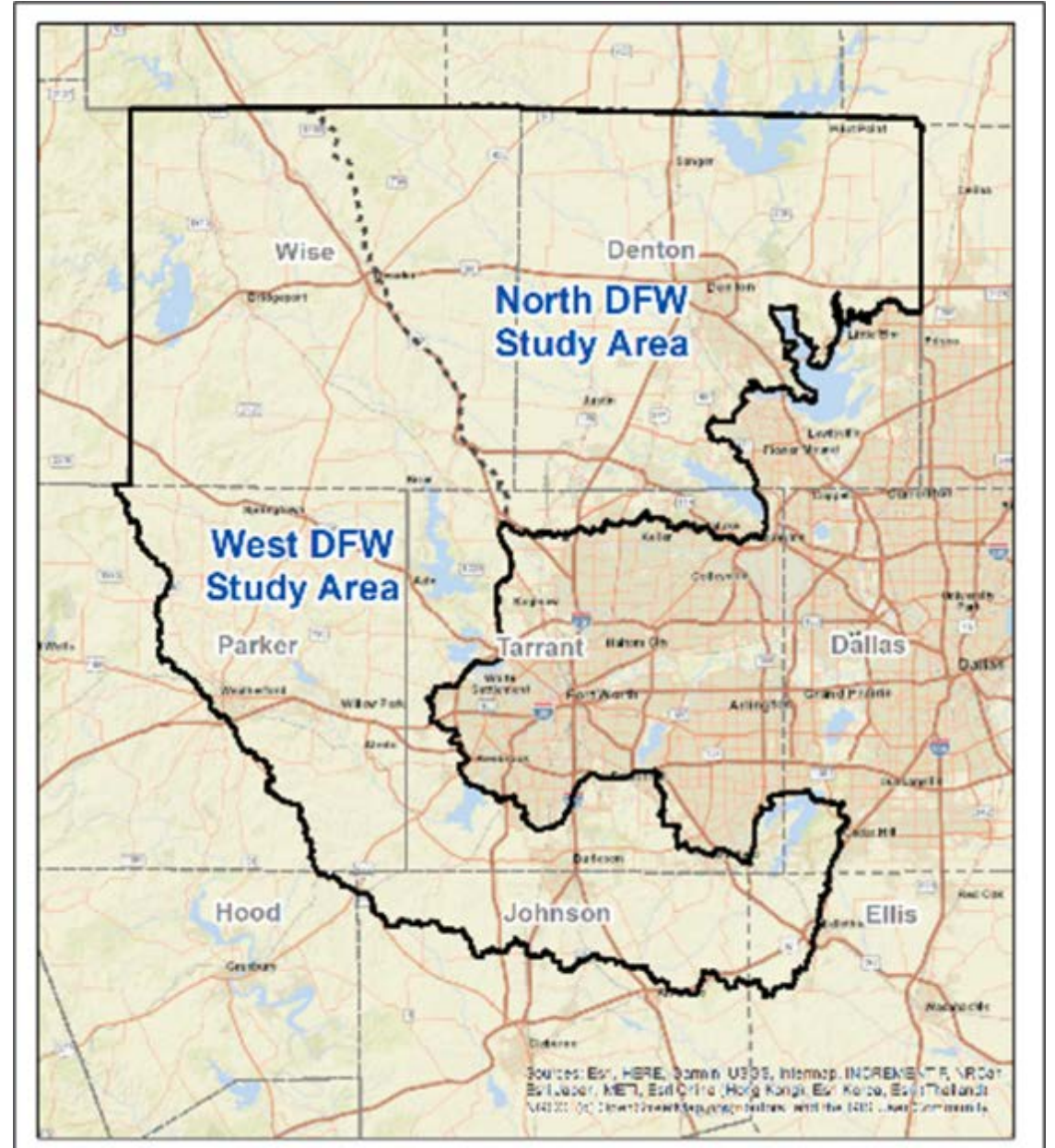
# Project Details

## Purpose

- Prevention vs. response
- Integrate stormwater management, urban development, transportation, and environmental planning
- Develop plan for risk awareness and resiliency
- Identify impacts and alleviate risks from flooding

## Timeline & Budget:

- Official kickoff March 2023
- Completion date for first phase: June 2025
- Funding for first phase: \$6 million



