

Lower Colorado-Lavaca
**REGIONAL FLOOD
PLANNING GROUP**

REGION 10

**Technical Committee Meeting
April 20, 2023**

Region 10 Lower Colorado-Lavaca RFPG Technical Committee Meeting

- 1. Call to Order**
- 2. Welcome**
- 3. Approval of minutes from the previous meeting**

**Region 10 Lower Colorado-Lavaca Flood Planning Group
 Technical Committee
 December 1, 2022
 9:30 AM
 Hybrid Meeting**

Roll call:

Voting Member	Role	Present (x) /Absent () Alternate Present (*)
Kelly Payne	Chair	X
Brandon Klenzendorf	Vice Chair	X
Ann Yakimovicz	Secretary	X
Kirby Brown	Member	X joined at 9:39 am
Matt Hollon	Member	X

Quorum:

Quorum: **Yes**

Number of voting members or alternates representing voting members present: **4, then 5 at 9:39 am**

Number required for quorum per current voting membership of 5: **3**

Other Meeting Attendees: **

**Meeting attendee names were gathered from those who entered information for joining the Zoom meeting.

Tressa Olsen - TWDB

Karen Ford – Water PR

Jennifer Bassett – LCRA

Cris Parker – HDR

Lauren Graber – LCRA

Jay Scanlon – Freese

Rene Ogando-Nanita – LCRA

Beth Bendik - TPWD

Mike Personett – Halff Associates

Bobby Seiferman

All meeting materials are available for the public at:

www.lowercoloradolavacaflood.org/meetings

Agenda:

1) Call to Order

Kelly Payne called the meeting to order at 9:34 AM CST. A roll call of the technical committee members was taken to record attendance and a quorum was established prior to calling the meeting to order.

2) Welcome

Kelly Payne welcomed members and other attendees to the meeting.

3) Approval of minutes from the previous meeting

The draft meeting minutes were reviewed.

Matt Hollon moved to approve the minutes, seconded by Brandon Klenzendorf. The motion passed by a vote of four to zero (4 to 0).

4) Public comments– limit 3 minutes per person

Kelly Payne called for public comments. There were no comments made.

5) Task 5 - Presentation, discussion, and possible action regarding recommended Flood Management Evaluations and Strategies and Flood Mitigation Projects

Mike Personett and Jay Scanlon presented three tranches of FMXs for consideration. These are new or reclassified/removed FMXs resulting from recent Technical Consultant outreach and discussion with sponsors.

a.) Seven new FMEs from sponsors.

Technical Committee members requested that the Study Type and more complete data including environmental considerations be added to the one-pagers to better describe these new FMEs. Kelly Payne moved to recommend that the full RFPG approve these seven FMEs to be added to the Region 10 Regional Flood Plan (January 2023 submittal), subject to non-substantive changes. Ann Yakimovicz seconded the motion. The motion passed five to zero (5 to 0).

b.) Thirteen FMPs reclassified as FMEs.

c.) Five FMPs and six FMEs to be removed entirely from the report at the request of the sponsors.

Technical Committee members requested that revisions be made to the one-pagers for the thirteen FMPs reclassified as FMEs for inclusion in the Regional Flood Plan.

Kelly Payne moved to recommend that the full RFPG approve these changes to the thirteen FMPs reclassified as FMEs and the withdrawal of the five FMPs and six FMEs requested by sponsors currently included in the Regional Flood Plan, subject to non-substantive changes. Kirby Brown seconded the motion. The motion passed five to zero (5 to 0).

Jay Scanlon also mentioned fourteen new FMPs and FMEs from sponsors that are additional activities for possible inclusion in the Amended Regional Flood Plan (July 2023). These FMXs will be further discussed after the January Regional Flood Plan is submitted.

The committee discussed the method for amending the plan. The general consensus, supported by Tressa Olsen, is that to the extent we can get the amendments before we turn in the final amended Regional Flood Plan this summer, we can include them subject to agreement from the RFPG. After that time, the TWDB will have a process, currently under development, to amend the plan between five-year planning cycles as necessary.

Beth Bendik voiced concerns about some of the projects that could potentially have negative habitat or flood impacts and asked if it was necessary, as a planning group, to promote or sponsor projects that may have negative impacts while our plan encourages projects that have fewer negative impacts. Jay Scanlon and Mike Personett responded that the purpose of the studies (FMEs) is to further evaluate impacts of potential solutions and that many of Beth's concerns should get resolved in the study phase.

6) Consider date and agenda items for next meeting

Kelly Payne opened discussion to consider the date and agenda items for the next meeting. After general discussion, the group concluded that no meetings of the Technical Committee are needed until after the Final Regional Report is submitted to TWDB in January 2023. When the Technical Consultant begins work in the amendment phase of the report process, necessary future meetings will be scheduled.

7) Adjourn

Ann Yakimovicz made a motion to adjourn, seconded by Brandon Klenzendorf. The motion passed five to zero (5 to 0). The meeting was adjourned at 10:23 am CST by Kelly Payne.

*Approved by the Lower Colorado-Lavaca RFPG Technical Committee at a meeting held on **DATE**.*

Ann Yakimovicz, SECRETARY

Kelly Payne, CHAIR

Region 10 Lower Colorado-Lavaca RFPG Technical Committee Meeting

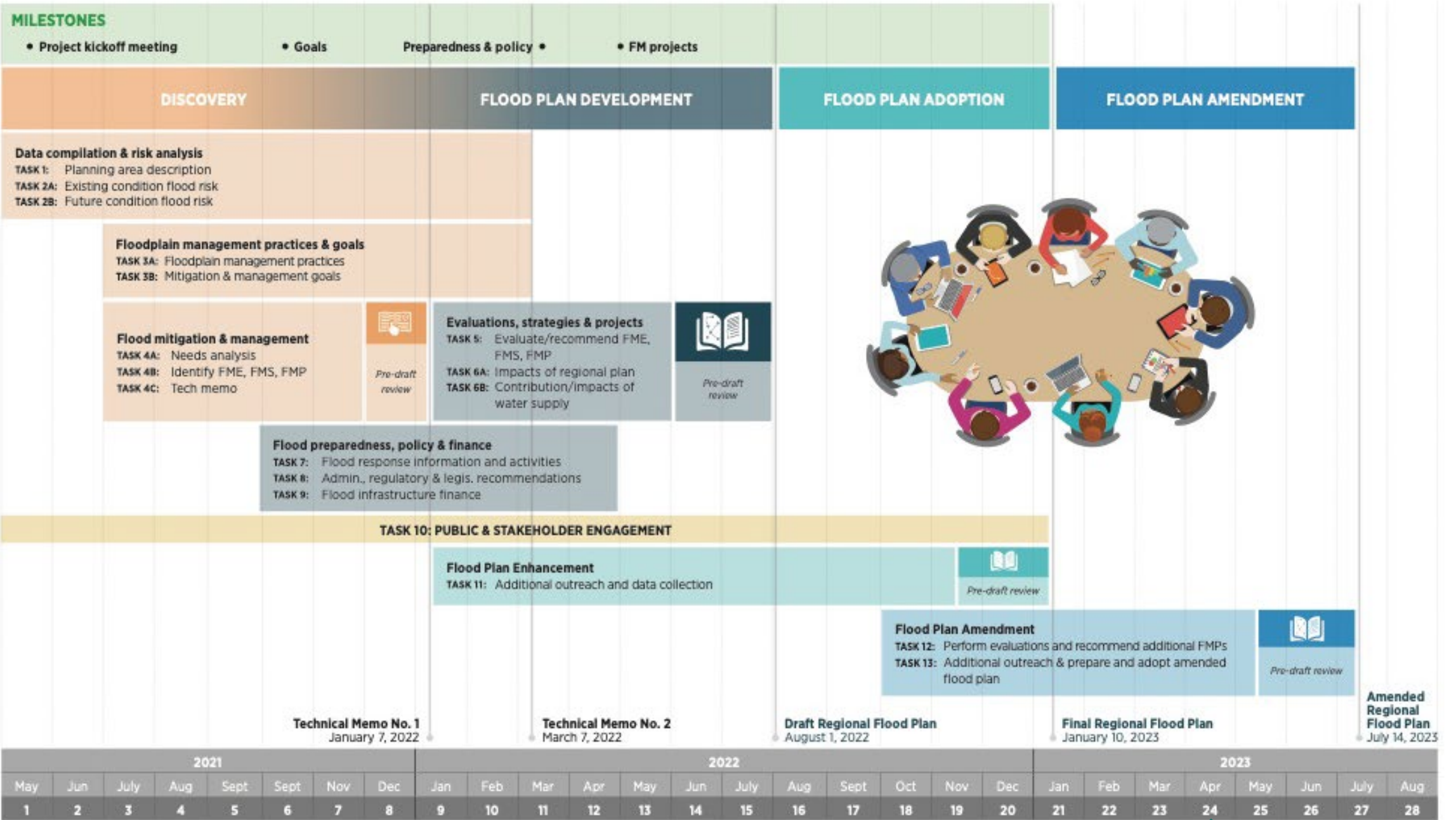
- 4. Public comments – limit 3 minutes per person**
- 5. Task 12 - Review and discuss results of Flood Management Evaluations to Flood Mitigation Project Studies**



LOWER COLORADO – LAVACA
REGIONAL FLOOD PLAN
A TEXAS INITIATIVE

RFIG 10 TECHNICAL COMMITTEE | APRIL 20, 2023







Task 12

Perform Identified Flood Management Evaluations

Identify, Evaluate, and Recommend Additional Flood
Mitigation Projects

TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

Objective

- “Perform” identified FMEs to recommended additional FMPs

Requirements

- RFPG must approve list of FMEs to be performed and any additional FMPs to be evaluated and recommended
- Must adhere to Task 4B/5 requirements
- Revise and re-submit relevant data deliverables and RFP chapters
- Results/recommendations to be included in the Amended Regional Flood Plan (due 7/14/23)

Process

- Technical consultants identified and screened potential FMEs for study
- RFPG approved seven (7) FMEs for study September 2022
- Results to be considered as potential amendments to the adopted RFP

TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

Scope of Work for Selected FMEs

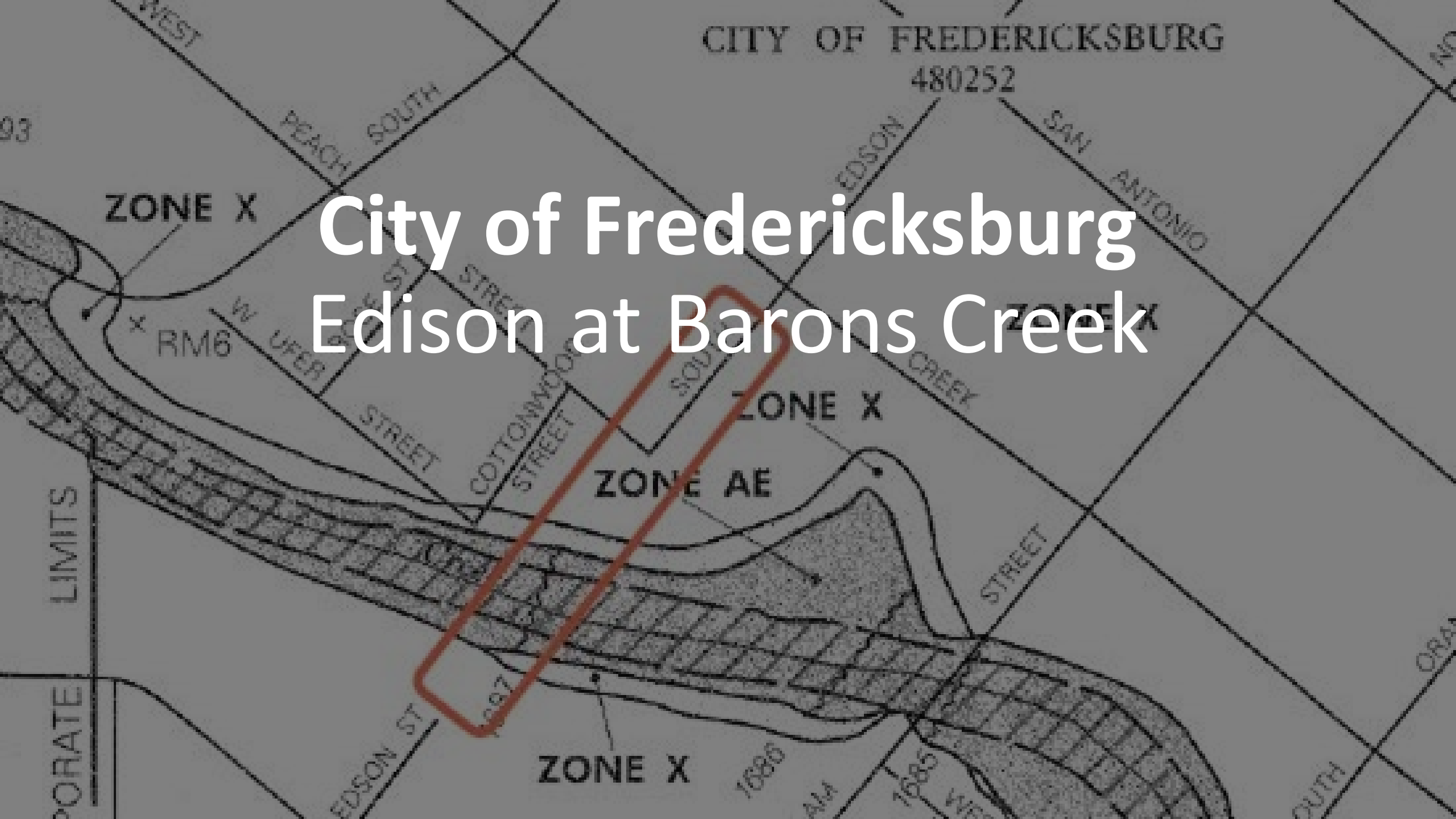
- Data Collection / Site visits
- Update hydrologic and hydraulic modeling (e.g., Atlas 14 rainfall, LiDAR)
- Update alternatives analysis and/or preliminary design of improvements
- Analyze flood risk reduction benefits
- Verify no adverse impacts
- Develop/update cost estimates
- Conduct benefit-cost analysis (BCA)
- Evaluate potential constraints (e.g., environmental, utility conflicts, real estate needs, constructability)
- Prepare documentation of RFPG action and for inclusion in Amended Regional Flood Plan
- Incorporate Technical Committee and RFPG approved amendments

TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000043	Edison & Creek Street	Gillespie	Fredericksburg	\$49,000	FNI
101000035 (FMP)	Creek Street at Barons Creek	Gillespie	Fredericksburg	\$60,000	FNI
101000116 & 101000165	Whitman Branch Bypass; Oak Ridge Dr Creek, including Detention	Burnet	Marble Falls	\$89,000	HDR
101000167	Broadway Street at Whitman Branch Low Water Crossing	Burnet	Marble Falls	\$62,000	HDR
101000027	FM 812 at Little Alum Creek	Bastrop	Bastrop Co.	\$86,000	Halff
101000102	Piney Creek Benching	Bastrop	Bastrop Co.	\$88,000	Halff
101000189	Wastewater Treatment Plant Floodproofing	Jackson	Edna	\$66,000	HDR
Totals				\$500,000	

CITY OF FREDERICKSBURG
480252

City of Fredericksburg Edison at Barons Creek



TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000043	Edison at Barons Creek	Gillespie	Fredericksburg	\$49,000	FNI

Sponsor Coordination

- Confirmed general nature of flood risk and exposure
- Supportive of study and scope of work
- Assisted with acquisition of local information
- Review study deliverable
- Concur with findings, conclusion and recommendation

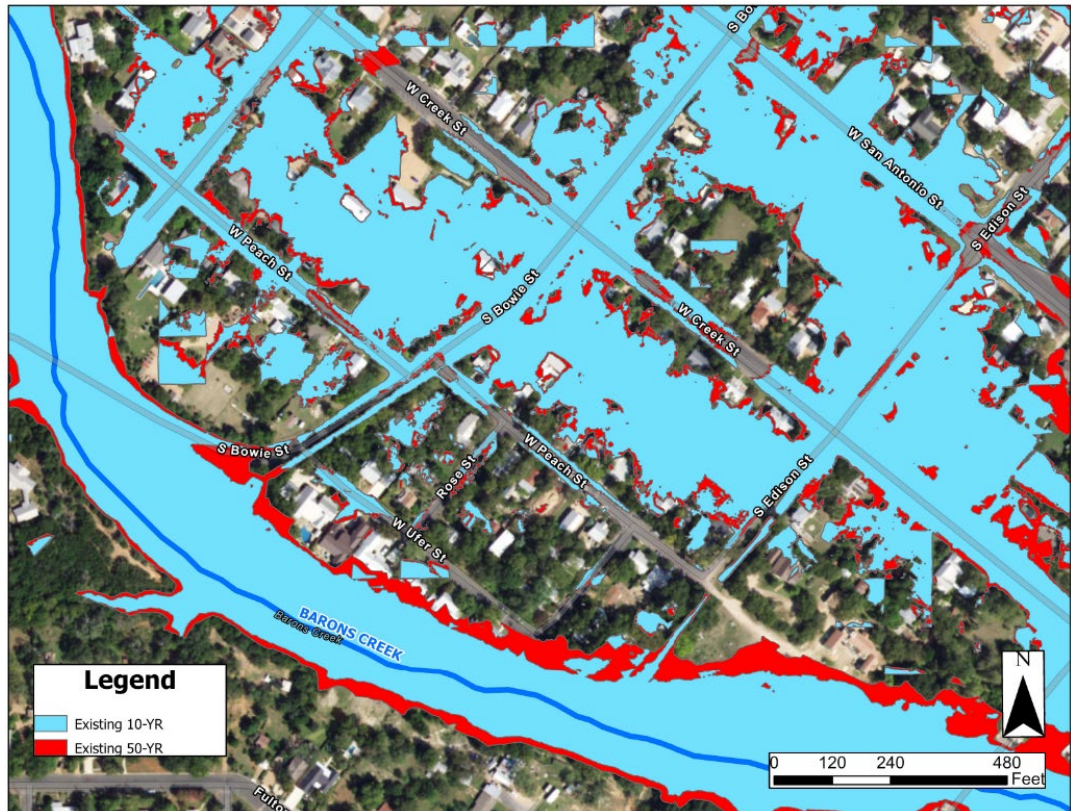


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000043	Edison at Barons Creek	Gillespie	Fredericksburg	\$49,000	FNI

Existing Flood Risk

- Existing street and property flooding
 - Edison Street (up to 1.8 ft) ADT: 117
 - Bowie Street (up to 2.1 ft) ADT: 545
 - Houses: 2 (direct), upto 20 (indirect)
- Undersized channel and culverts to homes
- Overland flow and potential structural flooding



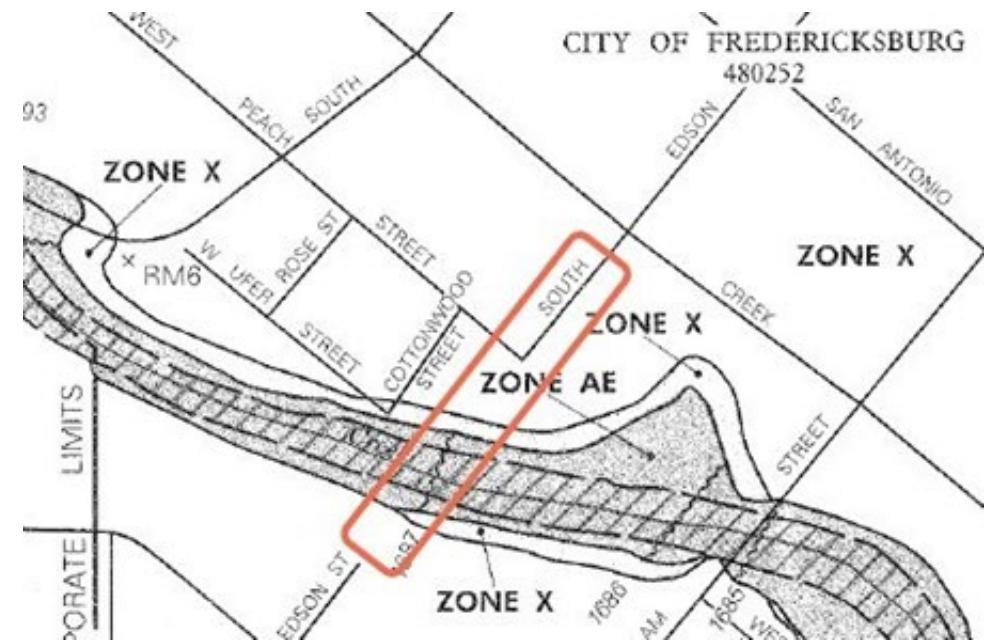
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FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000043	Edison at Barons Creek	Gillespie	Fredericksburg	\$49,000	FNI

Alternatives Considered

- Edison Street Channel and Culverts
 - Improved access but minimal flood risk reduction
- Bowie to Edison - limited storm drain
 - No additional flood risk reduction
- Acorn St., Bowie St., and Edison St. storm drains
 - Reduced street flooding
 - Reduced property flooding

City's preference – Keep as FME with a larger study area

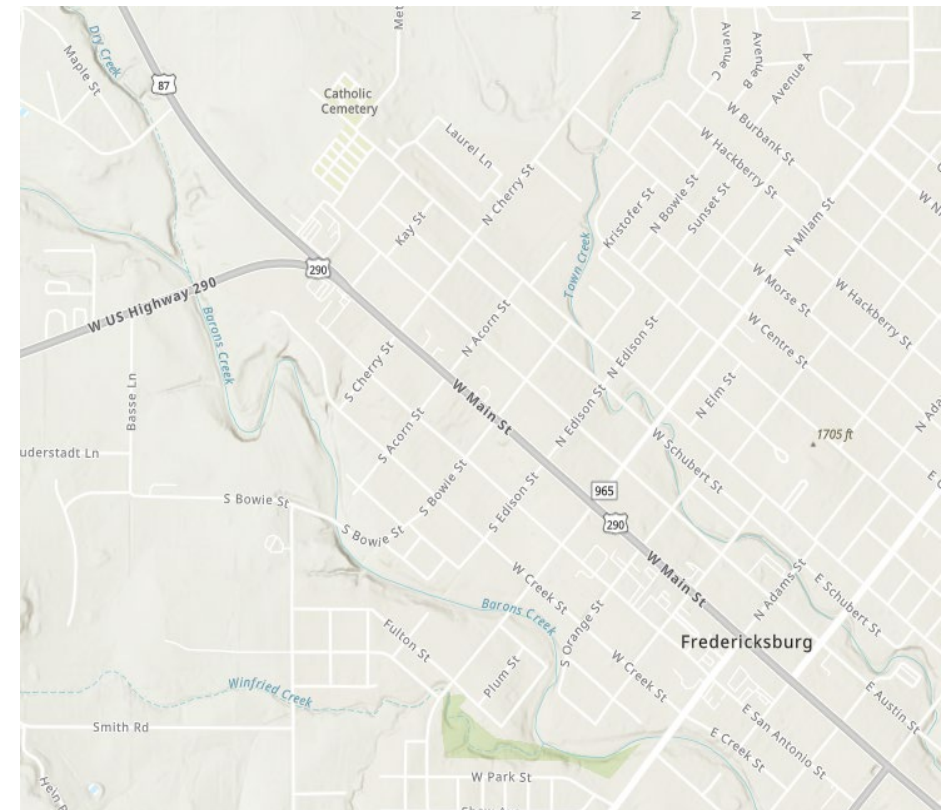


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

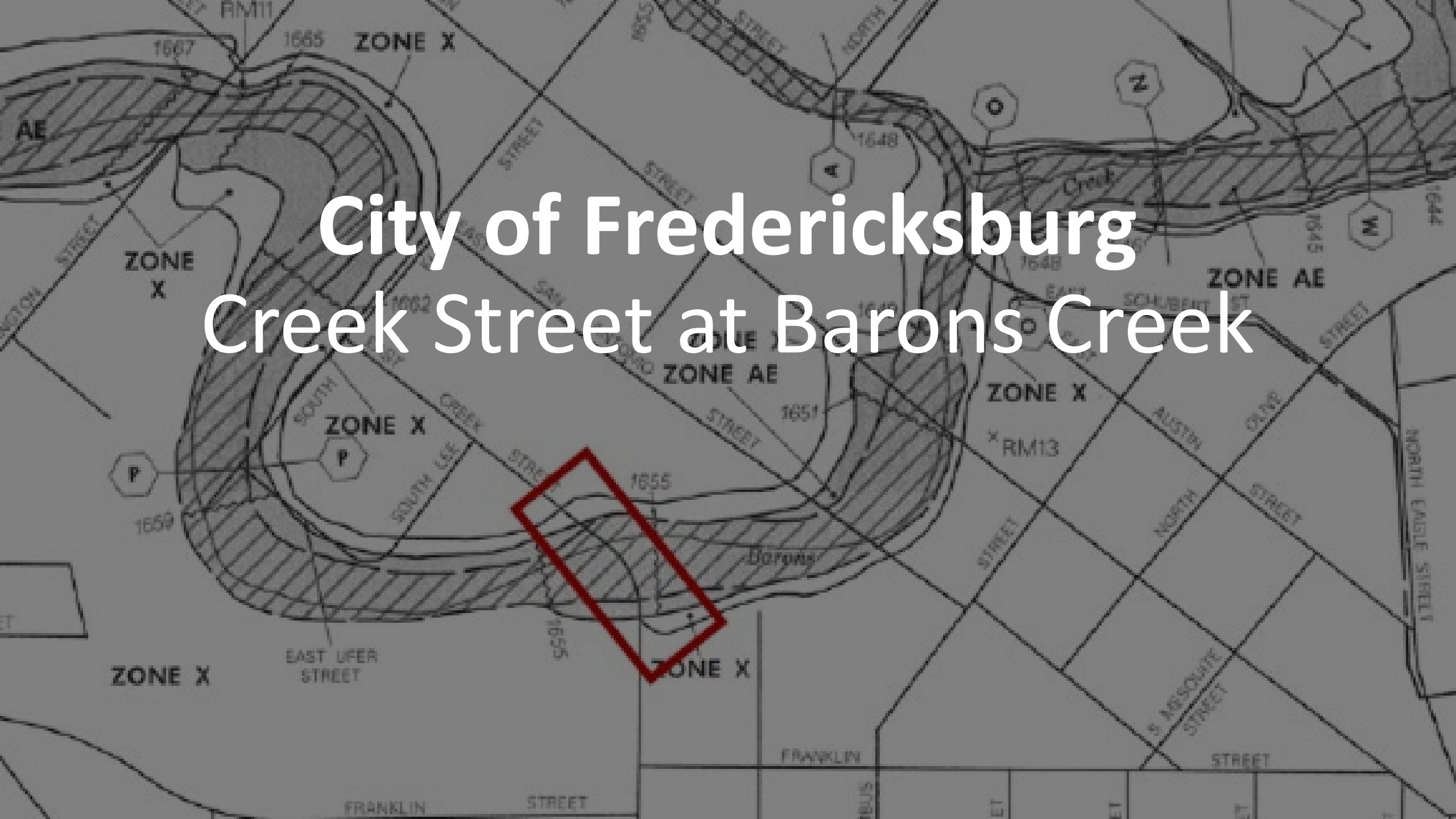
FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000043	Edison at Barons Creek	Gillespie	Fredericksburg	\$49,000	FNI

FMP – None Recommended Retain FME with Expanded Study Area

- City identified alternative has minimal flood risk reduction
- Preliminary results indicate additional storm drains will reduce street and property flooding
- Propose expanded FME:
 - Larger study area south of Main Street and downstream of US 290
 - Potential for wider / more impactful flood risk reduction



