



North Central Texas
Council of Governments

Project Update Meetings Hydrology and Hydraulics

TSI Project Update Meeting in Decatur, TX

September 23, 2025

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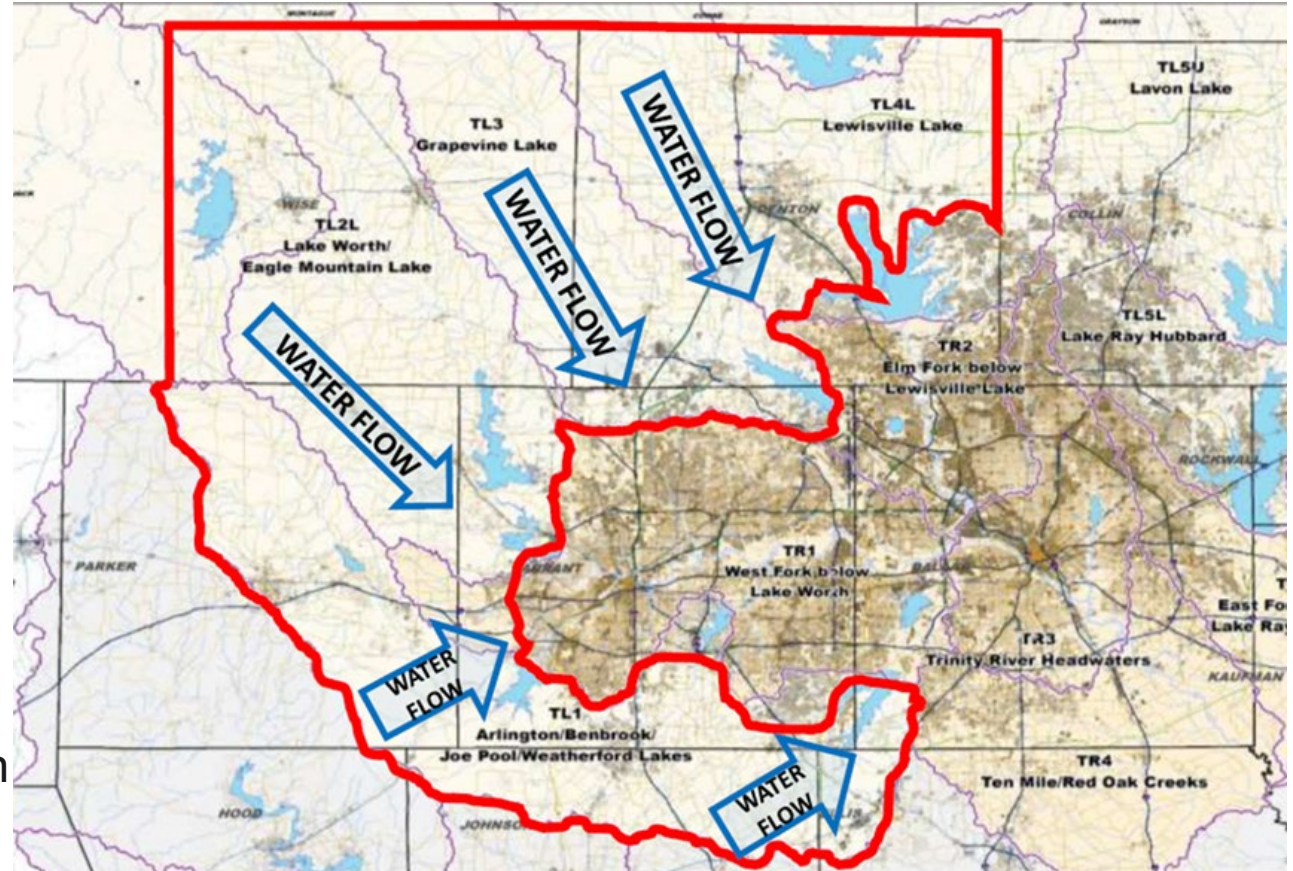
Funded by the Texas General Land Office,
Community Development Block Grant,
Disaster Recovery Program.



Also Funded by the Texas Water Development Board
and Texas Department of Transportation.

