

Waller County, Texas

Spring Creek Flood Protection Study

PUBLIC MEETING

October 11, 2023


Agenda

SPRING CREEK WATERSHED

- Project Goals
- Study Overview
- Existing Flooding Assessment
- Flood Reduction Concepts
- Questions & Comments

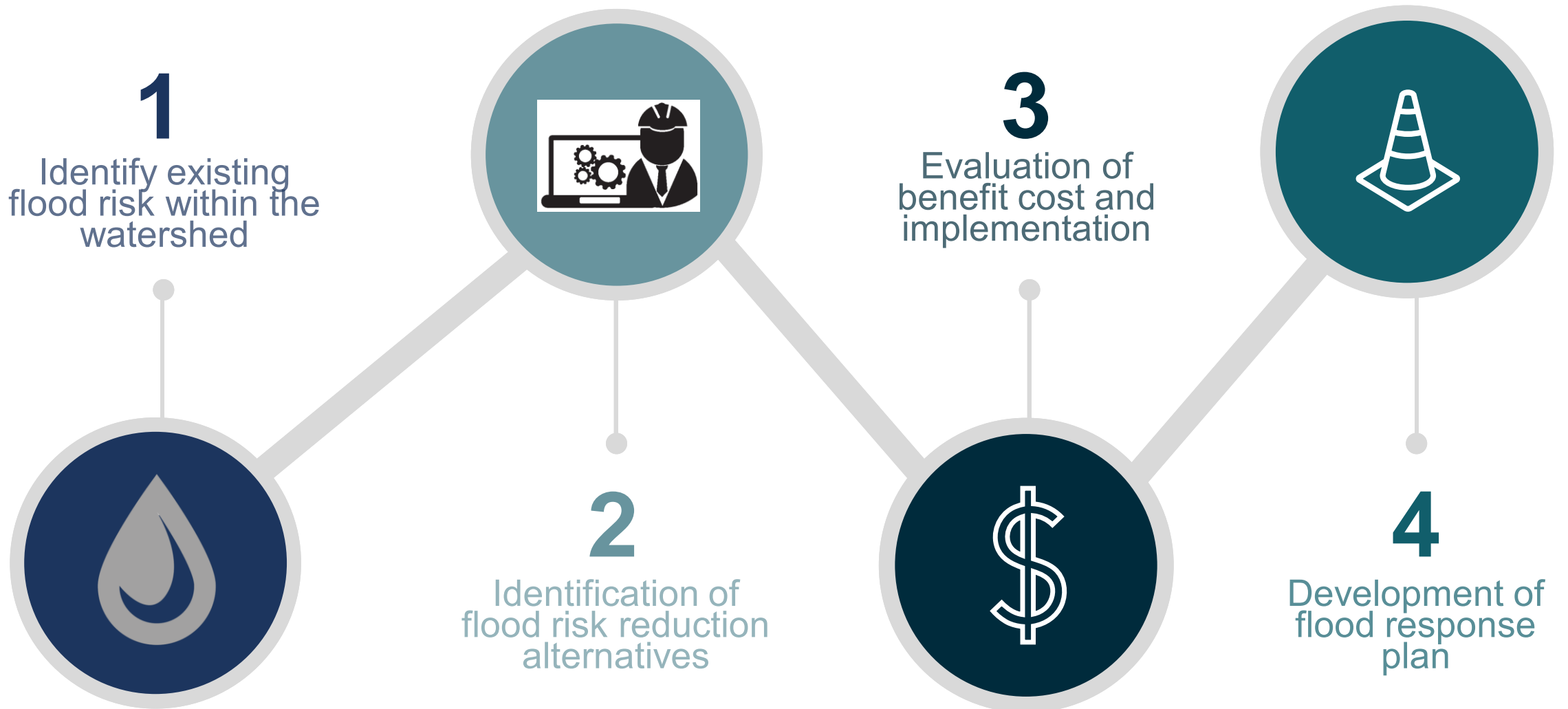
PROJECT GOAL

- ☐ Update flood risk information within the Spring Creek Watershed
- ☐ Propose flood risk reduction projects that can be implemented by the County
- ☐ Prepare Flood Response Plan



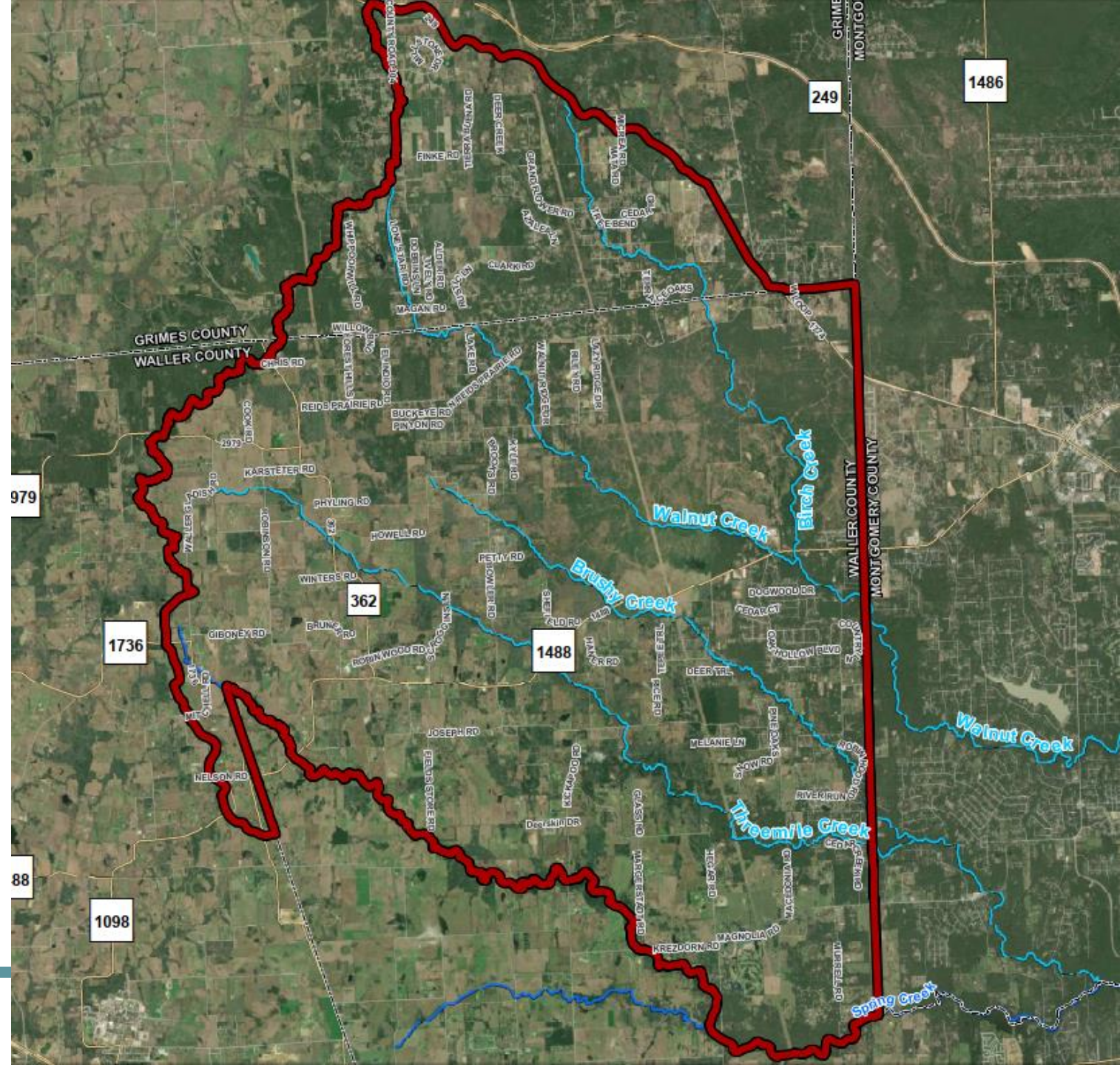
75% funded by the TWDB
25% funded by Waller County

