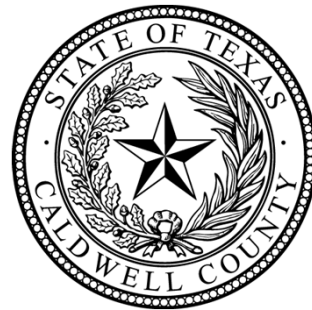


Caldwell County Flood Protection Plan

March 6th, 2024: Public Meeting 3

TWDB FIF Category 1 Commitment No. G1001276

Doucet Project No. 1911-003



Agenda

- Introductions
- Grant Overview
- Project Overview
- Updated Floodplain Mapping
- Conceptual Flood Mitigation Alternatives
- Flood Early Warning System
- Next Steps



Introductions

Caldwell County

Judge Hoppy Haden – County Judge
Amber Quinley – Grants Administrator
Christina Arias – Grants Assistant
Danie Teltow – County Auditor

Texas Water Development Board (TWDB)

Malcolm Hamilton, PE, CFM, Regional Flood Planning



Introductions

Doucet & Associates, Inc.

Jonathan Carey, PE, CFM – Deputy Project Manager

Colin Slagle, PE, CFM – Project Manager

Duke Altman, PE, CFM – Project Principal

Abigail Crawford – Engineer

Langford Community Management Services

Judy Langford – President

Paula Rodriguez – Grant Administrator



DOUCET



A Kleinfelder Company



Grant Overview & Status

TWDB Flood Infrastructure Fund (FIF)

- Grant Category 1 Project – Flood Protection Planning (FPP)
- 75% TWDB grant / 25% local match
- Total project cost - \$975,000
- Ranked #12 of 285 statewide applications
- Application process – June-Dec. 2020
- Grant Agreement Executed – June 2021
- Grant Closing – August 17, 2021

Grant Application for
Caldwell County Flood Protection Planning Study
Flood Protection Planning for Watersheds – Category 1
Abridged Application No. 13592
October 19, 2020



Texas Water
Development Board
P.O. Box 13231, Austin, Texas 78711-3231

Caldwell County
110 S Main
Lockhart, TX 78644

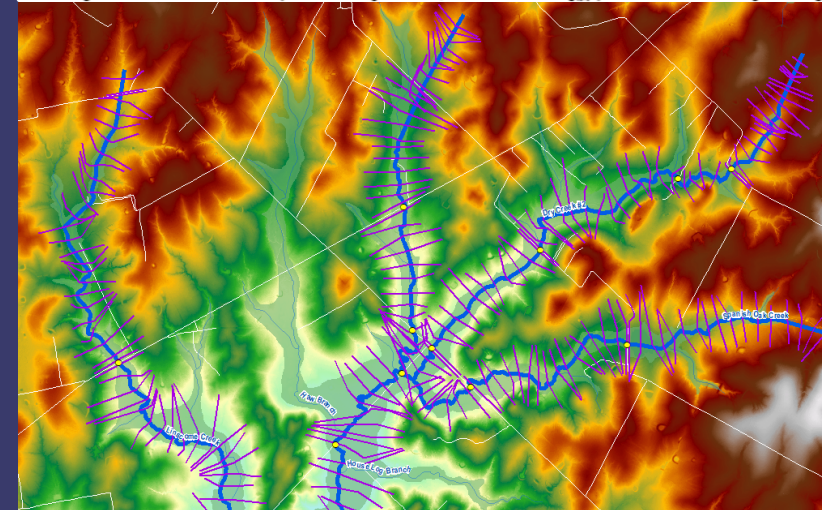
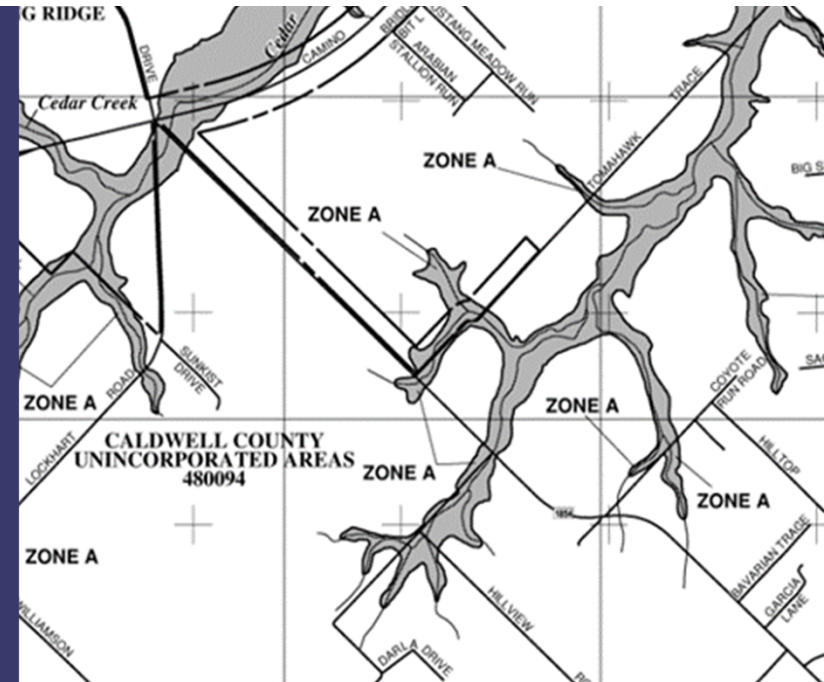
Project Overview