City of Fredericksburg Creek Street at Barons Creek

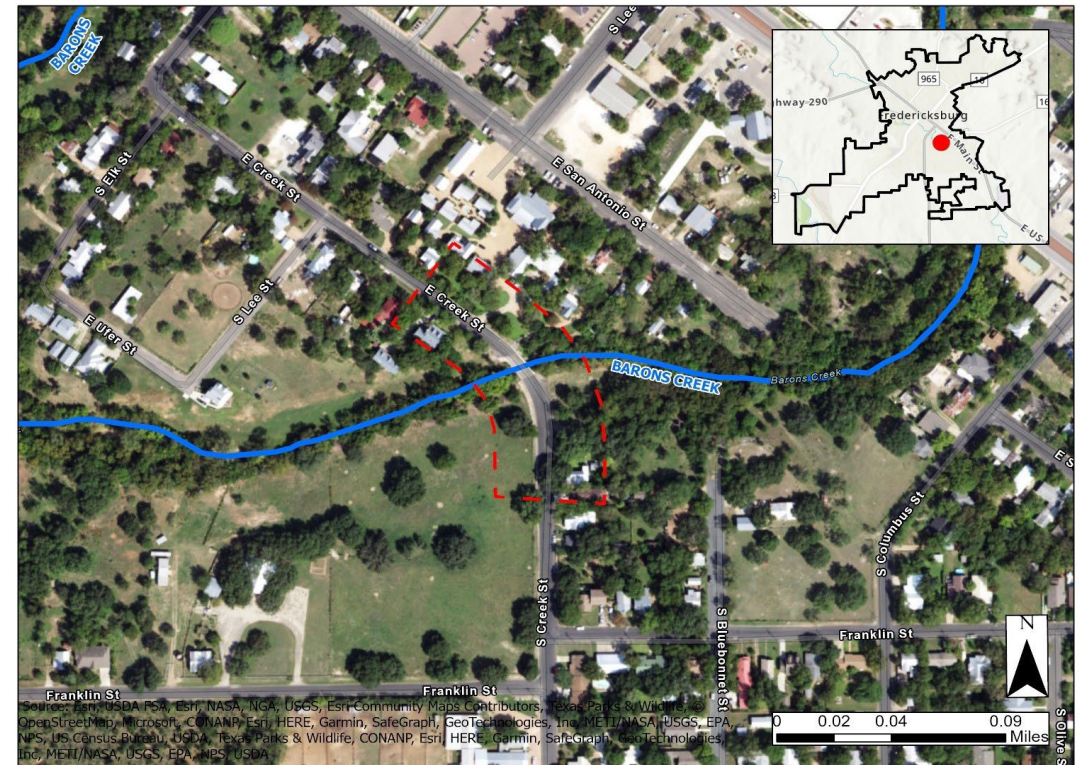


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000035 (FMP)	Creek Street at Barons Creek	Gillespie	Fredericksburg	\$60,000	FNI

Sponsor Coordination

- Confirmed general nature of flood risk and exposure
- Supportive of study and scope of work
- Assisted with acquisition of local information
- Review study deliverable
- Concur with findings, conclusion and recommendation

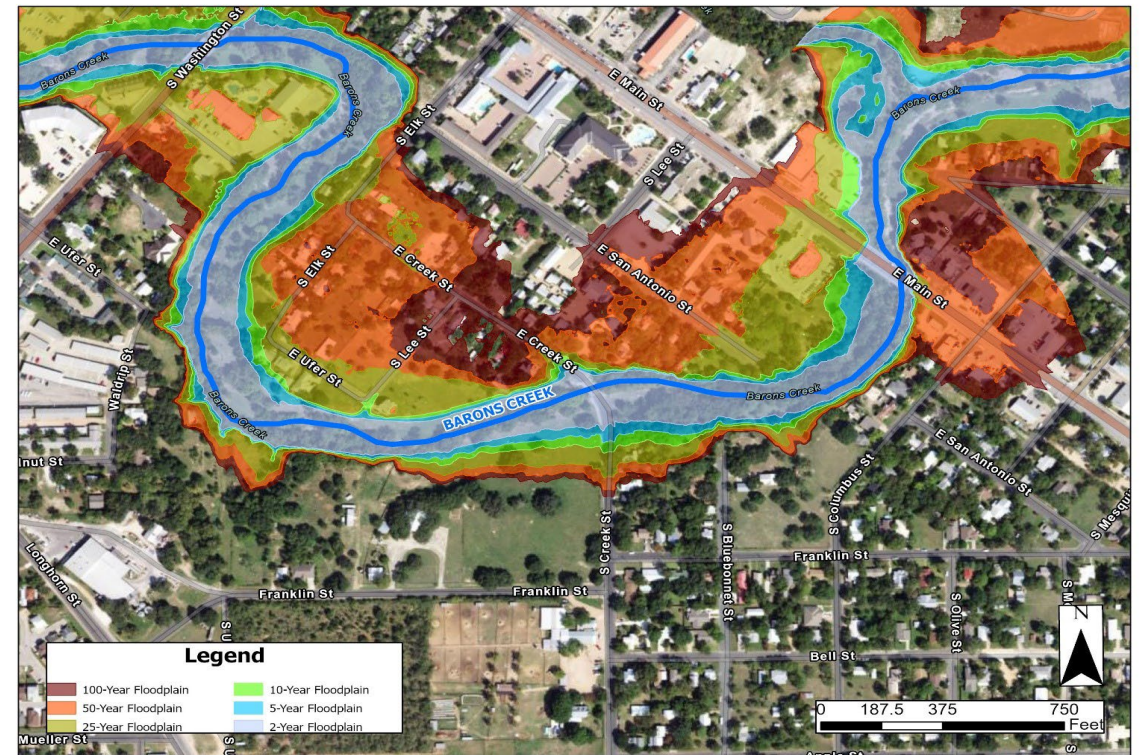


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000035 (FMP)	Creek Street at Barons Creek	Gillespie	Fredericksburg	\$60,000	FNI

Existing Flood Risk

- Existing Crossing:
 - Triple 8’x7’ box culvert, 1,005 cfs capacity
 - Average Daily Traffic Count: 885
- Existing Crossing Inundation:
 - 2-year event, >3.5 feet
 - 10-year event, ~9 feet
 - 25-year event, ~15 feet
 - 100-year event, ~19 feet

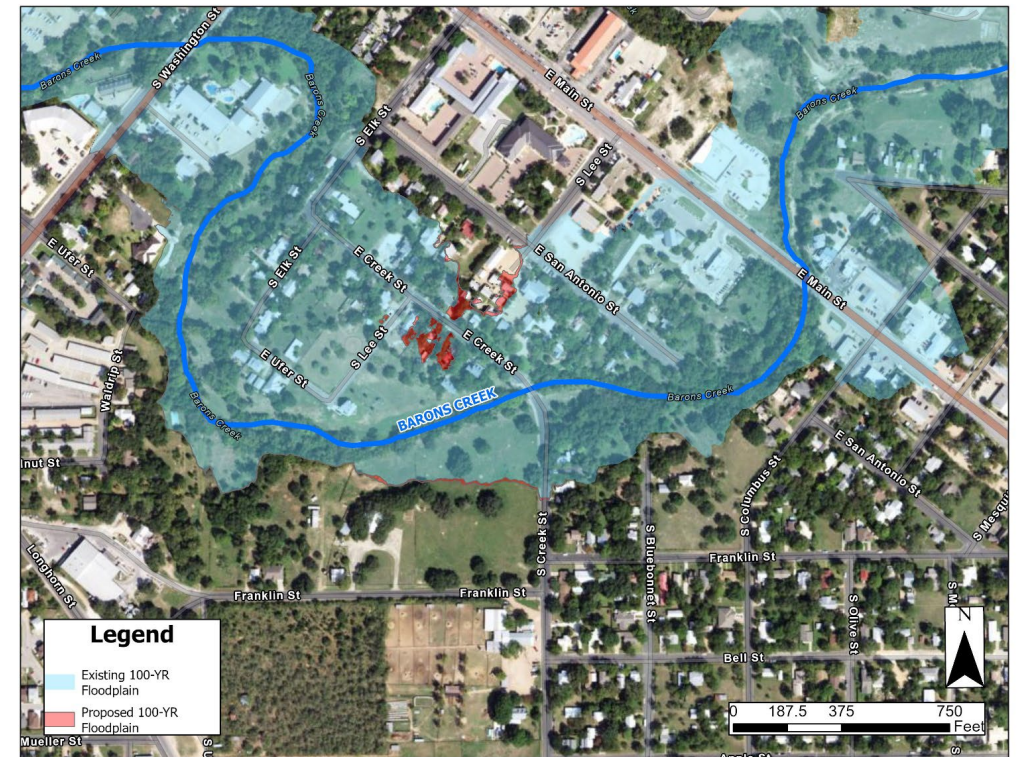


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000035 (FMP)	Creek Street at Barons Creek	Gillespie	Fredericksburg	\$60,000	FNI

Alternatives Considered

- Clean culvert to remove sediment blockage
 - Does not reduce flood risk
- Additional 8'x7' box culvert
 - Does not reduce flood risk
- Raise Elevation of Roadway
 - ~13 feet to pass 10-year event – Identified as the ***preferred and recommended*** alternative
 - ~20 feet to pass 100-year event – Considered infeasible by sponsor due to roadway configuration and real estate constraints



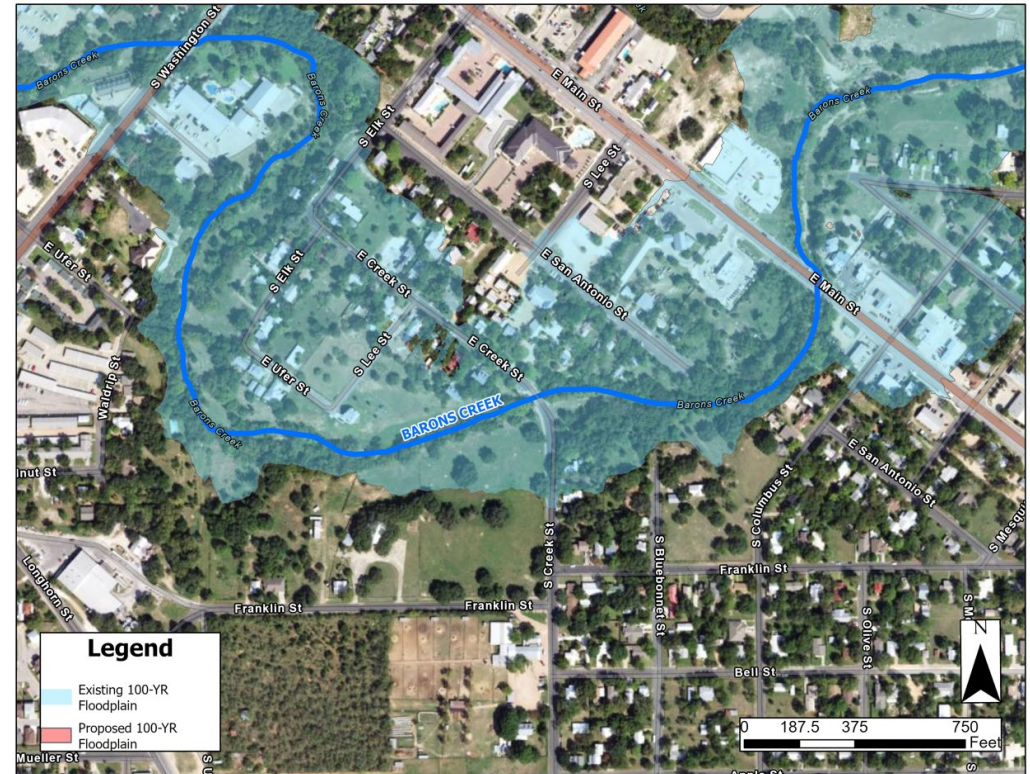
Flood impacts without Mitigation

TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000035 (FMP)	Creek Street at Barons Creek	Gillespie	Fredericksburg	\$60,000	FNI

FMP – Raise Roadway Elevation ~13 feet to pass 10-year event

- No Negative Impact
 - Improvements increase water elevation in 100-year
 - Channel modifications are required to mitigate increase (225 linear feet)
 - Channel modifications to include 2-year protection and riparian corridor restoration
- Project Constraints
 - Realign one private driveway
 - Other constraints typical of crossing improvement project (permitting, local utility adjustments, etc.)
 - Easement required for channel modifications



Flood impacts with Mitigation – No Negative Impacts

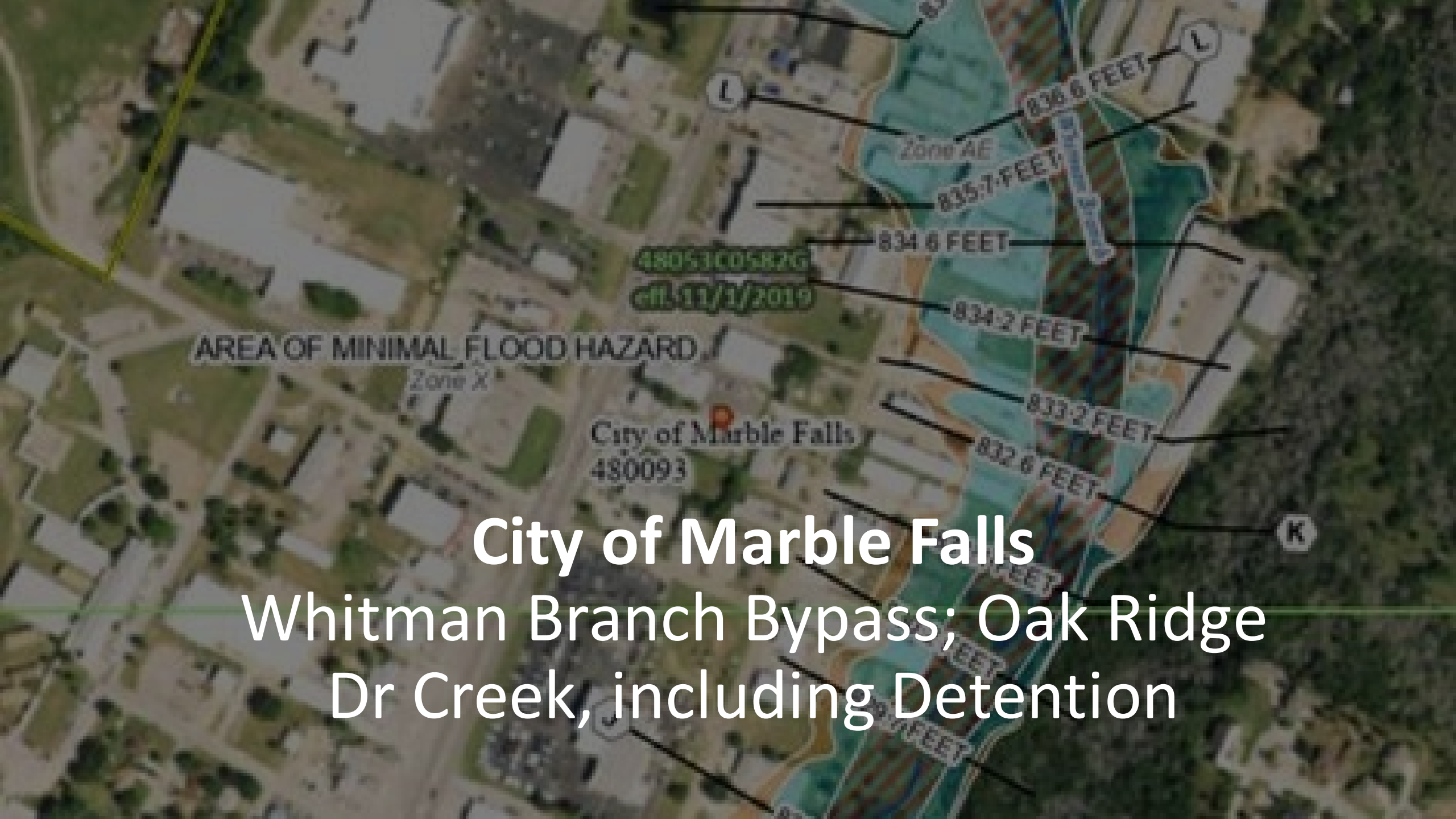
TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000035 (FMP)	Creek Street at Barons Creek	Gillespie	Fredericksburg	\$60,000	FNI