STUDY SCOPE



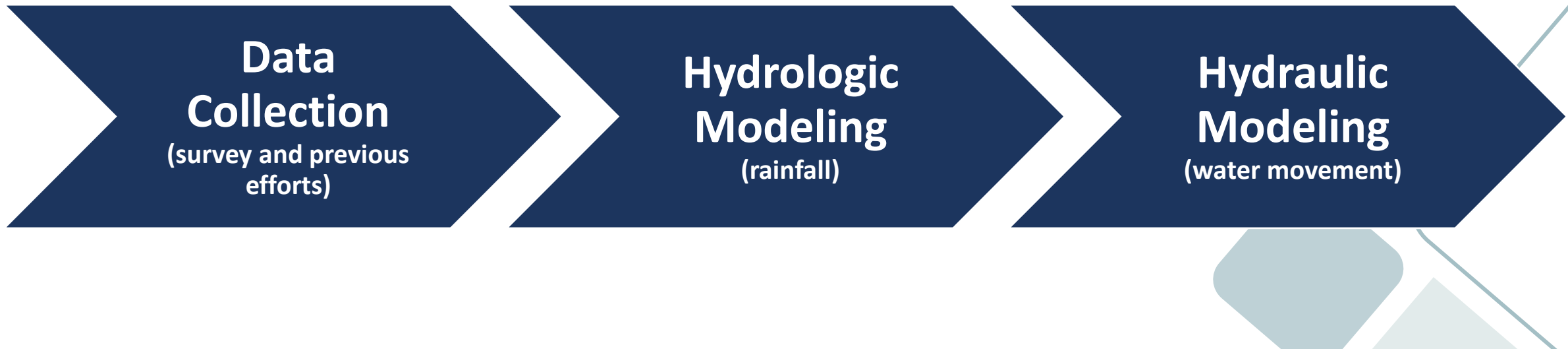
STUDY AREA

- ❑ 102 square mile watershed
- ❑ FM 1488 bisects the watershed
- ❑ Notable flood events
 - ❑ October 1994
 - ❑ Tropical Storm Allison
 - ❑ May 2015
 - ❑ Hurricane Harvey



EXISTING FLOODPLAIN ASSESSMENT

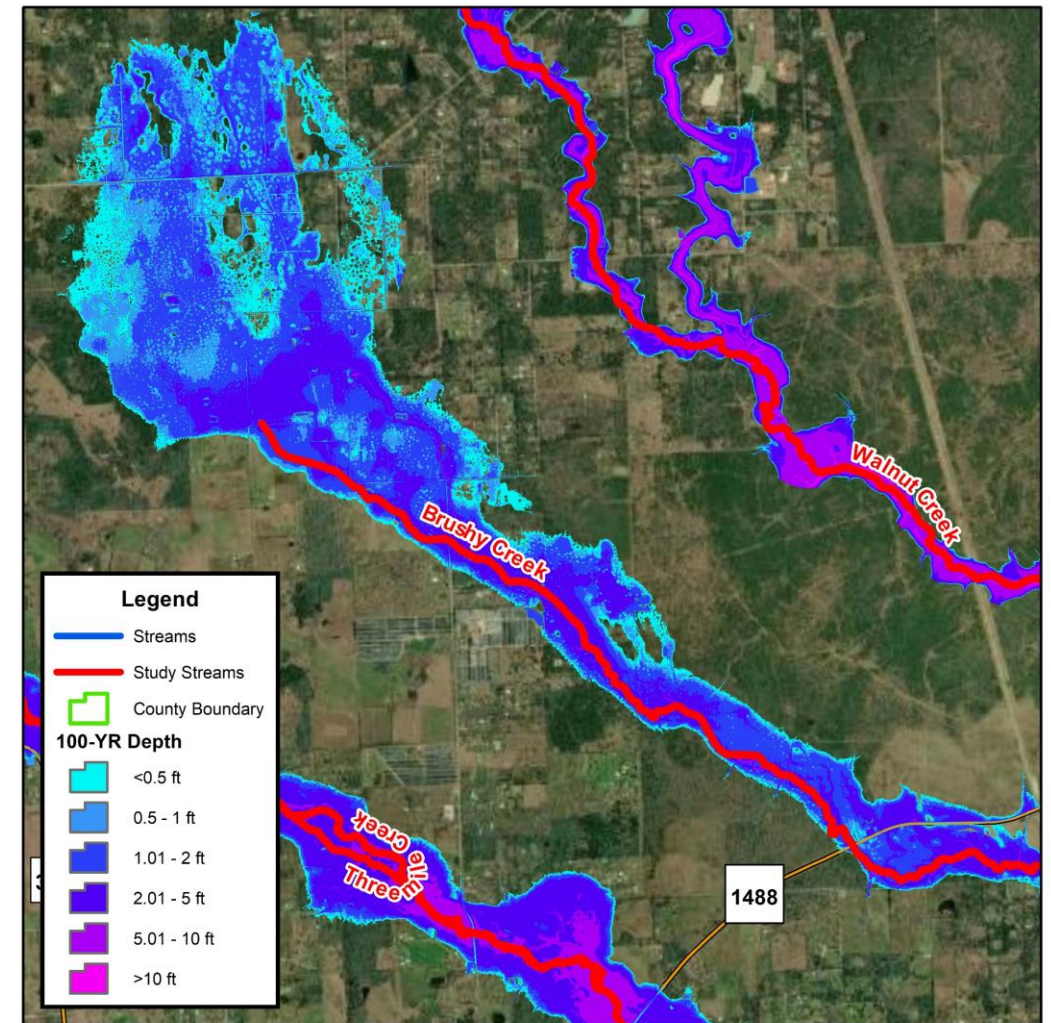
- ❑ Goal of the existing conditions analysis is to understand the flood risk within the watershed.
- ❑ Inform the identification of problem area and development of alternatives
- ❑ FEMA effective mapping is dated February 2009 and based on outdated information and modeling.
- ❑ Existing Conditions analysis is updated based on the 2018 LIDAR data and Atlas 14 rainfall data