Current Floodplain Mapping

- 83% of FEMA FIRM floodplains are Zone A
- 85% of FEMA floodplains developed pre-1980
- Limited detail GBRA / BLE / TWDB CTP studies

Project Goals

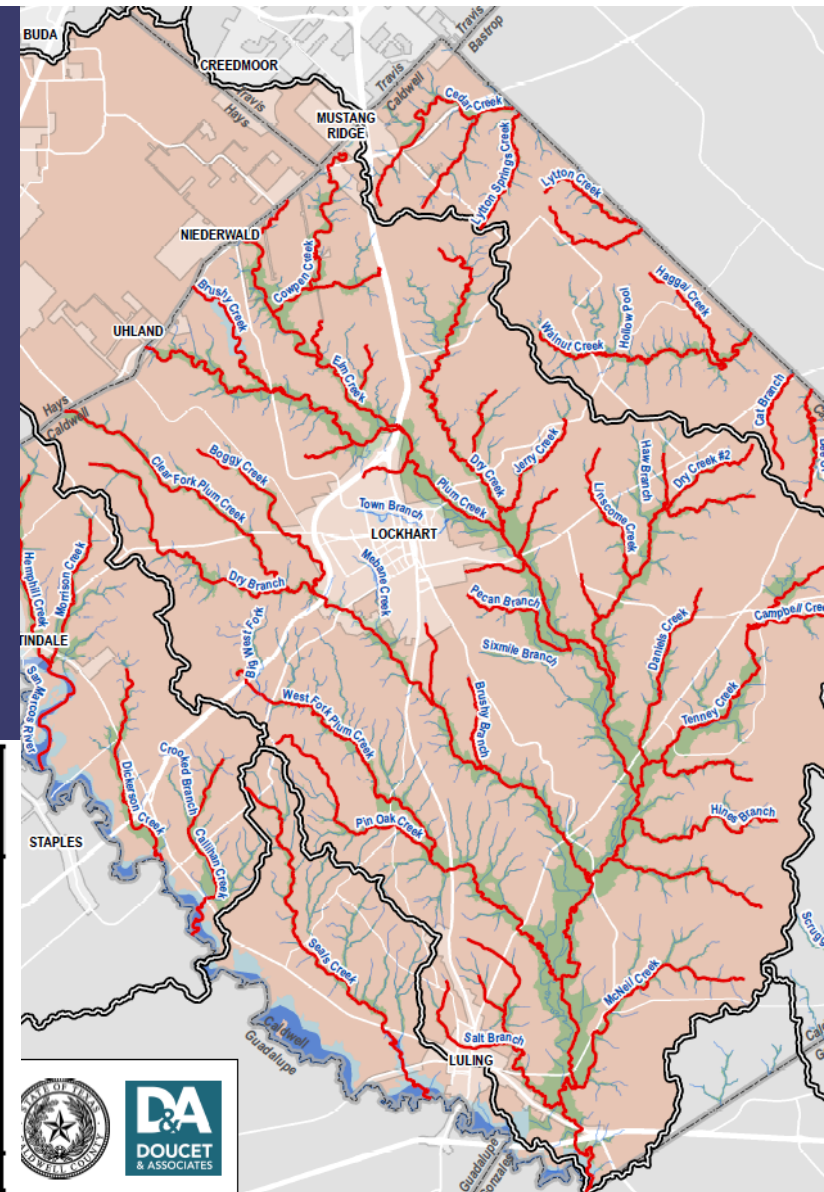
- Prepare updated floodplain models and maps
- Flood problem area identification
- Develop flood mitigation solutions
 - Channel Improvements / Levees / Detention
 - Bridge / Culvert Crossing Upgrades
 - Flood Early Warning Systems
 - Floodplain Management Higher Standards