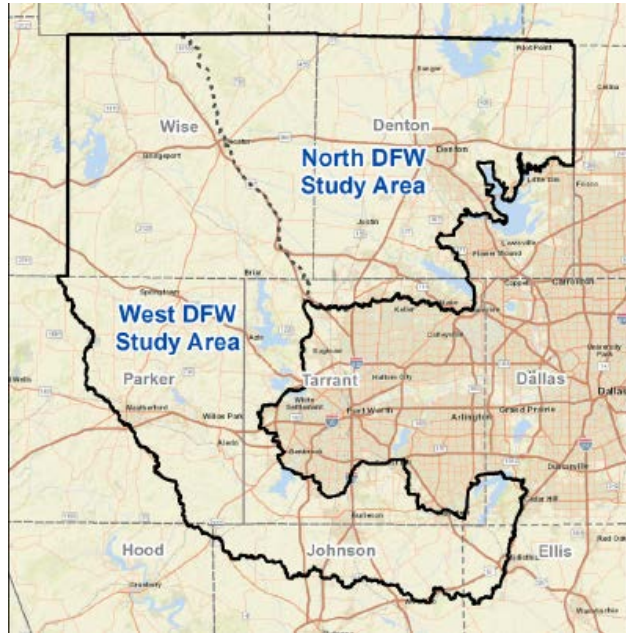
# Project Team Members



North Central Texas  
Council of Governments



US Army Corps  
of Engineers®



## Funding Partners

Texas Water Development  
Board

Texas Department of  
Transportation/Federal Highway  
Administration

Federal Emergency  
Management Agency



