

Flood Management Evaluation (FME)



Title **Hubbard Dams**

ID# **071000228**

Sponsor (name of entity, not person) _____

RFPG recommend? **Yes** Reason for Recommendation _____ Alignment with Region Goals _____

Study Details

Study type **Watershed Planning**

Study description **Perform a watershed-wide evaluation of 6 dams to assess flood protection performance for the 100-year and 500-year events, develop breach analyses mapping and assess hazard classification, develop risk indices, and evaluate dam safety performance.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Callahan, Eastland, Shackelford, Stephens** Watershed HUC# (if known) **-**

Drainage area (Square miles, est.) **1,281** Goal(s) **07000031**

100-Year Flood Risk Summary

Population at risk **979** # of structures **1,129** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

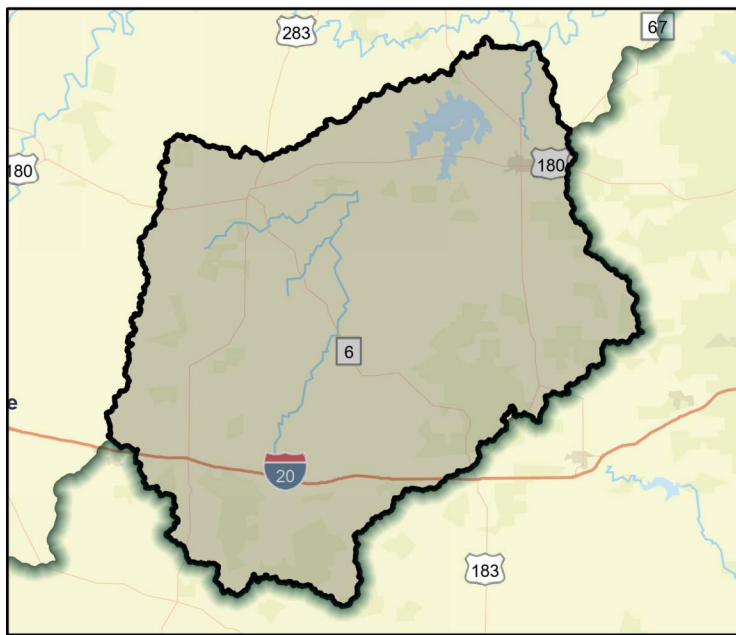
Farm/Ranch land impacted (acres) **38,071** Roadway(s) impacted (length) **157**

Number of low water crossings **18** Historical road closures **18**

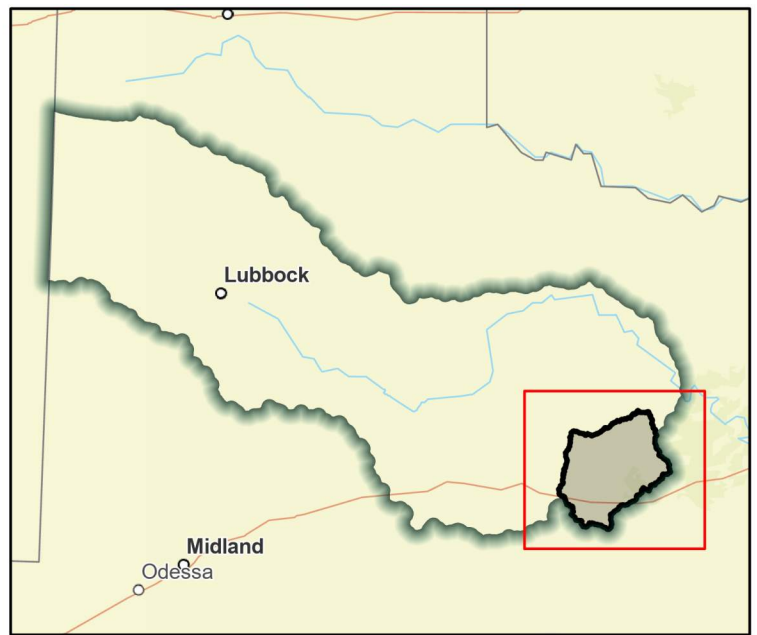
Estimated Cost and Funding Availability

Total Cost **\$277,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **John Montford Dam Evaluation**
ID# **071000118**
Sponsor (name of entity, not person) **Lubbock (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**
Study description **Access the current condition of the intake tower, bridge and structure at John Montford Dam. Evaluate the seepage through the Dam.**
New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Lubbock** Watershed HUC# (if known) **120500011203, 120500011302, 120500011303, 120500011304,**
Drainage area (Square miles, est.) **898** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

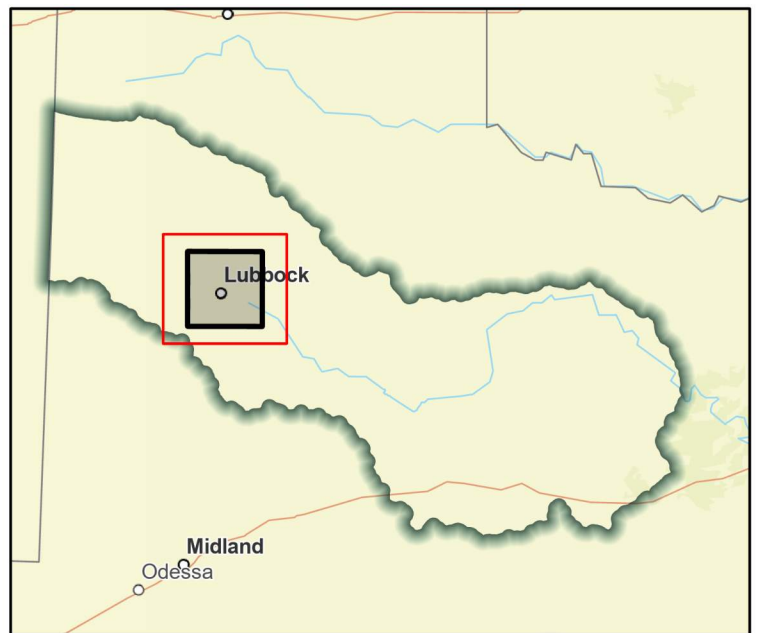
Population at risk **20,269** # of structures **6,880** Critical facilities **9**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**
Farm/Ranch land impacted (acres) **50,570** Roadway(s) impacted (length) **358**
Number of low water crossings **29** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$417,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Jones County DCM**

ID# **071000168**

Sponsor (name of entity, not person) **Jones (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Jones** Watershed HUC# (if known) **120500040901, 120601020310, 120601020404, 120601020504,**

Drainage area (Square miles, est.) **933** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **1,118** # of structures **1,145** Critical facilities **2**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **47,149** Roadway(s) impacted (length) **189**

Number of low water crossings **8** Historical road closures **0**

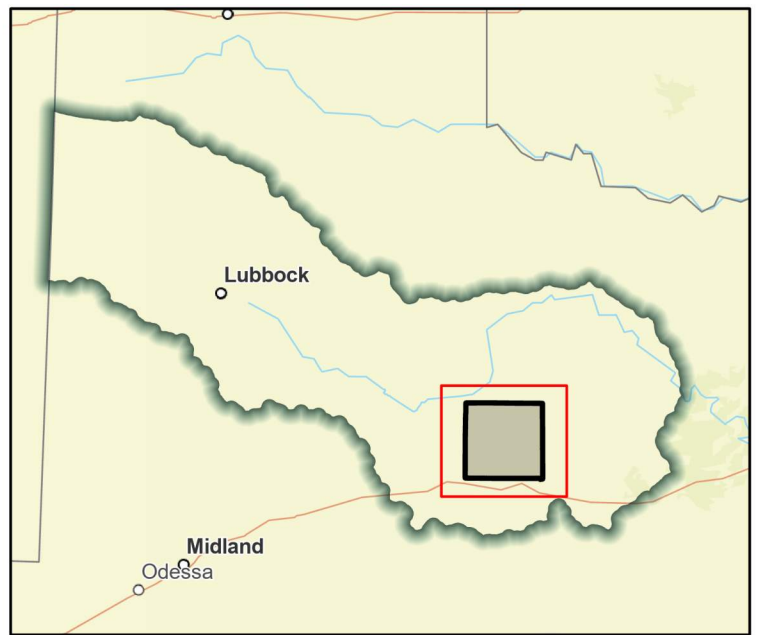
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Jones County DMP**

ID# **071000062**

Sponsor (name of entity, not person) **Jones (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Jones** Watershed HUC# (if known) **120500040901, 120601020310, 120601020404, 120601020504,**

Drainage area (Square miles, est.) **933** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **1,118** # of structures **1,145** Critical facilities **2**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **47,149** Roadway(s) impacted (length) **189**

Number of low water crossings **8** Historical road closures **0**

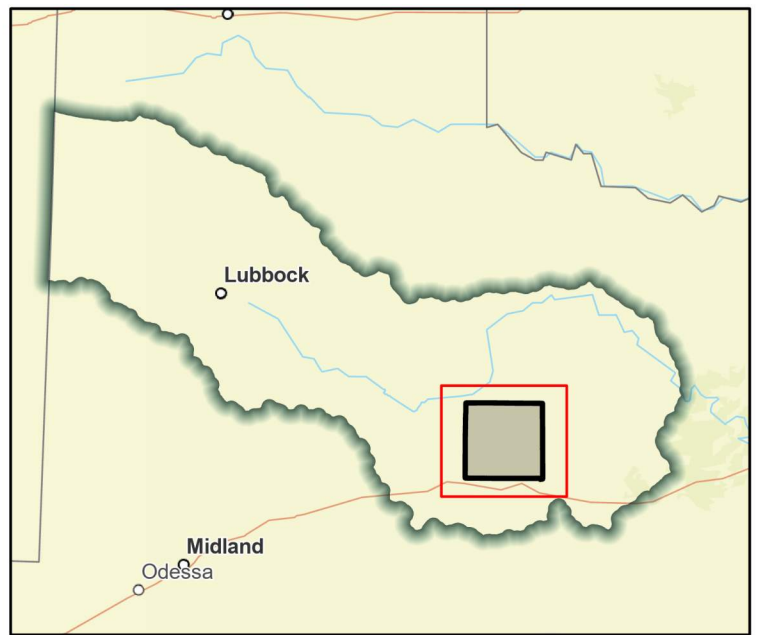
Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Kent County DCM**

ID# **071000169**

Sponsor (name of entity, not person) **Kent (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Kent** Watershed HUC# (if known) **120500030506, 120500040505, 120500040506, 120500040507,**

Drainage area (Square miles, est.) **888** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **3** # of structures **38** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

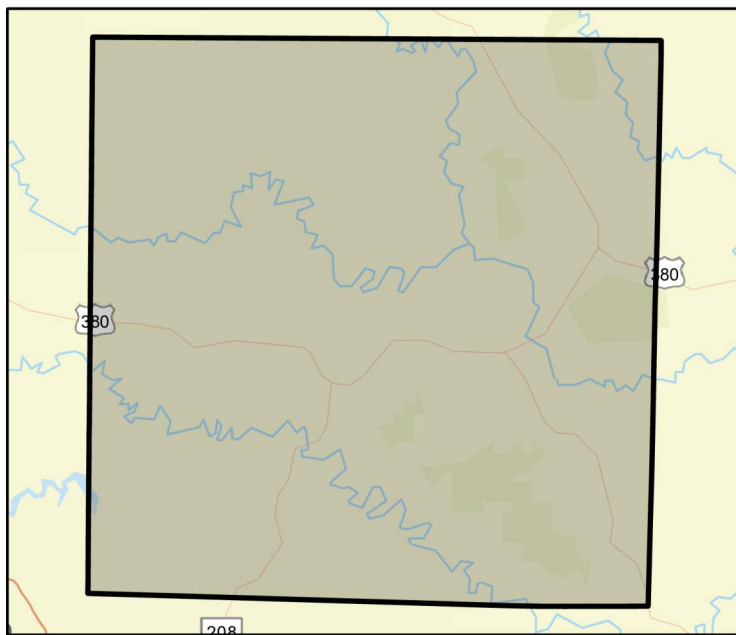
Farm/Ranch land impacted (acres) **3,244** Roadway(s) impacted (length) **41**

Number of low water crossings **4** Historical road closures **0**

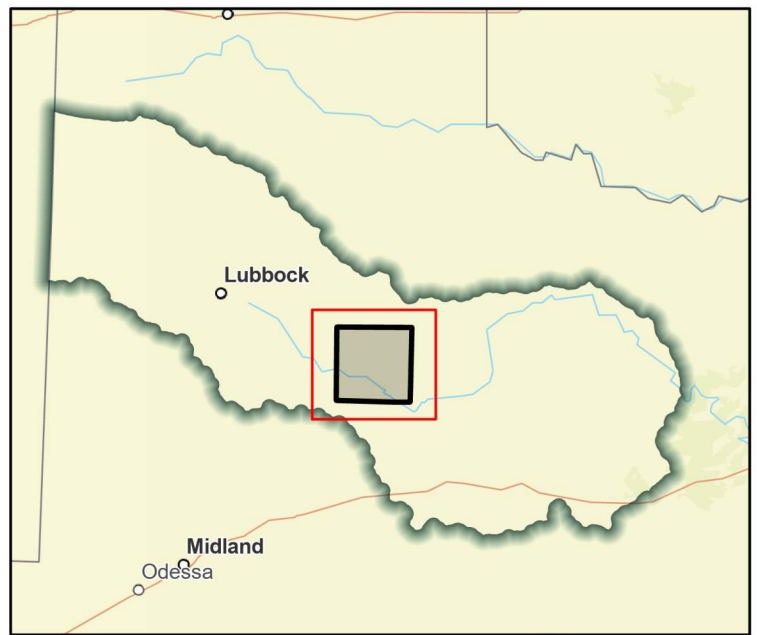
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Kent County DMP**
ID# **071000063**
Sponsor (name of entity, not person) **Kent (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

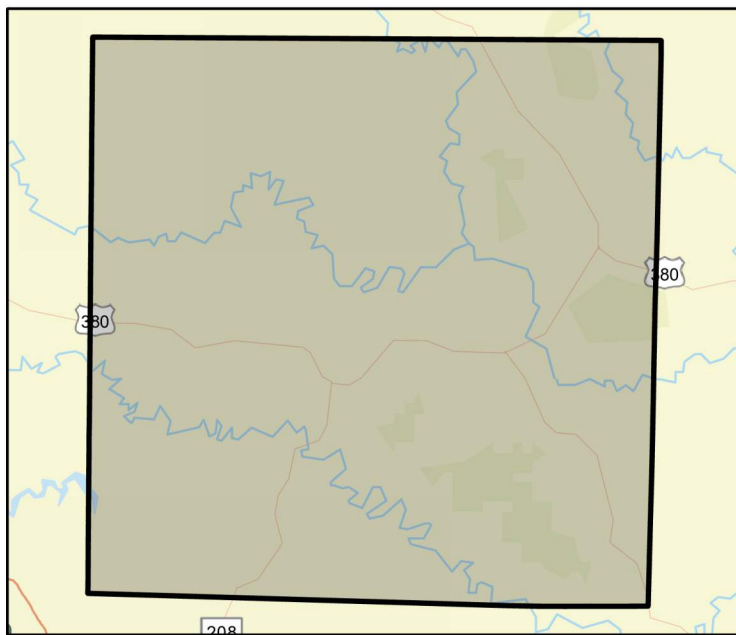
Study type **Watershed Planning**
Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**
New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Kent** Watershed HUC# (if known) **120500030506, 120500040505, 120500040506, 120500040507,**
Drainage area (Square miles, est.) **888** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

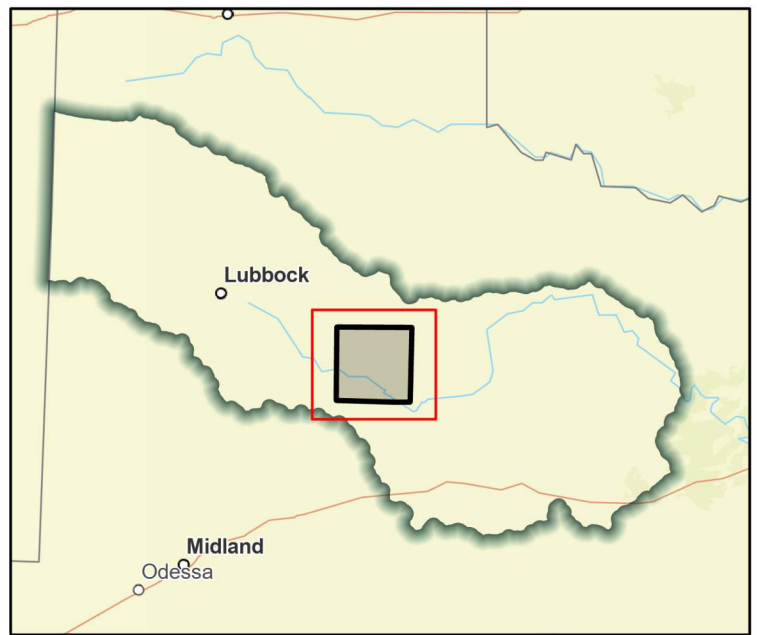
Population at risk **3** # of structures **38** Critical facilities **1**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**
Farm/Ranch land impacted (acres) **3,244** Roadway(s) impacted (length) **41**
Number of low water crossings **4** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Kent County GIS Development**
ID# **071000100**
Sponsor (name of entity, not person) **Kent (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

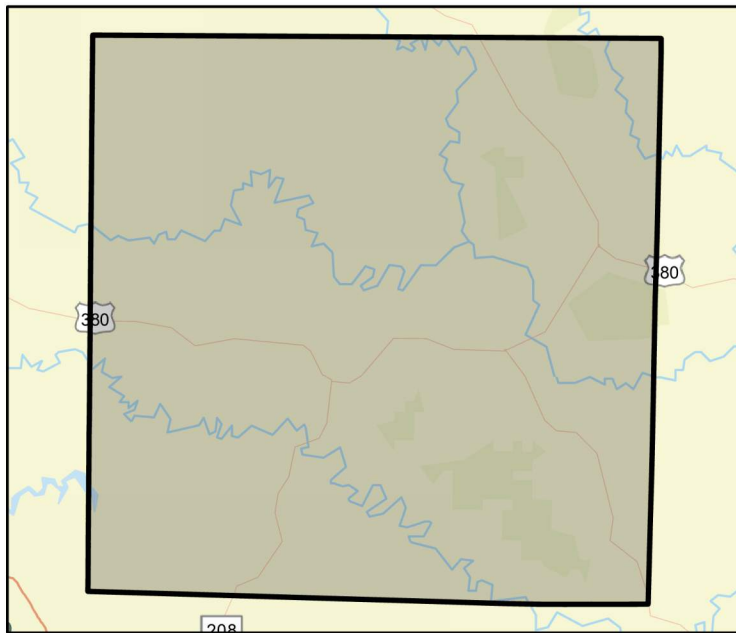
Study type **Other**
Study description **Develop a GIS inventory of stormwater infrastructure**
New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Kent** Watershed HUC# (if known) **120500030506, 120500040505, 120500040506, 120500040507,**
Drainage area (Square miles, est.) **888** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

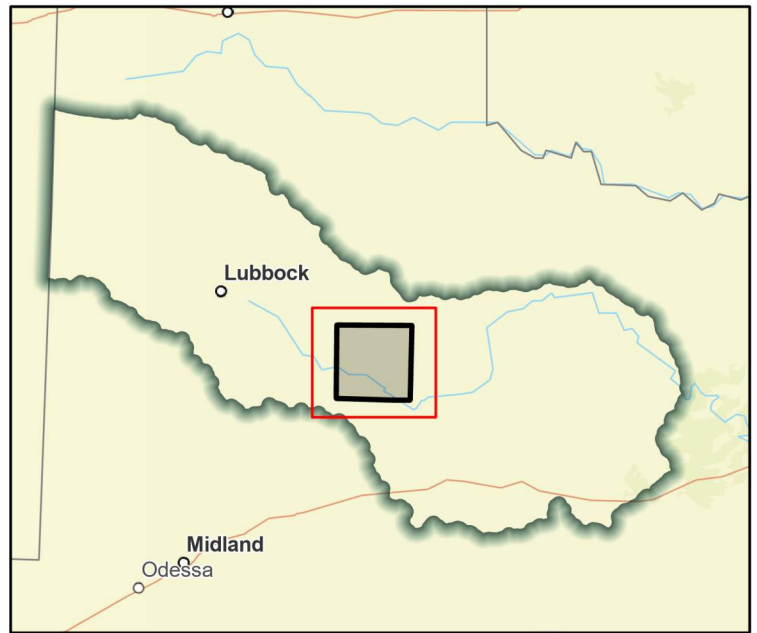
Population at risk **3** # of structures **38** Critical facilities **1**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**
Farm/Ranch land impacted (acres) **3,244** Roadway(s) impacted (length) **41**
Number of low water crossings **4** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Kent County Initial FEMA Mapping**

ID# **071000010**

Sponsor (name of entity, not person) **Kent (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Create FEMA Mapping in previously unmapped areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Kent** Watershed HUC# (if known) **120500030506, 120500040505, 120500040506, 120500040507,**

Drainage area (Square miles, est.) **888** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **3** # of structures **38** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