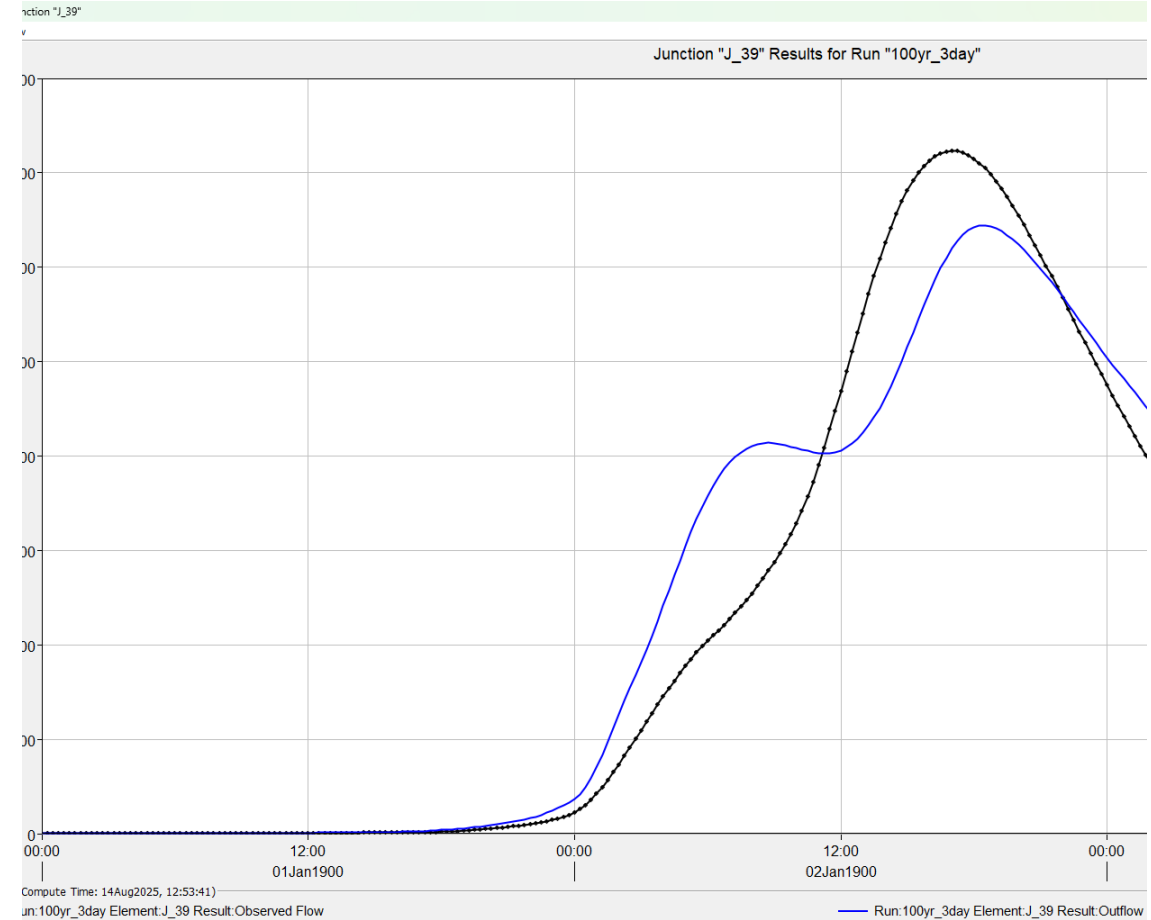
TSI Overview and Study Goals

1. Demonstrate proactive planning that integrates transportation, stormwater, and environmental planning
2. Reduce flooding within and downstream from rapidly growing communities, including increasing the resiliency of infrastructure
3. Develop tools and resources, including policy recommendations, to empower communities to adopt higher floodplain management standards
4. Implement local-scale innovation in hydrologic and hydraulic modeling and emergency management modeling
5. Produce planning-level design for transportation infrastructure and stormwater detention



Hydrology Modeling

- Develop 2016 Conditions Model
- Calculate and Apply Initial HMS Parameters
- Calibrate to InFRM
- Update for Existing and Future Conditions (2020 & 2070)
- Storm Simulations
- Inform Optimization Analysis



Hydraulics Modeling



Enhanced Geometry, Flow, and Plan Files

Add Hydraulic Structures Using TxDOT As-Builts

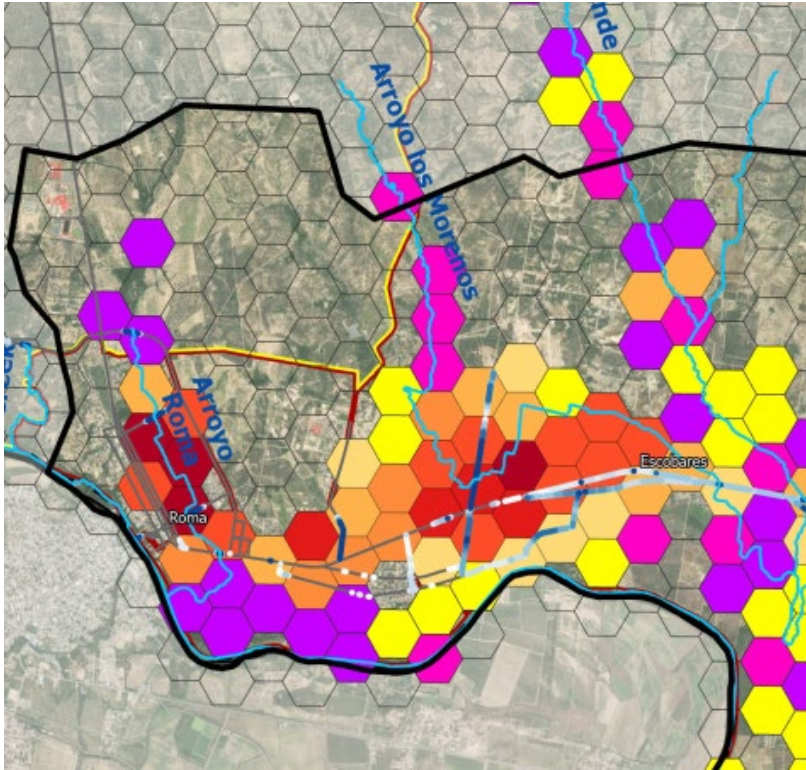
Existing and Future Conditions Streamflows

Simulate Frequency Events

Generate Existing and Future Conditions Floodplains

Flooding Hot Spots Identification

Identify infrastructure most susceptible to flooding under existing and future conditions



Residential Properties



Critical Facilities



Roads



Future Infrastructure

Alternatives Analysis

Tailored solutions to mitigate flood risks today and in the future