FMP – Raise Roadway Elevation ~13 feet to pass 10-year event

- Estimate of Probable Cost
 - \$1,613,000 capital cost
 - \$2,027,000 total cost
- Benefit Cost Analysis
 - Estimated damages based on average daily traffic
 - Benefits calculated as reduction of traffic impacts
 - Benefits over 30 years = \$719,200
 - Benefit Cost Ratio = 0.3*





AREA OF MINIMAL FLOOD HAZARD

Zone X

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11/1/2019

City of Marble Falls
480093

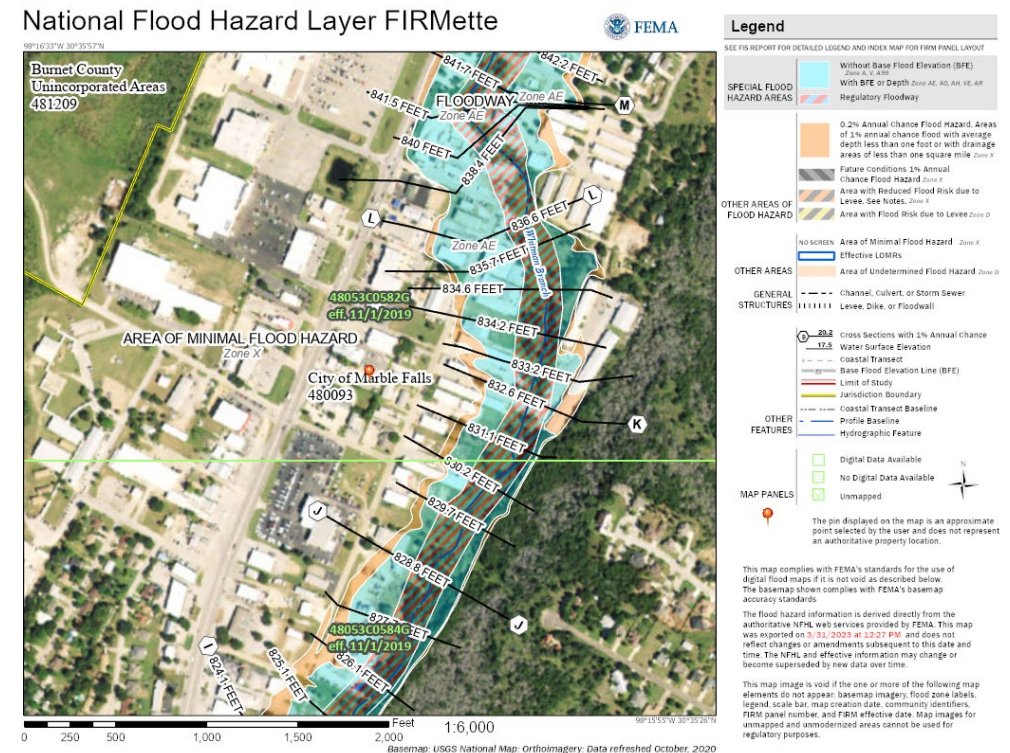
City of Marble Falls Whitman Branch Bypass; Oak Ridge Dr Creek, including Detention

TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000116 & 101000165	Whitman Branch Bypass; Oak Ridge Dr Creek, including Detention	Burnet	Marble Falls	\$89,000	HDR

Sponsor Coordination

- Confirmed general nature of flood risk and exposure
- Supportive of study and scope of work
- Assisted with acquisition of local information
- Review study deliverable
- Concur with findings, conclusion and recommendation

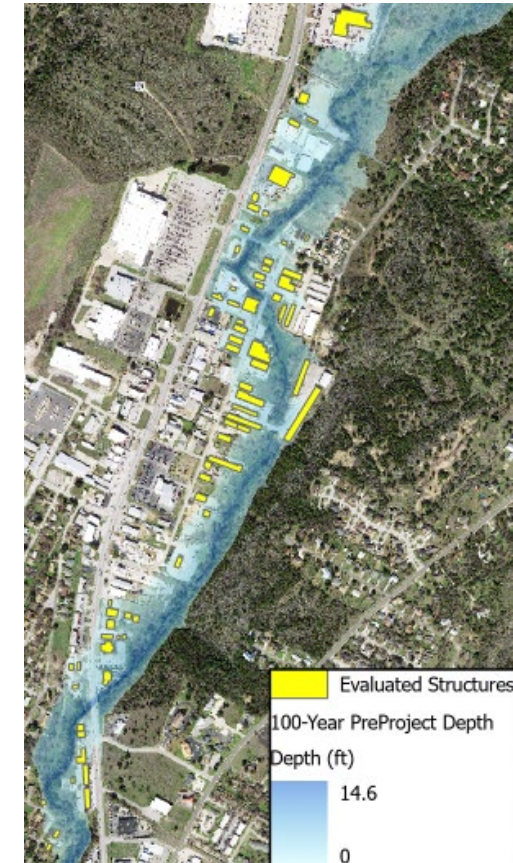


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000116 & 101000165	Whitman Branch Bypass; Oak Ridge Dr Creek, including Detention	Burnet	Marble Falls	\$89,000	HDR

Existing Flood Risk

- Existing flood risk to the Commerce Street area is extensive
- With Atlas 14 rainfall data flooding is deeper and more widespread:
 - Approximately 66 commercial and residential buildings that face flood risk in the 100- year event
 - Three existing low water crossings that will overtop in most day-to-day events



TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

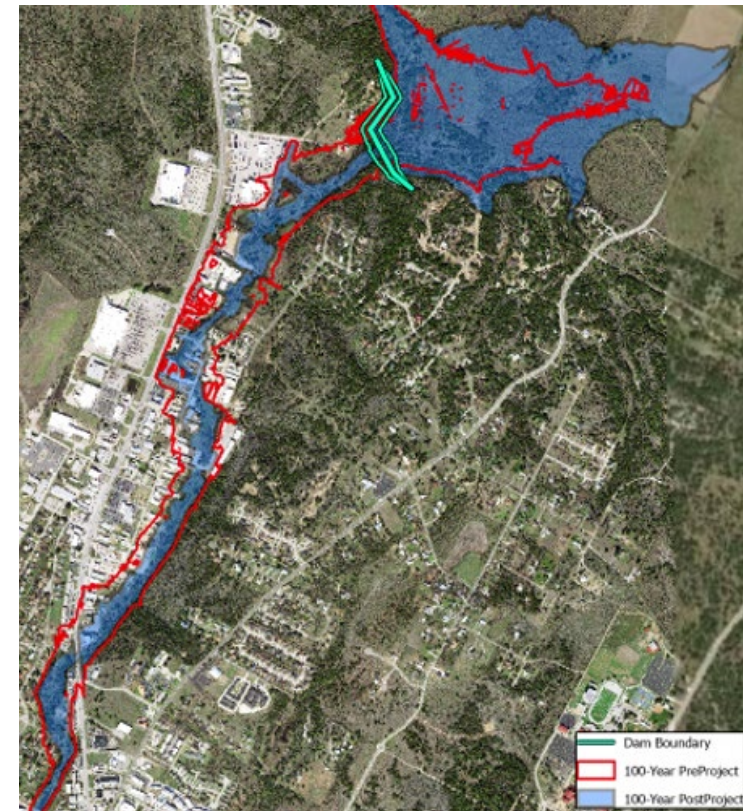
FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000116 & 101000165	Whitman Branch Bypass; Oak Ridge Dr Creek, including Detention	Burnet	Marble Falls	\$89,000	HDR

Non-Structural Alternatives Considered

- Buyouts

Structural Alternatives Considered

- Channel modifications (incl. 3 bridge upgrades)
- 2 Flood bypass alternatives
- Regional detention – ***Preferred and recommended***
 - 38 feet maximum height earthen embankment dam
 - 100-year level of protection
 - 10 feet of freeboard to provide dam safety compliance



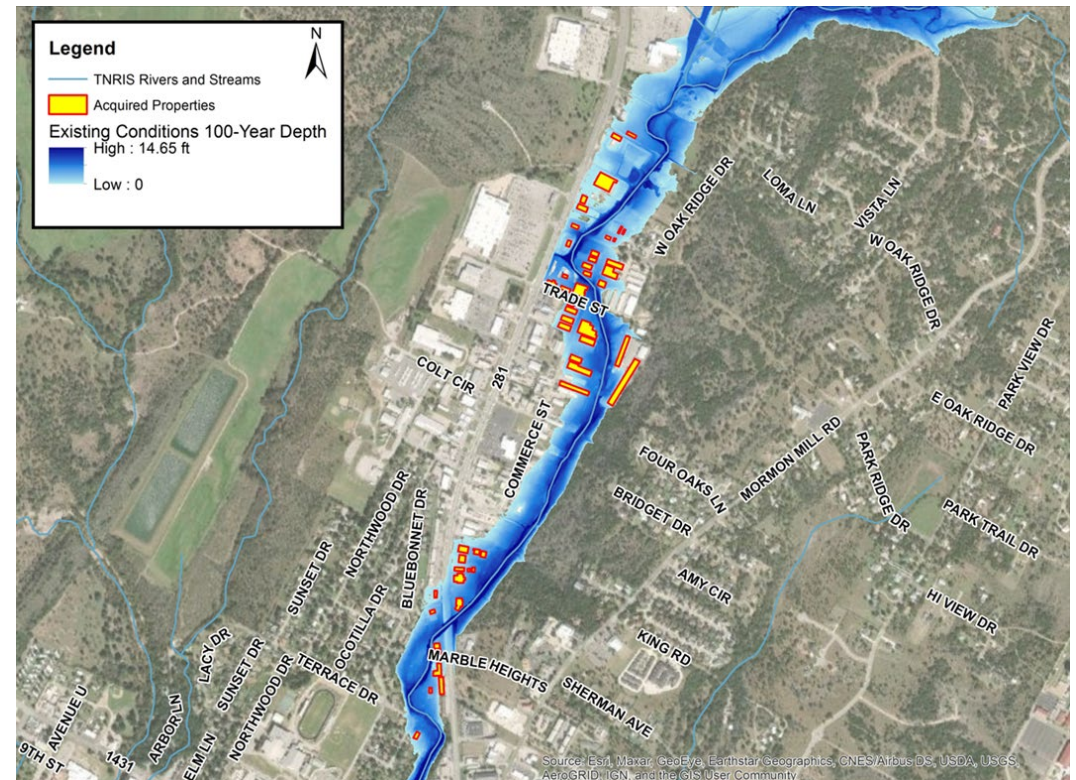
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FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000116 & 101000165	Whitman Branch Bypass; Oak Ridge Dr Creek, including Detention	Burnet	Marble Falls	\$89,000	HDR

FMP – Buyout Program

- Benefits
 - Eliminates flood risk to properties
- Total Estimated Capital Cost = ~\$51M+
- Constraints
 - Significant loss of City tax base
 - Public buy-in

Determined that this is not a viable alternative.



TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000116 & 101000165	Whitman Branch Bypass; Oak Ridge Dr Creek, including Detention	Burnet	Marble Falls	\$89,000	HDR

FMP – Flood Bypass Alternatives

- Benefits
 - 17 of 66 structures removed from the floodplain
 - Reduced flood risk for the remaining structures
- Total Estimated Capital Cost = \$54M
- Benefit Cost Ratio = 0.1

Determined that this is not a viable alternative in terms of both flood risk reduction and cost.



TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000116 & 101000165	Whitman Branch Bypass; Oak Ridge Dr Creek, including Detention	Burnet	Marble Falls	\$89,000	HDR

FMP - Channel Modifications

- Benefits
 - 27 of 66 structures removed from the floodplain
 - 3 low water crossings upgraded to pass 100-year
- Total Estimated Capital Cost = \$57M (2020 dollars)
- Benefit Cost Ratio = 0.1

Determined that this is not a viable alternative in terms of both flood risk reduction and cost.