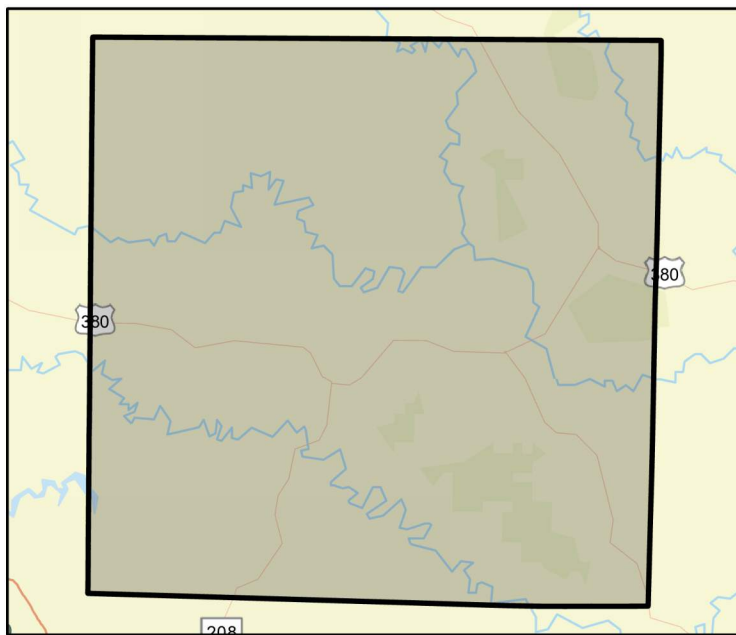
Farm/Ranch land impacted (acres) **3,244** Roadway(s) impacted (length) **41**

Number of low water crossings **4** Historical road closures **0**

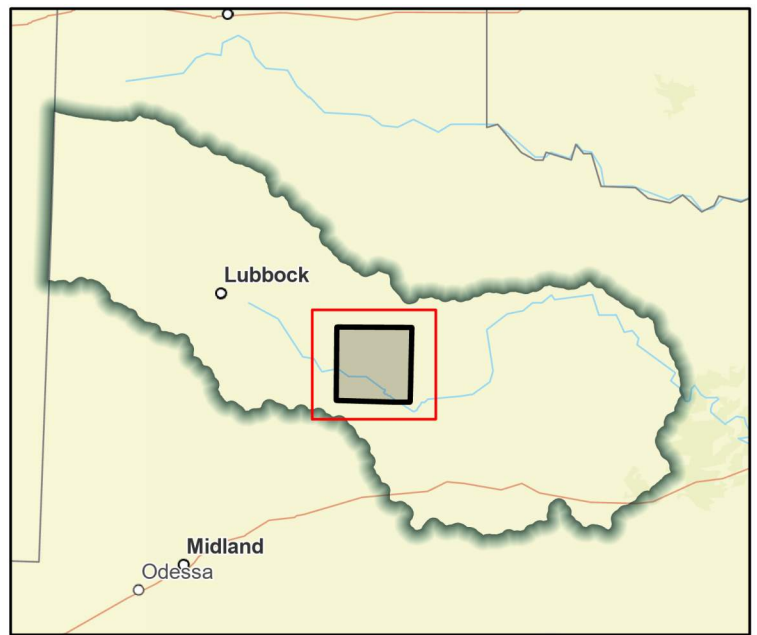
Estimated Cost and Funding Availability

Total Cost **\$965,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Kent Flood Protection Lift Station Program**

ID# **071000170**

Sponsor (name of entity, not person) **Kent (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Raise electrical components of sewage lift stations above the Base Flood Elevation (BFE).**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Kent** Watershed HUC# (if known) **120500030506, 120500040505, 120500040506, 120500040507,**

Drainage area (Square miles, est.) **888** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **3** # of structures **38** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

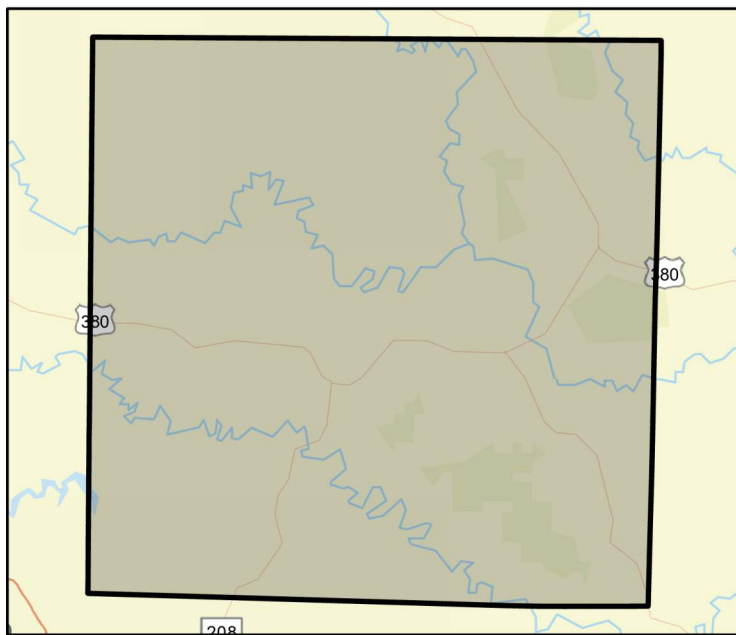
Farm/Ranch land impacted (acres) **3,244** Roadway(s) impacted (length) **41**

Number of low water crossings **4** Historical road closures **0**

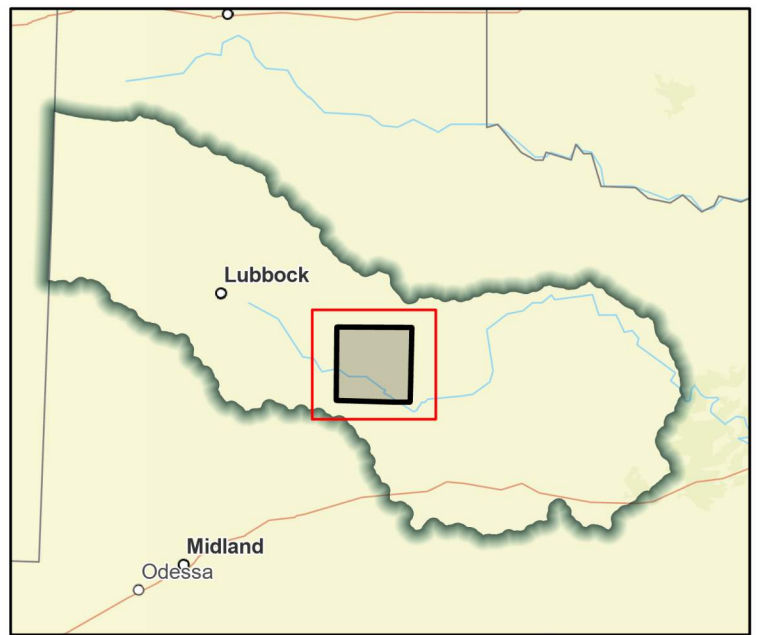
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **King County DCM**

ID# **071000171**

Sponsor (name of entity, not person) **King (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **King** Watershed HUC# (if known) **111302040102, 111302040103, 111302040104, 111302040108,**

Drainage area (Square miles, est.) **336** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **1** # of structures **3** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

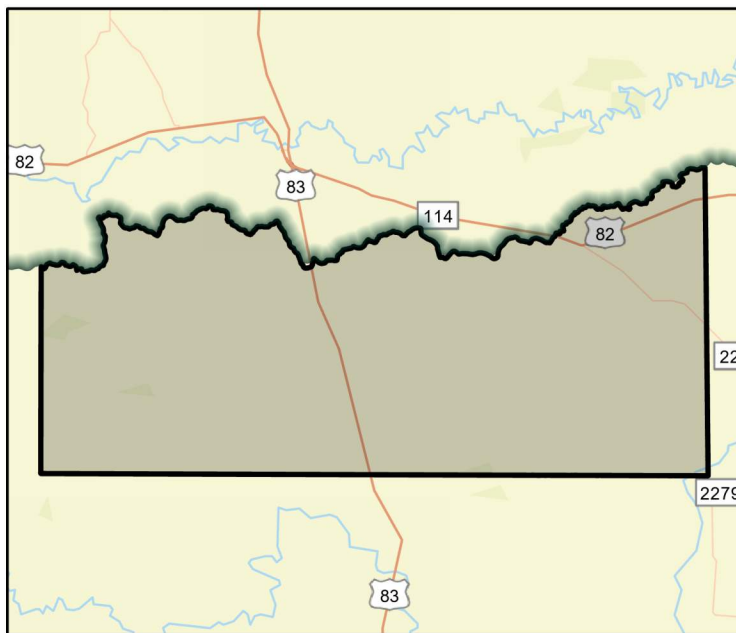
Farm/Ranch land impacted (acres) **409** Roadway(s) impacted (length) **7**

Number of low water crossings **1** Historical road closures **0**

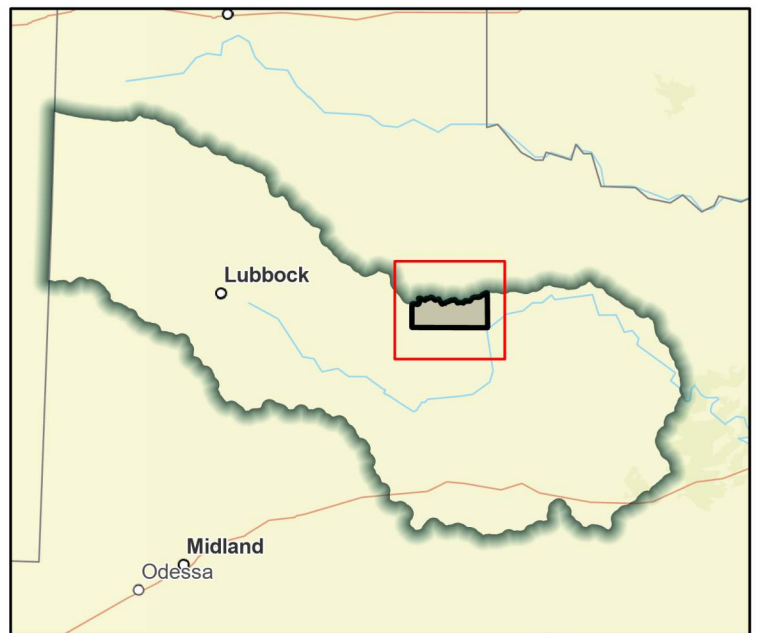
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **King County GIS Development**

ID# **071000101**

Sponsor (name of entity, not person) **King (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Develop a GIS inventory of stormwater infrastructure**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **King** Watershed HUC# (if known) **111302040102, 111302040103, 111302040104, 111302040108,**

Drainage area (Square miles, est.) **336** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **1** # of structures **3** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

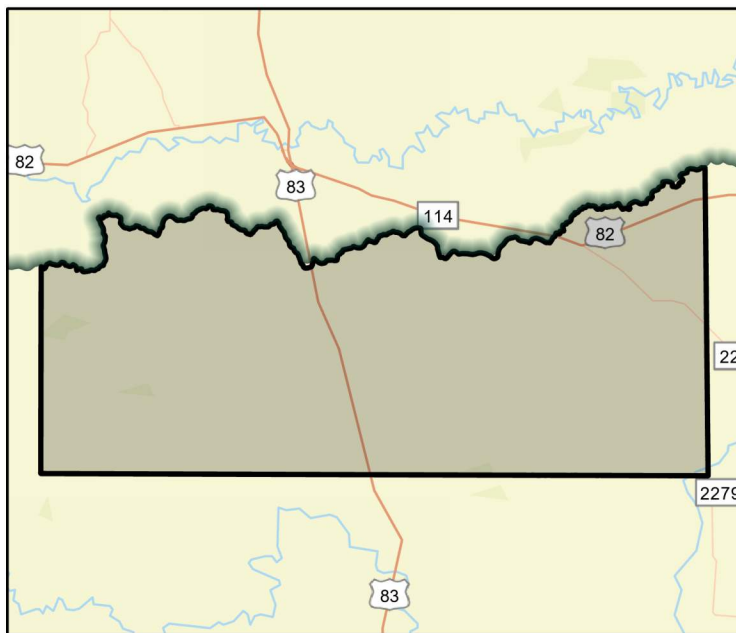
Farm/Ranch land impacted (acres) **409** Roadway(s) impacted (length) **7**

Number of low water crossings **1** Historical road closures **0**

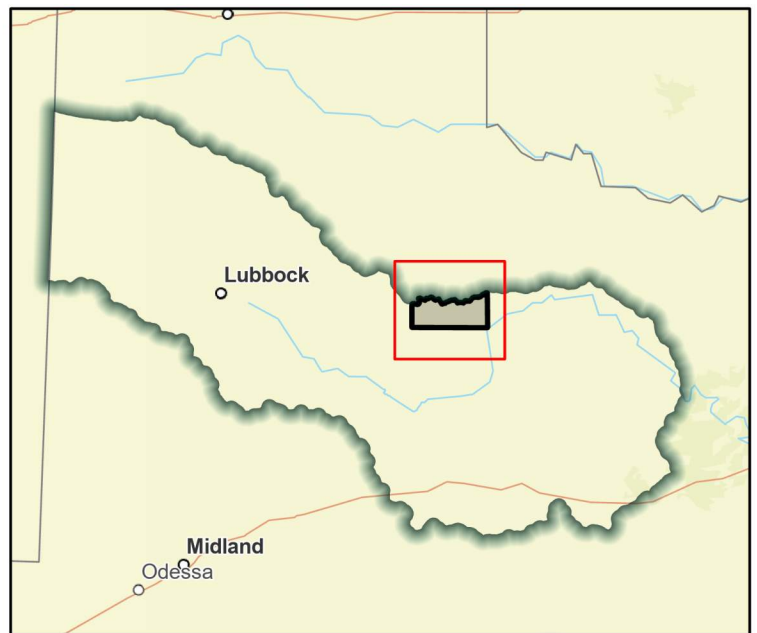
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **King County Initial FEMA Mapping**

ID# **071000011**

Sponsor (name of entity, not person) **King (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Create FEMA Mapping in previously unmapped areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **King** Watershed HUC# (if known) **111302040102, 111302040103, 111302040104, 111302040108,**

Drainage area (Square miles, est.) **336** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **1** # of structures **3** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

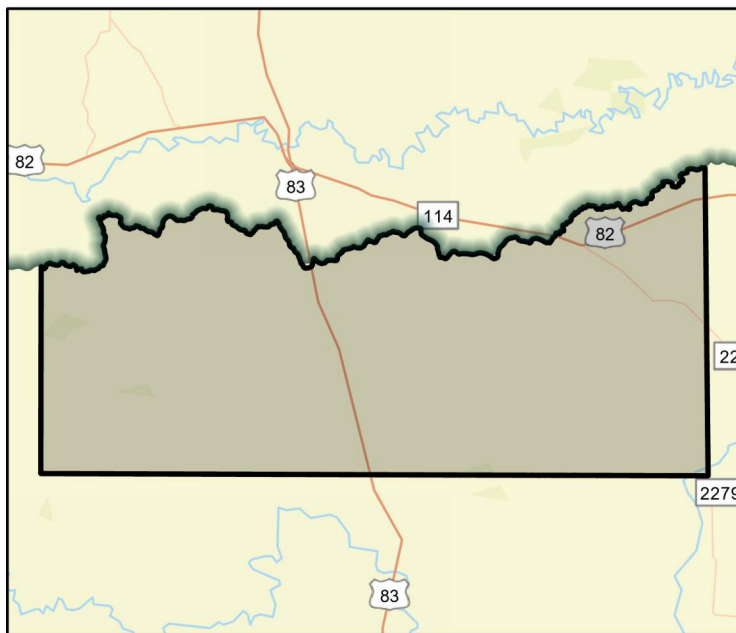
Farm/Ranch land impacted (acres) **409** Roadway(s) impacted (length) **7**

Number of low water crossings **1** Historical road closures **0**

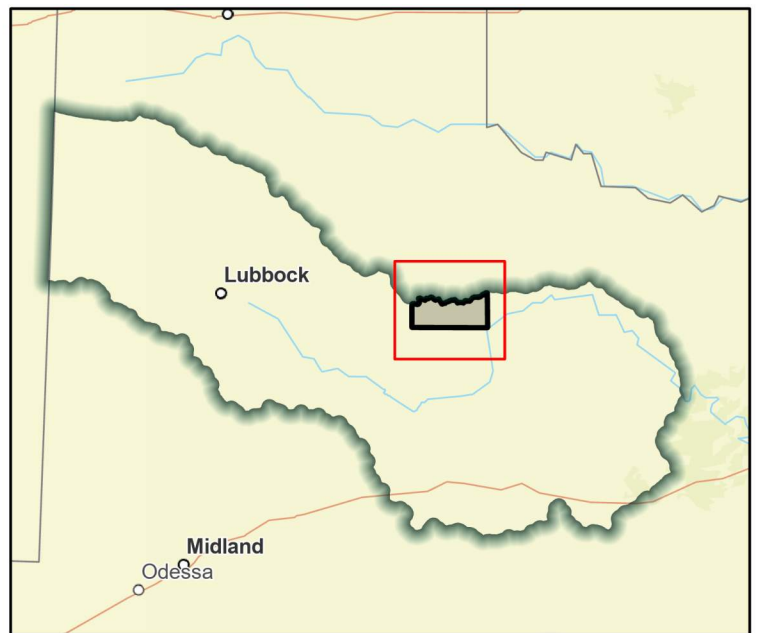
Estimated Cost and Funding Availability

Total Cost **\$954,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Knox County DCM**

ID# **071000172**

Sponsor (name of entity, not person) **Knox (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Knox** Watershed HUC# (if known) **111302040206, 111302040301, 111302040302, 111302040303,**

Drainage area (Square miles, est.) **432** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **1,310** # of structures **968** Critical facilities **4**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

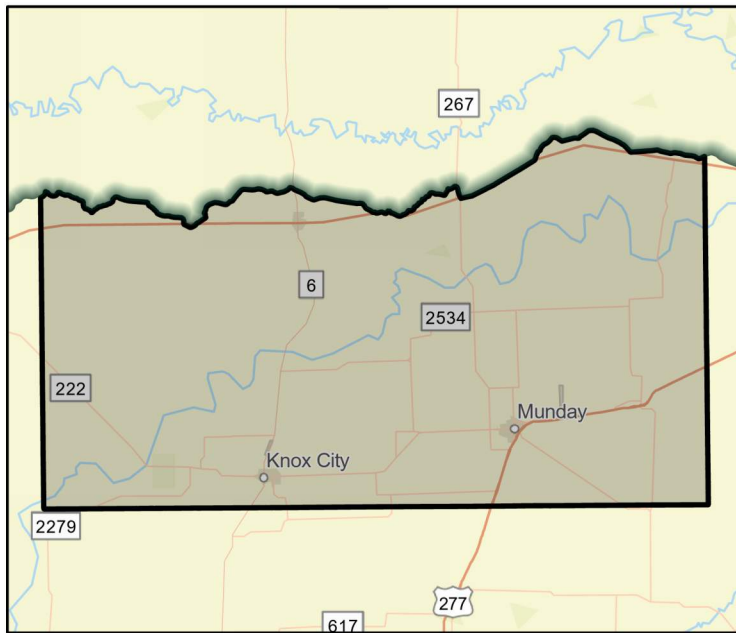
Farm/Ranch land impacted (acres) **33,293** Roadway(s) impacted (length) **130**

Number of low water crossings **2** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Knox County DMP**

ID# **071000064**

Sponsor (name of entity, not person) **Knox (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Knox** Watershed HUC# (if known) **111302040206, 111302040301, 111302040302, 111302040303,**

Drainage area (Square miles, est.) **432** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **1,310** # of structures **968** Critical facilities **4**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

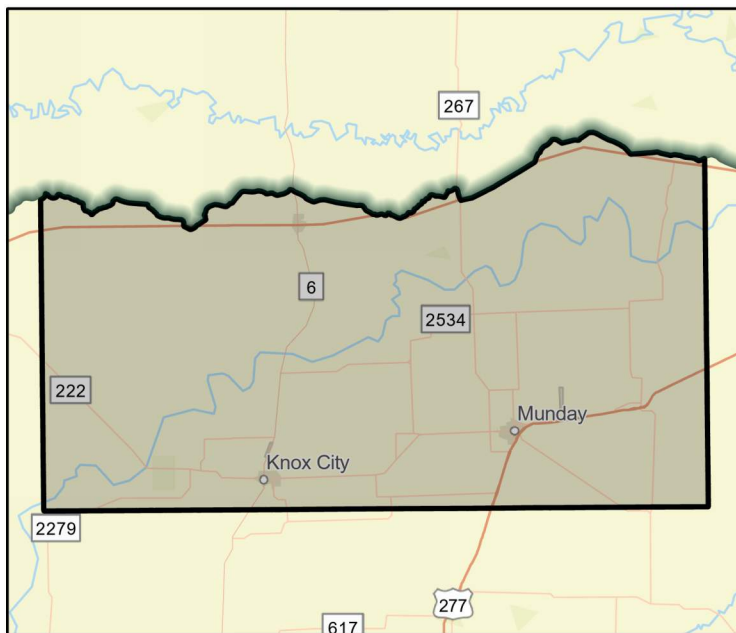
Farm/Ranch land impacted (acres) **33,293** Roadway(s) impacted (length) **130**

Number of low water crossings **2** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Knox County GIS Development**

ID# **071000102**

Sponsor (name of entity, not person) **Knox (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Develop a GIS inventory of stormwater infrastructure**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Knox** Watershed HUC# (if known) **111302040206, 111302040301, 111302040302, 111302040303,**

Drainage area (Square miles, est.) **432** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **1,310** # of structures **968** Critical facilities **4**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