Project Overview

Study Area

- 521 mi² area – Plum, San Marcos, Cedar & Walnut Basins
- 321 stream miles – 53 creeks and tributaries



Name	Drainage Area (sq mi)	Study Stream Miles	Field Survey	
			Structures (Approx)	Channel (Approx)
Plum Creek	292.8	39.9	17	2
Plum Creek Tributaries	-	134.3	65	4
Clear Fork Plum Creek	54.6	22.6	16	1
Clear Fork Plum Creek Tributaries	-	19.8	15	2
West Fork Plum Creek	40.8	16.1	8	1
West Fork Plum Creek Tributaries	-	6.7	1	1
Cedar & Walnut Creeks and Tributaries	54.8	42.0	24	1
San Marcos River Tributaries	77.7	39.1	23	2
Total	520.7	320.5	169	14

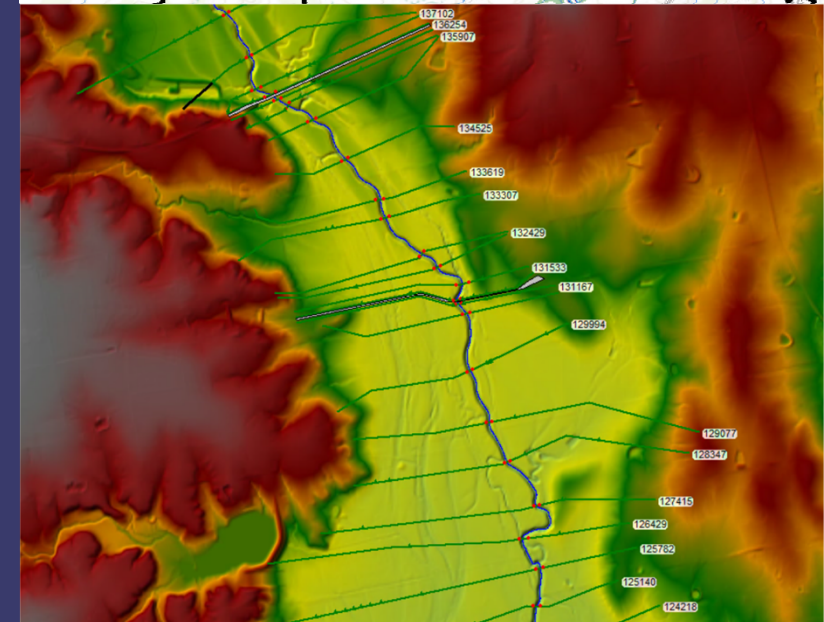
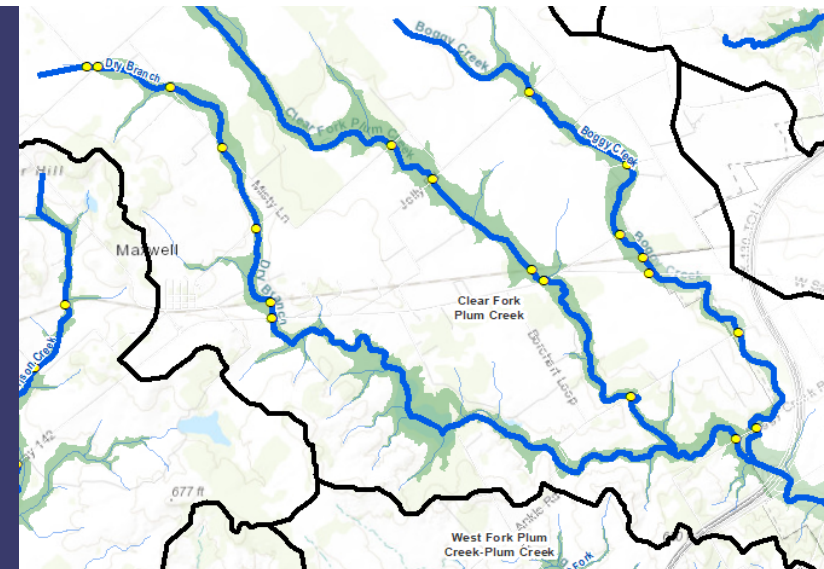
Project Overview