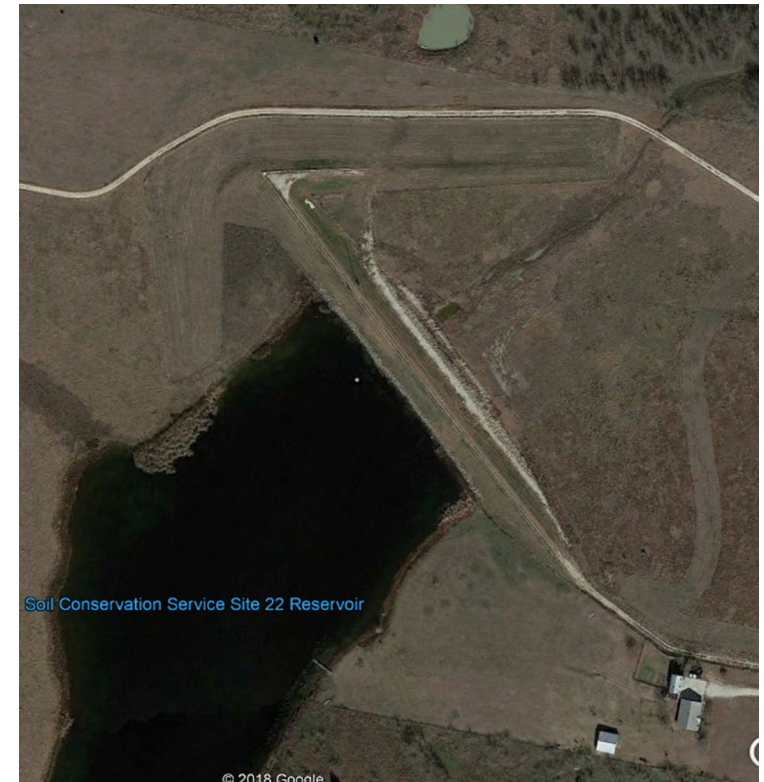


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000116 & 101000165	Whitman Branch Bypass; Oak Ridge Dr Creek, including Detention	Burnet	Marble Falls	\$89,000	HDR

FMP – Regional Stormwater Detention

- Benefits
 - Reduces 100-year flow from ~7,000 cfs to ~400 cfs
 - Removes 44 structures from floodplain
 - Reduced flood risk to remaining structures and 2 local crossings
 - Reduced flood risk at US Hwy 281 (31k ADT)
- Estimate of Probable Cost
 - \$32M total capital cost (2020 dollars)
- Benefit Cost Ratio = 1.0

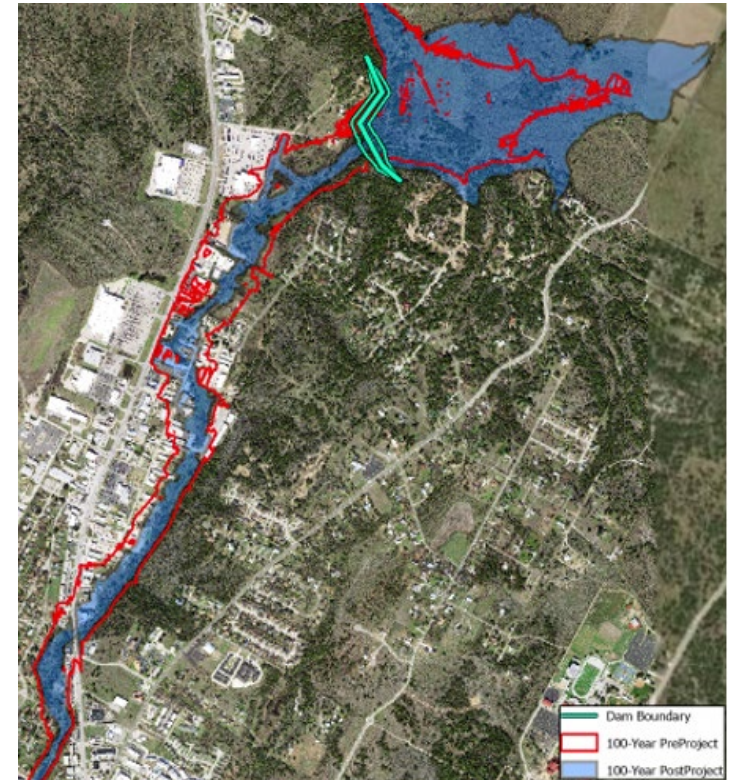


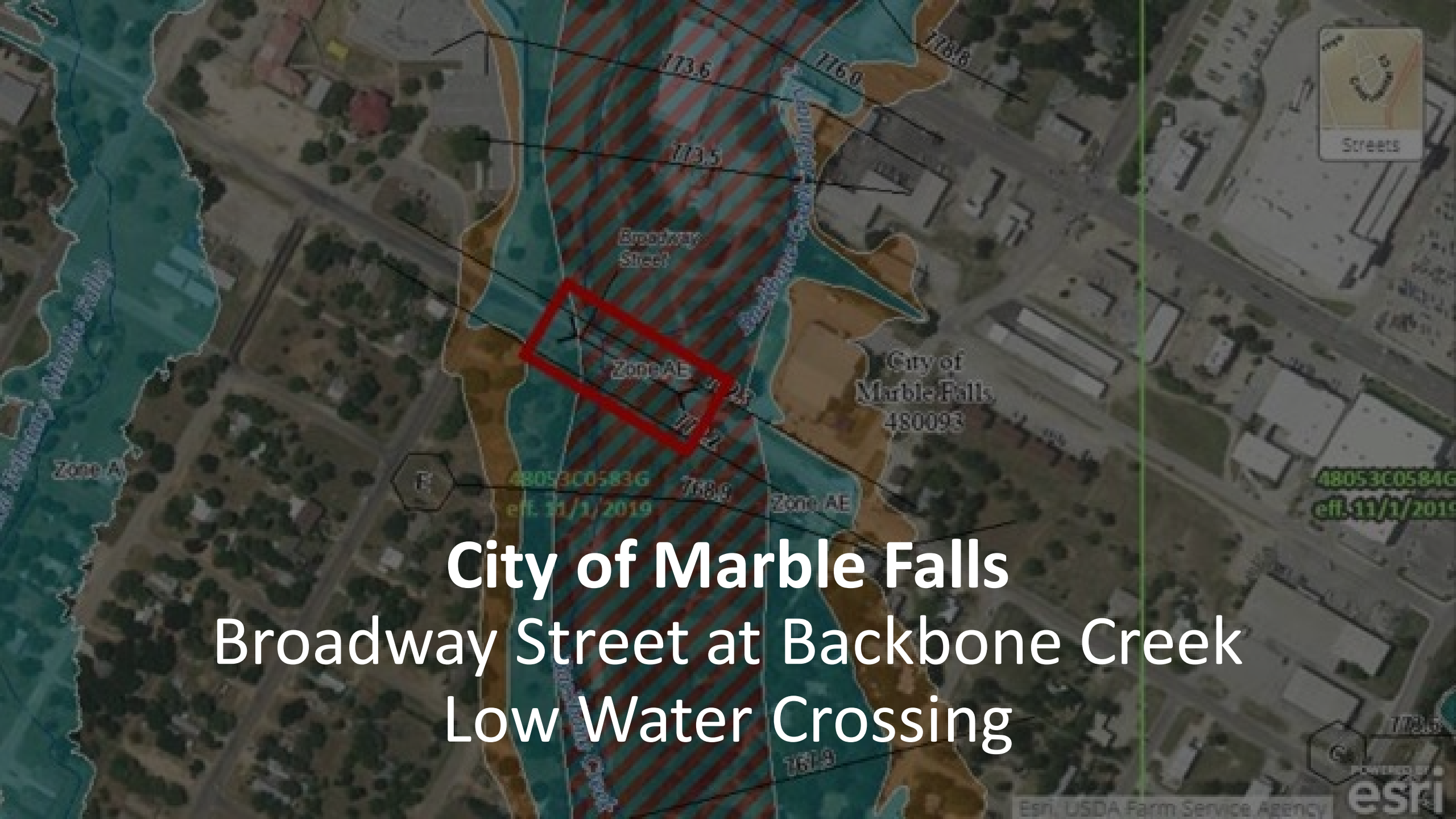
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FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000116 & 101000165	Whitman Branch Bypass; Oak Ridge Dr Creek, including Detention	Burnet	Marble Falls	\$89,000	HDR

FMP – Regional Stormwater Detention

- No Negative Impact
 - Downstream net reduction, no increased inundation beyond public ROW, project property, or easement
 - Increased inundation behind dam requires land acquisition
- Project Constraints
 - Permitting a large dam (USACE 404 permitting, TCEQ approval, county coordination)
 - Potential environmental impacts
 - Land acquisition for areas in reservoir backwater
 - Public buy-in





City of Marble Falls Broadway Street at Backbone Creek Low Water Crossing

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eff. 11/1/2019

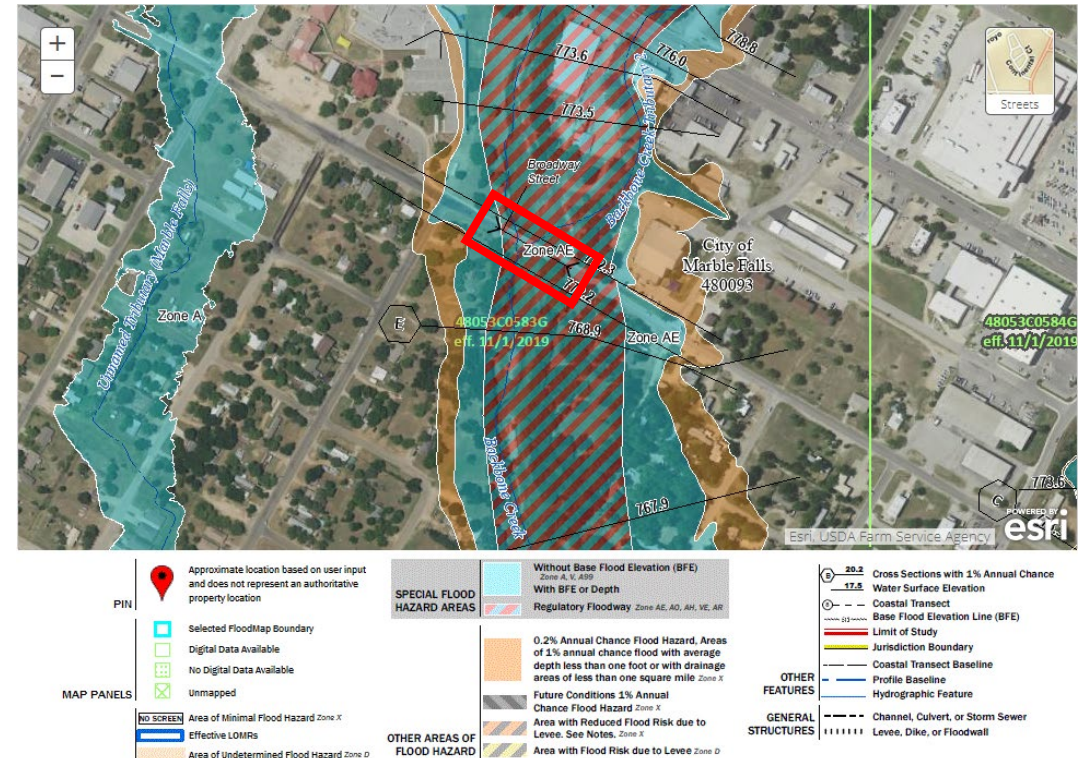
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TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000167	Broadway Street at Backbone Creek Low Water Crossing	Burnet	Marble Falls	\$62,000	HDR

Sponsor Coordination

- Confirmed general nature of flood risk and exposure
- Supportive of study and scope of work
- Assisted with acquisition of local information
- Review study deliverable
- Concur with findings, conclusion and recommendation

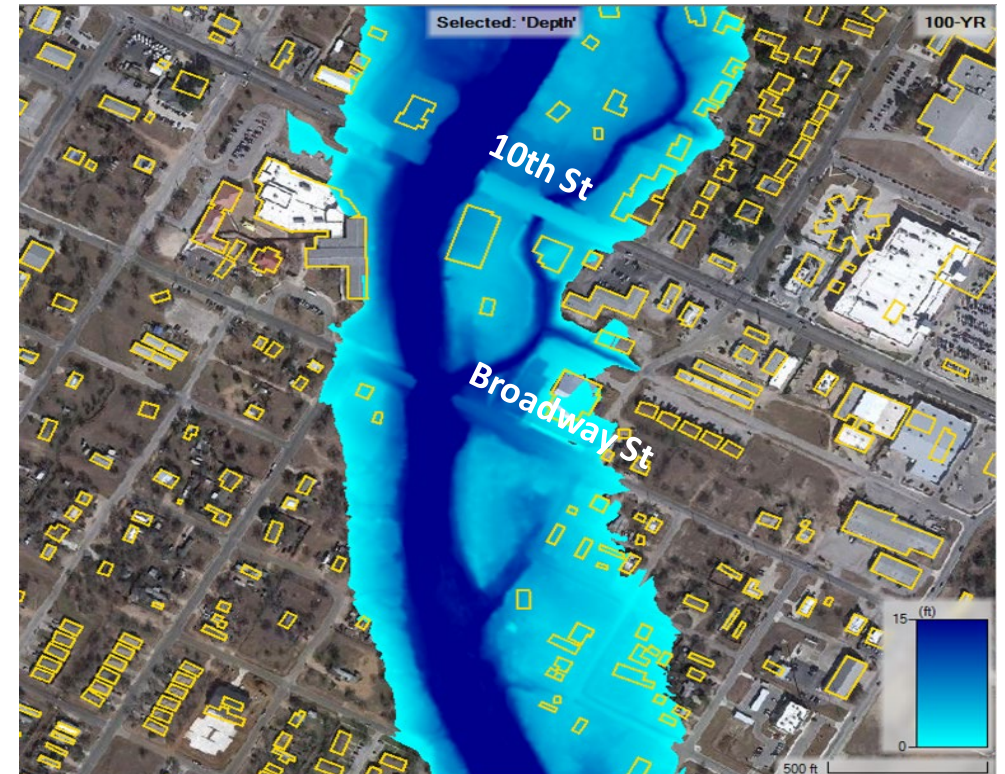


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000167	Broadway Street at Backbone Creek Low Water Crossing	Burnet	Marble Falls	\$62,000	HDR

Existing Flood Risk

- Broadway overtops in 2-year event
- 10th Street (FM1431) overtops in 10-year event
- Access to emergency services disrupted during flood events



TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000167	Broadway Street at Backbone Creek Low Water Crossing	Burnet	Marble Falls	\$62,000	HDR

FMP – Replace Bridge

- 300-ft TxDOT slab beam bridge
- Elevate roadway 8 feet
- Channel widening through and downstream of bridge



TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000167	Broadway Street at Backbone Creek Low Water Crossing	Burnet	Marble Falls	\$62,000	HDR

FMP – Replace Bridge

- No Negative Impact
 - No increases in 100-year WSELs upstream or downstream of project, mitigated with channel modifications
- Project Constraints
 - Potential USACE Section 404 permitting
 - Other constraints typical of crossing improvement project (permitting, local utility adjustments, etc.)