EXISTING CONDITIONS SUMMARY

100 – YEAR EXISTING CONDITIONS FLOODING METRICS

	Threemile	Brushy	Walnut	Birch
Structures	107	175	52	1
Residential	66	143	32	1
Critical Facilities	0	0	0	0
Low Water Crossings	7	2	1	0



EXISTING FLOODING FACTORS

At Threemile Creek and Scroggins Lane

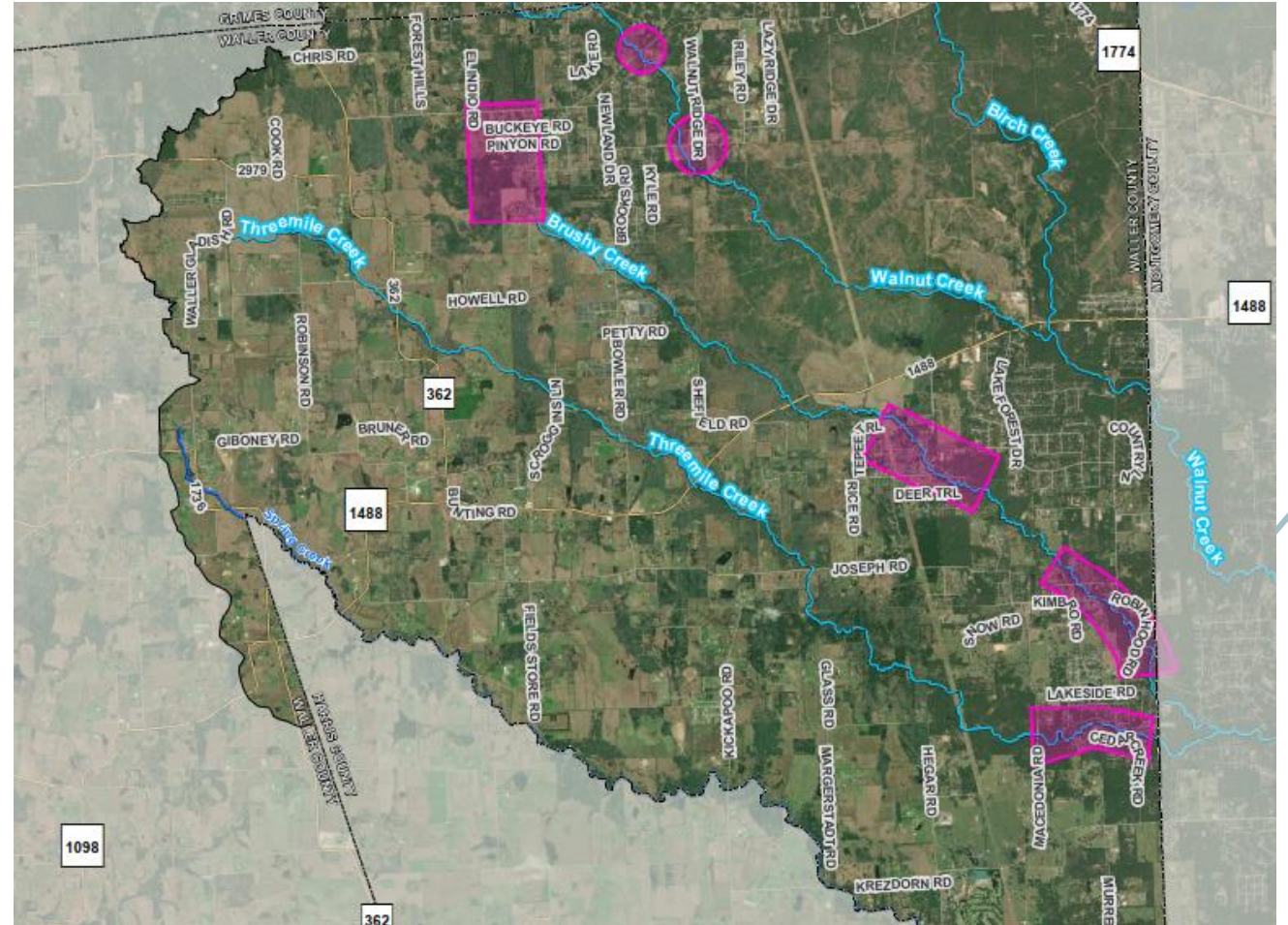
- ❑ Flow restriction through crossings
- ❑ Stream capacity
- ❑ Low water crossings



PROJECT CONSTRAINTS

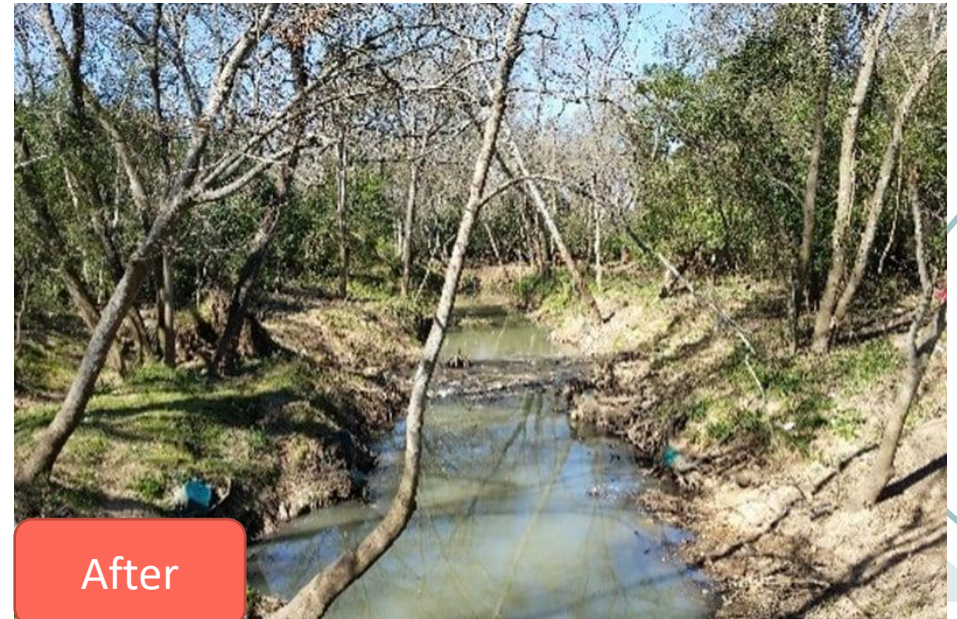
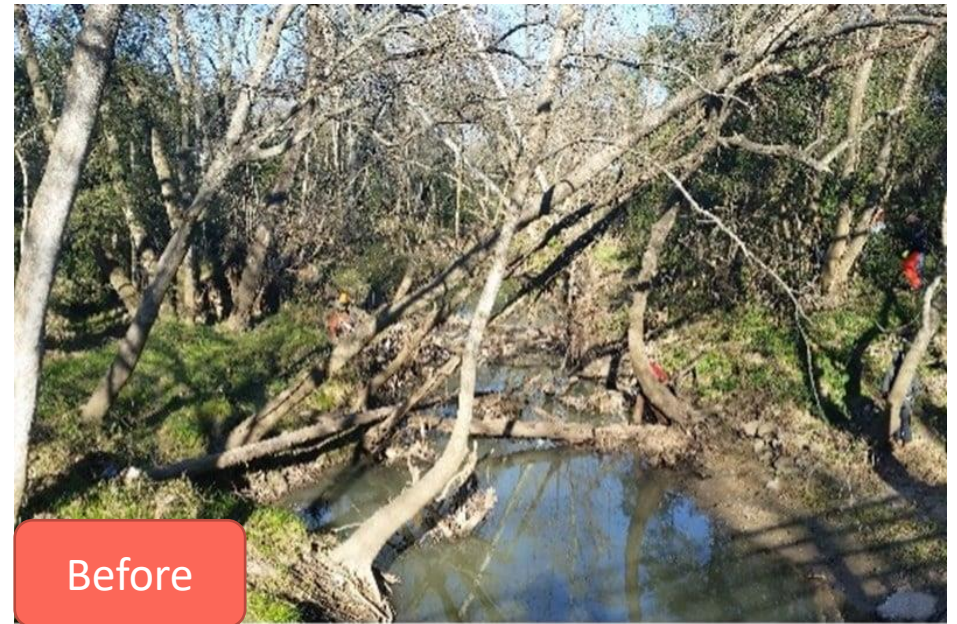
Proposed projects focused on areas of potential implementation by Waller County