Project Tasks Completed :

- Data Collection
- Flood Problem Area Identification
- Field Survey & Measurements
- Hydrologic & Hydraulic (H&H) Modeling
- Flood Mitigation Alternatives Analyses
- Environmental Constraints Assessment
- Flood Early Response Planning
- Implementation & Phasing Plan
- Draft FPP Report

Project Tasks Remaining :

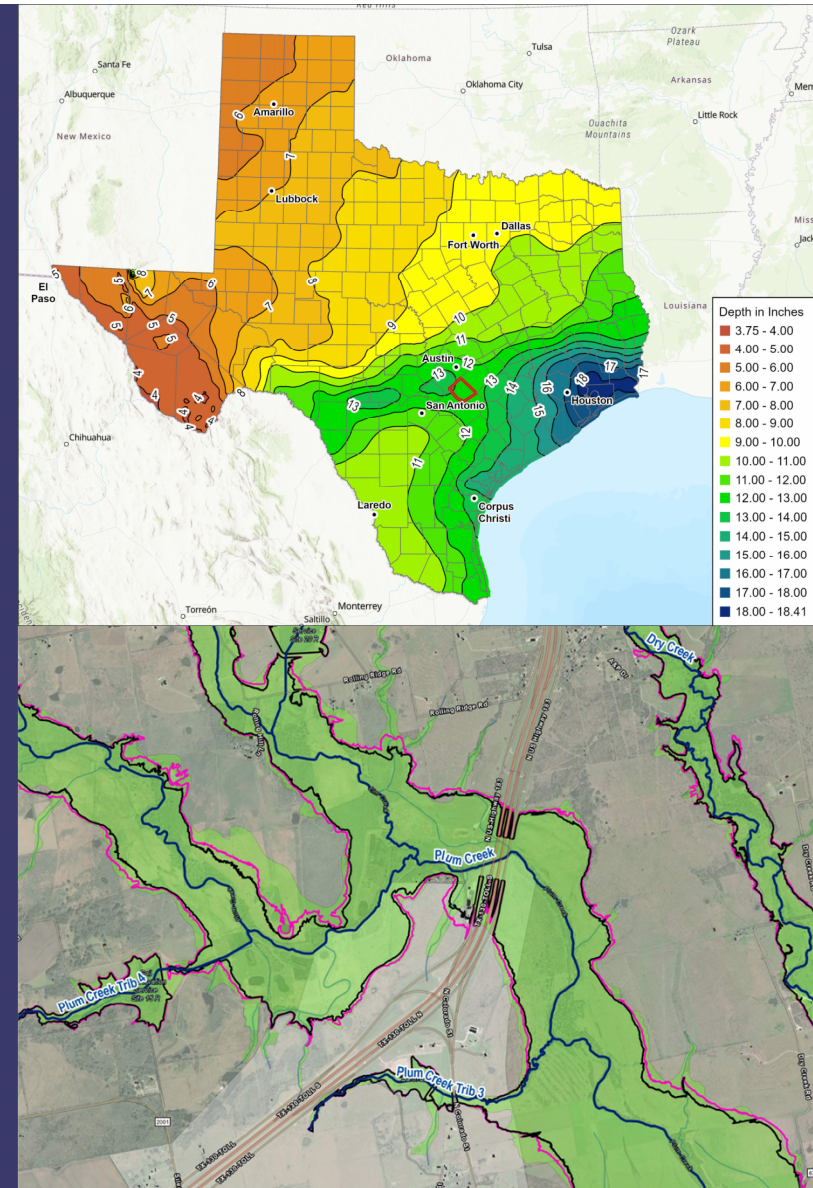
- Final FPP Report



Updated Floodplain Mapping

Modeling and Mapping Tasks

- Prepared new hydrologic models reflecting Atlas 14 rainfall data
- Prepared new detailed 1D hydraulic models for all study streams
- Some modeling data leveraged from previous studies
 - TWDB CTP Flood Risk MAS 23 – Plum Creek
 - Base Level Engineering (BLE)
 - GBRA Interim Feasibility Study
- Prepared 100-year and 500-year floodplain boundaries for all study streams
- This study will not supersede the effective FEMA data, but the County may use the updated information to pursue official mapping updates.