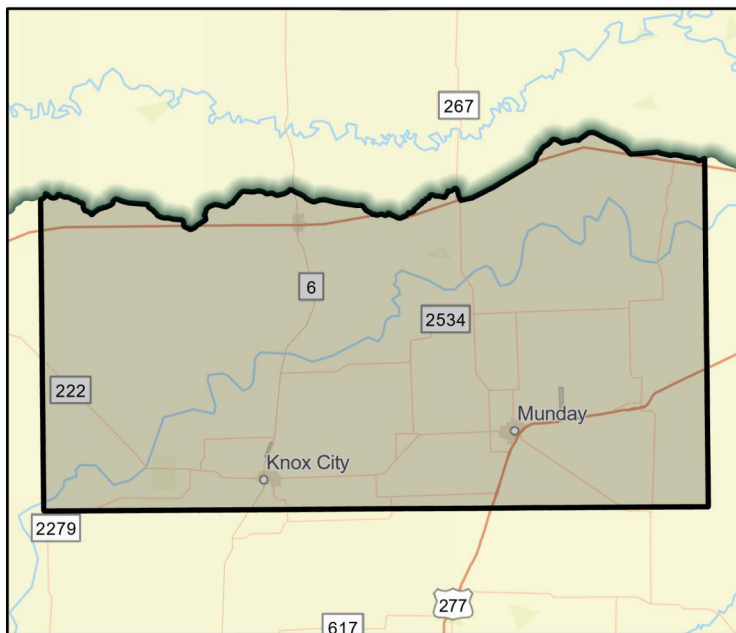
Farm/Ranch land impacted (acres) **33,293** Roadway(s) impacted (length) **130**

Number of low water crossings **2** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Knox County Initial FEMA Mapping**

ID# **071000012**

Sponsor (name of entity, not person) **Knox (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Create FEMA Mapping in previously unmapped areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Knox** Watershed HUC# (if known) **111302040206, 111302040301, 111302040302, 111302040303,**

Drainage area (Square miles, est.) **432** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **1,310** # of structures **968** Critical facilities **4**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

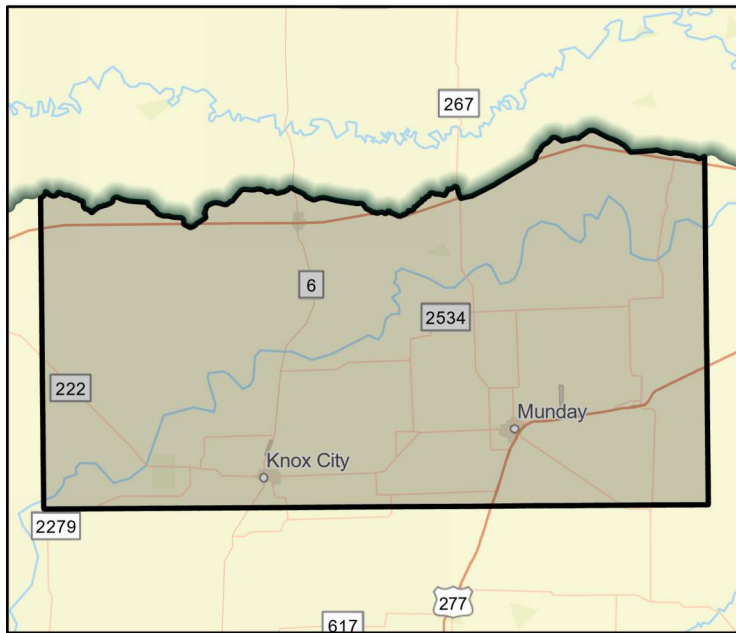
Farm/Ranch land impacted (acres) **33,293** Roadway(s) impacted (length) **130**

Number of low water crossings **2** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$871,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Knox County Relocate Critical Facilities High Hazard**

ID# **071000173**

Sponsor (name of entity, not person) **Knox (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Relocate critical facilities out of high hazard areas.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Knox** Watershed HUC# (if known) **111302040206, 111302040301, 111302040302, 111302040303,**

Drainage area (Square miles, est.) **432** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **1,310** # of structures **968** Critical facilities **4**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

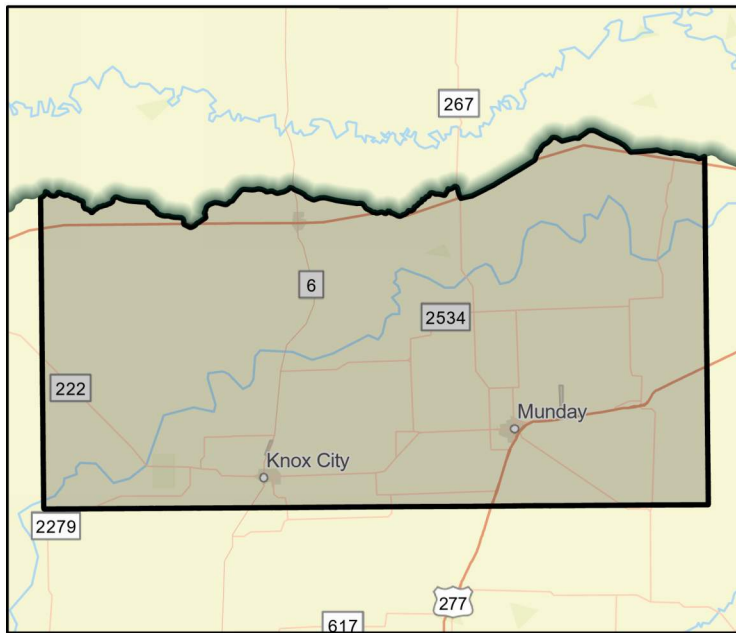
Farm/Ranch land impacted (acres) **33,293** Roadway(s) impacted (length) **130**

Number of low water crossings **2** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$2,000,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Knox County Tax Incentive Program**

ID# **071000174**

Sponsor (name of entity, not person) **Knox (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider providing tax incentives for development of low-hazard land parcels.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Knox** Watershed HUC# (if known) **111302040206, 111302040301, 111302040302, 111302040303,**

Drainage area (Square miles, est.) **432** Goal(s) **07000085**

100-Year Flood Risk Summary

Population at risk **1,310** # of structures **968** Critical facilities **4**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

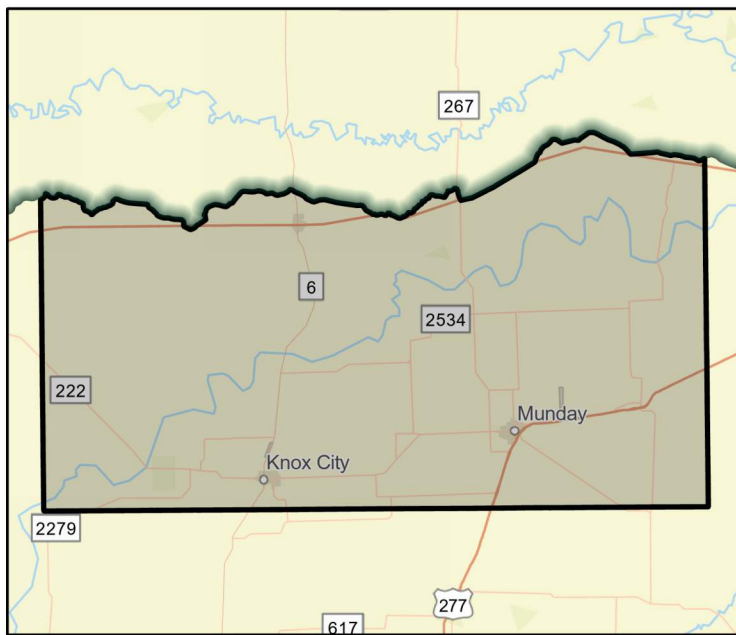
Farm/Ranch land impacted (acres) **33,293** Roadway(s) impacted (length) **130**

Number of low water crossings **2** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$25,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Knox Flood Protection Lift Station Program**

ID# **071000175**

Sponsor (name of entity, not person) **Knox (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Flood-proof sewage treatment plants in flood hazard / low-lying areas.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Knox** Watershed HUC# (if known) **111302040206, 111302040301, 111302040302, 111302040303,**

Drainage area (Square miles, est.) **432** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **1,310** # of structures **968** Critical facilities **4**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

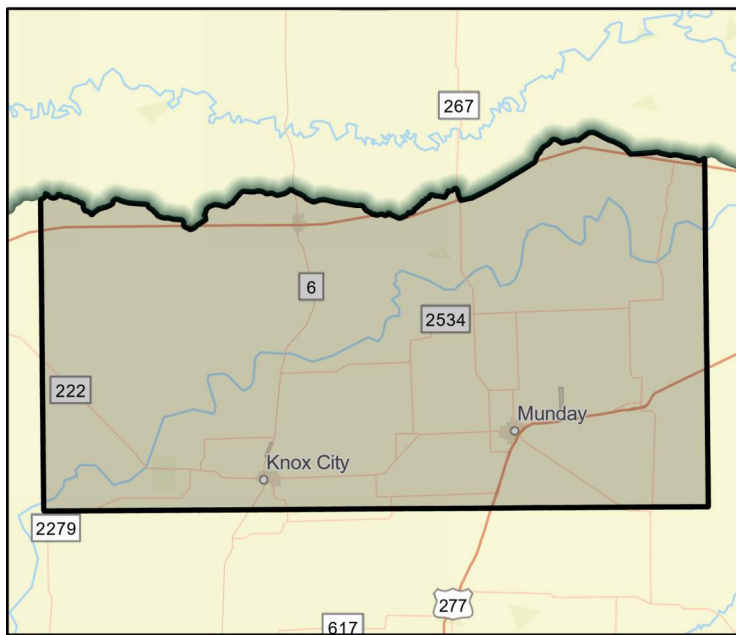
Farm/Ranch land impacted (acres) **33,293** Roadway(s) impacted (length) **130**

Number of low water crossings **2** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Lake Benjamin Dam Evaluation**

ID# **071000116**

Sponsor (name of entity, not person) **Knox (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Perform full H&H analysis and dam assessment of Lake Benjamin Dam. Assess needs for slope stability and spillway improvements.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Knox** Watershed HUC# (if known) **111302040206, 111302040301, 111302040302, 111302040303,**

Drainage area (Square miles, est.) **432** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **1,310** # of structures **968** Critical facilities **4**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

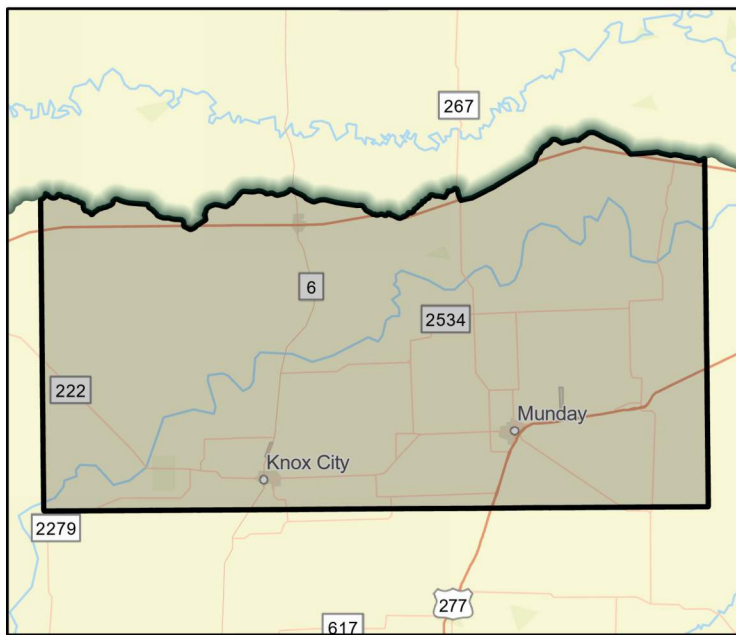
Farm/Ranch land impacted (acres) **33,293** Roadway(s) impacted (length) **130**

Number of low water crossings **2** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$58,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Lamb County DCM**

ID# **071000176**

Sponsor (name of entity, not person) **Lamb (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Lamb** Watershed HUC# (if known) **120500010507, 120500010805, 120500011001, 120500011002,**

Drainage area (Square miles, est.) **1,016** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **932** # of structures **438** Critical facilities **3**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

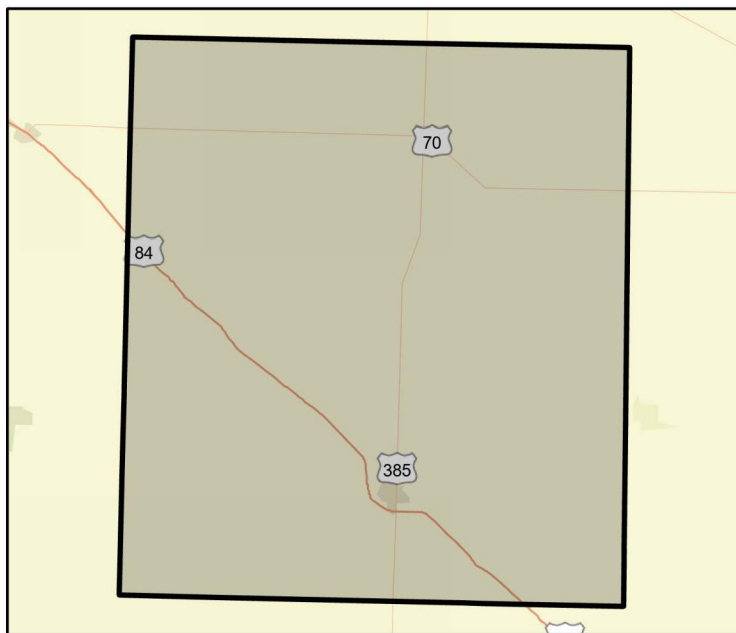
Farm/Ranch land impacted (acres) **46,013** Roadway(s) impacted (length) **612**

Number of low water crossings **24** Historical road closures **0**

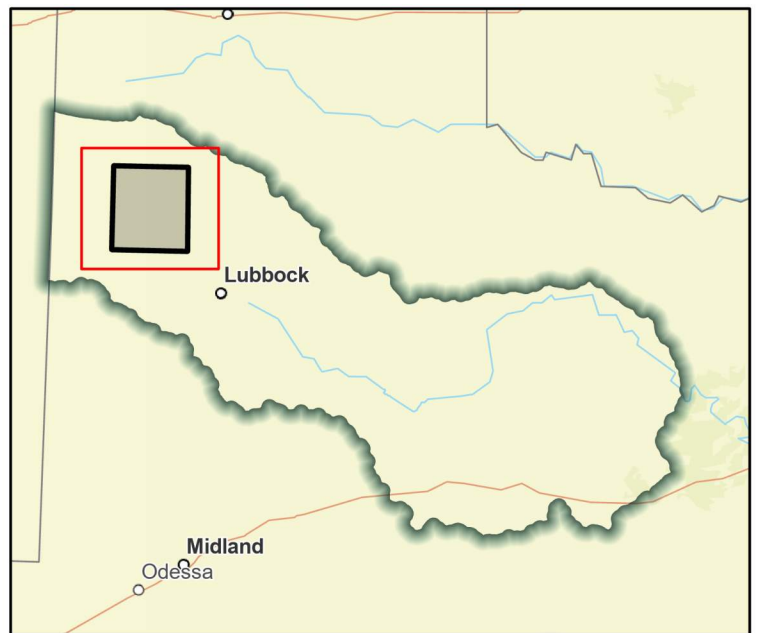
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Lamb County DMP**
ID# **071000065**
Sponsor (name of entity, not person) **Lamb (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

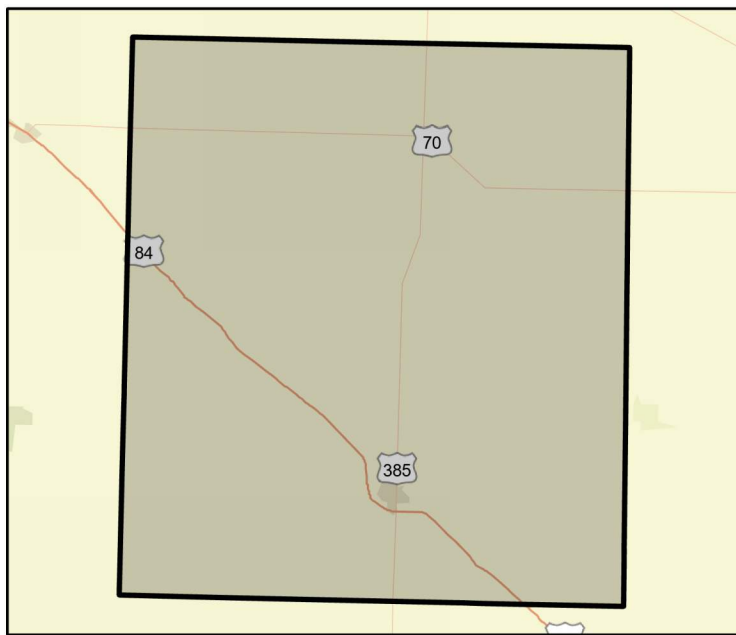
Study type **Watershed Planning**
Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**
New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Lamb** Watershed HUC# (if known) **120500010507, 120500010805, 120500011001, 120500011002,**
Drainage area (Square miles, est.) **1,016** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

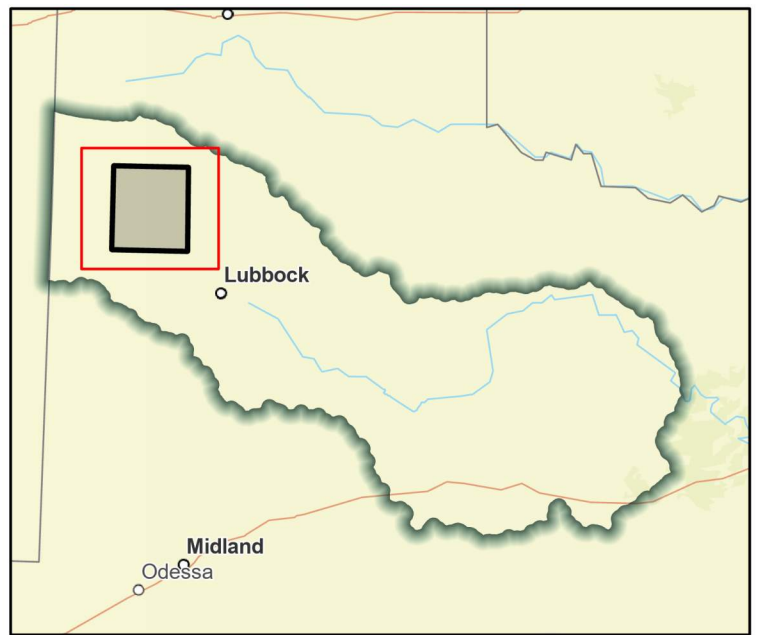
Population at risk **932** # of structures **438** Critical facilities **3**
Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**
Farm/Ranch land impacted (acres) **46,013** Roadway(s) impacted (length) **612**
Number of low water crossings **24** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Lamb County GIS Development**
ID# **071000103**
Sponsor (name of entity, not person) **Lamb (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

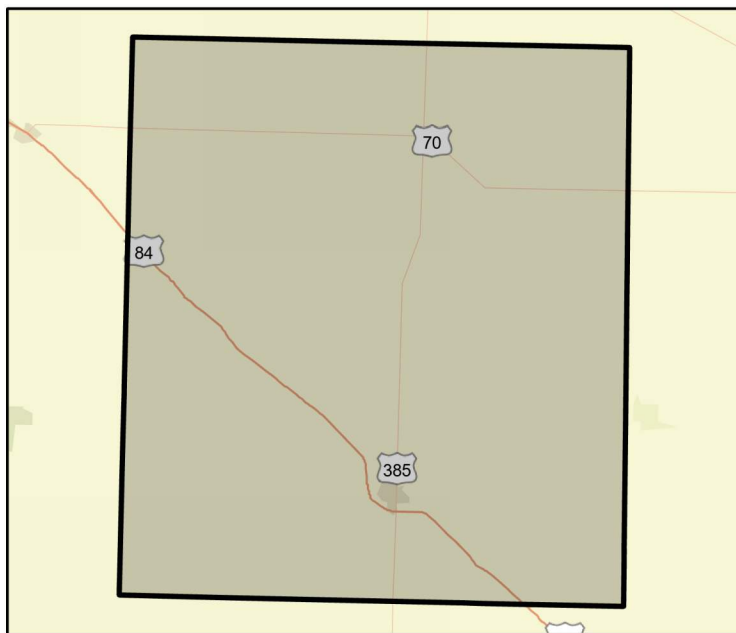
Study type **Other**
Study description **Develop a GIS inventory of stormwater infrastructure**
New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Lamb** Watershed HUC# (if known) **120500010507, 120500010805, 120500011001, 120500011002,**
Drainage area (Square miles, est.) **1,016** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

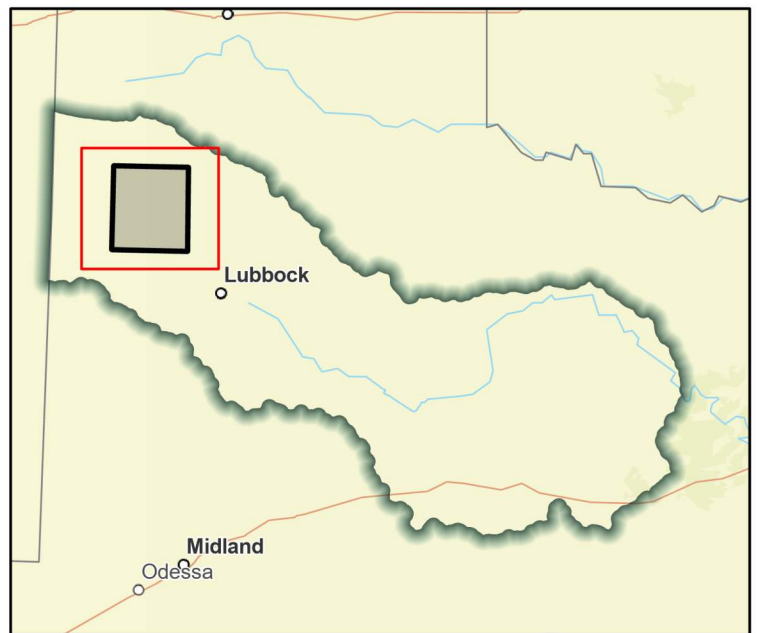
Population at risk **932** # of structures **438** Critical facilities **3**
Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**
Farm/Ranch land impacted (acres) **46,013** Roadway(s) impacted (length) **612**
Number of low water crossings **24** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Lamb County Initial FEMA Mapping**