- ❑ Right of way
- ❑ Funding opportunities
- ❑ Mobility
- ❑ Reduction in flooding



PROJECT CONSIDERED

- ☐ Selective Clearing
- ☐ Bridge/Culvert Replacement
- ☐ Regional Detention
- ☐ Channel Improvements



PROJECT #1A - N REIDS PRAIRIE ROAD

Currently overtops in
a 4" rain event



N Reids Road

- ❑ Replacement of the existing culvert with a 550-foot-long bridge
- ❑ Roadway raised by 7.6 feet
- ❑ Cost: \$2.15 million
- ❑ Benefits: passable roadway for a 100-year storm event

PROJECT #1B - KYLE ROAD

Currently overtops in
a 4" rain event



Kyle Road

- ❑ Replacement of the existing culvert with a 550-foot-long bridge
- ❑ Roadway raised by 7.0 feet
- ❑ Cost: \$2.15 million
- ❑ Benefits: passable roadway for a 100-year storm event

PROJECT #2 – RILEY ROAD

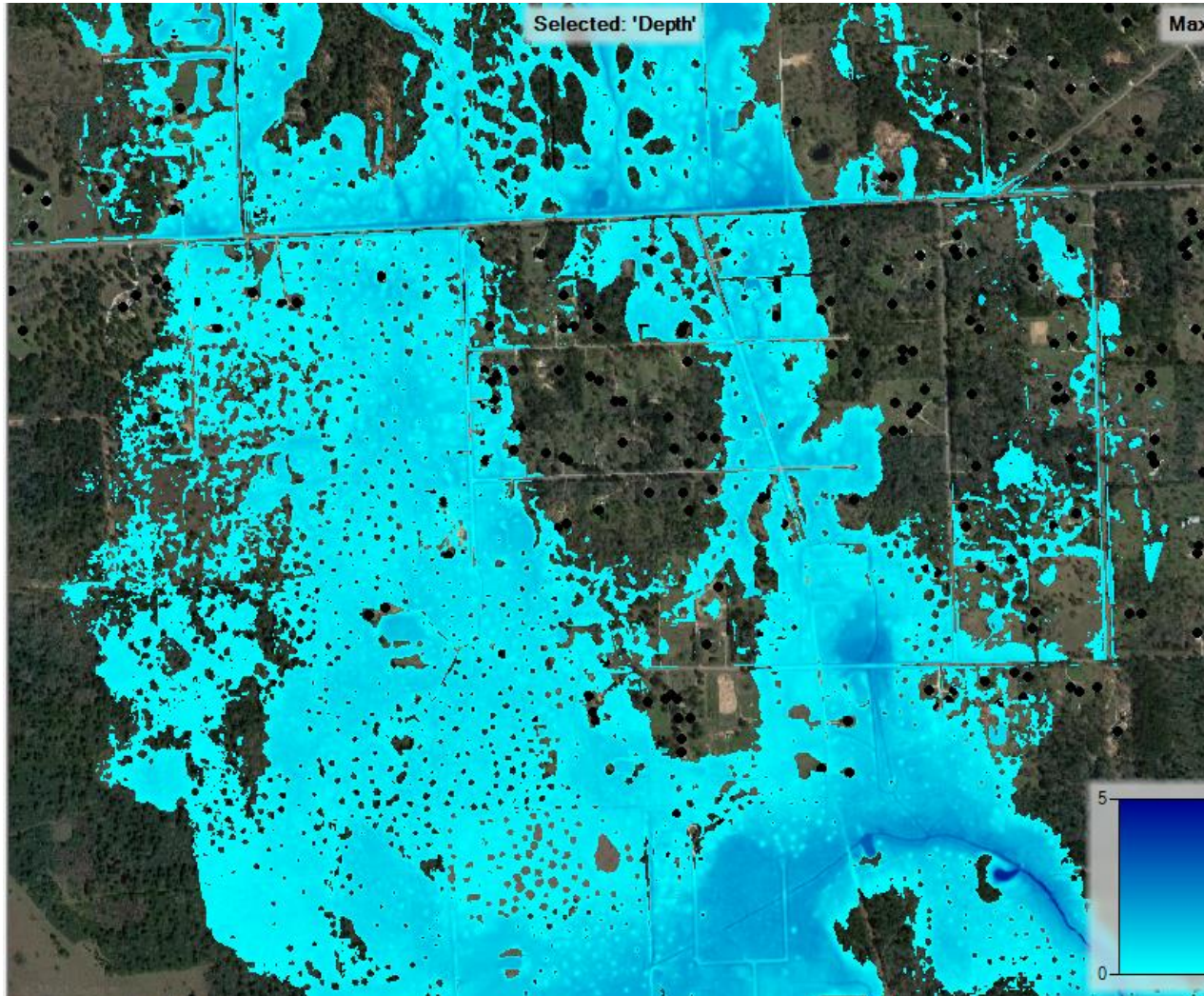
Currently overtops in
a 5" rain event



Riley Road

- ❑ Construction of two bridges at Walnut Creek
- ❑ Roadway raised by 8 feet
- ❑ Cost: \$4.0 million
- ❑ Benefits: passable roadway for a 100-year storm event