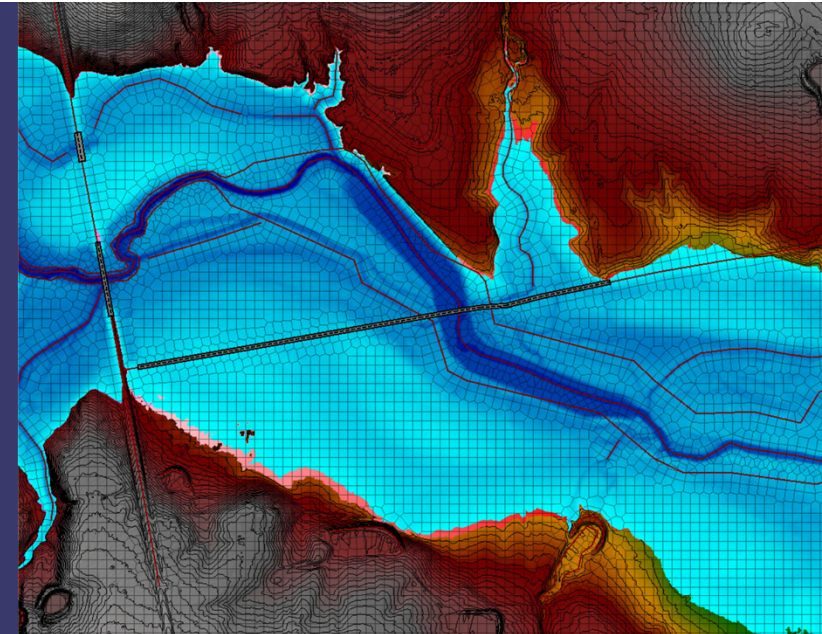
Conceptual Flood Mitigation Alternatives

Flood Problem Areas were identified based on:

- Previous studies
- High-priority bridge/culvert crossings flagged by the County
- Input from Public Meeting 1
- Results of updated hydraulic models

Alternatives Analysis Tasks

- New 2D hydraulic models to assess conceptual alternatives
- Construction Cost Estimates
- Benefit-Cost Analysis (BCA)



Input Into BCA Toolkit		
Project Useful Life	30	
Event Damages	Baseline	Project
2 - year storm	\$334,571	\$0
10 - year storm	\$521,960	\$68,448
100 - year storm	\$1,004,014	\$350,609
Total Benefits from BCA Toolkit	\$2,790,793	
Other Benefits (Not Recreation)	\$32,170	
Recreation Benefits	-	
Total Costs	\$5,214,527	
Net Benefits	-\$2,391,564	
Net Benefits with Recreation	-\$2,391,564	
Final BCR	0.5	
Final BCR with Recreation	0.5	