ID# **071000013**

Sponsor (name of entity, not person) **Lamb (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Create FEMA Mapping in previously unmapped areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Lamb** Watershed HUC# (if known) **120500010507, 120500010805, 120500011001, 120500011002,**

Drainage area (Square miles, est.) **1,016** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **932** # of structures **438** Critical facilities **3**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

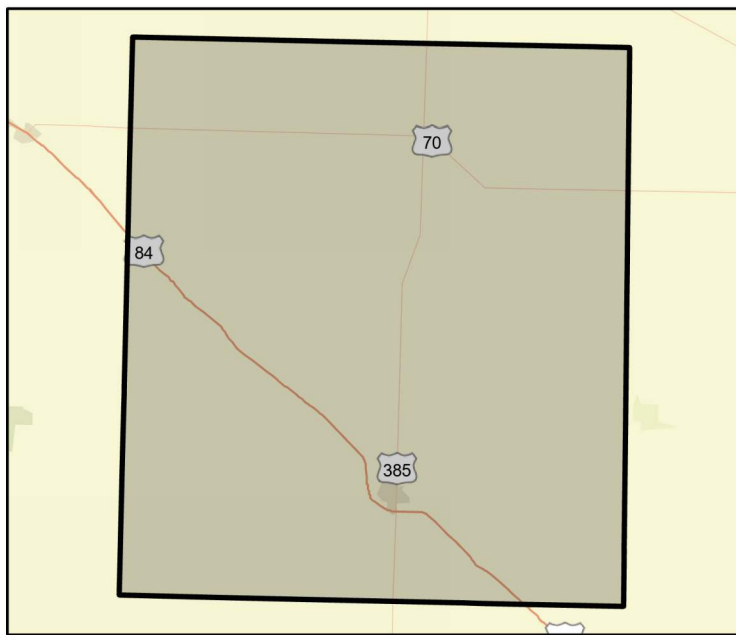
Farm/Ranch land impacted (acres) **46,013** Roadway(s) impacted (length) **612**

Number of low water crossings **24** Historical road closures **0**

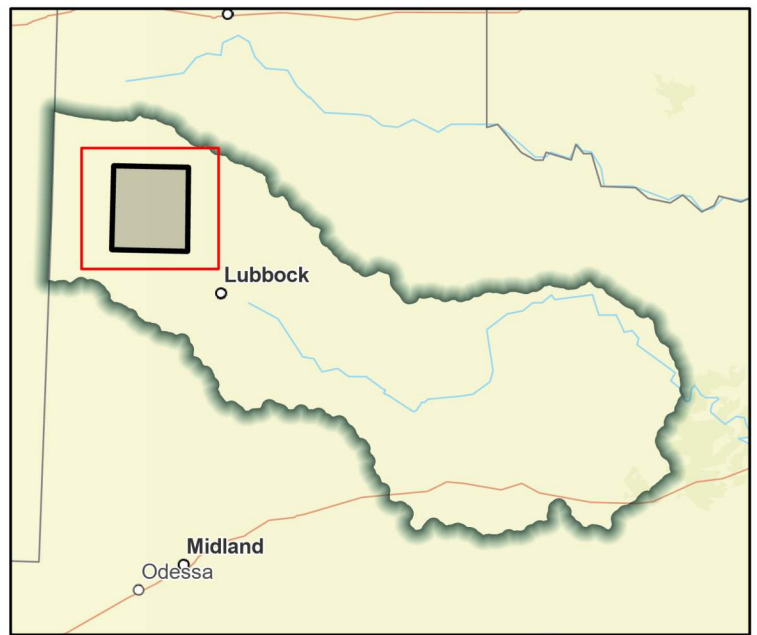
Estimated Cost and Funding Availability

Total Cost **\$890,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Lower Clear Fork Brazos Dams**

ID# **071000218**

Sponsor (name of entity, not person) **Woodson (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **-**

Study Details

Study type **Watershed Planning**

Study description **Perform a watershed-wide evaluation of 1 dam to assess flood protection performance for the 100-year and 500-year events, develop breach analyses mapping and assess hazard classification, develop risk indices, and evaluate dam safety performance.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Shackelford, Stephens, Throckmorton,** Watershed HUC# (if known) **-**

Drainage area (Square miles, est.) **626** Goal(s) **07000031**

100-Year Flood Risk Summary

Population at risk **79** # of structures **211** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

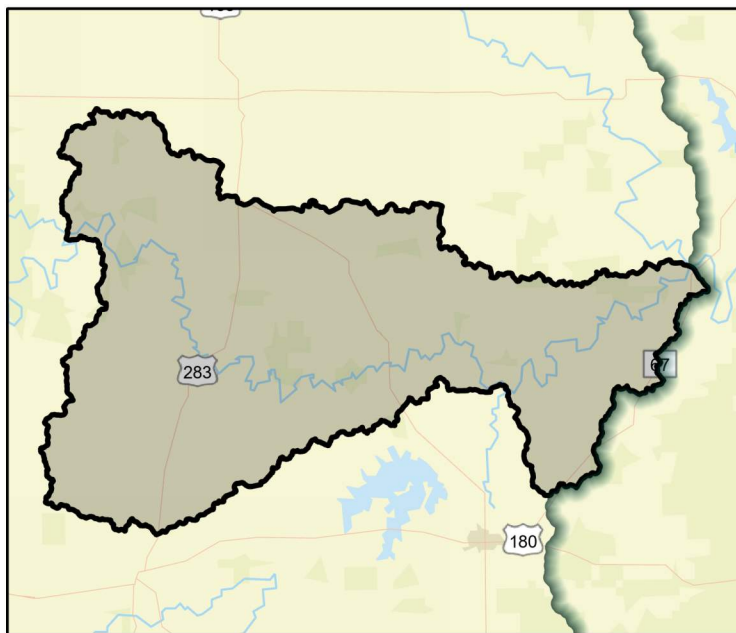
Farm/Ranch land impacted (acres) **35,695** Roadway(s) impacted (length) **55**

Number of low water crossings **5** Historical road closures **5**

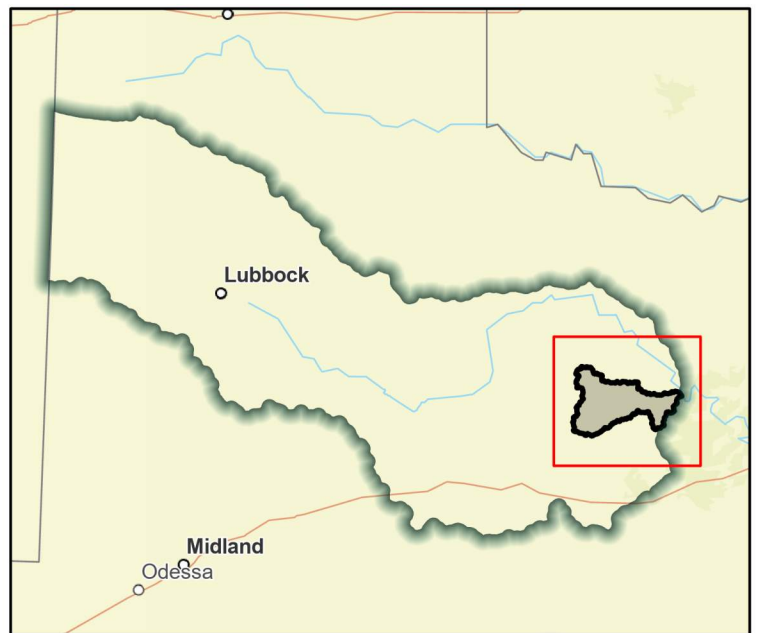
Estimated Cost and Funding Availability

Total Cost **\$58,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Lubbock County DCM**

ID# **071000177**

Sponsor (name of entity, not person) **Lubbock (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Lubbock** Watershed HUC# (if known) **120500011203, 120500011302, 120500011303, 120500011304,**

Drainage area (Square miles, est.) **898** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **20,269** # of structures **6,880** Critical facilities **9**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**

Farm/Ranch land impacted (acres) **50,570** Roadway(s) impacted (length) **358**

Number of low water crossings **29** Historical road closures **0**

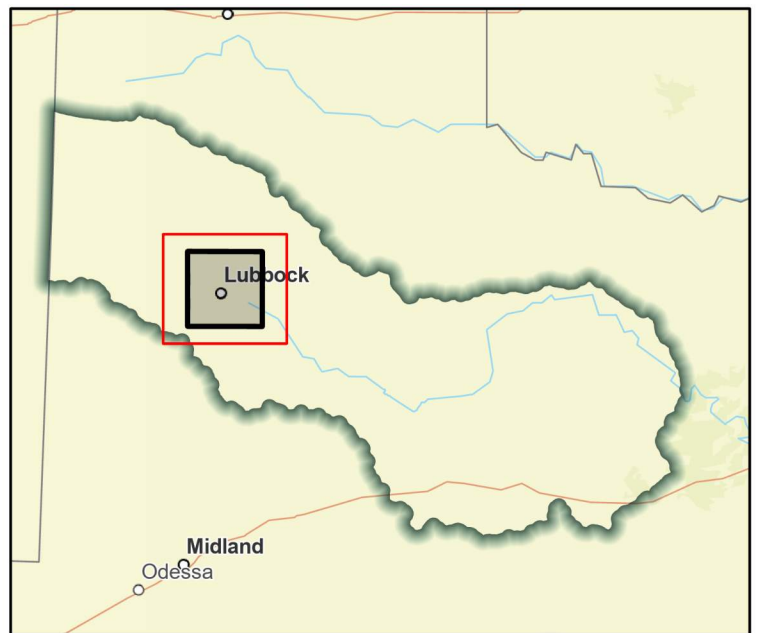
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Lubbock County Floodplain Open Space Program**

ID# **071000178**

Sponsor (name of entity, not person) **Lubbock (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Acquire and preserve open spaces adjacent to floodplain areas. Protect floodplains in their natural state.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Lubbock** Watershed HUC# (if known) **120500011203, 120500011302, 120500011303, 120500011304,**

Drainage area (Square miles, est.) **898** Goal(s) **07000085**

100-Year Flood Risk Summary

Population at risk **20,269** # of structures **6,880** Critical facilities **9**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**

Farm/Ranch land impacted (acres) **50,570** Roadway(s) impacted (length) **358**

Number of low water crossings **29** Historical road closures **0**

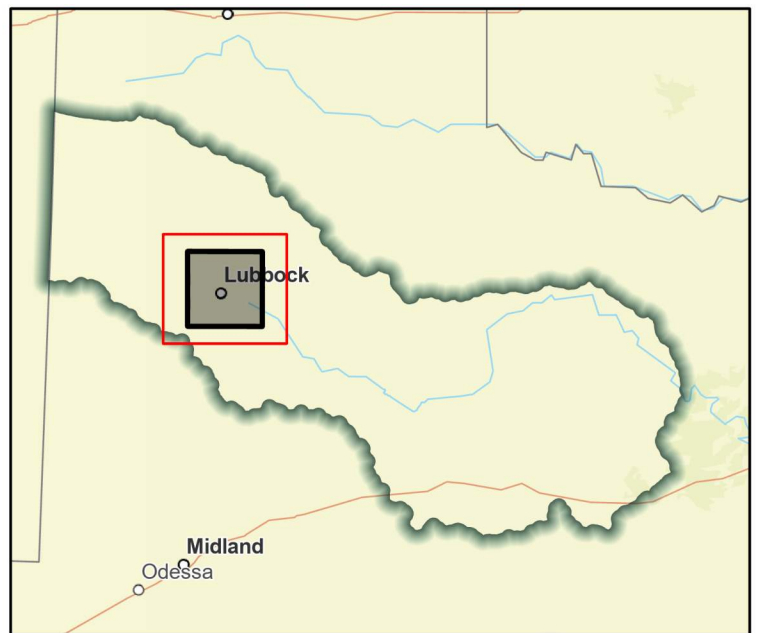
Estimated Cost and Funding Availability

Total Cost **\$1,000,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Lubbock County Floodplain Open Space Program**
ID# **071000212**
Sponsor (name of entity, not person) **Lubbock (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**
Study description **Acquire and preserve open spaces adjacent to floodplain areas. Protect floodplains in their natural state.**
New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Lubbock** Watershed HUC# (if known) **120500011203, 120500011302, 120500011303, 120500011304,**
Drainage area (Square miles, est.) **898** Goal(s) **07000085**

100-Year Flood Risk Summary

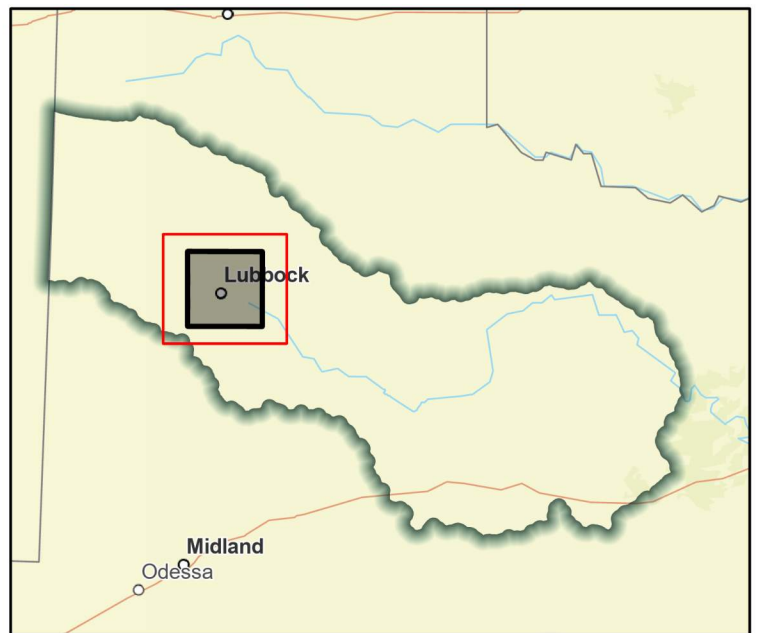
Population at risk **20,269** # of structures **6,880** Critical facilities **9**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**
Farm/Ranch land impacted (acres) **50,570** Roadway(s) impacted (length) **358**
Number of low water crossings **29** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$1,000,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Lynn County DCM**

ID# **071000179**

Sponsor (name of entity, not person) **Lynn (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Lynn** Watershed HUC# (if known) **120500030203, 120500030401, 120500030402, 120500030403,**

Drainage area (Square miles, est.) **673** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **217** # of structures **81** Critical facilities **0**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

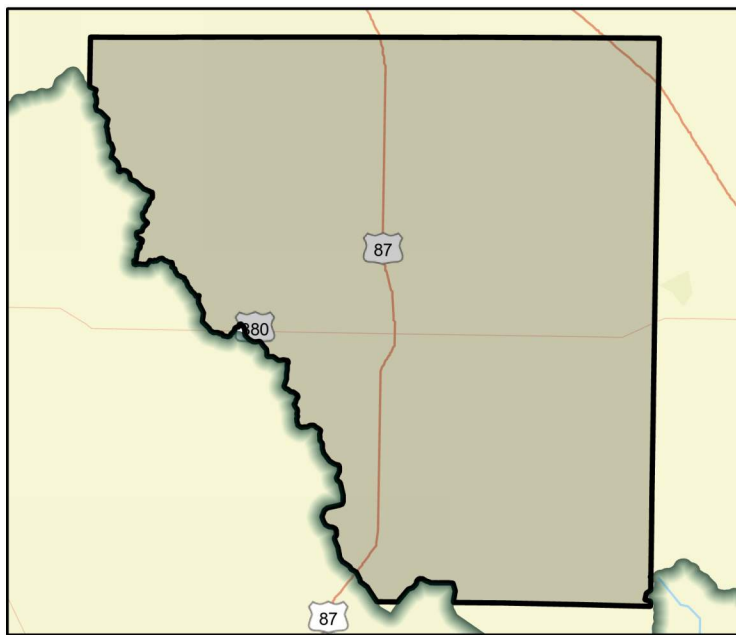
Farm/Ranch land impacted (acres) **52,669** Roadway(s) impacted (length) **475**

Number of low water crossings **7** Historical road closures **0**

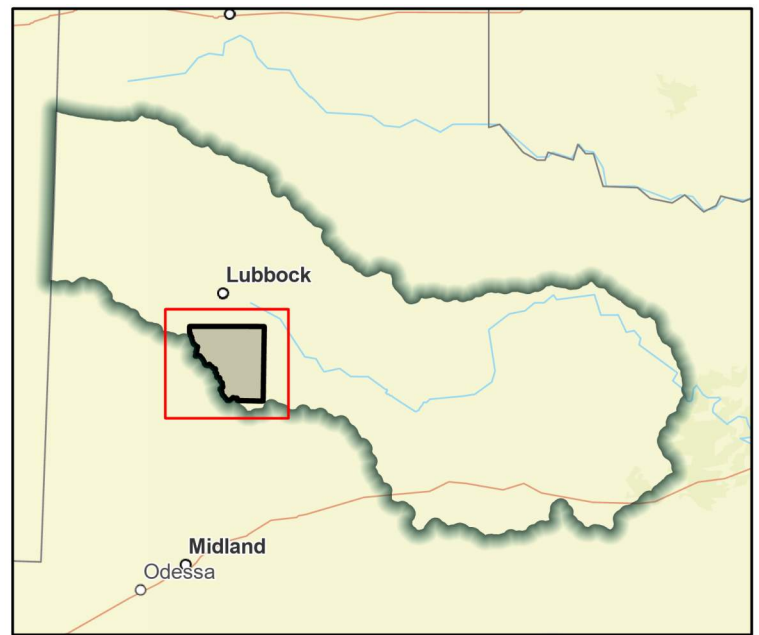
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Lynn County DMP
ID# 071000066
Sponsor (name of entity, not person) Lynn (County)
RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

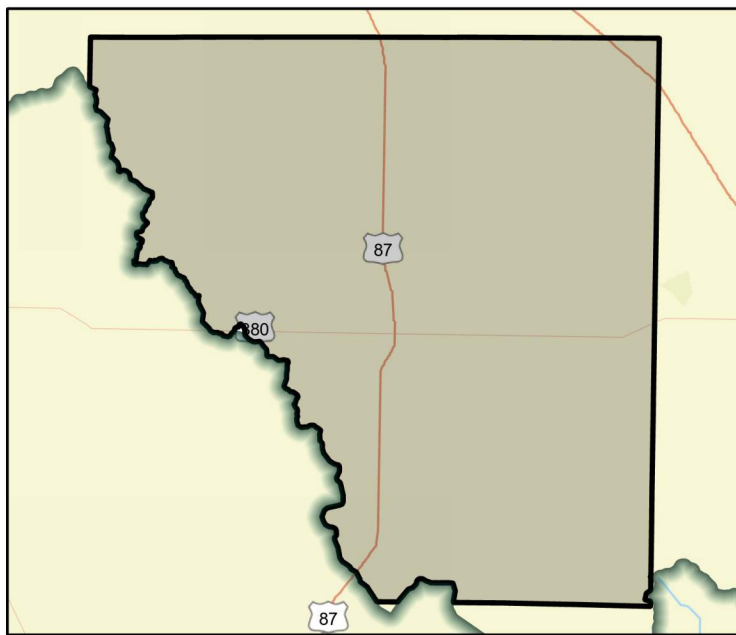
Study type Watershed Planning
Study description Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas
New Hydrologic or Hydraulic model? Yes Emergency Need? No Existing/Anticipated models in near term? No
County Lynn Watershed HUC# (if known) 120500030203, 120500030401, 120500030402, 120500030403,
Drainage area (Square miles, est.) 673 Goal(s) 07000011, 07000012

100-Year Flood Risk Summary

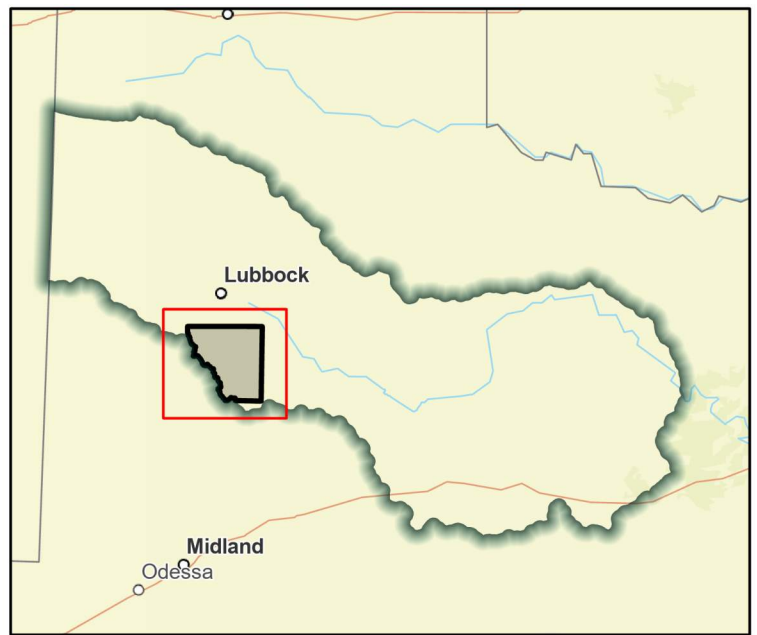
Population at risk 217 # of structures 81 Critical facilities 0
Flood risk type: Riverine? No Coastal? No Local? No Playa? Yes Other? No
Farm/Ranch land impacted (acres) 52,669 Roadway(s) impacted (length) 475
Number of low water crossings 7 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$500,000 Amount of Available Funding \$0 Federal funding availability No
Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Lynn County GIS Development
ID# 071000104
Sponsor (name of entity, not person) Lynn (County)
RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