# Fatalities by State for 2012 – 2017

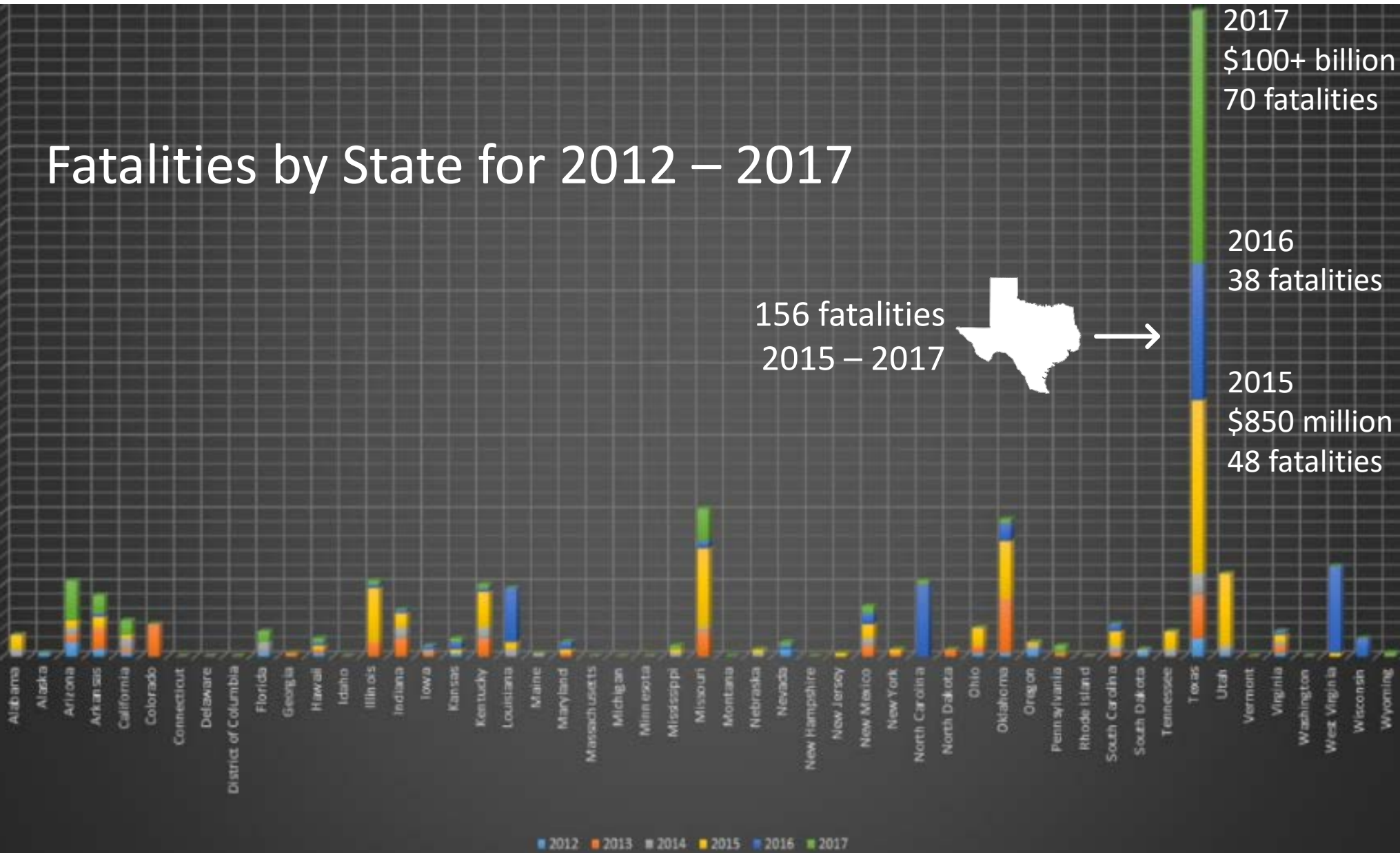
156 fatalities  
2015 – 2017



2017  
\$100+ billion  
70 fatalities

2016  
38 fatalities

2015  
\$850 million  
48 fatalities



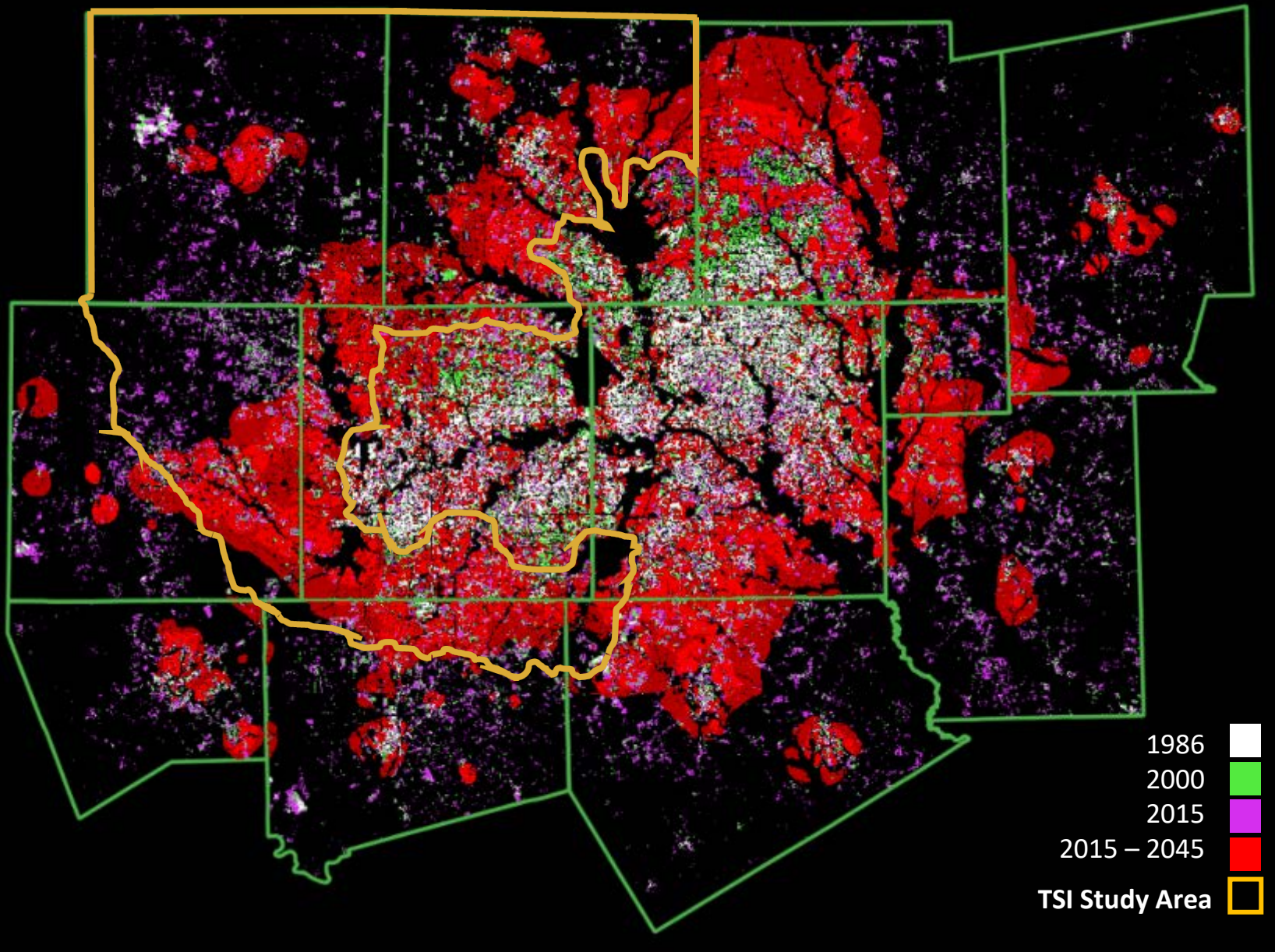
## Why TSI?

From 2018-2022, there has been an additional 38 fatalities with >50% from in vehicle.