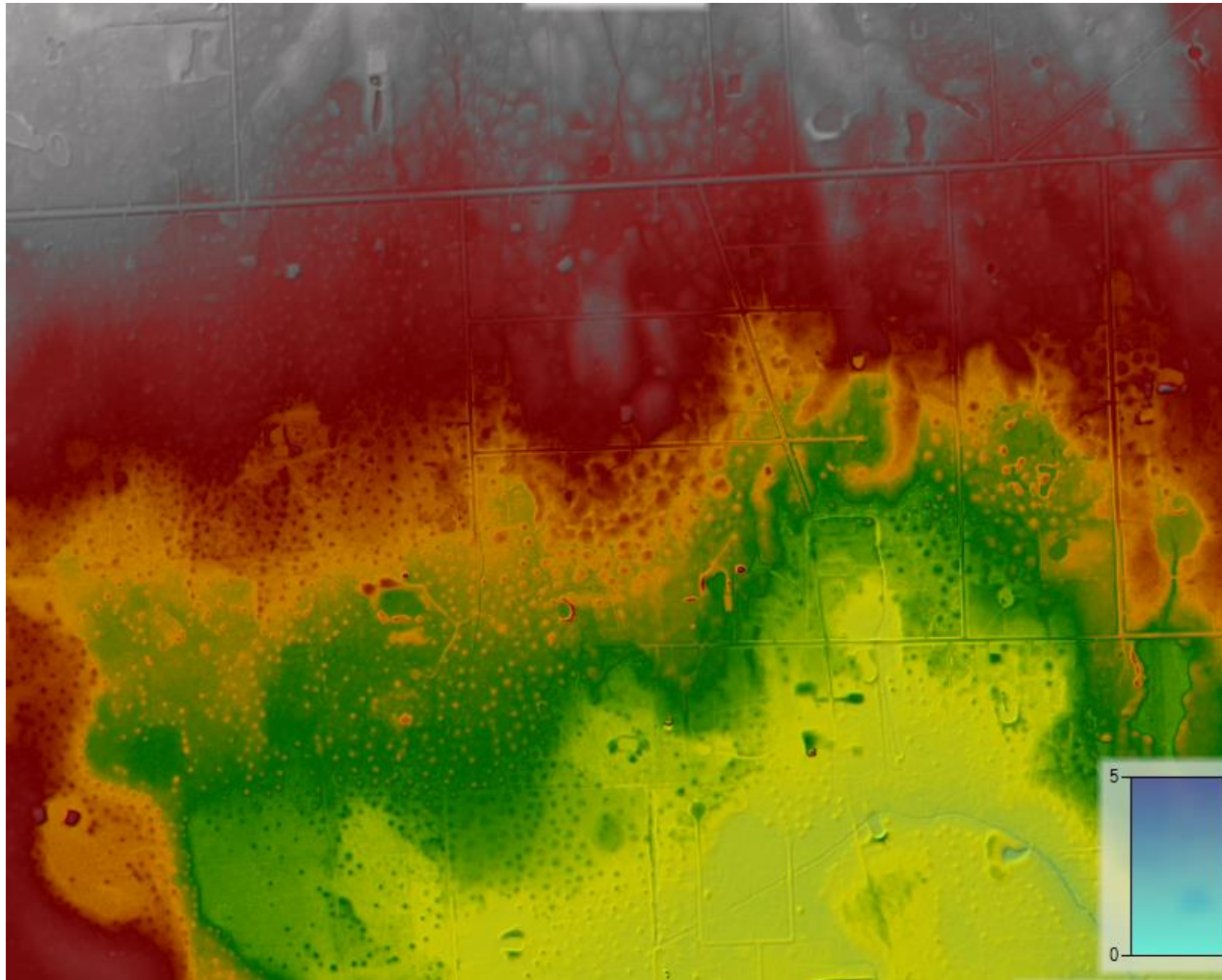
PROJECT #3 – BYPASS CHANNEL



N. Reids Prairie

- ☐ Lack of positive drainage
- ☐ Limited capacity in the roadside ditches
- ☐ Ditches do not drain to a channel or outfall
- ☐ Brushy Creek has limited depth