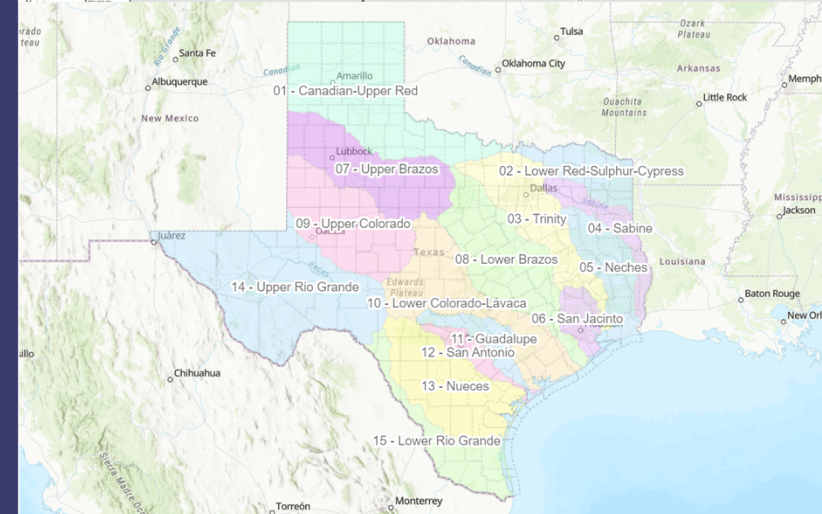
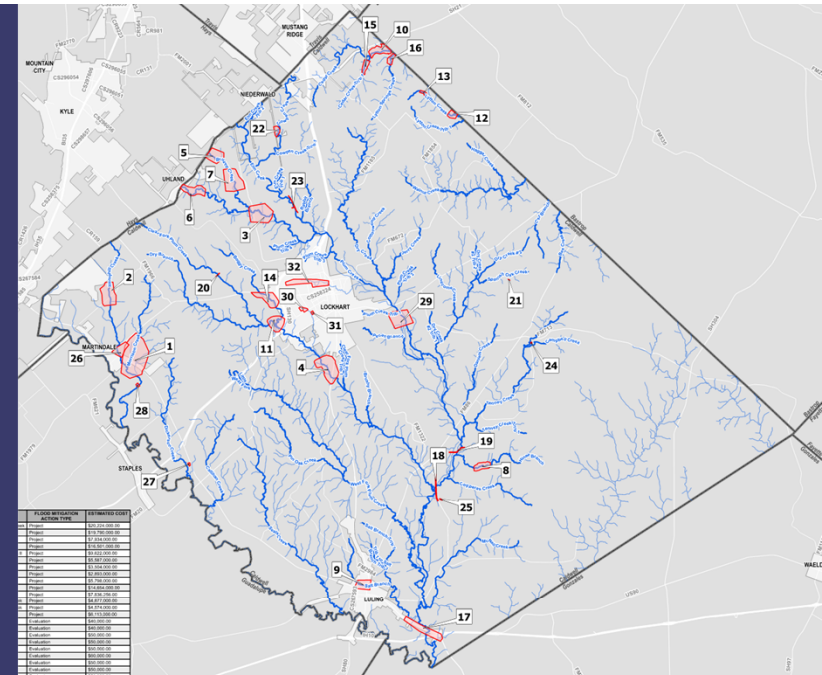
Conceptual Flood Mitigation Alternatives

Flood Mitigation Actions

- Flood Mitigation Evaluations (FMEs) – 20 identified
- Flood Mitigation Projects (FMPs) – 14 identified

Coordination with Regional Flood Planning Groups

- Region 10 – Lower Colorado-Lavaca
- Region 11 – Guadalupe
- All Caldwell County FMEs and FMPs approved for inclusion in Regional Flood Plans



Flood Early Warning System

GBRA

- Recommends coordinating with RFPGs regarding FIF funding for FEWS upgrades

ATXFloods.com

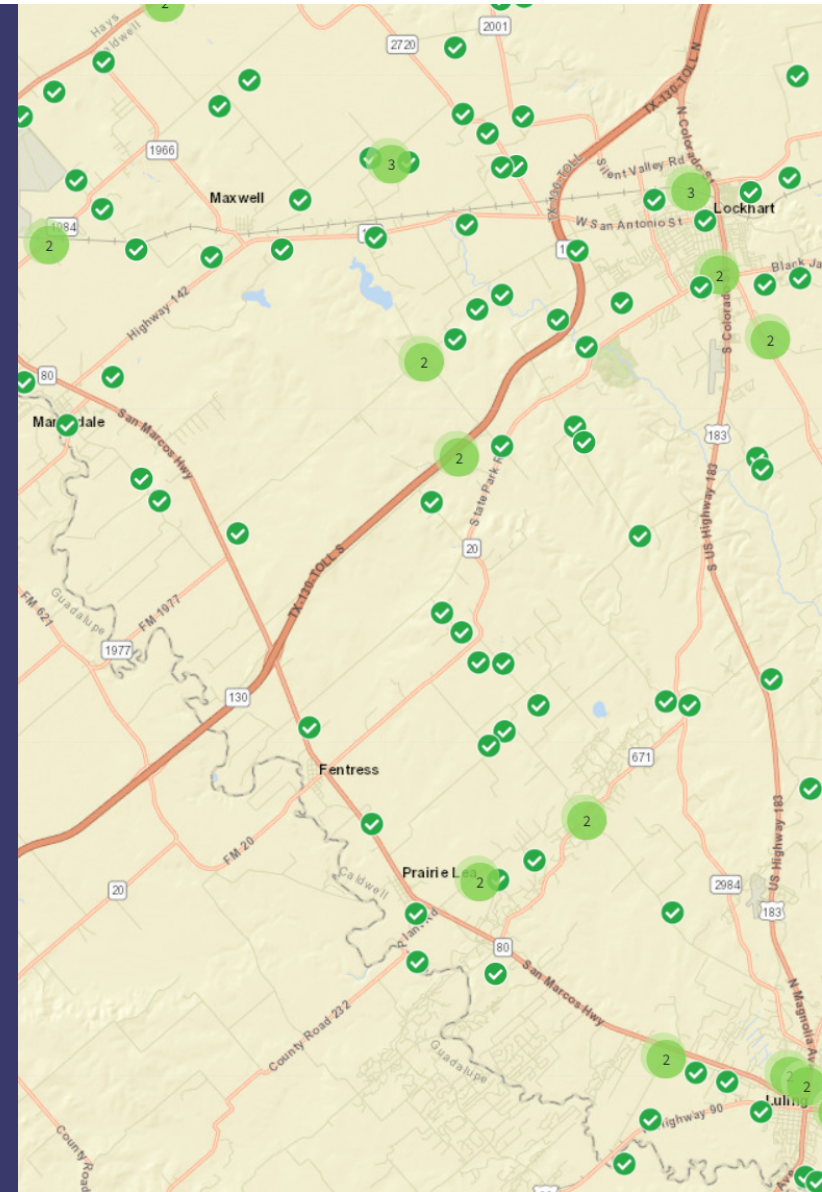
- Monitors flooding conditions at multiple low water crossings within Caldwell County