Source: Gregory Waller, Service Coordination Hydrologist, NWS – West Gulf River Forecast Center, <http://www.nws.noaa.gov/om/hazstats.shtml>

# Why TSI?

- 60% undeveloped (2015)
- 19% growth in impervious surface (2006 – 2016)
- 126% increase in population (2020 – 2045)
- >7,000 miles of streams  
>274,000 acres of 100-year floodplain

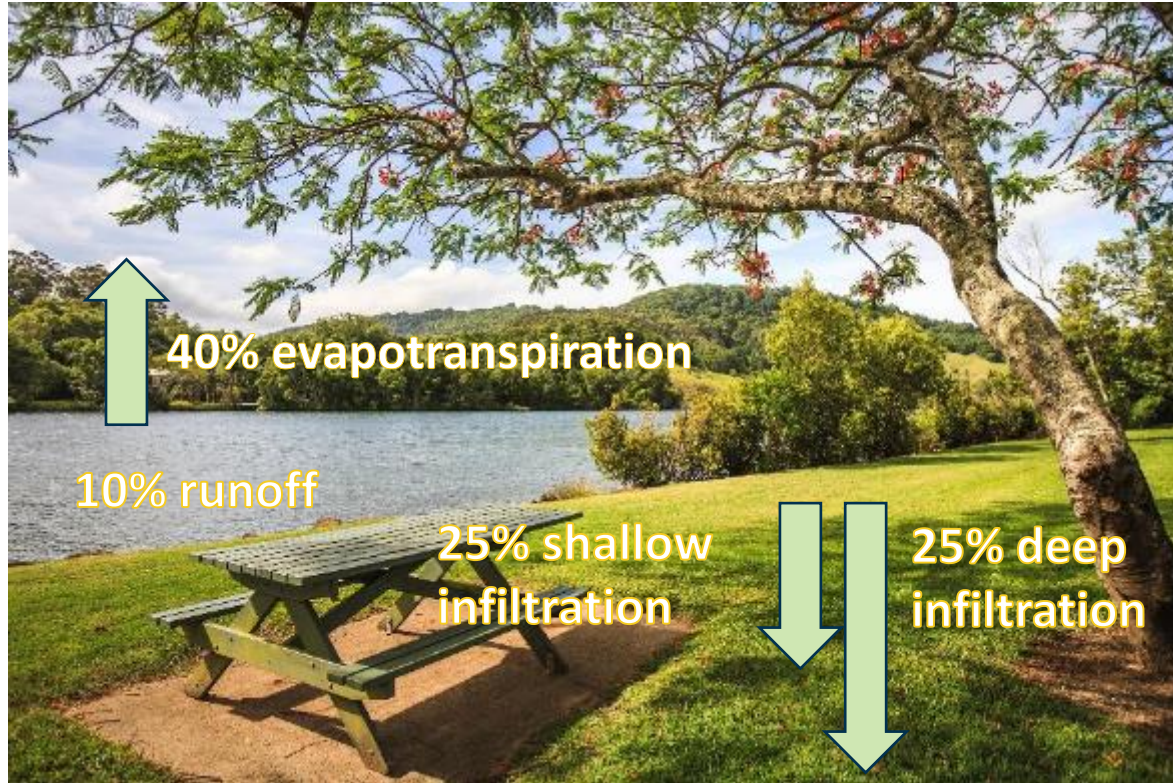


# Challenges

URBANIZATION, WATER QUANTITY, STORMWATER, AND TRANSPORTATION



# Urbanization Challenges



**BEFORE (Natural Ground Cover)**



**After (75%-100% Impervious Cover)**



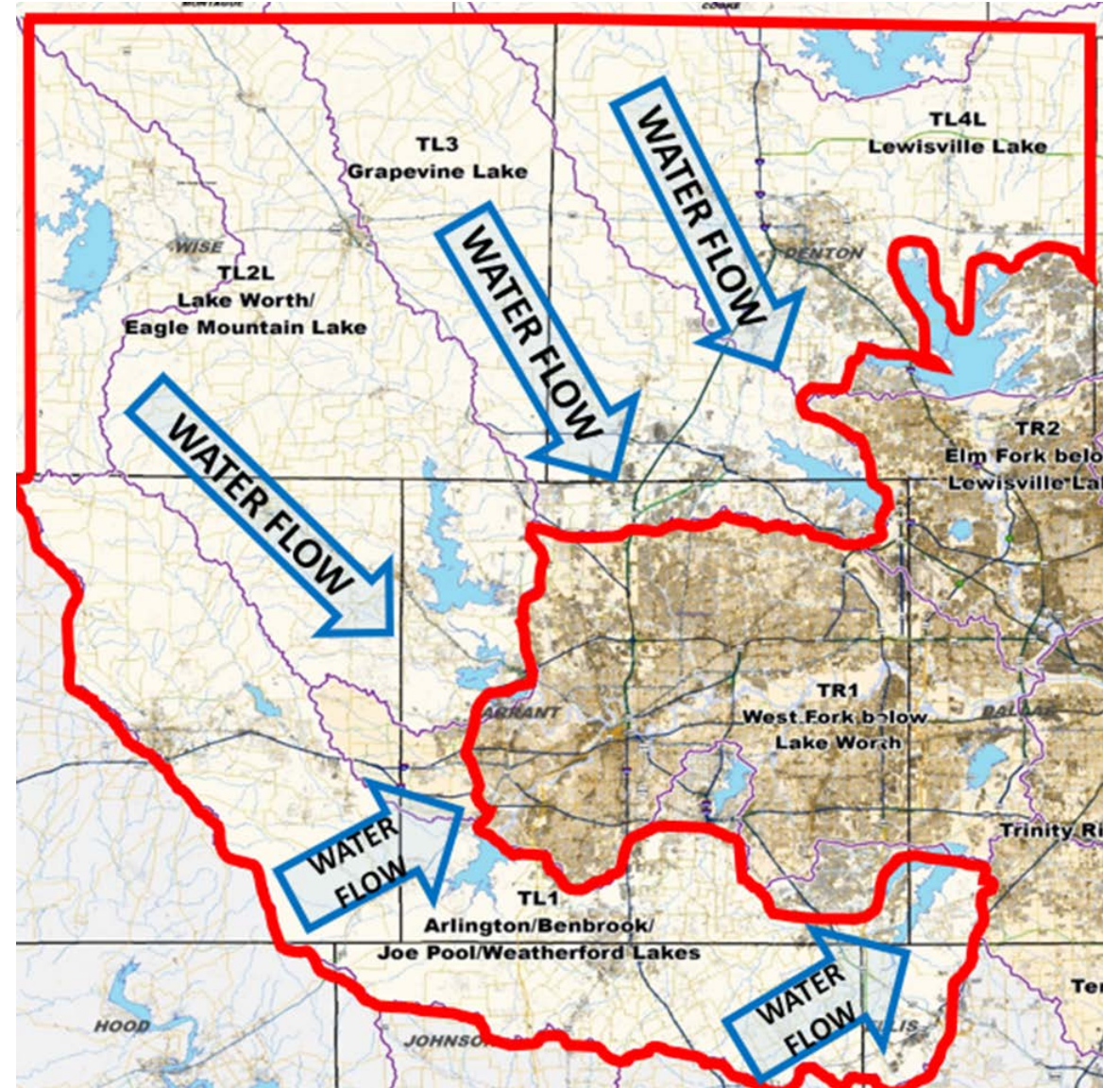
# Water Quality Challenges





# Stormwater Challenges

- No regionwide data
- Piece-meal/lacks connectivity
- NOAA Atlas 14 rainfall estimates
  - Required for infrastructure design, planning, and delineation of flood risk
  - 2022 FLOODS Act
  - 10-year updates



# Transportation Challenges

- Transportation spending is high and growing
- Rate of deterioration for transportation infrastructure increasing
- Needs can outweigh resources for local governments

Exhibit 2-4: Major Expenditures

Mobility 2045 Update Planning Approach	
Infrastructure Maintenance*	\$42.8
Management and Operations	\$9.6
Growth, Development, and Land Use Strategies	\$1.5
Rail and Bus**	\$44.9
HOV/Managed Lanes + Freeways/Tollways and Arterials	\$49.5
<b>Total, Actual \$, Billions</b>	<b>\$148.3</b>

Values may not sum due to independent rounding

\*Includes transit system maintenance

\*\*Transit capital expenditures, including those using innovative revenue sources such as public-private partnerships

Source: NCTCOG, Mobility 2045 Update



Mapping, Modeling, and  
Policy Recommendations



# Technical Methodology

ENGINEERING SOLUTIONS TO INCREASED IMPERVIOUSNESS  
AND FLOOD RISK



# How Can *WE* Accomplish This?

- TSI benefits from valuable flood hazard awareness and resiliency information that has helped reduce uncertainty related to flood risk
- Enables us to further enhance and integrate this information at a regional scale
- Without this information, it would require extensive effort on the front end of the project to get here