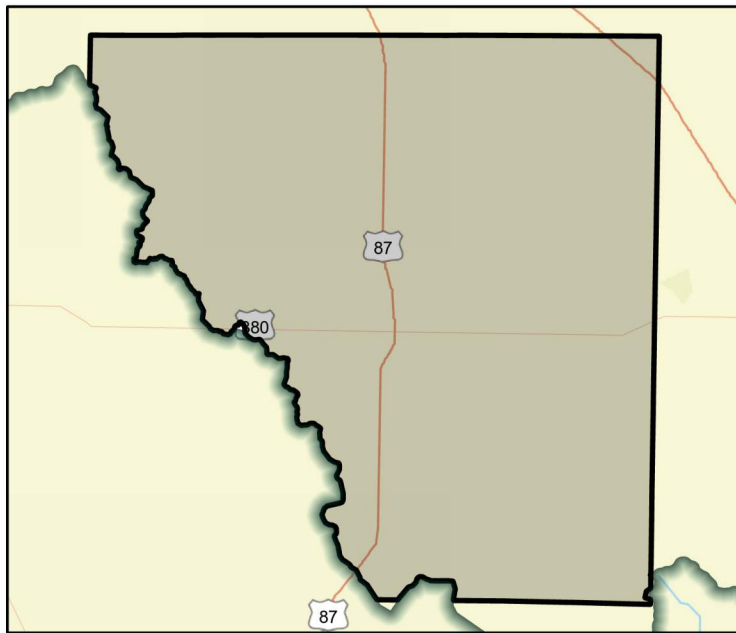
Study type Other
Study description Develop a GIS inventory of stormwater infrastructure
New Hydrologic or Hydraulic model? No Emergency Need? No Existing/Anticipated models in near term? No
County Lynn Watershed HUC# (if known) 120500030203, 120500030401, 120500030402, 120500030403,
Drainage area (Square miles, est.) 673 Goal(s) 07000011, 07000012

100-Year Flood Risk Summary

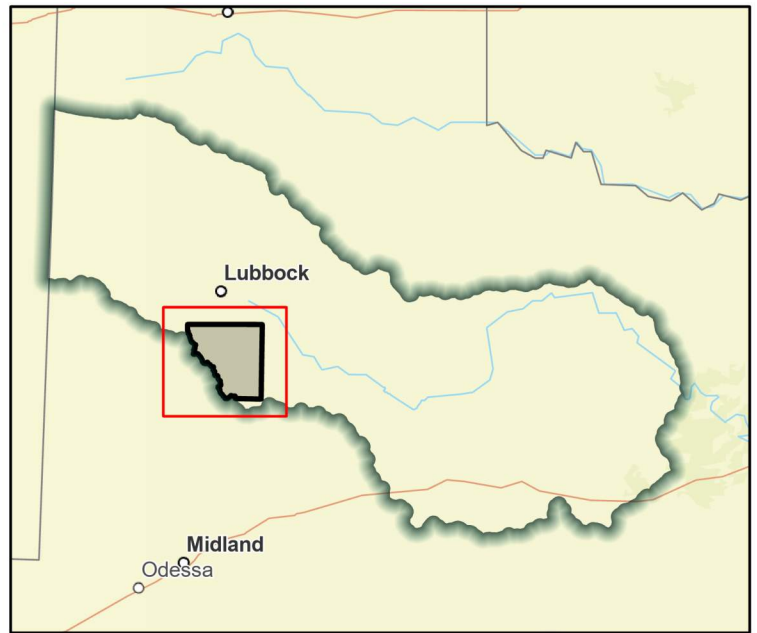
Population at risk 217 # of structures 81 Critical facilities 0
Flood risk type: Riverine? No Coastal? No Local? No Playa? Yes Other? No
Farm/Ranch land impacted (acres) 52,669 Roadway(s) impacted (length) 475
Number of low water crossings 7 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$100,000 Amount of Available Funding \$0 Federal funding availability No
Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Lynn County Initial FEMA Mapping
ID# 071000014
Sponsor (name of entity, not person) Lynn (County)
RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

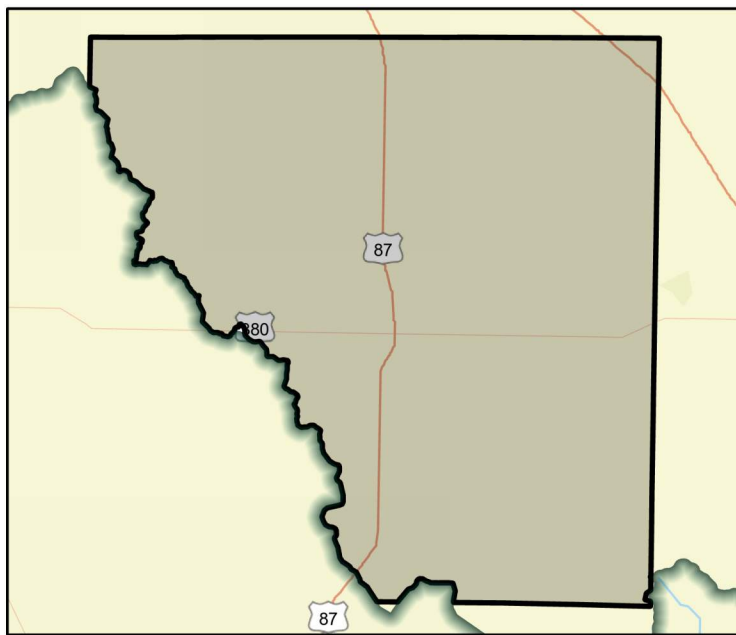
Study type Watershed Planning
Study description Create FEMA Mapping in previously unmapped areas
New Hydrologic or Hydraulic model? Yes Emergency Need? No Existing/Anticipated models in near term? No
County Lynn Watershed HUC# (if known) 120500030203, 120500030401, 120500030402, 120500030403,
Drainage area (Square miles, est.) 673 Goal(s) 07000011, 07000012

100-Year Flood Risk Summary

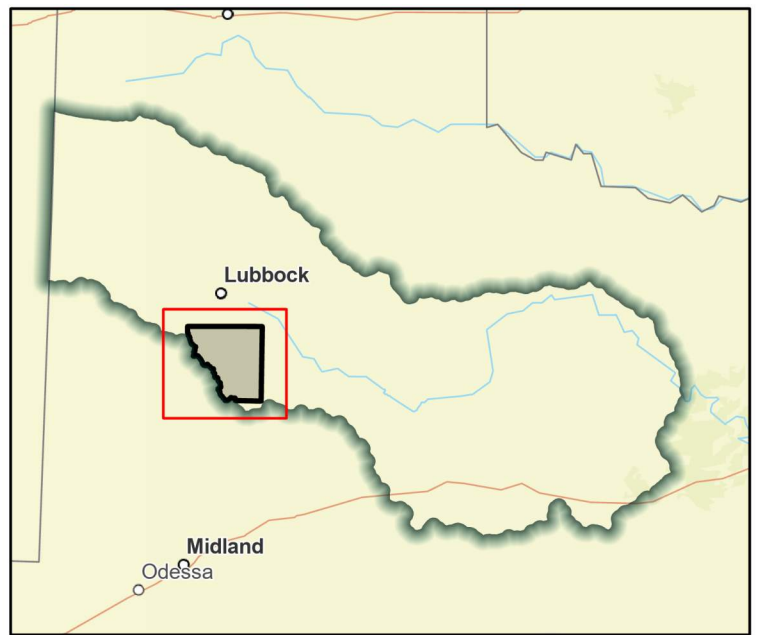
Population at risk 217 # of structures 81 Critical facilities 0
Flood risk type: Riverine? No Coastal? No Local? No Playa? Yes Other? No
Farm/Ranch land impacted (acres) 52,669 Roadway(s) impacted (length) 475
Number of low water crossings 7 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$778,000 Amount of Available Funding \$0 Federal funding availability No
Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Mackenzie Park South - Santa Land Rd**

ID# **071000215**

Sponsor (name of entity, not person) **Lubbock (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Mackenzie Park South - Santa Land Rd Area of Interest**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **Yes** Existing/Anticipated models in near term? **No**

County **Lubbock** Watershed HUC# (if known) **120500060201,120500040201,120500011005,120500011006,120500011**

Drainage area (Square miles, est.) **2,001** Goal(s) **07000021, 07000022, 07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **3,067** # of structures **1,700** Critical facilities **6**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**

Farm/Ranch land impacted (acres) **122,195** Roadway(s) impacted (length) **1,256**

Number of low water crossings **67** Historical road closures **0**

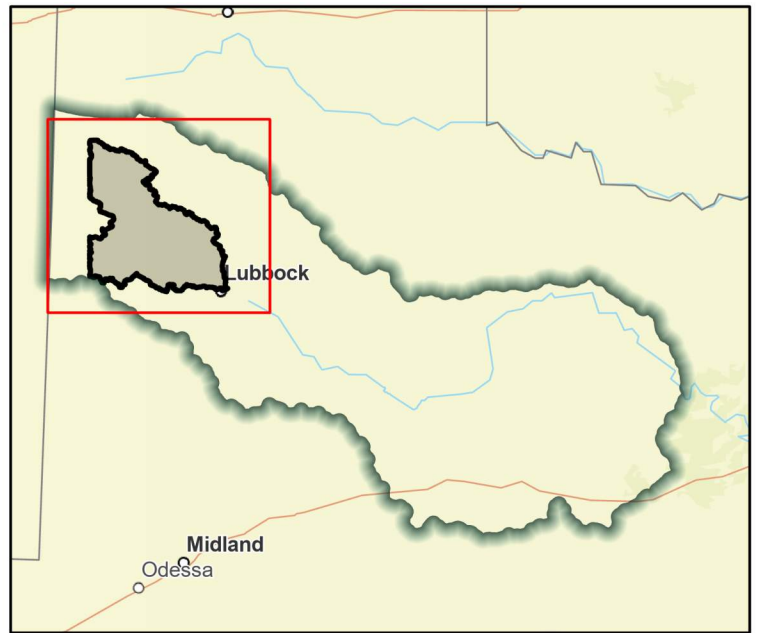
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Middle Brazos-Millers Dams**

ID# **071000221**

Sponsor (name of entity, not person)

RFPG recommend? **Yes** Reason for Recommendation **-**

Study Details

Study type **Watershed Planning**

Study description **Perform a watershed-wide evaluation of 6 dams to assess flood protection performance for the 100-year and 500-year events, develop breach analyses mapping and assess hazard classification, develop risk indices, and evaluate dam safety performance.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Archer, Stonewall, Haskell, Throckmorton,** Watershed HUC# (if known) **-**

Drainage area (Square miles, est.) **2,512** Goal(s) **07000031**

100-Year Flood Risk Summary

Population at risk **2,043** # of structures **1,663** Critical facilities **4**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

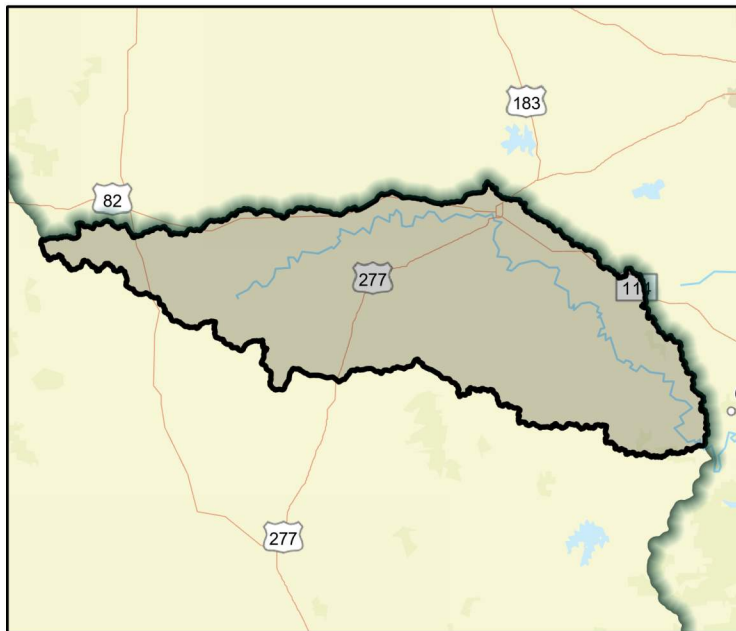
Farm/Ranch land impacted (acres) **174,520** Roadway(s) impacted (length) **400**

Number of low water crossings **16** Historical road closures **16**

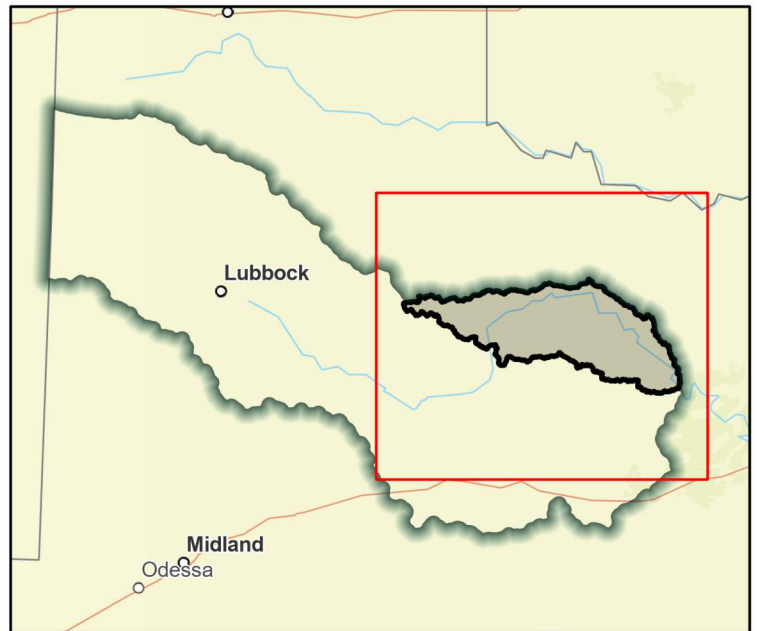
Estimated Cost and Funding Availability

Total Cost **\$277,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Mitchell County DCM**

ID# **071000180**

Sponsor (name of entity, not person) **Mitchell (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Mitchell** Watershed HUC# (if known) **120601020101, 120601020201, 120800020606, 120800020607,**

Drainage area (Square miles, est.) **8** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **0** # of structures **1** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

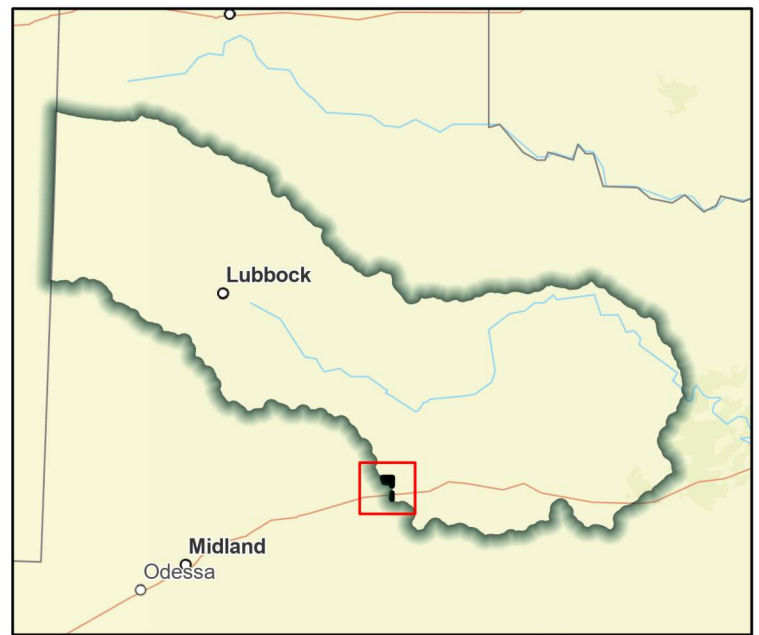
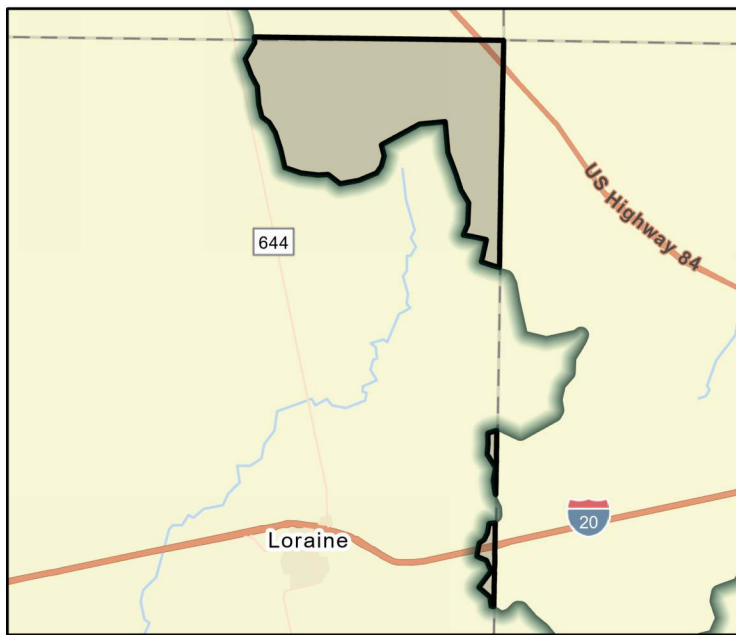
Farm/Ranch land impacted (acres) **257** Roadway(s) impacted (length) **2**

Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



Flood Management Evaluation (FME)



Title **Mitchell County DMP**

ID# **071000067**

Sponsor (name of entity, not person) **Mitchell (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Mitchell** Watershed HUC# (if known) **120601020101, 120601020201, 120800020606, 120800020607,**

Drainage area (Square miles, est.) **8** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **0** # of structures **1** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

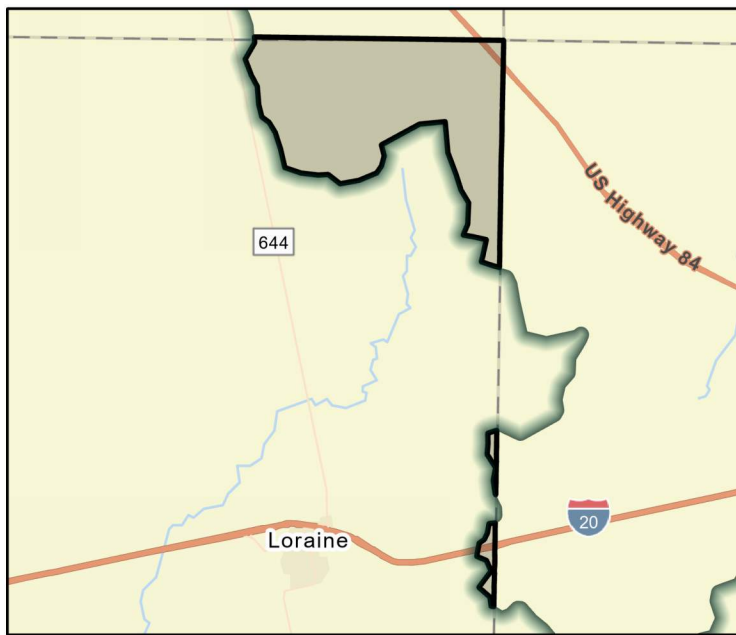
Farm/Ranch land impacted (acres) **257** Roadway(s) impacted (length) **2**

Number of low water crossings **0** Historical road closures **0**

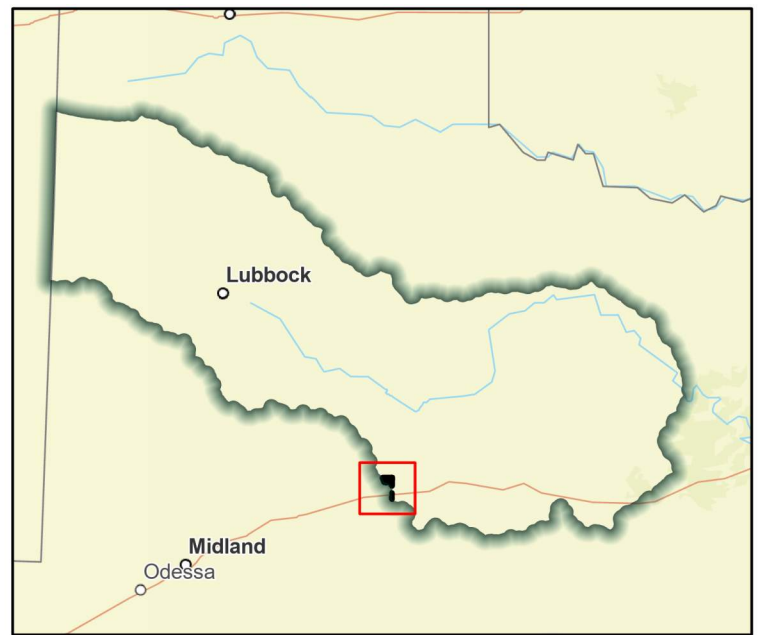
Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Mitchell County GIS Development**
ID# **071000105**
Sponsor (name of entity, not person) **Mitchell (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