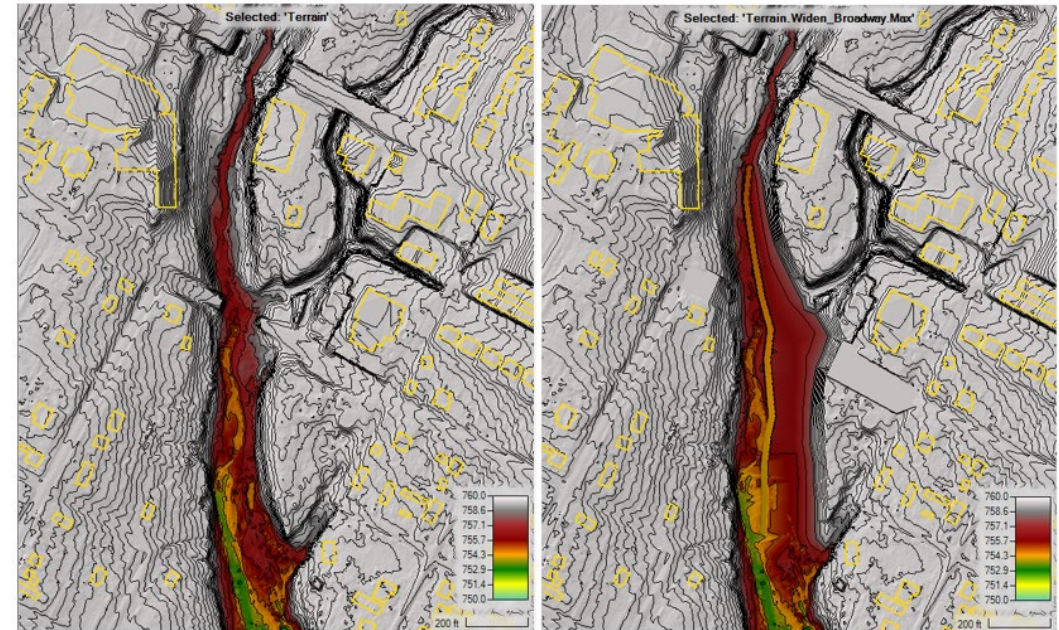


Figure 5: Existing Conditions (Left) and Post Conditions (Right) Stream Channel and Floodplain Conveyance Improvements

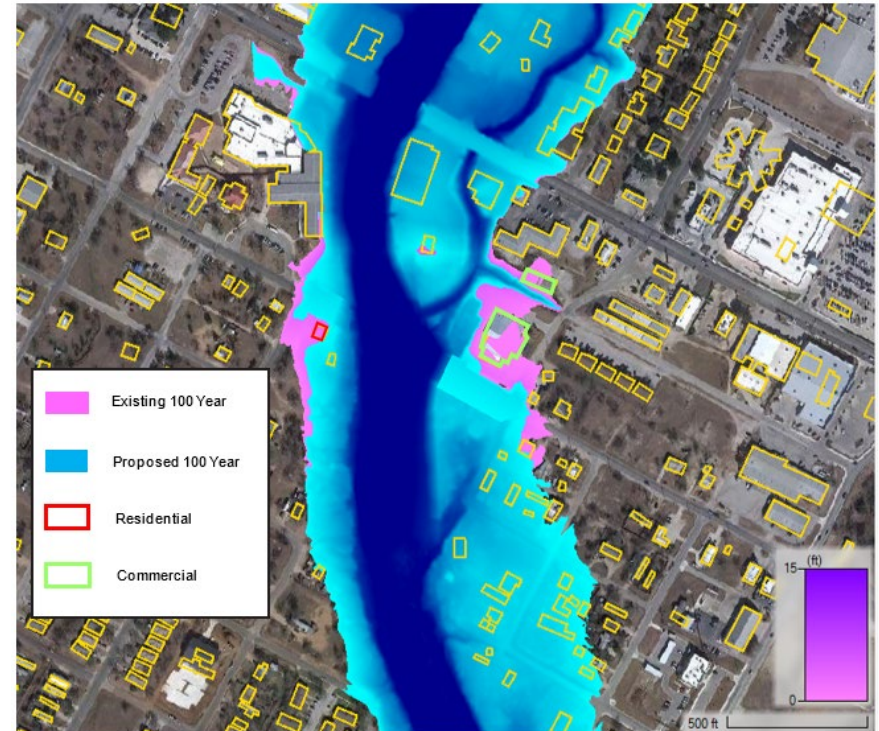
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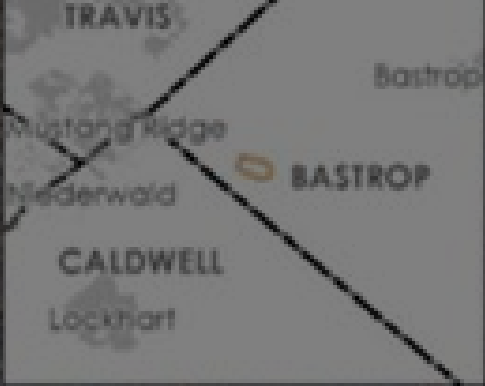
FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000167	Broadway Street at Backbone Creek Low Water Crossing	Burnet	Marble Falls	\$62,000	HDR

FMP – Replace Bridge

- Estimate of Probable Cost
 - \$4.6M total capital cost (2020 dollars)
- Benefit Cost Analysis
 - Estimated damages based on reduction of traffic impacts
 - Removes two commercial structures
 - Benefits over 30 years = \$3.2M
 - Benefit Cost Ratio = 0.6

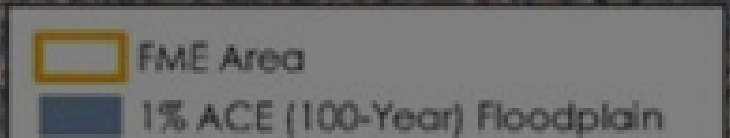
Note: BCA is significantly impacted by overtopping depth (42" versus 48"). 42" of existing condition overtopping results in \$7.2M in benefits and a benefit cost ratio of 1.3.





Bastrop County

FM 812 at Little Alum Creek



TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000027	FM 812 at Little Alum Creek	Bastrop	Bastrop Co.	\$86,000	Halff

Sponsor Coordination

- Confirmed general nature of flood risk and exposure
- Supportive of study and scope of work
- Assisted with acquisition of local information
- Review study deliverable
- Concur with findings, conclusion and recommendation



TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000027	FM 812 at Little Alum Creek	Bastrop	Bastrop Co.	\$86,000	Half

Existing Flood Risk

- Existing Crossing:
 - Double 7'x7' box culvert
 - 2,265 average daily traffic
- Existing Crossing Inundation:
 - 2-year event, ~0.4 feet
 - 10-year event, ~2.0 feet
 - 25-year event, ~2.3 feet
 - 100-year event, ~2.7 feet

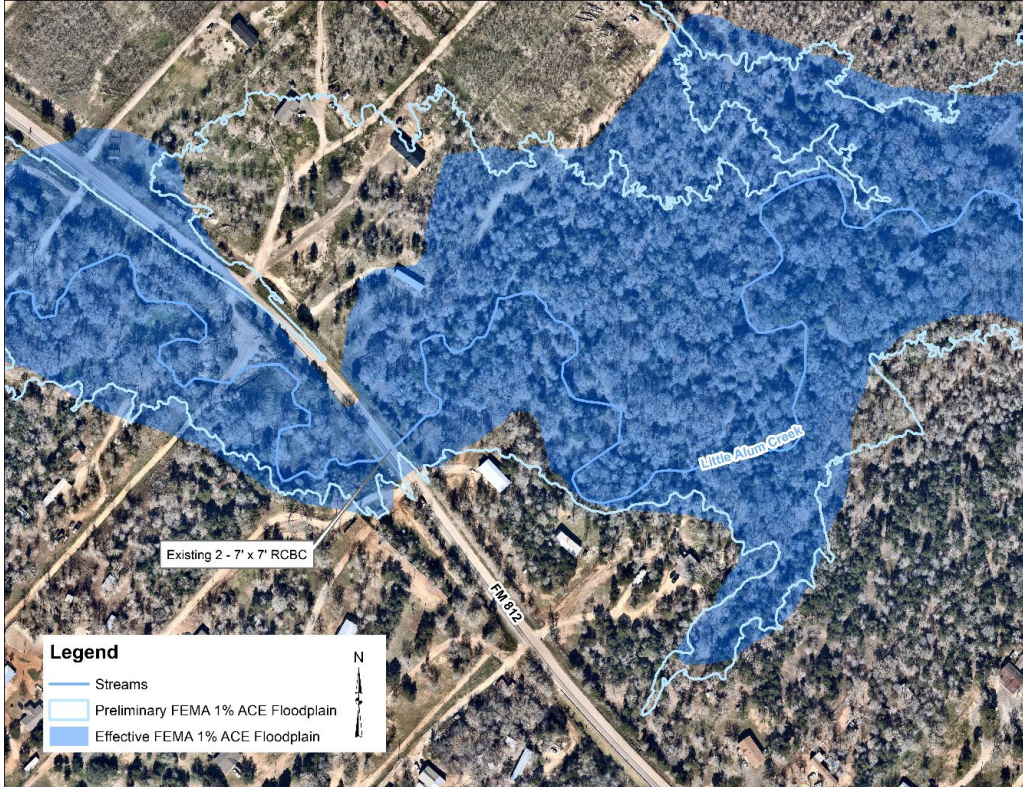


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000027	FM 812 at Little Alum Creek	Bastrop	Bastrop Co.	\$86,000	Halff

Alternatives Considered

- Additional culverts
- Raise roadway elevation
- Bridge span – *preferred and recommended*

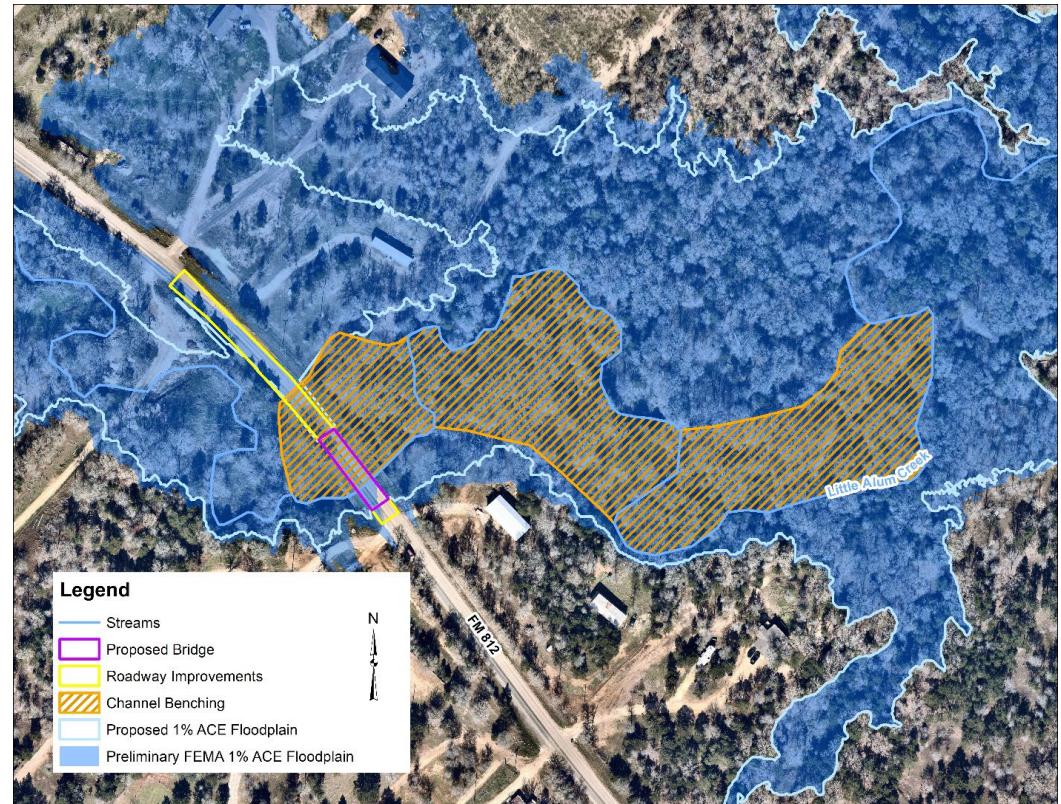


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000027	FM 812 at Little Alum Creek	Bastrop	Bastrop Co.	\$86,000	Halff

FMP – New Bridge

- No Negative Impact
 - No increases in 100-year water surface elevations upstream or downstream of project, mitigated with channel modifications
- Project Constraints
 - Avoiding potential USACE Section 404 permitting
 - Other constraints typical of crossing improvement project (permitting, local utility adjustments, etc.)
 - Thinning thick vegetation
 - Drainage Easements for channel modifications

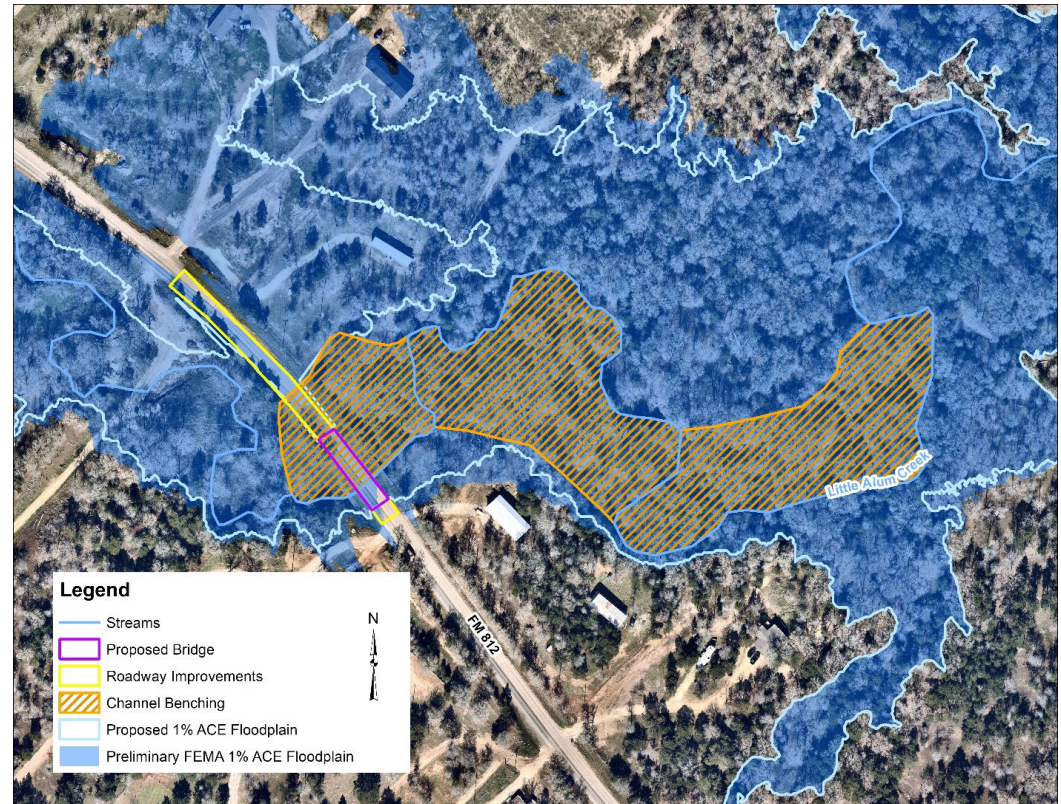


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000027	FM 812 at Little Alum Creek	Bastrop	Bastrop Co.	\$86,000	Halff