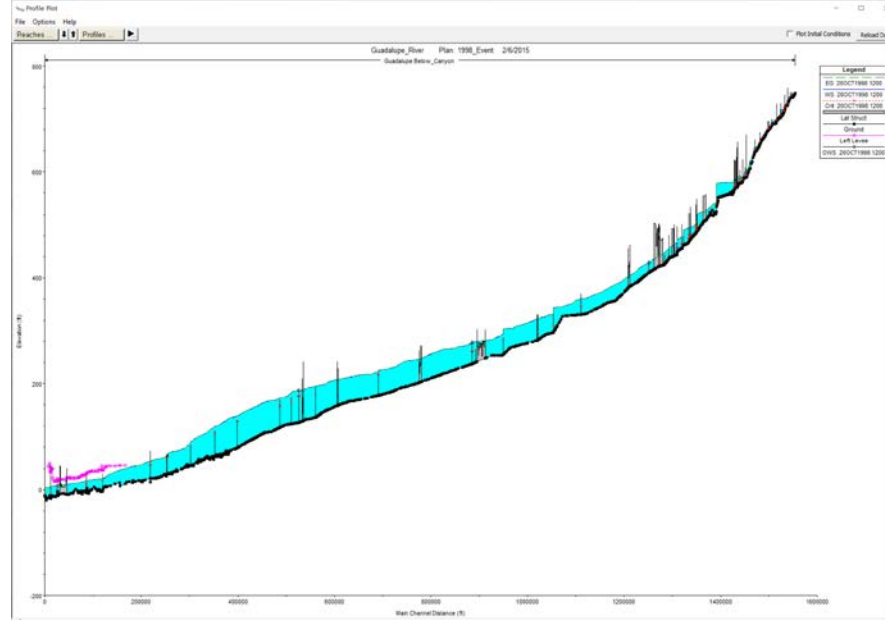
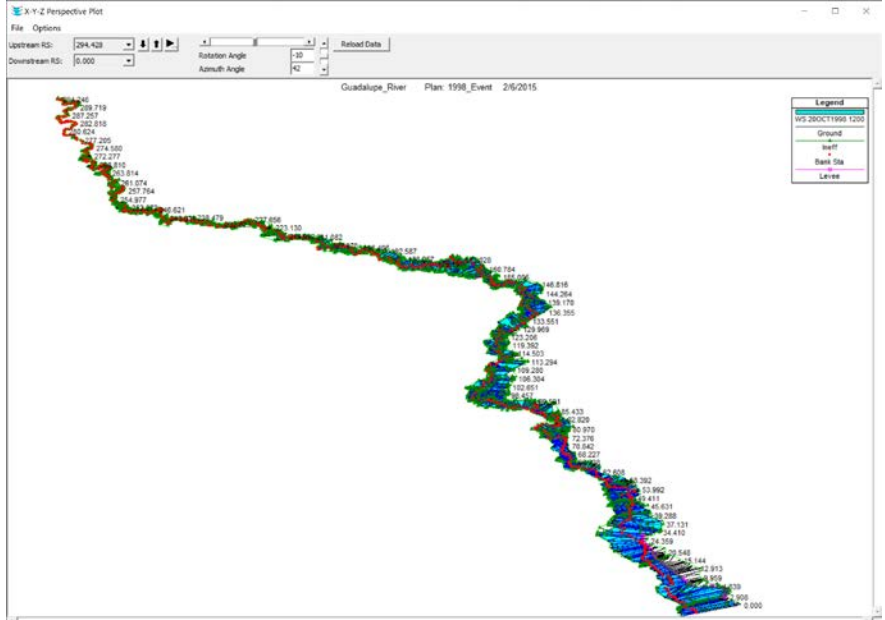
Leverage existing Flood Risk Management initiatives...