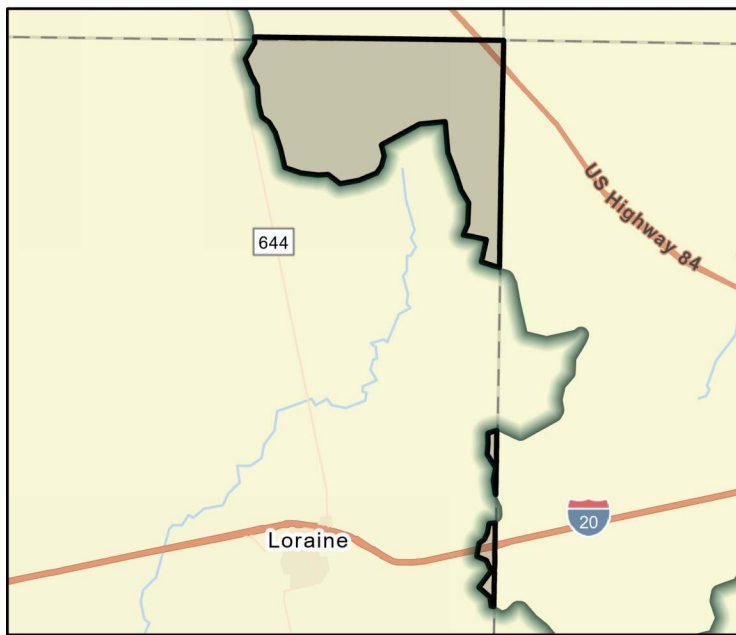
Study type **Other**
Study description **Develop a GIS inventory of stormwater infrastructure**
New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Mitchell** Watershed HUC# (if known) **120601020101, 120601020201, 120800020606, 120800020607,**
Drainage area (Square miles, est.) **8** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **0** # of structures **1** Critical facilities **0**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**
Farm/Ranch land impacted (acres) **257** Roadway(s) impacted (length) **2**
Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Mitchell County Update FEMA Mapping**

ID# **071000023**

Sponsor (name of entity, not person) **Mitchell (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Update existing FEMA mapping**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Mitchell** Watershed HUC# (if known) **120601020101, 120601020201, 120800020606, 120800020607,**

Drainage area (Square miles, est.) **8** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **0** # of structures **1** Critical facilities **0**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

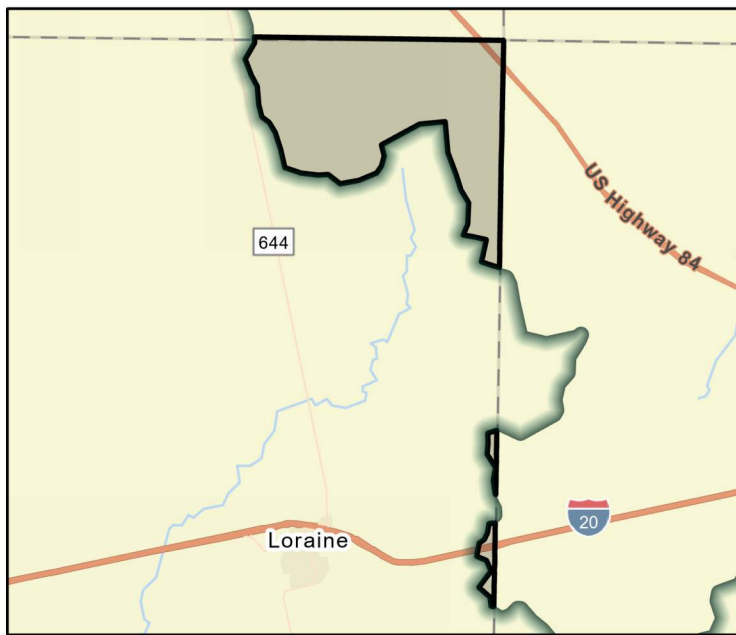
Farm/Ranch land impacted (acres) **257** Roadway(s) impacted (length) **2**

Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$926,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Nolan County Buyout Program**

ID# **071000181**

Sponsor (name of entity, not person) **Nolan (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Acquire and demolish repetitive loss properties.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Nolan** Watershed HUC# (if known) **120601020101, 120601020102, 120601020103, 120601020104,**

Drainage area (Square miles, est.) **461** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **412** # of structures **264** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

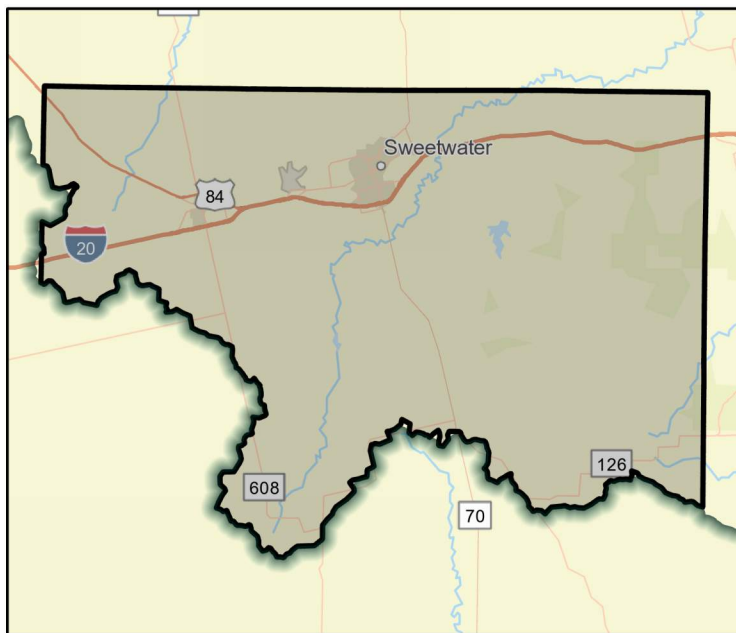
Farm/Ranch land impacted (acres) **9,929** Roadway(s) impacted (length) **41**

Number of low water crossings **21** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$1,000,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Nolan County DCM**

ID# **071000182**

Sponsor (name of entity, not person) **Nolan (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Nolan** Watershed HUC# (if known) **120601020101, 120601020102, 120601020103, 120601020104,**

Drainage area (Square miles, est.) **461** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **412** # of structures **264** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

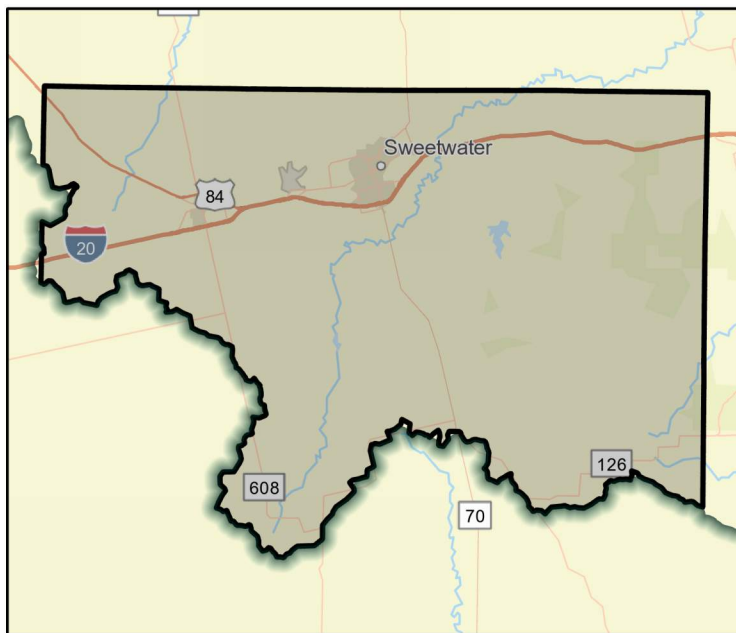
Farm/Ranch land impacted (acres) **9,929** Roadway(s) impacted (length) **41**

Number of low water crossings **21** Historical road closures **0**

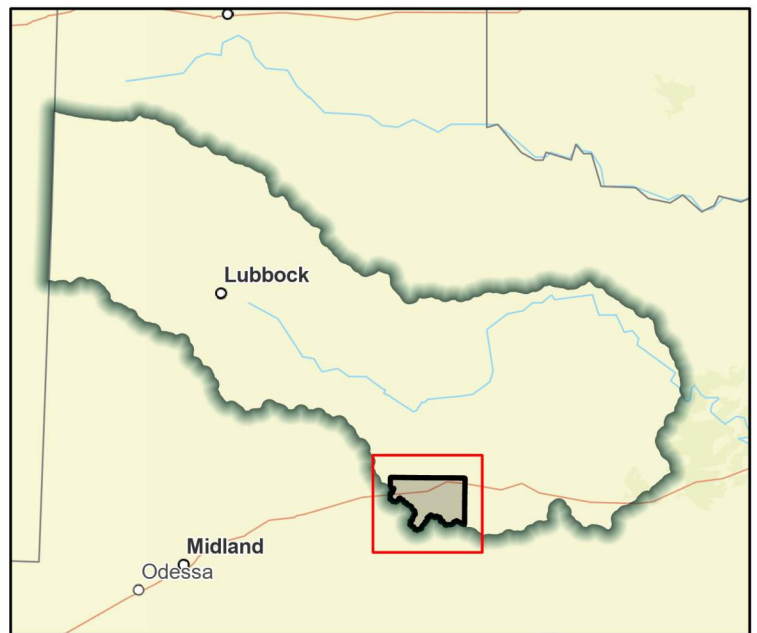
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Nolan County DMP**

ID# **071000068**

Sponsor (name of entity, not person) **Nolan (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Nolan** Watershed HUC# (if known) **120601020101, 120601020102, 120601020103, 120601020104,**

Drainage area (Square miles, est.) **461** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **412** # of structures **264** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

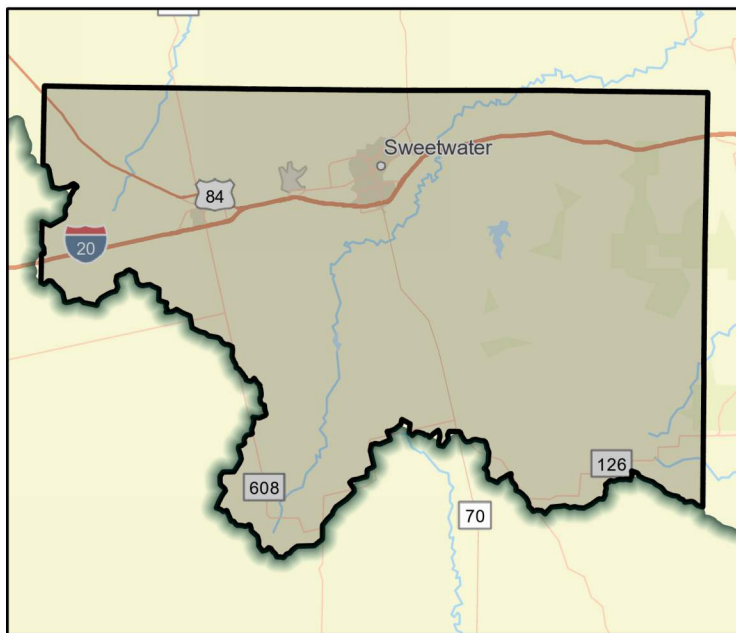
Farm/Ranch land impacted (acres) **9,929** Roadway(s) impacted (length) **41**

Number of low water crossings **21** Historical road closures **0**

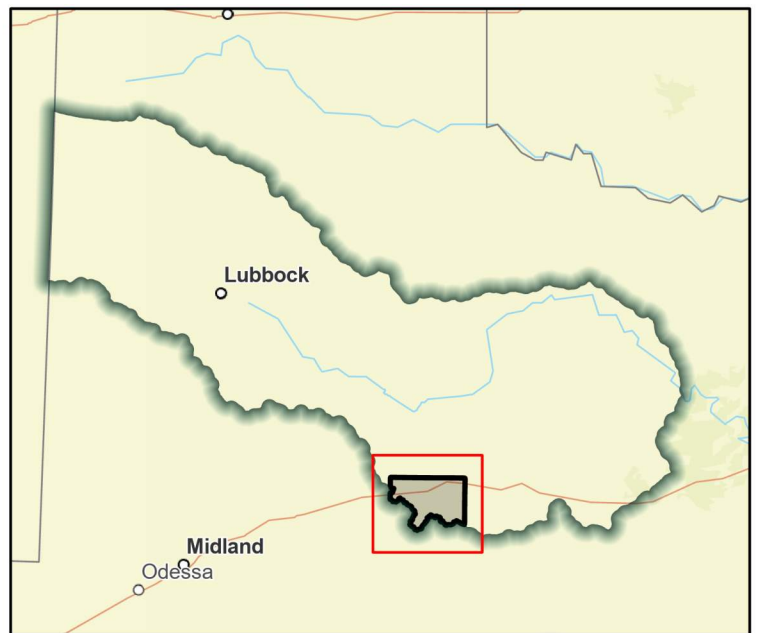
Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Nolan County Floodplain Open Space Program**

ID# **071000183**

Sponsor (name of entity, not person) **Nolan (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Acquire and preserve open spaces adjacent to floodplain areas. Protect floodplains in their natural state.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Nolan** Watershed HUC# (if known) **120601020101, 120601020102, 120601020103, 120601020104,**

Drainage area (Square miles, est.) **461** Goal(s) **07000085**

100-Year Flood Risk Summary

Population at risk **412** # of structures **264** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

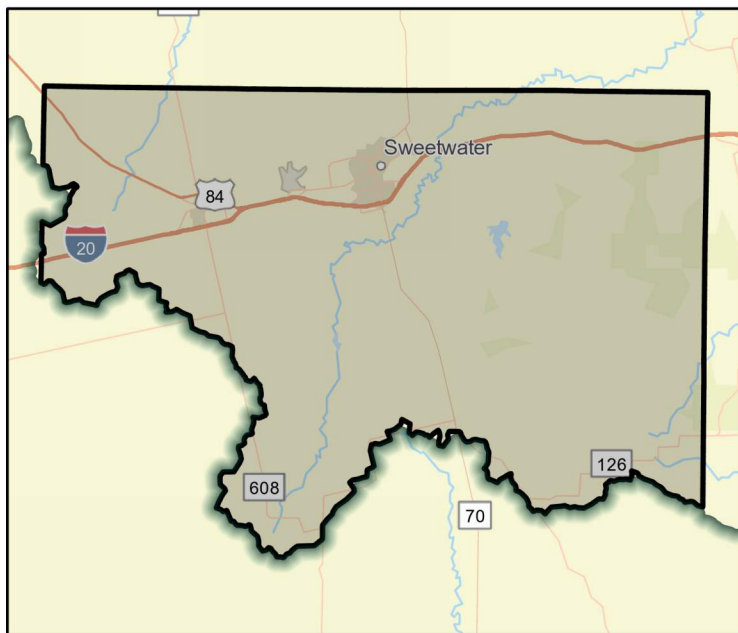
Farm/Ranch land impacted (acres) **9,929** Roadway(s) impacted (length) **41**

Number of low water crossings **21** Historical road closures **0**

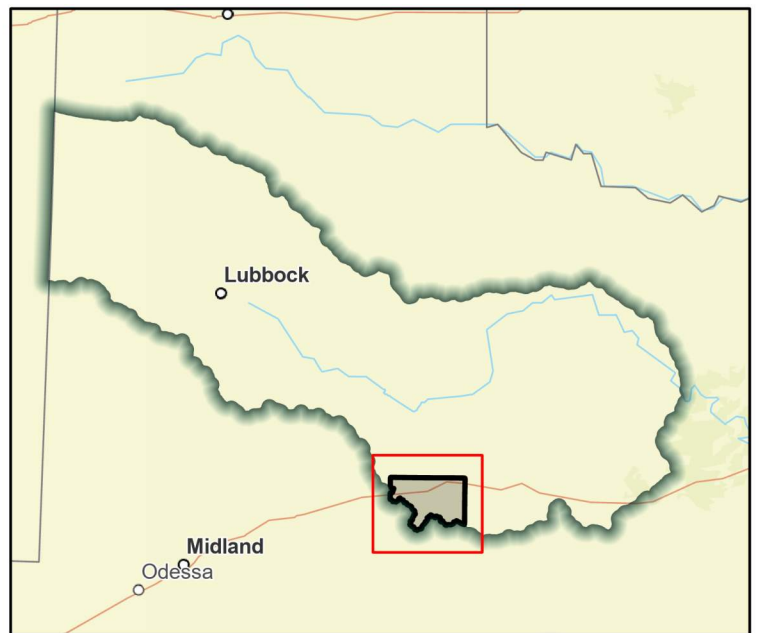
Estimated Cost and Funding Availability

Total Cost **\$1,000,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Nolan County GIS Development**

ID# **071000106**

Sponsor (name of entity, not person) **Nolan (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Develop a GIS inventory of stormwater infrastructure**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Nolan** Watershed HUC# (if known) **120601020101, 120601020102, 120601020103, 120601020104,**

Drainage area (Square miles, est.) **461** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **412** # of structures **264** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

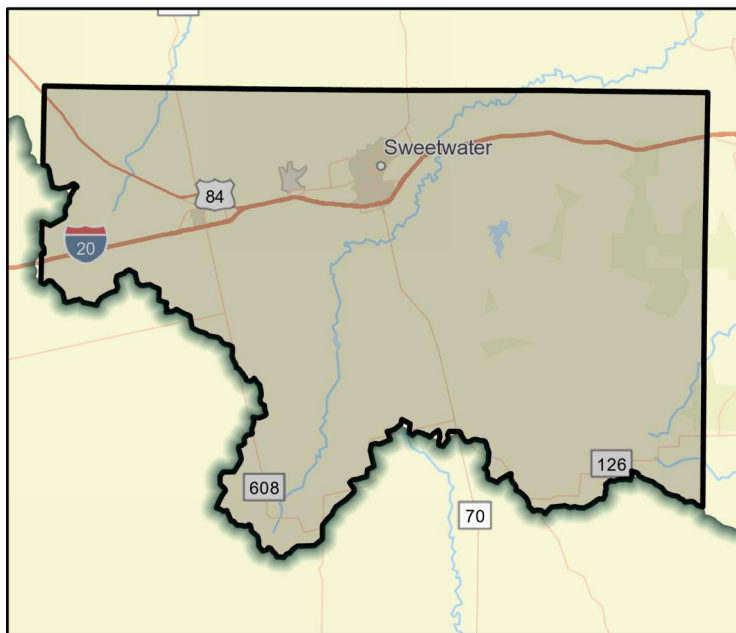
Farm/Ranch land impacted (acres) **9,929** Roadway(s) impacted (length) **41**

Number of low water crossings **21** Historical road closures **0**

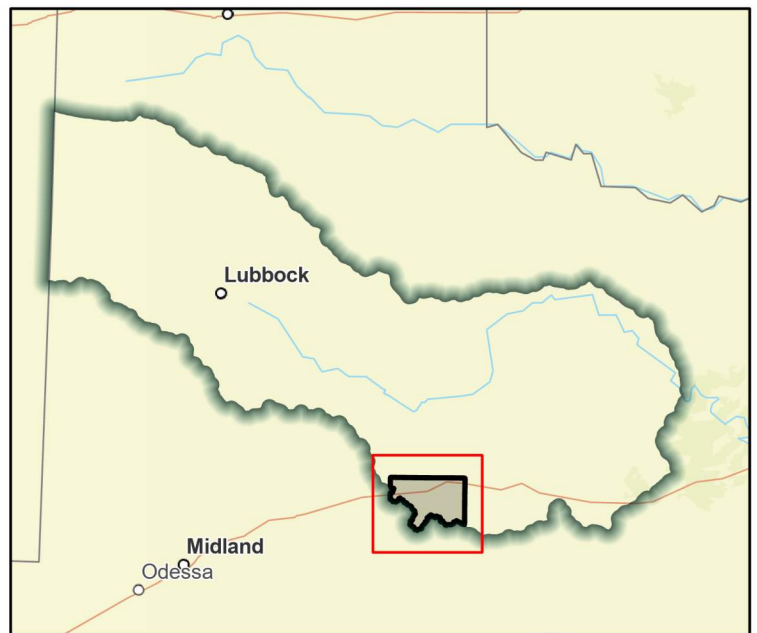
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Nolan County Update FEMA Mapping**

ID# **071000024**

Sponsor (name of entity, not person) **Nolan (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Update existing FEMA mapping**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Nolan** Watershed HUC# (if known) **120601020101, 120601020102, 120601020103, 120601020104,**

Drainage area (Square miles, est.) **461** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **412** # of structures **264** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

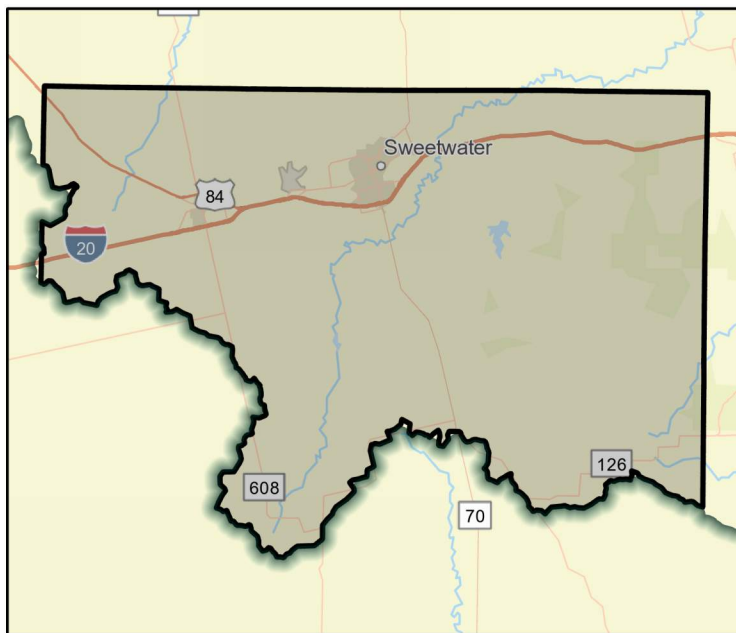
Farm/Ranch land impacted (acres) **9,929** Roadway(s) impacted (length) **41**