WarnCentralTexas.org

- Residents in Caldwell County can register to receive emergency notifications by phone, email, or text message

Hays County

- Contracted with Water & Earth Technologies (WET) to maintain and operate 30 gage locations and online mapping platform
- The existing monitoring and reporting system could be scaled up to incorporate additional gages in Caldwell County



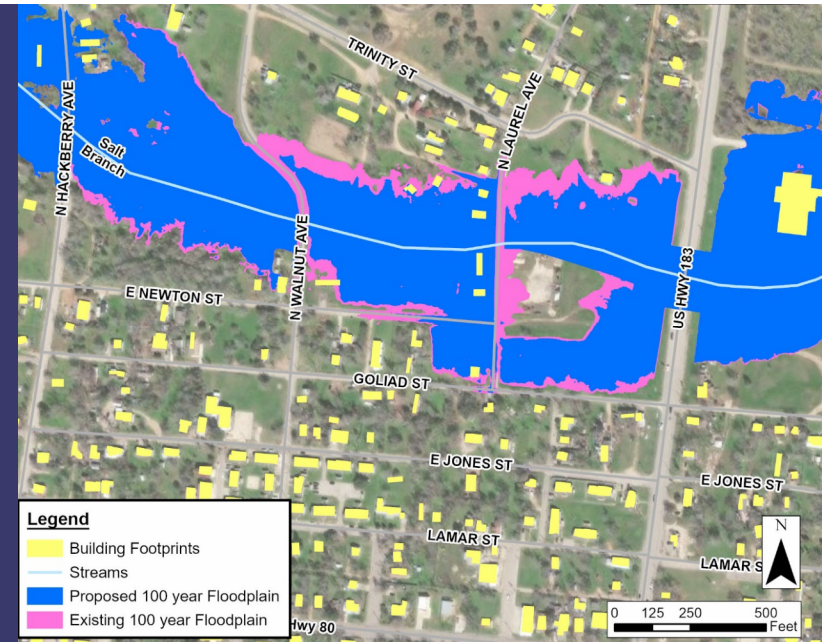
Next Steps

Floodplain Modeling & Mapping

- County and municipalities may use the new models and mapping as “best available data” for planning and regulatory purposes
- County may pursue official updates to FEMA FIRM panels

State Funding for Flood Mitigation Actions

- The 14 FMPs and 20 FMEs are eligible for state funding
- Competitive FIF grant funding opportunity is currently underway
 - If awarded, Caldwell County is eligible to receive up to
 - 75% state match for 20 FMEs (planning, design, and permitting)
 - 35% state match for 14 FMPs (final design, permitting, construction)
 - Abridged Applications due to TWDB by April 15, 2024
 - Top ranking applications will be invited to submit final applications later in 2024



Caldwell County Flood Protection Plan

March 6th 2024 – Public Meeting 3



Jonathan Carey, PE, CFM
Doucet & Associates, Inc.
575-318-1310 (cell)
jocarey@kleinfelder.com

Colin Slagle, PE, CFM
Doucet & Associates, Inc.
512-632-4517 (cell)
cslagle@kleinfelder.com

For additional information or to provide written comments, please email CaldwellFPP@doucetengineers.com