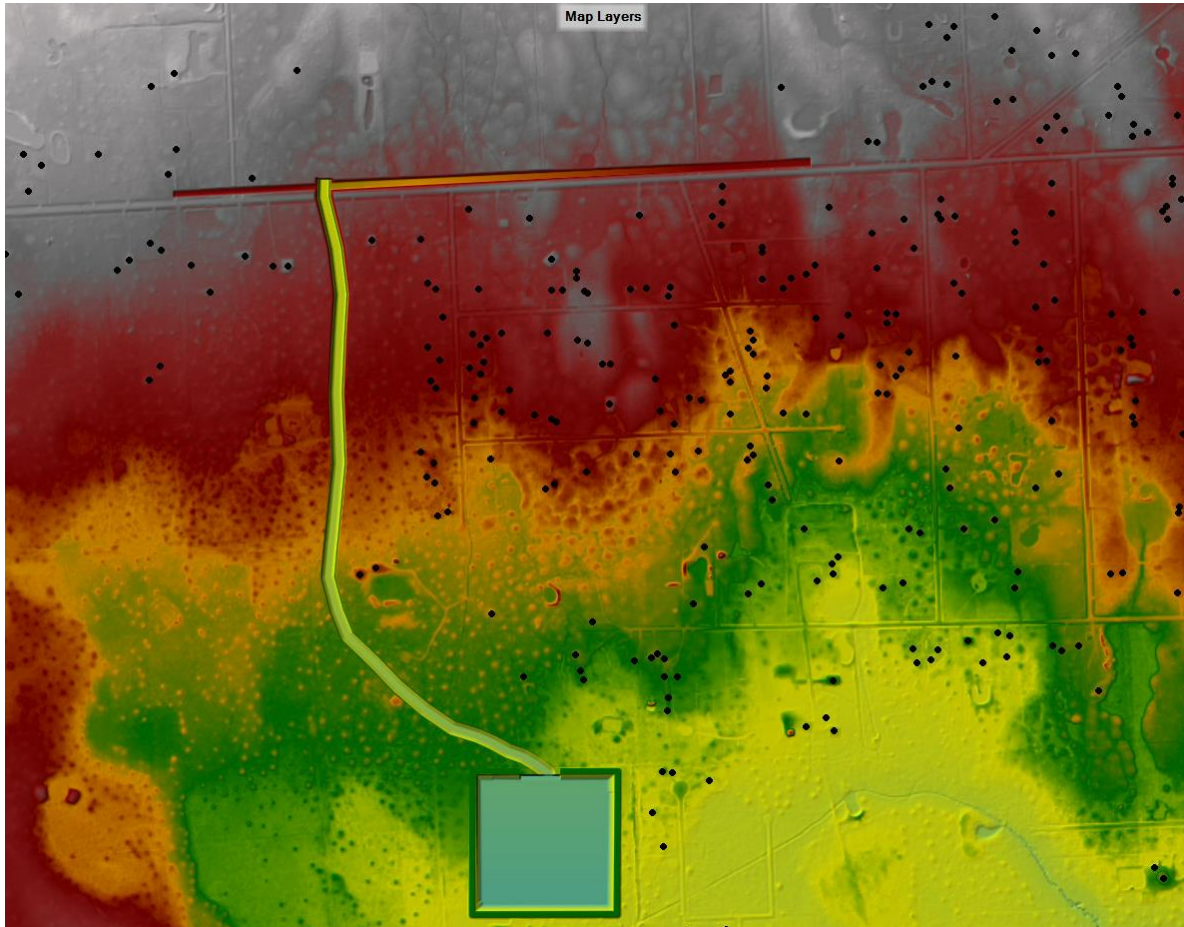
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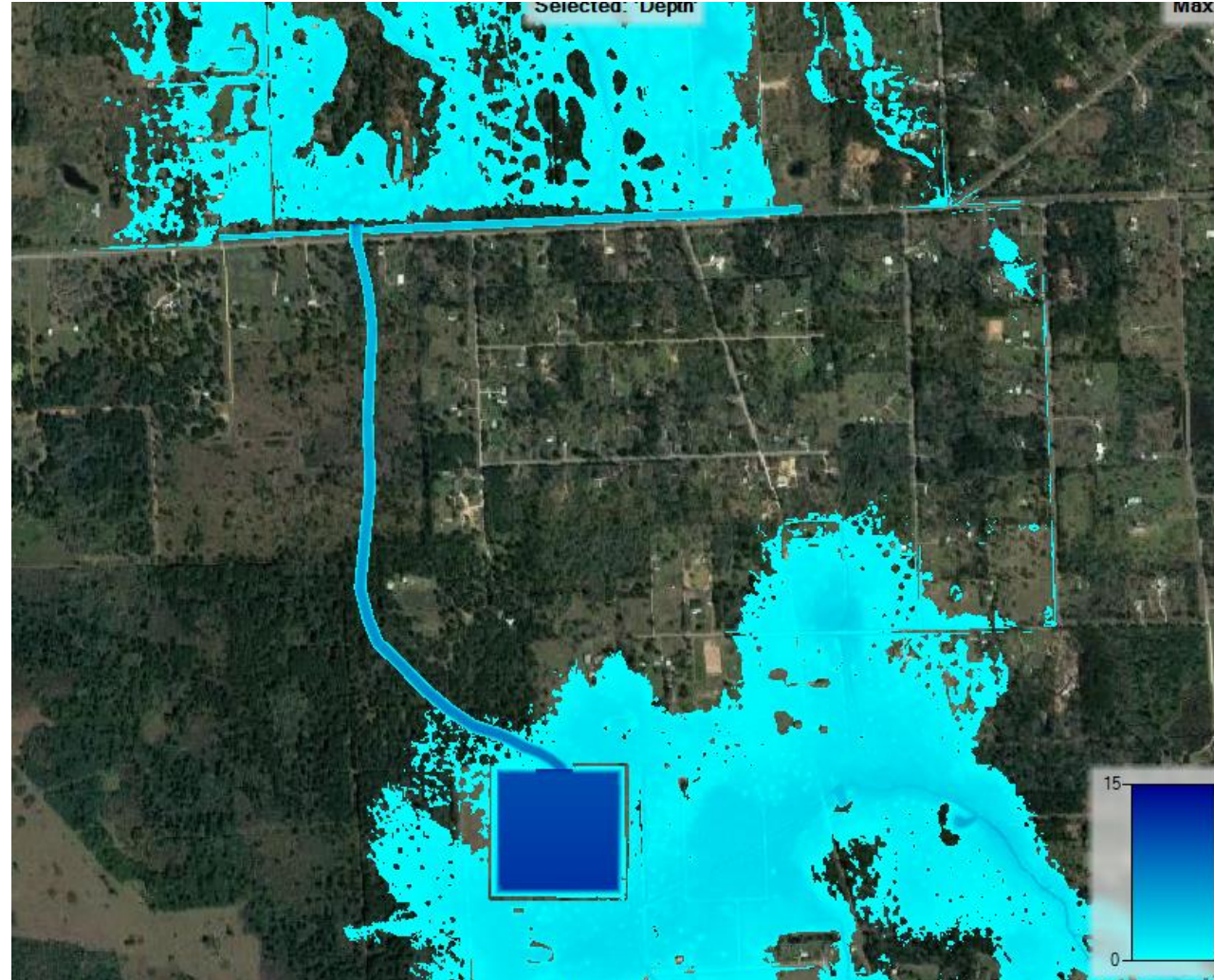
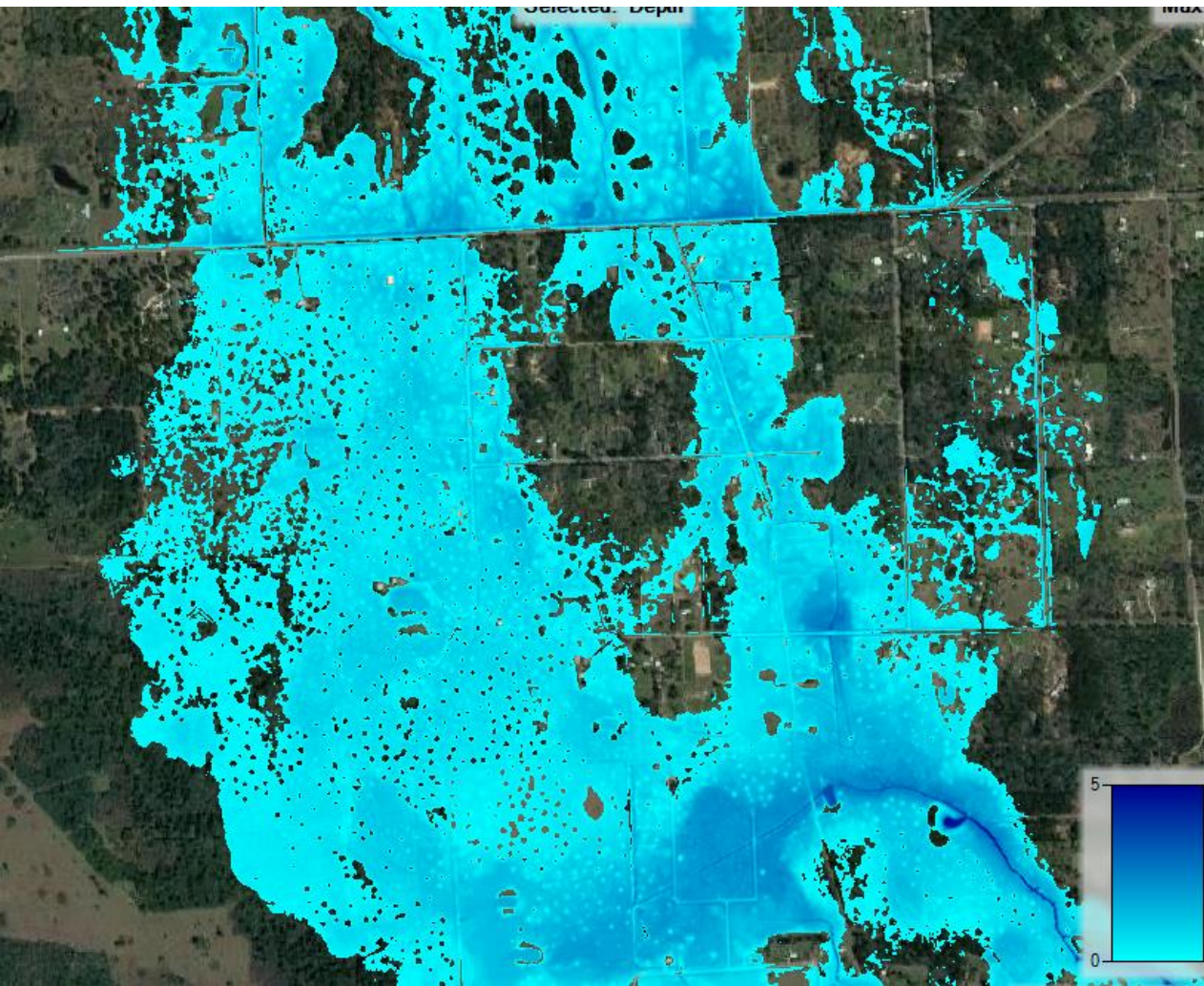
PROJECT #3 – BYPASS CHANNEL