Number of low water crossings **21** Historical road closures **0**

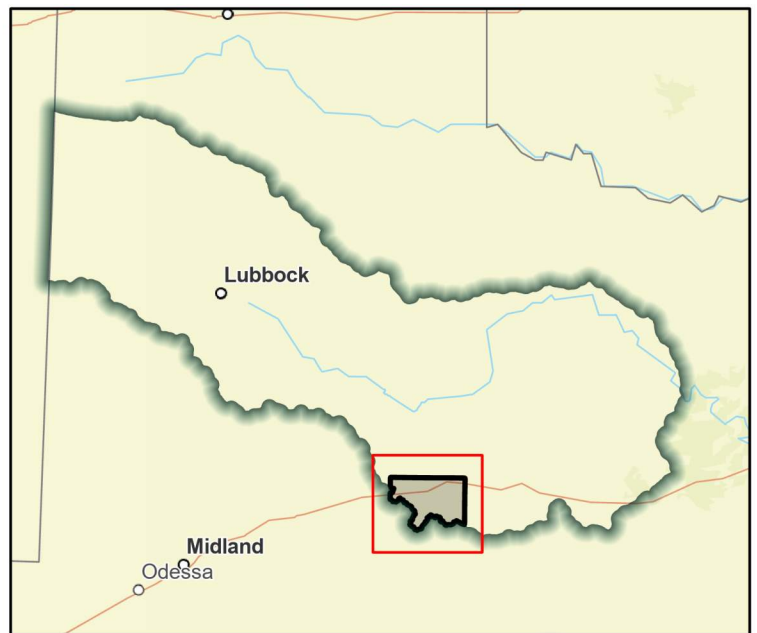
Estimated Cost and Funding Availability

Total Cost **\$920,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **North Fork Double Mountain Fork Brazos Dams**

ID# **071000226**

Sponsor (name of entity, not person) **Ransom Canyon (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **-**

Study Details

Study type **Watershed Planning**

Study description **Perform a watershed-wide evaluation of 1 dam to assess flood protection performance for the 100-year and 500-year events, develop breach analyses mapping and assess hazard classification, develop risk indices, and evaluate dam safety performance.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Crosby, Lubbock, Hockley, Hale, Kent,** Watershed HUC# (if known) **-**

Drainage area (Square miles, est.) **1,208** Goal(s) **07000031**

100-Year Flood Risk Summary

Population at risk **19,818** # of structures **6,495** Critical facilities **9**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**

Farm/Ranch land impacted (acres) **53,625** Roadway(s) impacted (length) **468**

Number of low water crossings **9** Historical road closures **9**

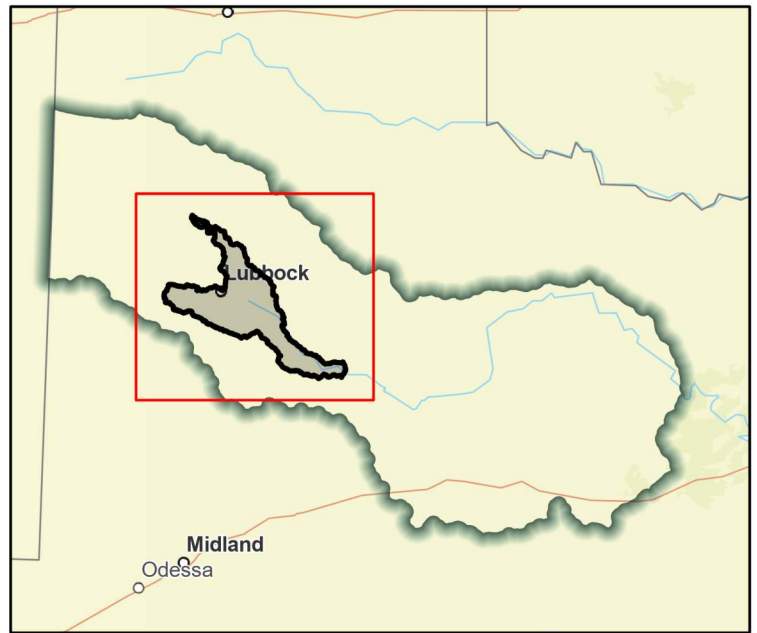
Estimated Cost and Funding Availability

Total Cost **\$58,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Paint Dams**
ID# **071000223**
Sponsor (name of entity, not person)
RFPG recommend? **Yes** Reason for Recommendation **-**

Study Details

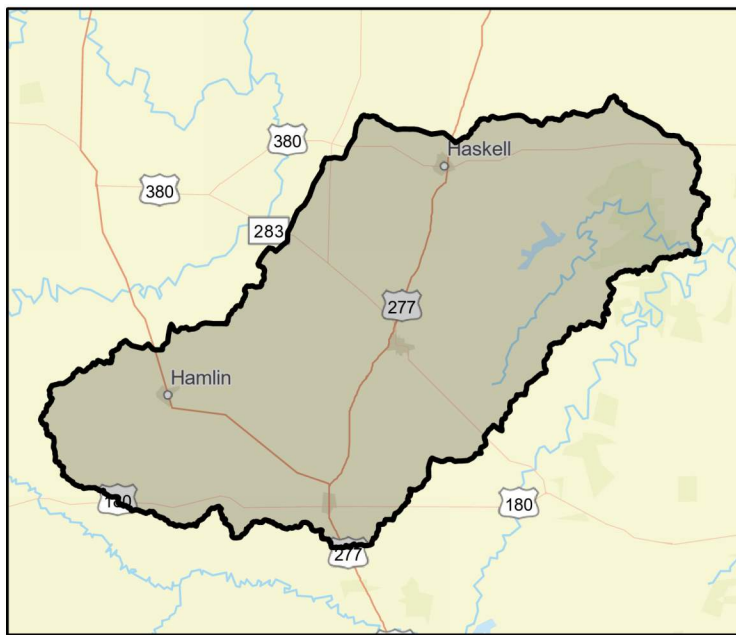
Study type **Watershed Planning**
Study description **Perform a watershed-wide evaluation of 4 dams to assess flood protection performance for the 100-year and 500-year events, develop breach analyses mapping and assess hazard classification, develop risk indices, and evaluate dam safety performance.**
New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**
County **Shackelford, Jones, Fisher, Stonewall,** Watershed HUC# (if known) **-**
Drainage area (Square miles, est.) **1,062** Goal(s) **07000031**

100-Year Flood Risk Summary

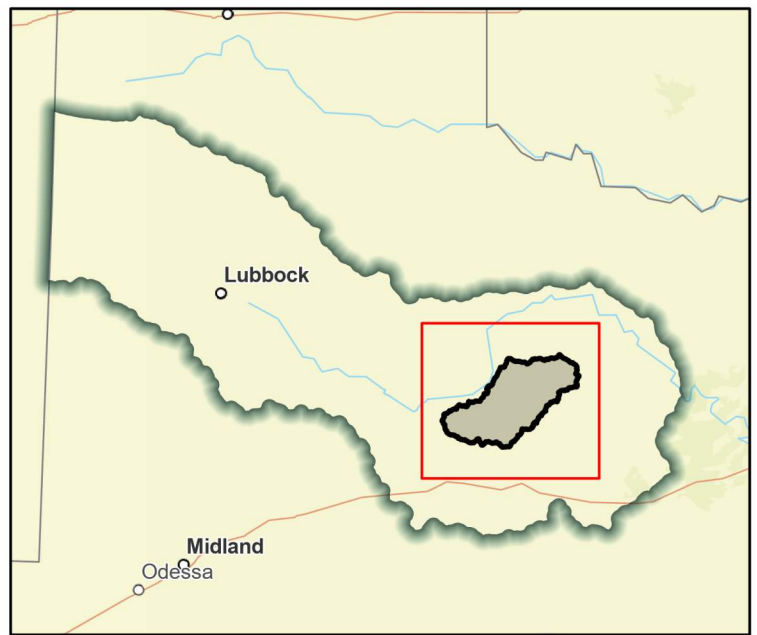
Population at risk **1,438** # of structures **1,076** Critical facilities **3**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**
Farm/Ranch land impacted (acres) **52,267** Roadway(s) impacted (length) **264**
Number of low water crossings **18** Historical road closures **18**

Estimated Cost and Funding Availability

Total Cost **\$189,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Parmer County DCM**

ID# **071000184**

Sponsor (name of entity, not person) **Parmer (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Parmer** Watershed HUC# (if known) **111201010201, 111201010204, 111201010307, 111201010401,**

Drainage area (Square miles, est.) **553** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **47** # of structures **51** Critical facilities **0**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

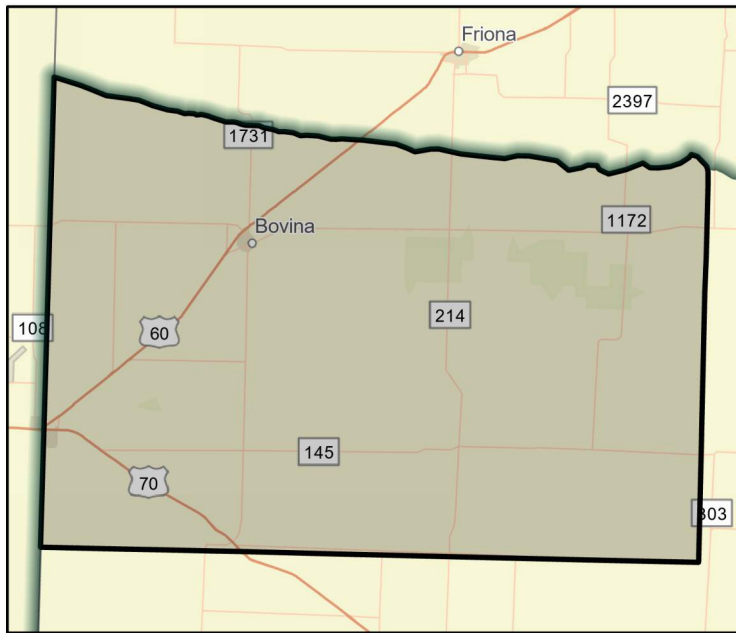
Farm/Ranch land impacted (acres) **11,930** Roadway(s) impacted (length) **343**

Number of low water crossings **5** Historical road closures **0**

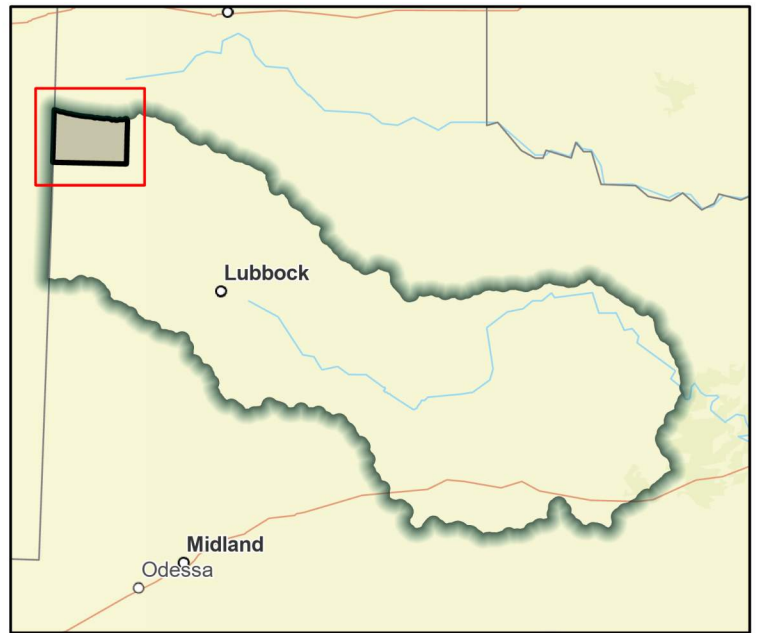
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Parmer County DMP**

ID# **071000069**

Sponsor (name of entity, not person) **Parmer (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Parmer** Watershed HUC# (if known) **111201010201, 111201010204, 111201010307, 111201010401,**

Drainage area (Square miles, est.) **553** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **47** # of structures **51** Critical facilities **0**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

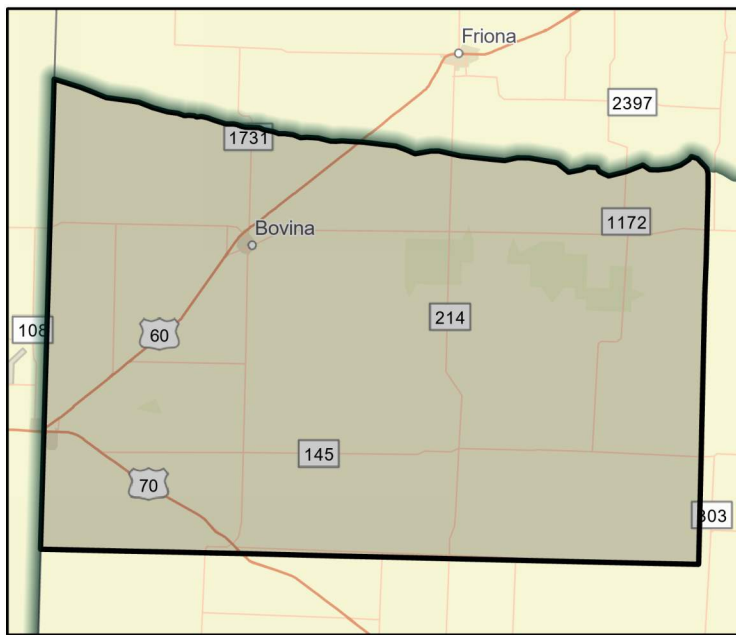
Farm/Ranch land impacted (acres) **11,930** Roadway(s) impacted (length) **343**

Number of low water crossings **5** Historical road closures **0**

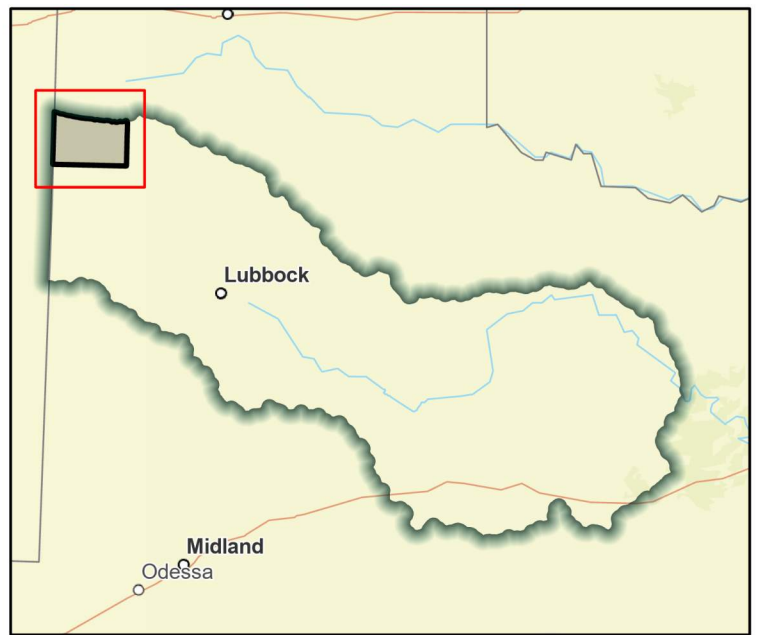
Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Parmer County GIS Development**

ID# **071000107**

Sponsor (name of entity, not person) **Parmer (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Develop a GIS inventory of stormwater infrastructure**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Parmer** Watershed HUC# (if known) **111201010201, 111201010204, 111201010307, 111201010401,**

Drainage area (Square miles, est.) **553** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **47** # of structures **51** Critical facilities **0**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

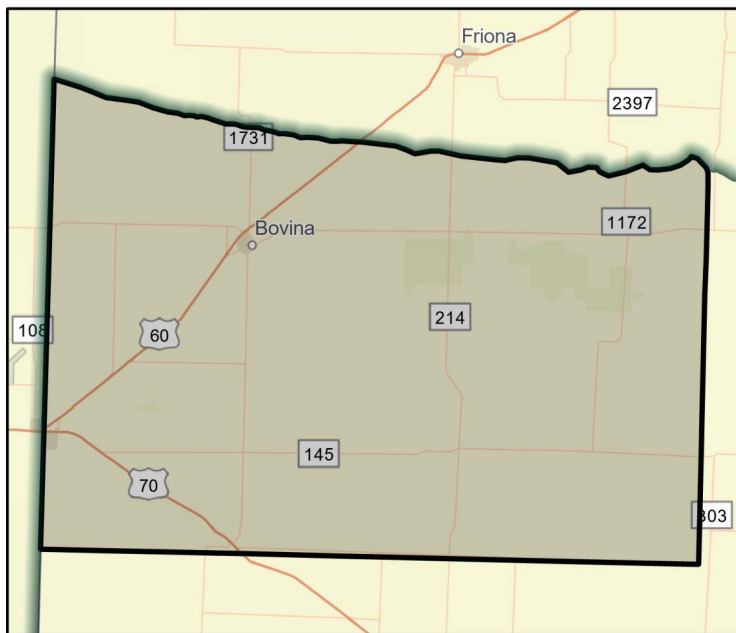
Farm/Ranch land impacted (acres) **11,930** Roadway(s) impacted (length) **343**

Number of low water crossings **5** Historical road closures **0**

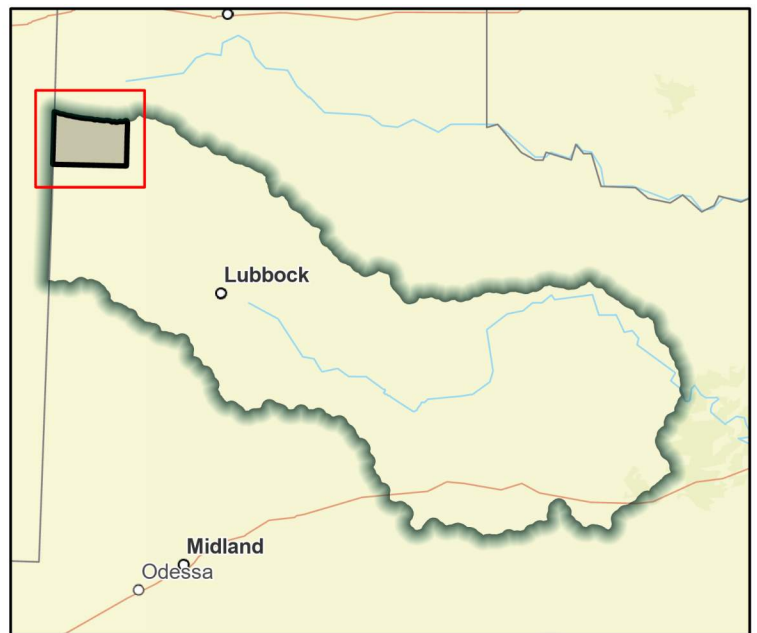
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Parmer County Initial FEMA Mapping**

ID# **071000015**

Sponsor (name of entity, not person) **Parmer (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Create FEMA Mapping in previously unmapped areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Parmer** Watershed HUC# (if known) **111201010201, 111201010204, 111201010307, 111201010401,**

Drainage area (Square miles, est.) **553** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **47** # of structures **51** Critical facilities **0**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

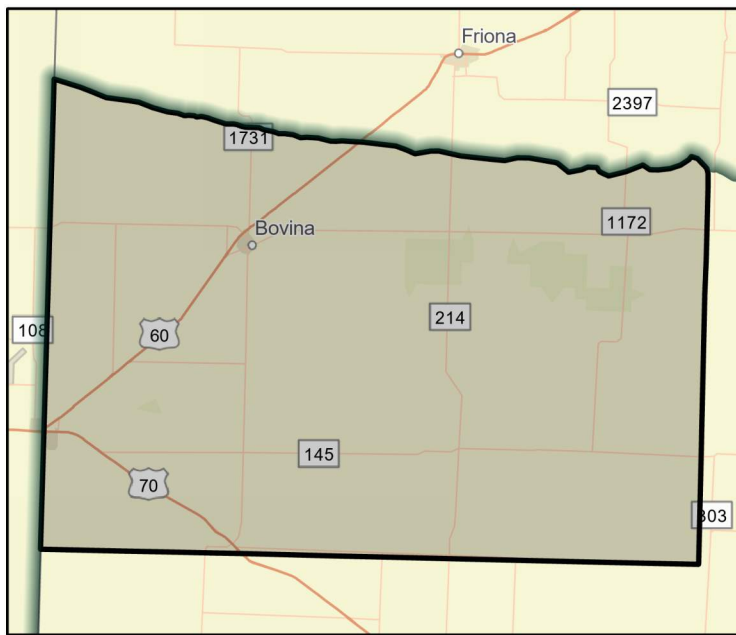
Farm/Ranch land impacted (acres) **11,930** Roadway(s) impacted (length) **343**

Number of low water crossings **5** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$787,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Running Water Draw Dams**

ID# **071000224**

Sponsor (name of entity, not person)

RFPG recommend? **Yes** Reason for Recommendation **-**

Study Details

Study type **Watershed Planning**

Study description **Perform a watershed-wide evaluation of 6 dams to assess flood protection performance for the 100-year and 500-year events, develop breach analyses mapping and assess hazard classification, develop risk indices, and evaluate dam safety performance.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Floyd, Hale, Lamb, Swisher, Castro, Parmer** Watershed HUC# (if known) **-**

Drainage area (Square miles, est.) **1,216** Goal(s) **07000031**

100-Year Flood Risk Summary

Population at risk **3,204** # of structures **1,387** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