FMP – New Bridge

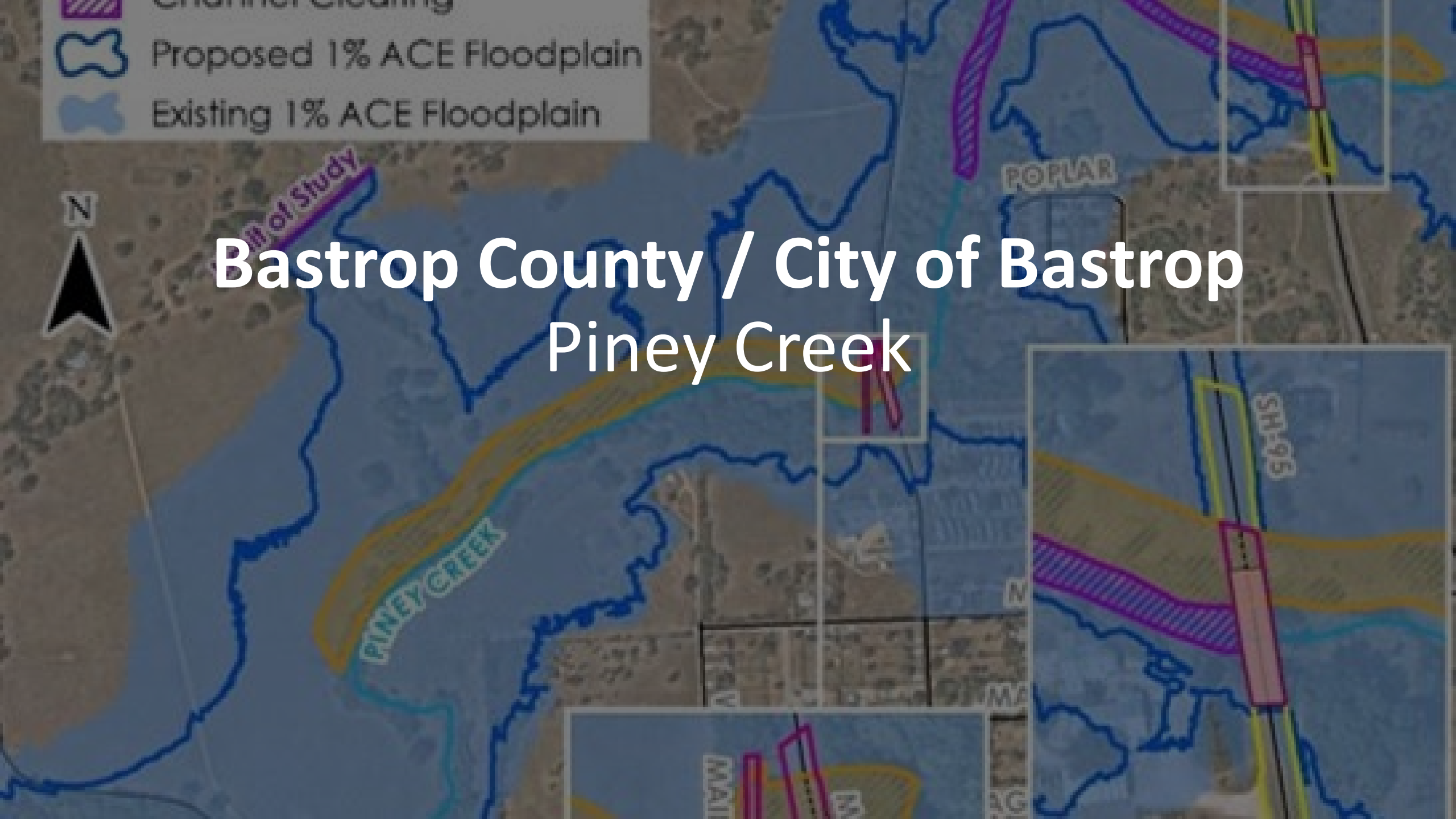
- Estimate of Probable Cost
 - \$8,288,617 total cost
- Benefit Cost Analysis
 - Estimated damages based on traffic
 - Benefits over 30 years = \$9,009
 - Benefit Cost Ratio = 0.00



- Channel Closing
- Proposed 1% ACE Floodplain
- Existing 1% ACE Floodplain



Bastrop County / City of Bastrop Piney Creek

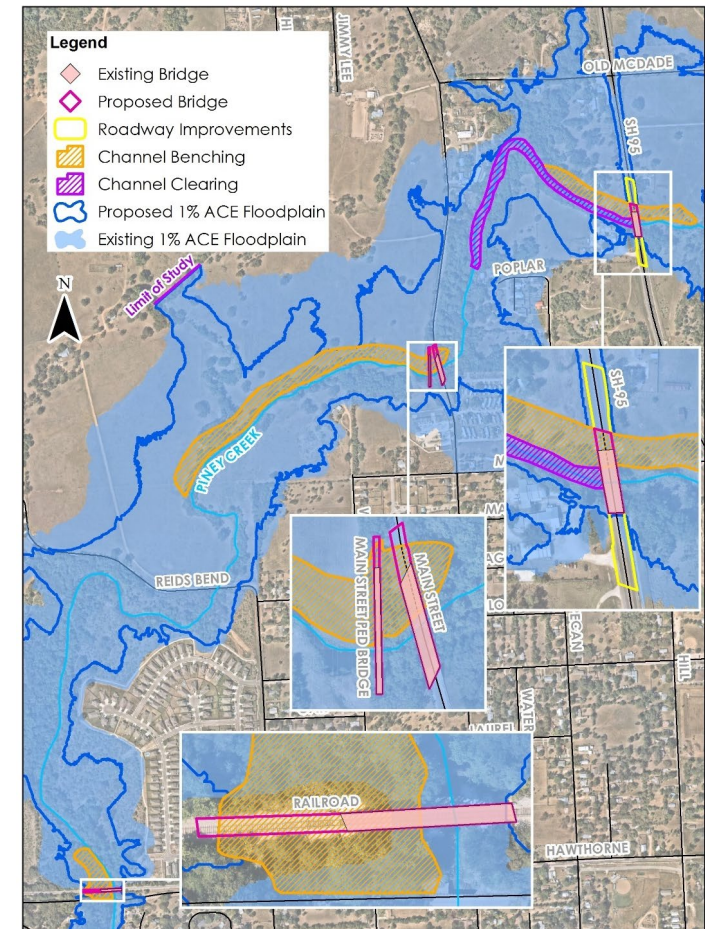


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000102	Piney Creek Benching	Bastrop	Bastrop Co.	\$88,000	Halff

Sponsor Coordination

- Confirmed general nature of flood risk and exposure
- Supportive of study and scope of work
- Assisted with acquisition of local information
- Review study deliverable
- Concur with findings, conclusion and recommendation



TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000102	Piney Creek Benching	Bastrop	Bastrop Co.	\$88,000	Halff

Existing Flood Risk

- 100-year Exposure
 - 66 at risk buildings
 - 1 critical facility
 - 3 roadway crossings
 - 20 people
 - 0.54 square miles of agricultural land

Existing Condition Roadway Overtopping (feet)			
Roadway	50-year	100-year	Approximate Level of Service
State Highway 95	0.6	2.3	25-year
Main Street	9.6	11.8	2-year
Reids Bend	13.7	16.7	10-year
UP Railroad	NA	NA	500-year

TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000102	Piney Creek Benching	Bastrop	Bastrop Co.	\$88,000	Halff

Alternatives Considered

- Crossing Improvements
- Channel Clearing
- Channel Benching

Recommend combination of alternatives to reduce risk in this area.

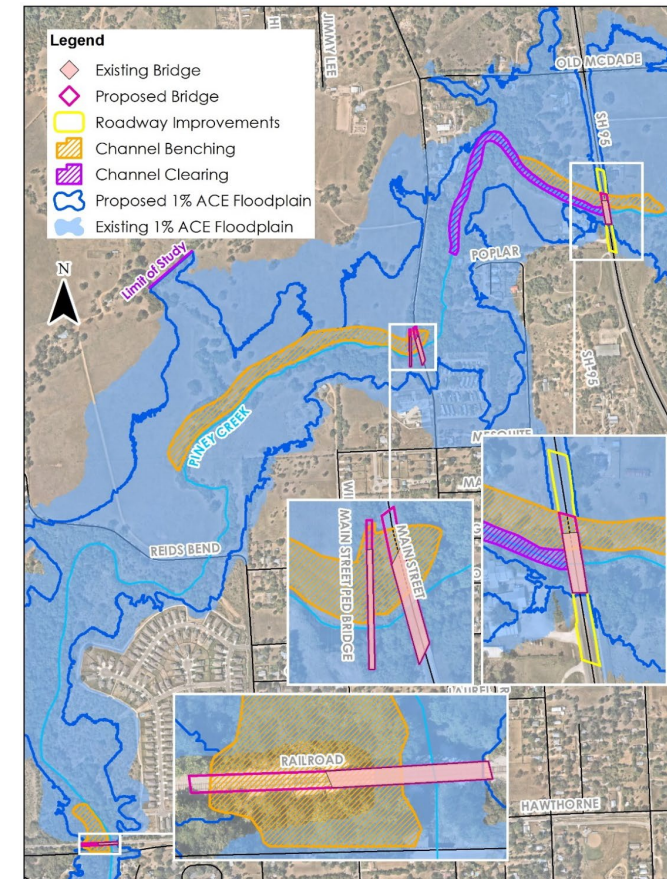
Flood Risk Condition	Number of At-Risk Buildings	Number of At-Risk Critical Facilities	Number of At-Risk Roadway Crossings	Estimated At-Risk Daytime Population (based on building populations)	Impacted Agricultural Land (square miles of at-risk land cover)
Existing Condition 1% Annual Chance (100-year)	66	1	3	20	0.54
Post-Project Condition 1% Annual Chance (100-year)	28	0	1	7	0.4
1% Annual Chance (100-year) Risk Reduction	38	1	2	13	0.14

TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000102	Piney Creek Benching	Bastrop	Bastrop Co.	\$88,000	Halff

FMP – Bridge and Channel Improvements

- No Negative Impact
 - No increases in 100-year water surface elevations upstream or downstream of project, mitigated with channel modifications
- Project Constraints
 - Avoiding potential USACE Section 404 permitting
 - Other constraints typical of crossing improvement project (permitting, local utility adjustments, multi-jurisdictional coordination, etc.)
 - Railroad crossing improvements

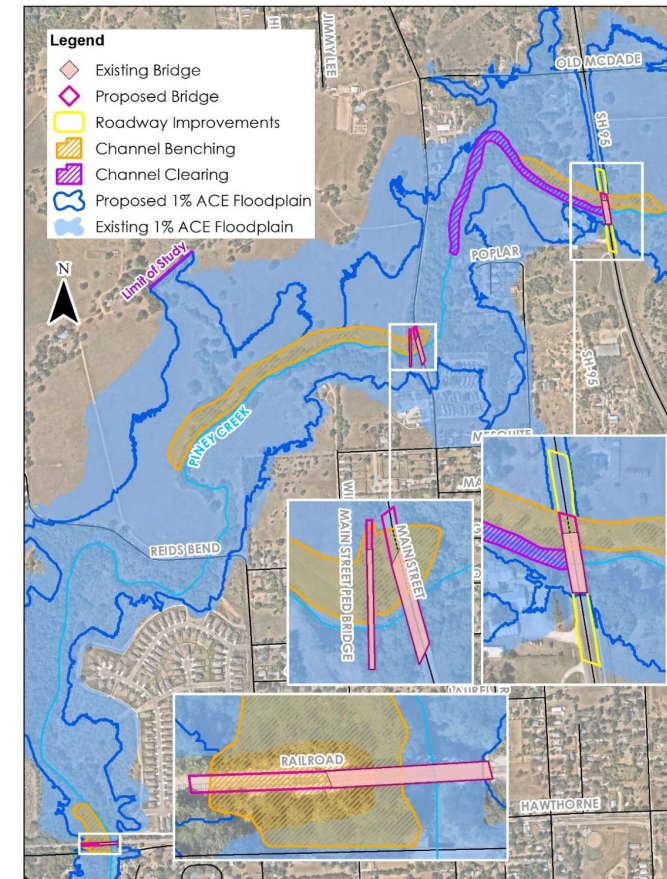


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000102	Piney Creek Benching	Bastrop	Bastrop Co.	\$88,000	Halff

FMP – Bridge and Channel Improvements

- Estimate of Probable Cost
 - \$23,991,550 total cost
- Benefit Cost Analysis
 - Estimated damages based on transportation, structural and agricultural flood risk reduction
 - Not enough information to compute critical facility, green infrastructure, and low water crossing benefits
 - Benefits over 30 years = \$614,347
 - Benefit Cost Ratio = 0.1