N. Reids Prairie

- ❑ Construction of an outfall to generate positive drainage
- ❑ Re-grading of ditches on N. Reids Prairie
- ❑ Bypass channel that connects upstream of the roadway
- ❑ 250-acre-foot detention facility
- ❑ Cost: \$35 Million

PROJECT #3 – BYPASS CHANNEL



NON-STRUCTURAL MITIGATION

Buyout Costs

- Estimated buyout for residential structures in 10-year floodplain is \$63M

Criteria Updates

- Recommendations for engineering methodology, detention discharges, and pumped detention



CRITERIA UPDATES

Ensure new development is flood resilient and does not impact existing properties.



VOLUNTARY BUYOUTS

Remove residents from risk that is difficult to mitigate using structural solutions.

FUNDING

Federal Funding Source

- Community Development Block Grant Disaster Relief (CDBG-DR)
- Community Development Block Grant Mitigation (CDBG-MIT)

State Funding Source

- TWDB Development Fund (DFund)
- TWDB Flood Infrastructure Fund (FIF)

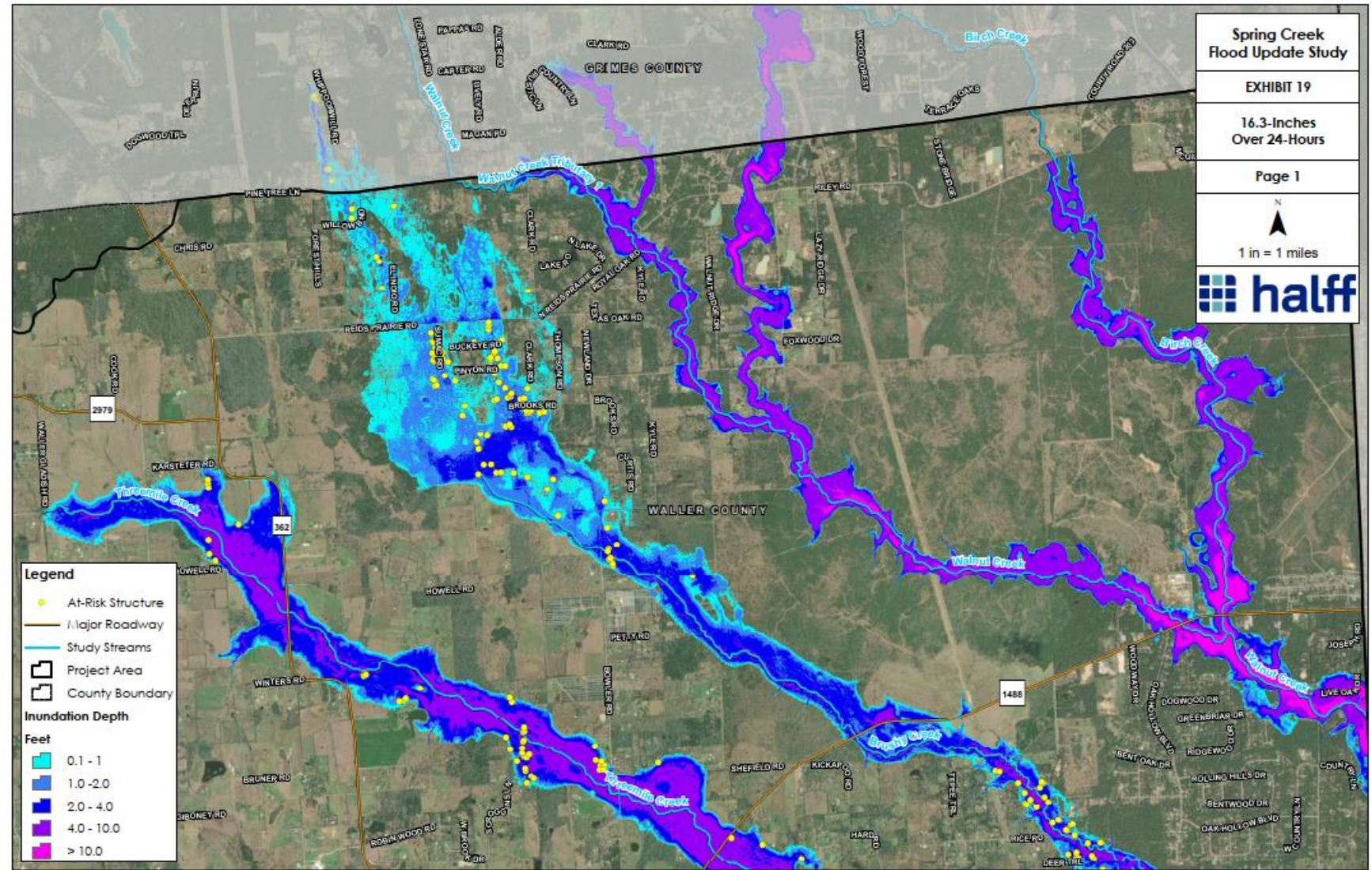
Local Funding Source