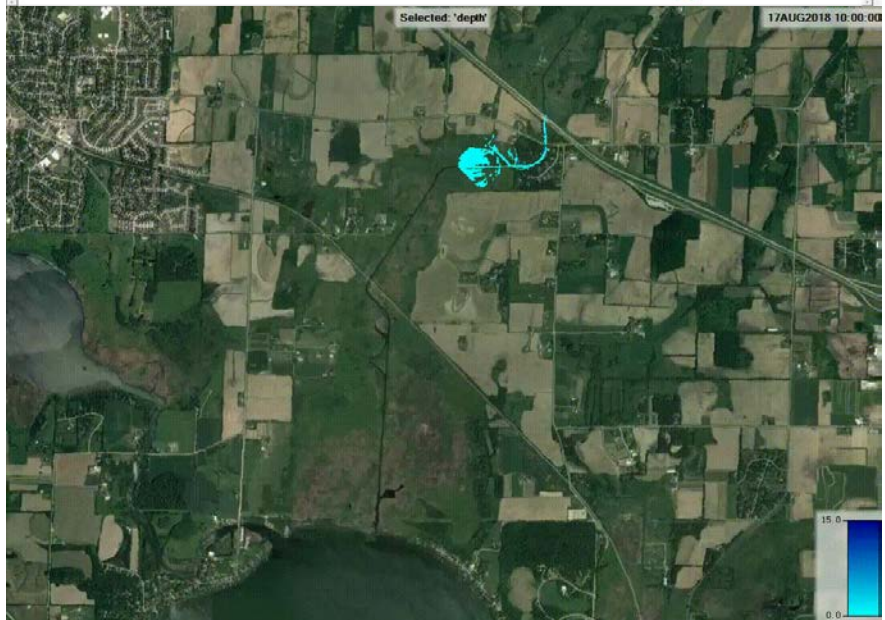
... to innovate at a regional scale



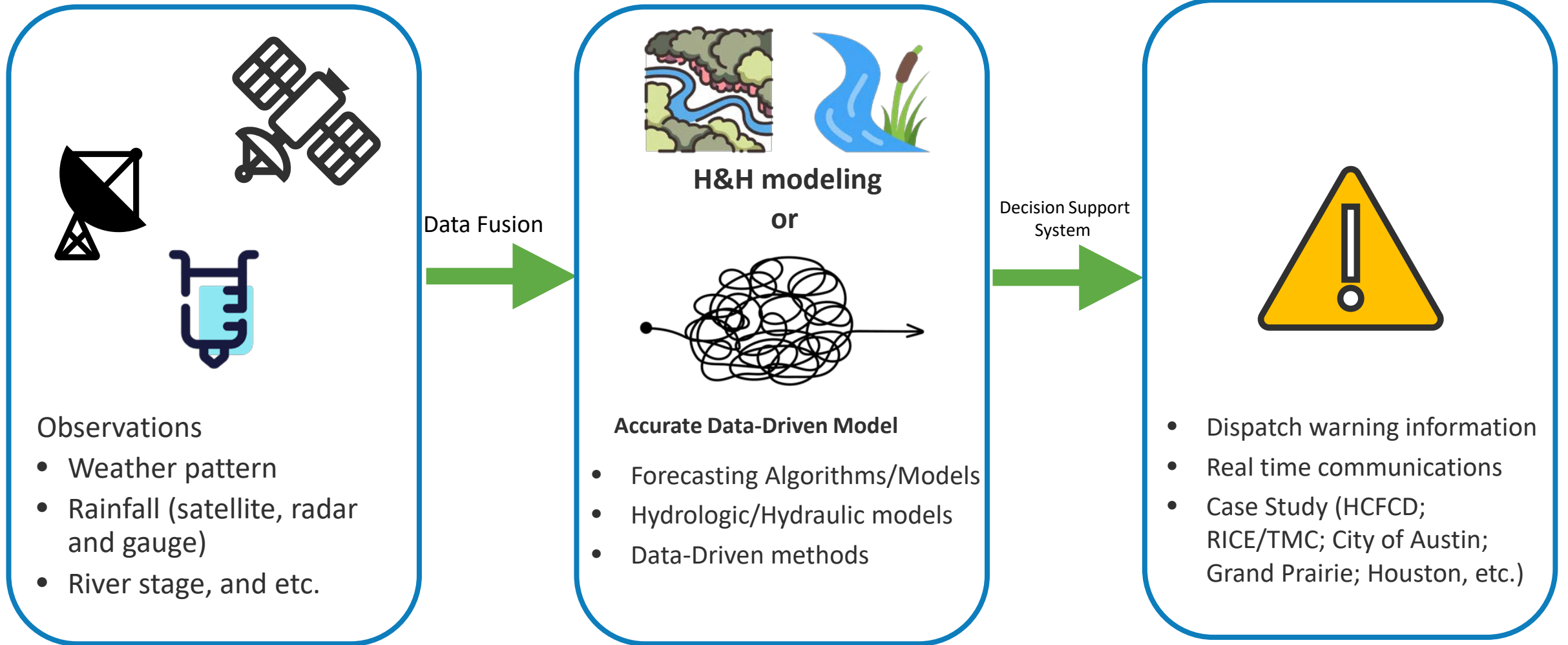
1D



2D

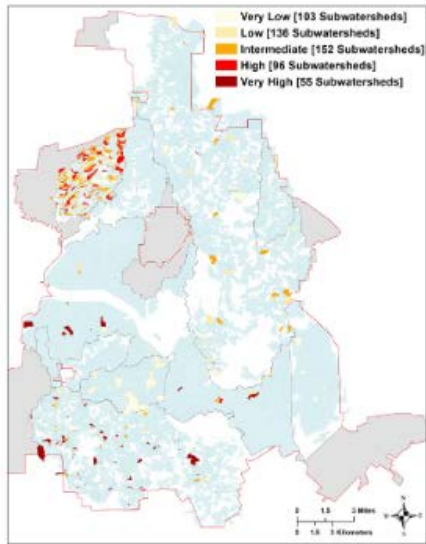


# Flood ALERT System

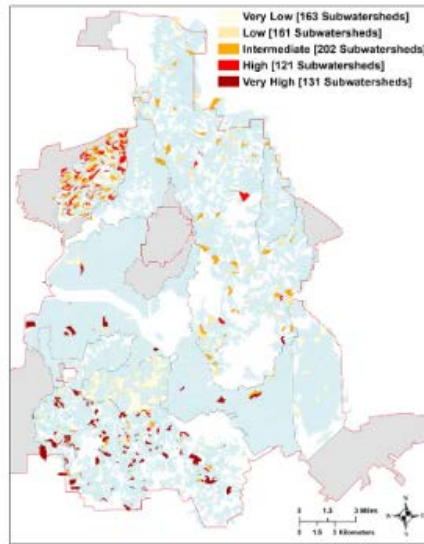


# Modeling Green Stormwater Infrastructure

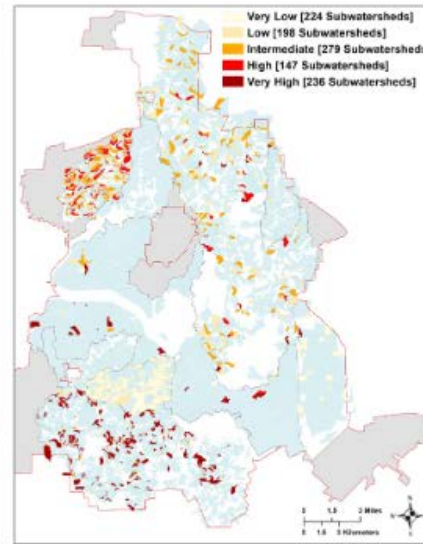
- GSI reduces modeled overflows for all storms in Dallas study
- GSI 77% less costly than gray infrastructure alone
- Bioretention provides biggest bang for buck



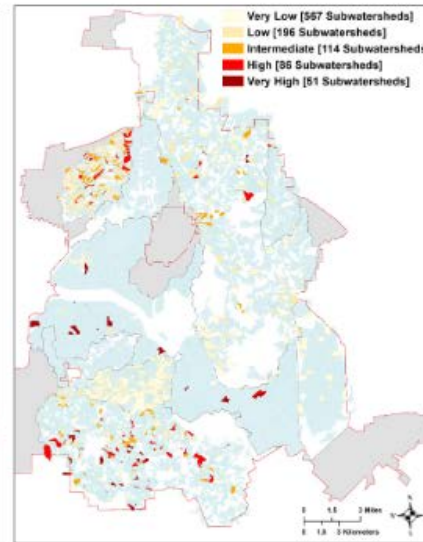
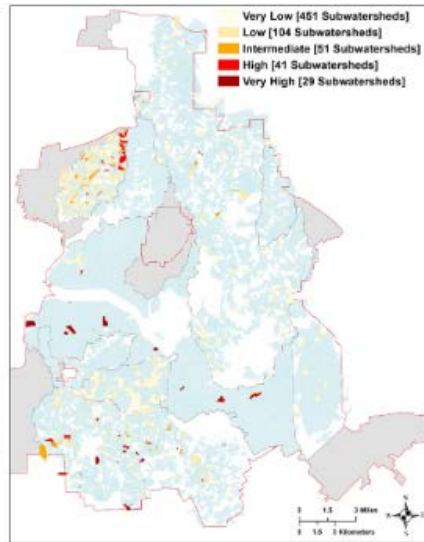
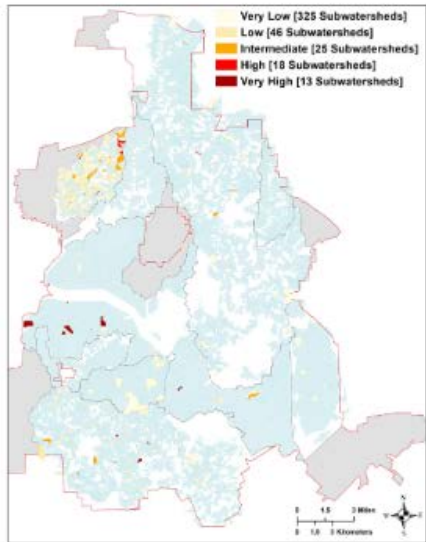
2-year (50%)



10-year (10%)



100-year (1%)





# Update on Current Project Progress

# Progress to Date

- 2 Rounds of meetings with stakeholders in the study area
- 3 Technical Advisory Group meetings
- 2 Steering Committee meeting
- 15 Communities have provided GIS and non-GIS data
- 2 Workshops conducted
  - Beginning planning for 2 additional workshops
- 2 Visits to observe challenges faced by small but developing cities
- 2 meetings with ULI's Mini-TAP Program
- SME for Transportation has kicked off work
- Submitted scope for GLO grant
- Equity Engagement Plan written for North Study Area (FEMA)
- Literature review has been completed and is under review
- 1D H&H Pilot Study completed
- Working toward contract with H&H consultant



# Proposed Dates For Grant Extension

The project team is working with its funders to finalize the deliverable timeline for the project. Below are the proposed dates for the project's completion. The below dates are currently under review by the funders:

Draft Report	Project Completion	Final Report	Contract Expiration
July 10, 2026	August 31, 2026	November 20, 2026	April 30, 2027



Questions  
and Discussion



integrating **Transportation**  
& **Stormwater Infrastructure**

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