City of Edna Wastewater Treatment Plant Floodproofing

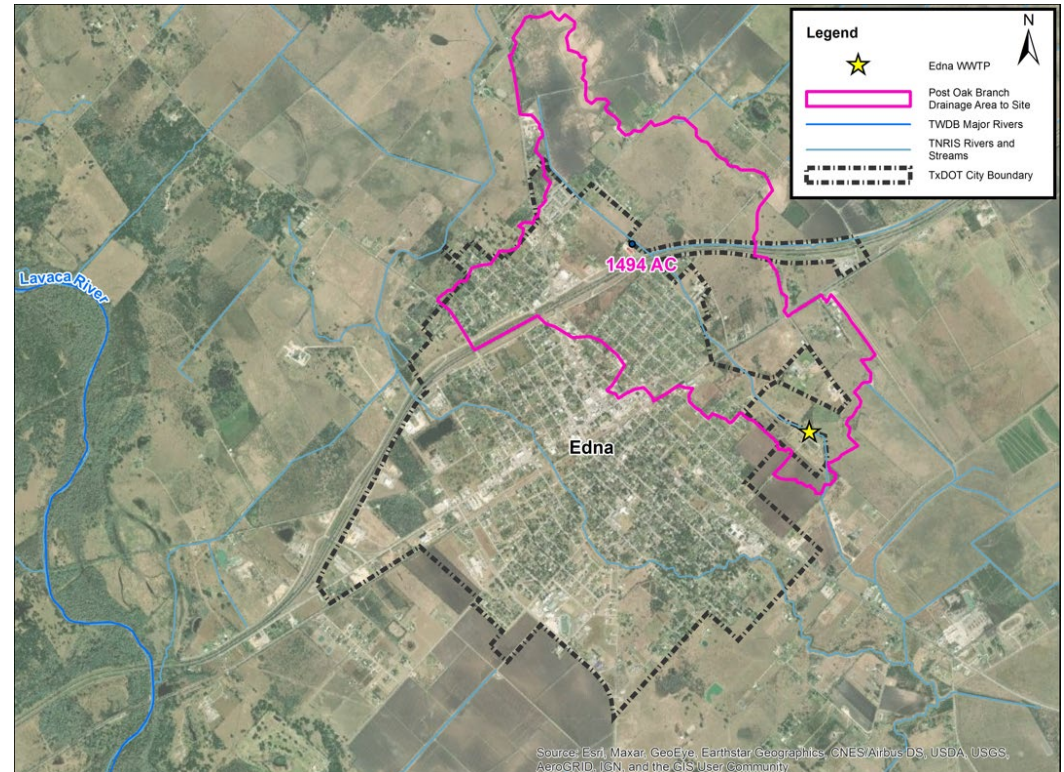


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000189	Wastewater Treatment Plant Floodproofing	Jackson	Edna	\$66,000	HDR

Sponsor Coordination

- Supportive of study and scope of work
- Site visit and meetings with City Manager and WWTP Operator
- WWTP Operator observations of the 2020 plant outage during storm
- Review study deliverable (pending)
- Concur with findings, conclusions and recommendation (pending)

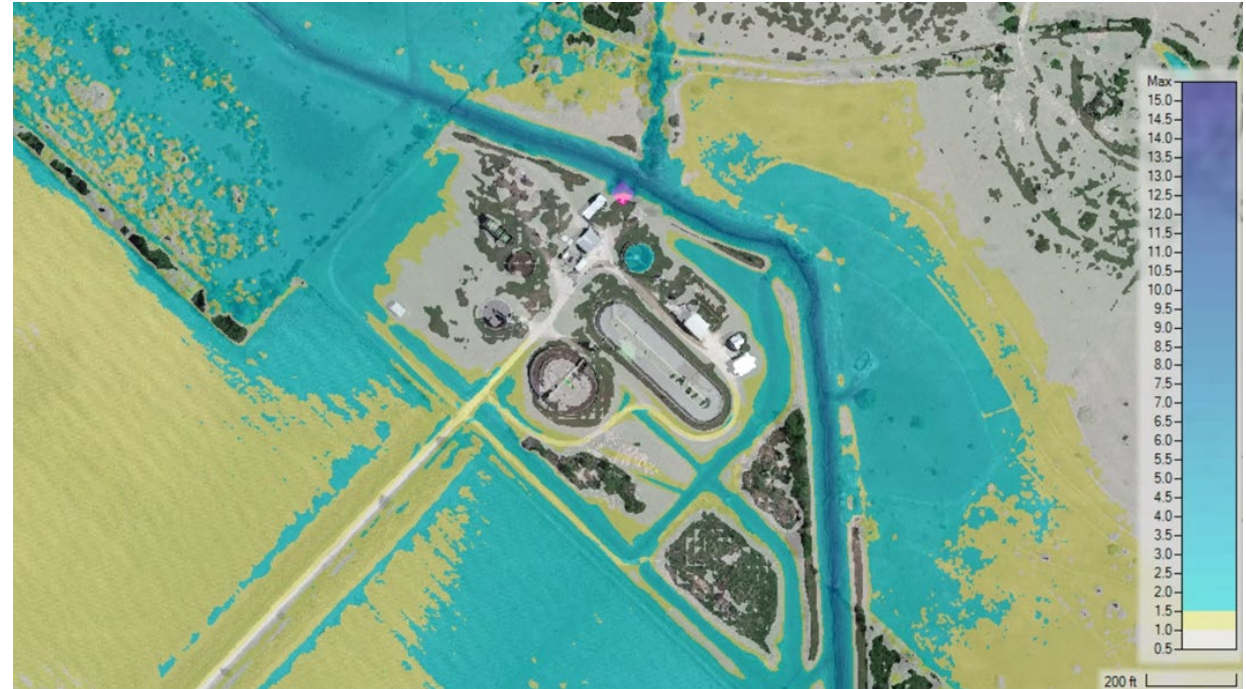


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000189	Wastewater Treatment Plant Floodproofing	Jackson	Edna	\$66,000	HDR

Existing Flood Risk

- May 2020 Flood:
 - WWTP operations failure and shutdown (UV disinfection system failure) occurred during May 2020 storm event (exceeded 25-yr storm)
 - Excessive water depth near WWTP outlet suspected cause of outage

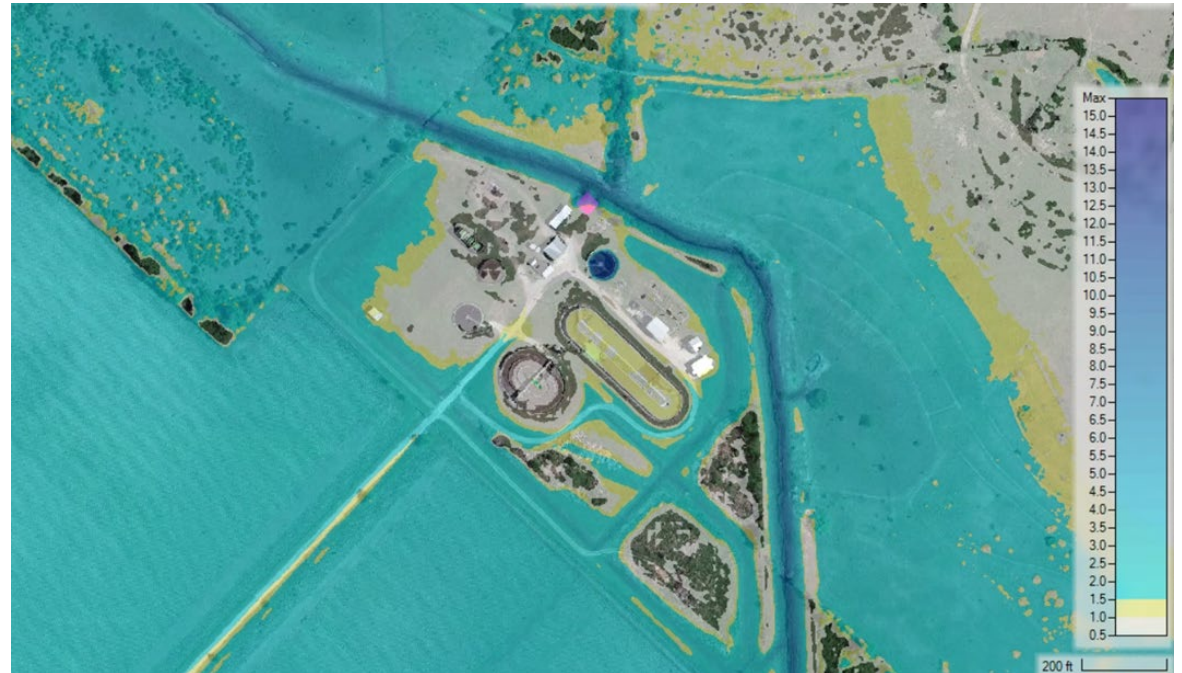


TASK 12 – PERFORM FMEs FOR ADDITIONAL FMPs

FME ID Number	FME Title	County	Sponsor	Estimated Study Cost	Technical Lead
101000189	Wastewater Treatment Plant Floodproofing	Jackson	Edna	\$66,000	HDR

Existing Flood Risk

- Preliminary FME Findings:
 - WWTP infrastructure above 100-year flood
 - Increased inflow and infiltration (I&I) flow may impact UV disinfection system
 - Uncertainties in observed high-water marks
 - Further investigation of WWTP operations and I&I are recommended
 - Flood mitigation funding may not be most applicable to this issue





Task 13

Preparation and Adoption of the Amended Regional Flood Plan

TASK 13 – PREPARATION AND ADOPTION OF AMENDED PLAN

Possible additional activities for Amended Regional Flood Plan

Type	Action Name	Sponsor	County	Technical Lead	Status
TBD	City of Bastrop Drainage Master Plan	City of Bastrop	Bastrop	Halff	Initial conversations
FME	Burnet County Zone A Modeling and Mapping	Burnet County	Burnet	Halff	
FME	Burnet County Lower Water Crossings	Burnet County	Burnet	Halff	
FMP	Christian Dr @ Cedar Creek - Channel improvements and/or buyouts	Caldwell County	Caldwell	FNI	Submitted. In review.
FMP	CR170 @ Lytton Creek - Upgrade existing low water crossings	Caldwell County	Caldwell	FNI	Submitted. In review.
FMP	CR172 @ Lytton Creek - Upgrade existing low water crossing	Caldwell County	Caldwell	FNI	Submitted. In review.
FMP	CR174 @ Lytton Springs Creek - Channel improvements and/or buyouts	Caldwell County	Caldwell	FNI	Submitted. In review.
FMP	CR175 @ Cedar Creek Trib 1 - Upgrade existing low water crossing	Caldwell County	Caldwell	FNI	Submitted. In review.
FME	City of Needville Fairchild Creek Drainage Mitigation Study	Needville	Fort Bend	HDR	
FME	City of Needville #15	Needville	Fort Bend	HDR	
FME	City of Hays Drainage Study	Hays	Hays	Halff	
FME	City of Hays Little Bear Creek Recharge Area Study	Hays	Hays	Halff	
FME	Feasibility of Lowering Dam Spillway on Cummins Creek	Lee County	Lee	Halff	Submitted.
FMP	Waller Creek – Guadalupe Storm Drain Improvements	City of Austin	Travis	FNI	
FMP	Dalton Lane Improvements	City of Austin	Travis	FNI	
TBD	City of Pflugerville Drainage Master Plan	City of Pflugerville	Travis	Halff	Initial conversations
FMP	Lower Peach Creek Channel Widening and Regional Detention	Wharton County	Wharton	FNI	Initial conversations
FMP	Pecan Valley Phase 2 Diversion Channel	Wharton County	Wharton	FNI	Initial conversations
FMP	El Lobo Neighborhood Levee/Channel Project	Wharton County	Wharton	FNI	Initial conversations
FMP	Boling Drainage Improvements Phase 2	Wharton County	Wharton	FNI	Initial conversations
FMP	County Road 111 Diversion Channel	Wharton County	Wharton	FNI	Initial conversations
FMP	East Bernard Levee	Wharton County	Wharton	FNI	Initial conversations
FMP	Caney Creek Regional Detention	Wharton County	Wharton	FNI	Initial conversations

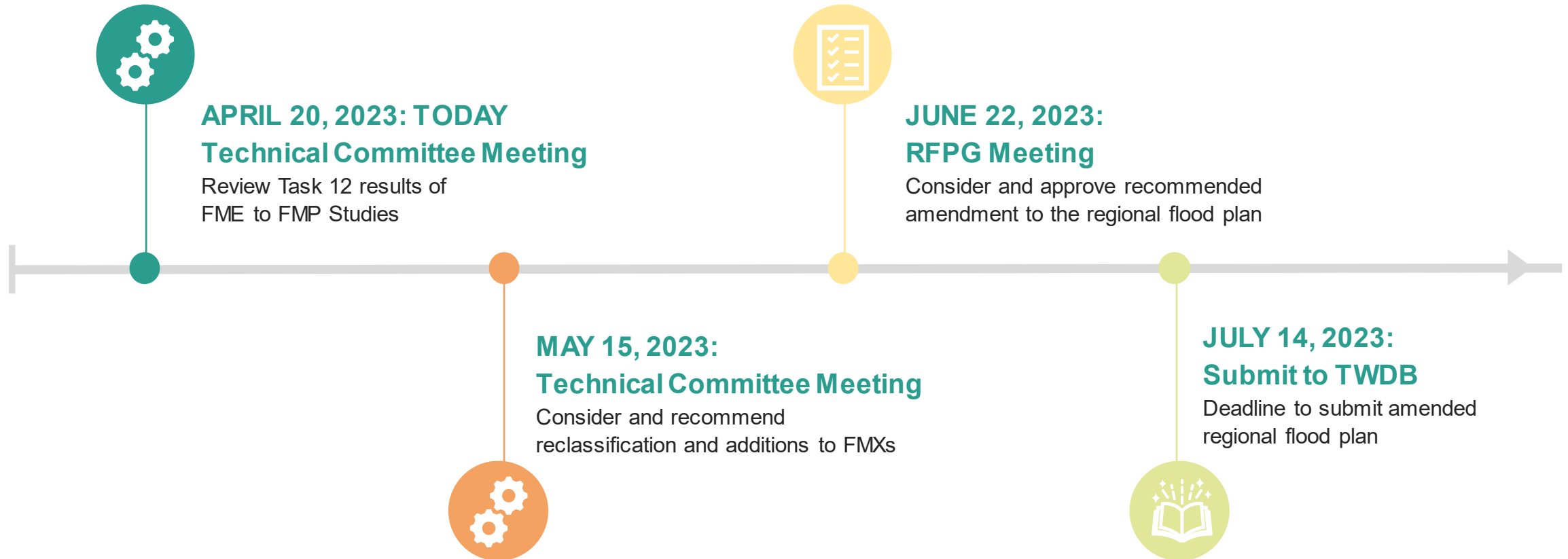
Note: Inclusion of new activities is dependent upon sponsor provided information.



Look Ahead

SCHEDULE TO AMENDED REGIONAL FLOOD PLAN

Proposed Approach



Region 10 Lower Colorado-Lavaca RFPG Technical Committee Meeting

- 6. Consider date and agenda items for next meeting**
- 7. Adjourn**