- Bonds, Fees and Ad Valorem Taxes, and Public Private Partnerships

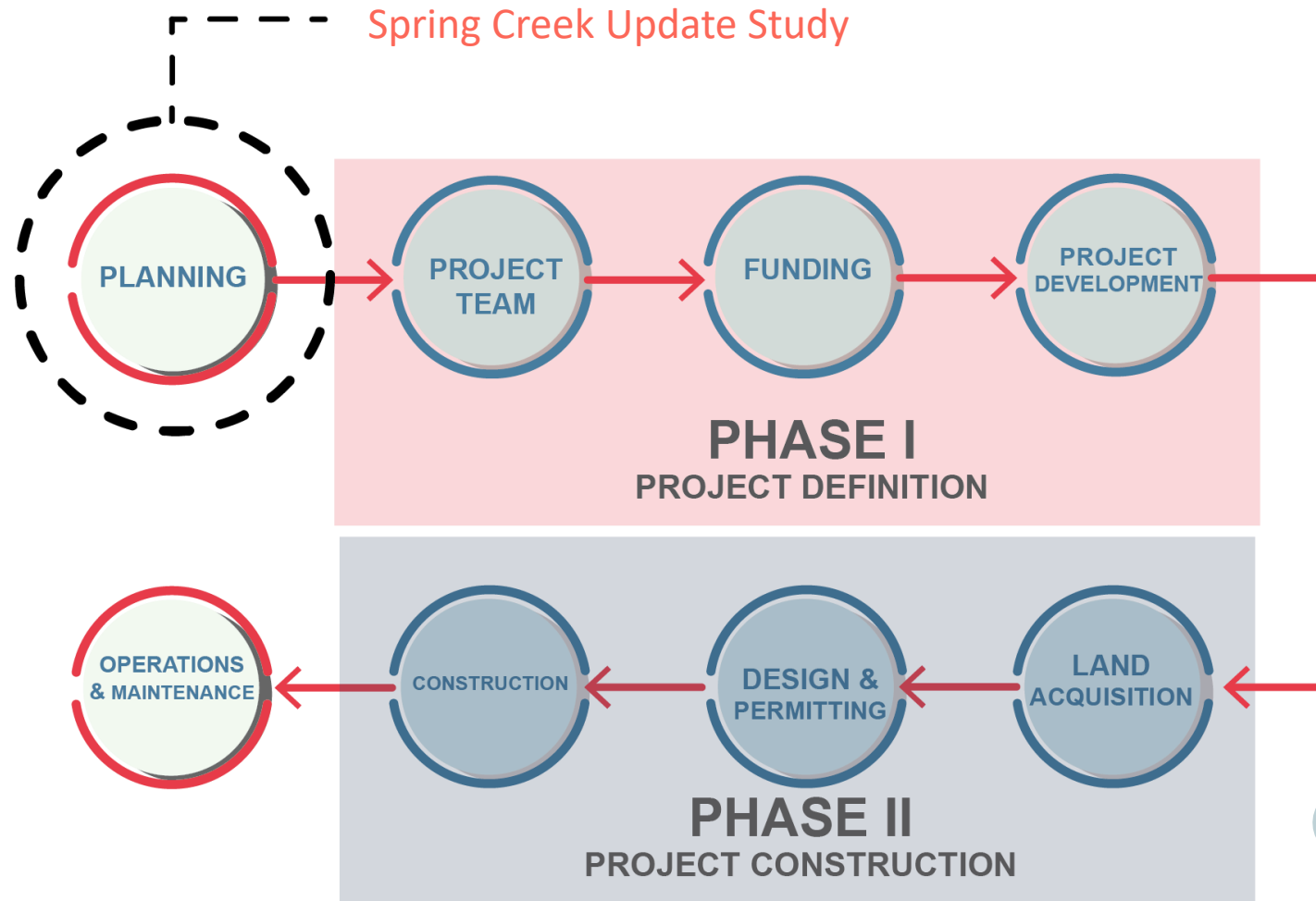
FLOOD RESPONSE

Inundation Maps

- ❑ Developed flood response plan including inundation maps
- ❑ Maps for variety of rainfall depths and durations



IMPLEMENTATION



IMPLEMENTATION

Short Term (0-5 years)



IMPLEMENTATION

Long Term (5+ years)



Project
Development



Maintenance



Construction



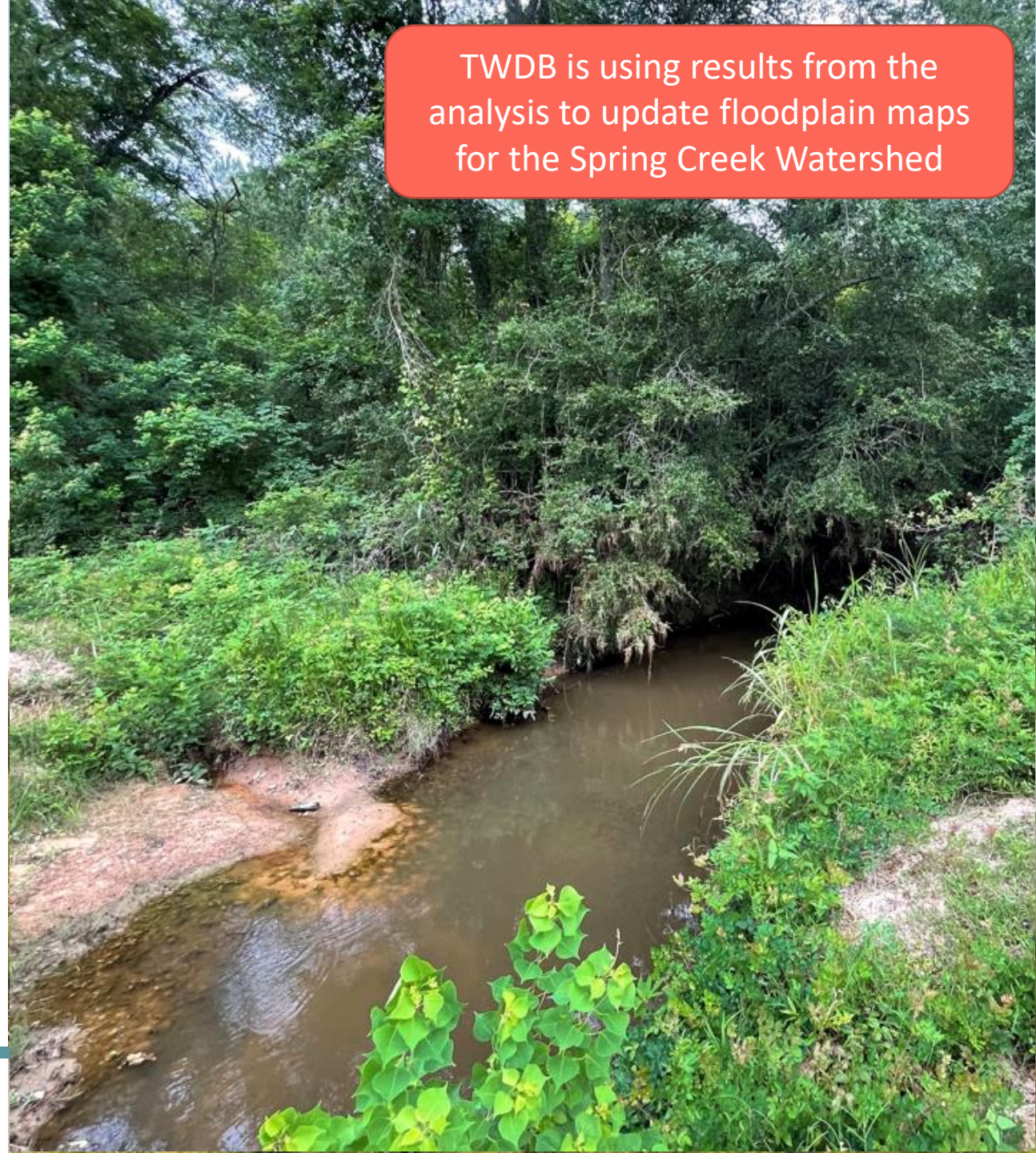
Drainage
District

|| CLOSING

Spring Creek Watershed Update Study provides essential key information to continuing the effort of identifying and quantifying flood risk throughout Waller County

- Provided updated inundation areas that can be used to help regulate future growth
- Developed projects to improve mobility in the region
- Identified projects for future funding opportunities

TWDB is using results from the analysis to update floodplain maps for the Spring Creek Watershed



QUESTIONS?

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