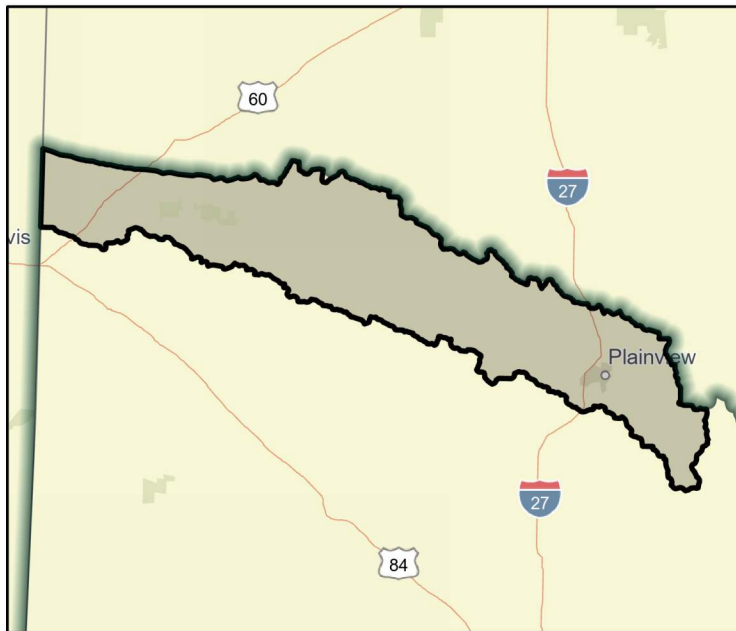
Farm/Ranch land impacted (acres) **62,748** Roadway(s) impacted (length) **655**

Number of low water crossings **18** Historical road closures **18**

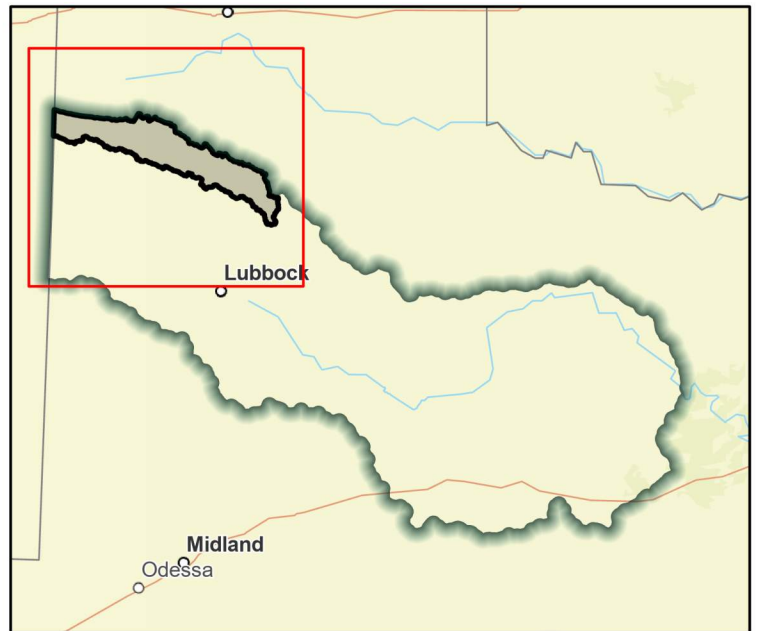
Estimated Cost and Funding Availability

Total Cost **\$277,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Salt Fork Brazos Dams**

ID# **071000227**

Sponsor (name of entity, not person) _____

RFPG recommend? **Yes** Reason for Recommendation **-**

Study Details

Study type **Watershed Planning**

Study description **Perform a watershed-wide evaluation of 2 dams to assess flood protection performance for the 100-year and 500-year events, develop breach analyses mapping and assess hazard classification, develop risk indices, and evaluate dam safety performance.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Crosby, Lubbock, Floyd, Stonewall, Kent,** Watershed HUC# (if known) **-**

Drainage area (Square miles, est.) **2,189** Goal(s) **07000031**

100-Year Flood Risk Summary

Population at risk **233** # of structures **332** Critical facilities **2**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

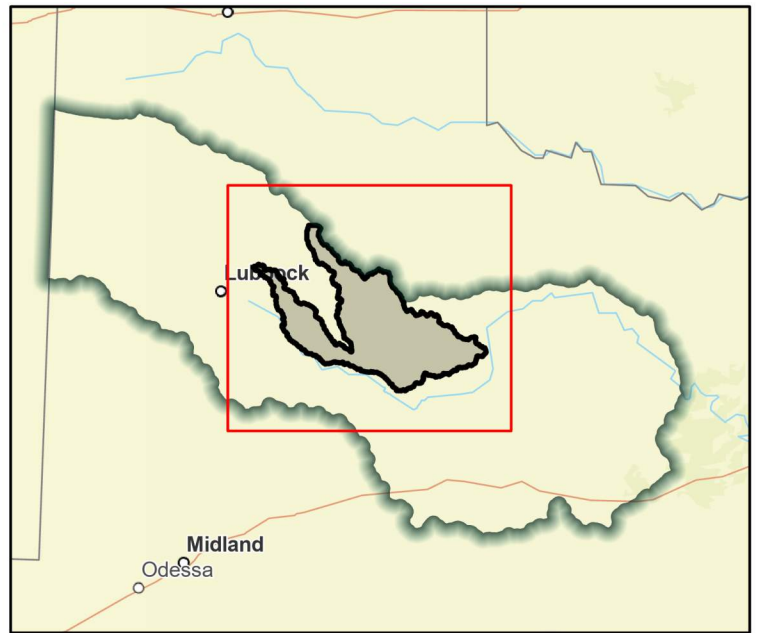
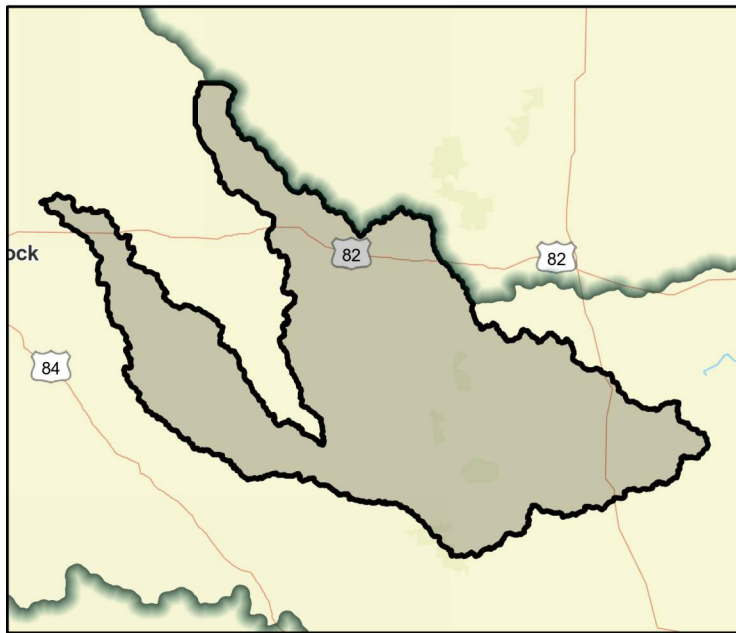
Farm/Ranch land impacted (acres) **42,372** Roadway(s) impacted (length) **314**

Number of low water crossings **10** Historical road closures **10**

Estimated Cost and Funding Availability

Total Cost **\$102,000** Amount of Available Funding **-** Federal funding availability **No**

Funding source **None**



Flood Management Evaluation (FME)



Title **Scurry County DCM**

ID# **071000185**

Sponsor (name of entity, not person) **Scurry (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Scurry** Watershed HUC# (if known) **120500040504, 120500040505, 120500040506, 120500040602,**

Drainage area (Square miles, est.) **393** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **23** # of structures **13** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

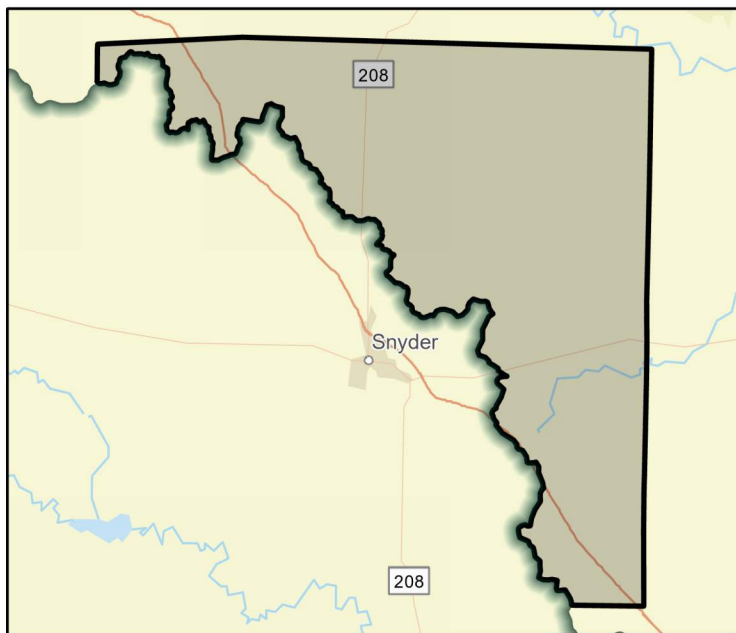
Farm/Ranch land impacted (acres) **6,805** Roadway(s) impacted (length) **18**

Number of low water crossings **6** Historical road closures **0**

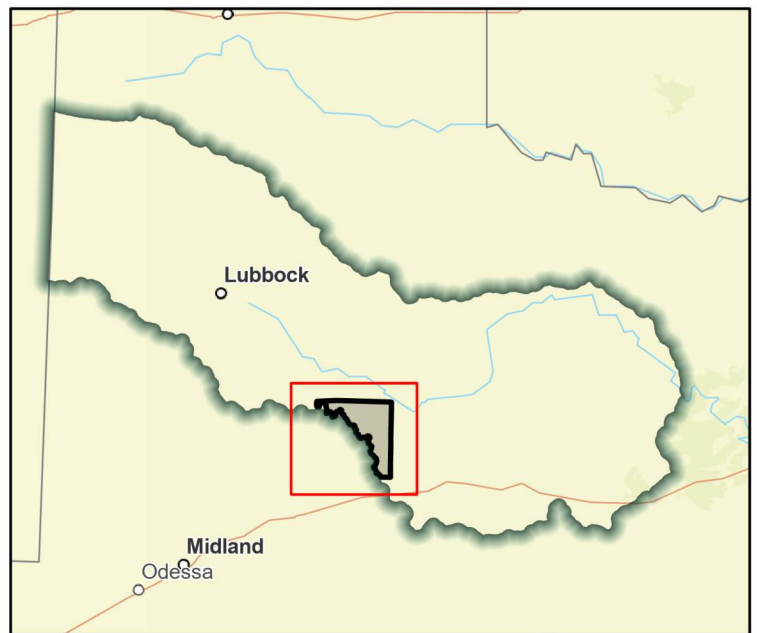
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Scurry County DMP**

ID# **071000070**

Sponsor (name of entity, not person) **Scurry (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Scurry** Watershed HUC# (if known) **120500040504, 120500040505, 120500040506, 120500040602,**

Drainage area (Square miles, est.) **393** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **23** # of structures **13** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

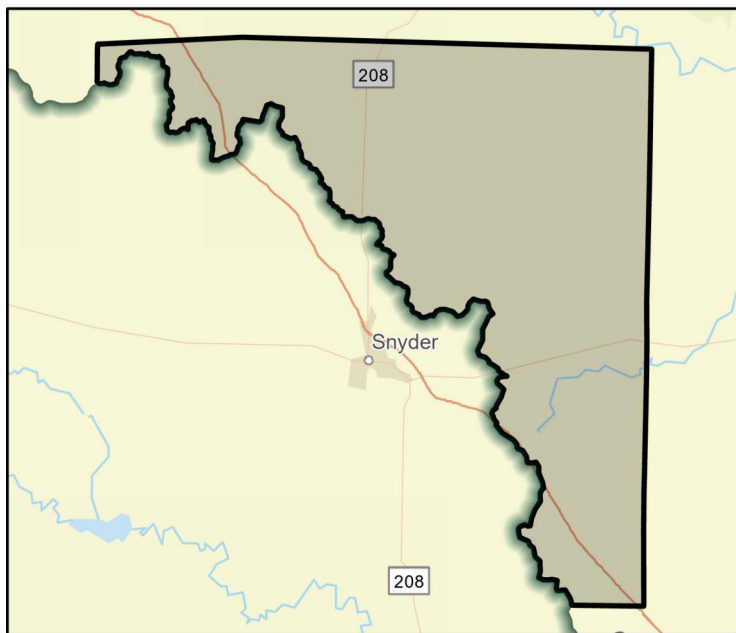
Farm/Ranch land impacted (acres) **6,805** Roadway(s) impacted (length) **18**

Number of low water crossings **6** Historical road closures **0**

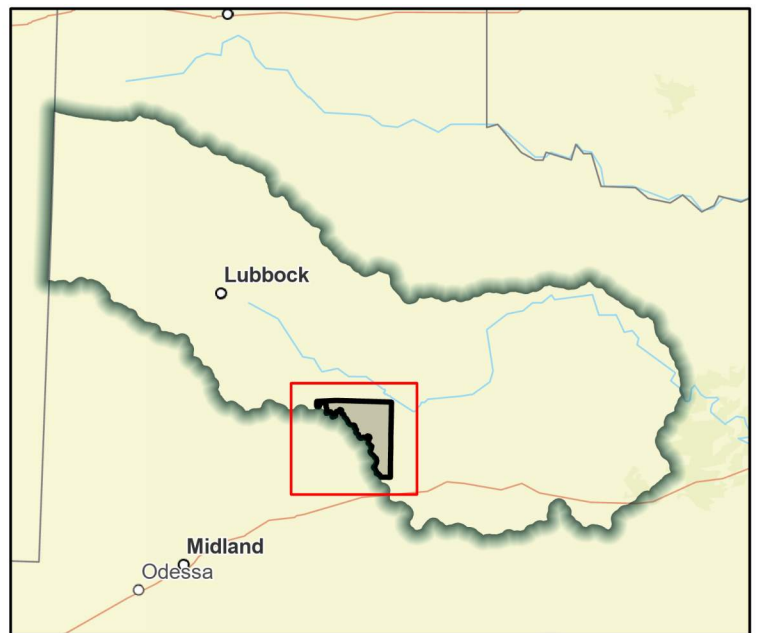
Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Scurry County GIS Development
ID# 071000108
Sponsor (name of entity, not person) Scurry (County)
RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

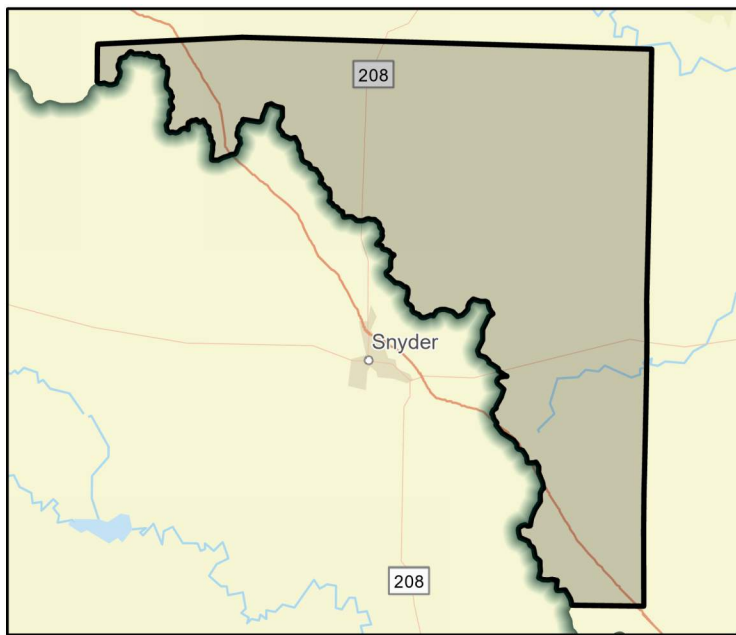
Study type Other
Study description Develop a GIS inventory of stormwater infrastructure
New Hydrologic or Hydraulic model? No Emergency Need? No Existing/Anticipated models in near term? No
County Scurry Watershed HUC# (if known) 120500040504, 120500040505, 120500040506, 120500040602,
Drainage area (Square miles, est.) 393 Goal(s) 07000011, 07000012

100-Year Flood Risk Summary

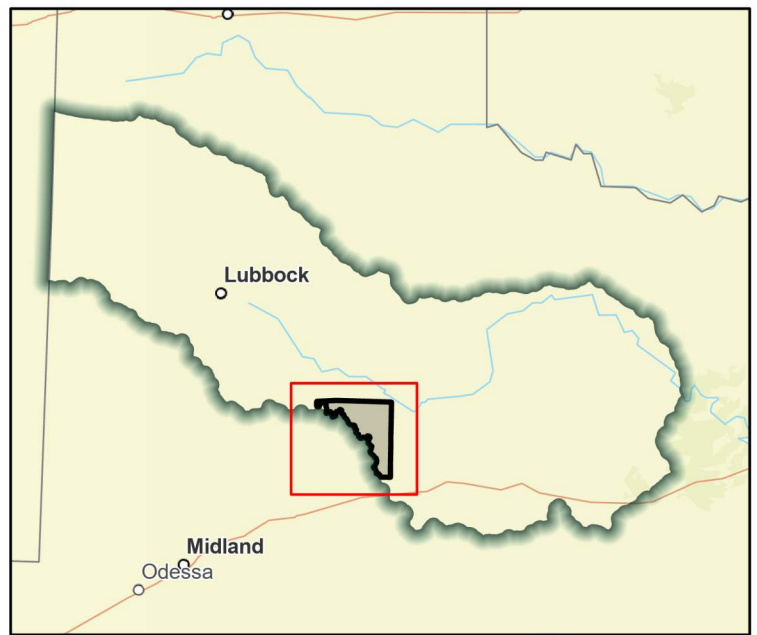
Population at risk 23 # of structures 13 Critical facilities 0
Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No
Farm/Ranch land impacted (acres) 6,805 Roadway(s) impacted (length) 18
Number of low water crossings 6 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$100,000 Amount of Available Funding \$0 Federal funding availability No
Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Scurry County Relocate Critical Facilities High Hazard**

ID# **071000186**

Sponsor (name of entity, not person) **Scurry (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Relocate critical facilities out of high hazard areas.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Scurry** Watershed HUC# (if known) **120500040504, 120500040505, 120500040506, 120500040602,**

Drainage area (Square miles, est.) **393** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **23** # of structures **13** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

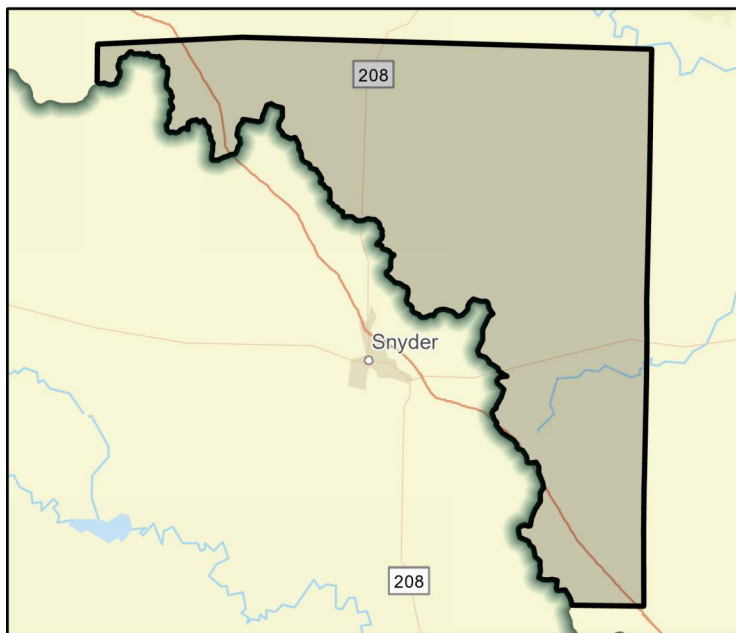
Farm/Ranch land impacted (acres) **6,805** Roadway(s) impacted (length) **18**

Number of low water crossings **6** Historical road closures **0**

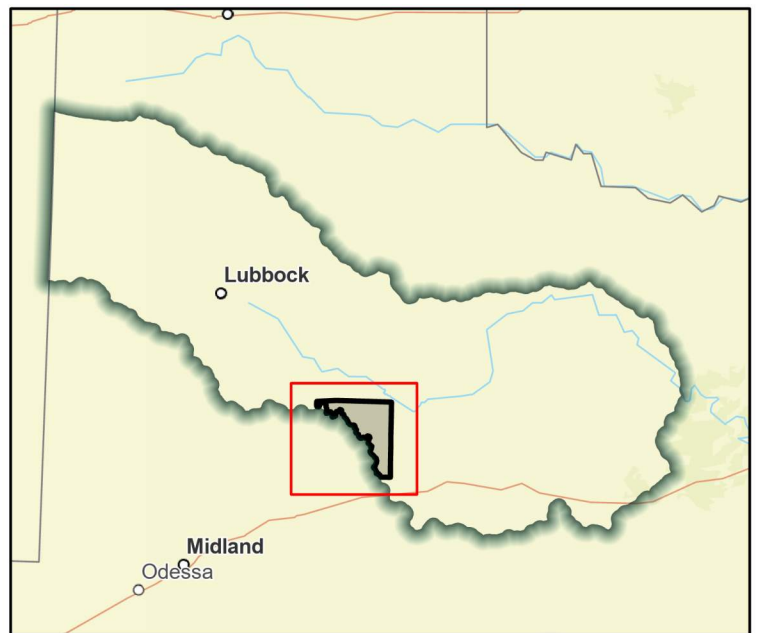
Estimated Cost and Funding Availability

Total Cost **\$2,000,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Scurry County Update FEMA Mapping**

ID# **071000025**

Sponsor (name of entity, not person) **Scurry (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Update existing FEMA mapping**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Scurry** Watershed HUC# (if known) **120500040504, 120500040505, 120500040506, 120500040602,**

Drainage area (Square miles, est.) **393** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **23** # of structures **13** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

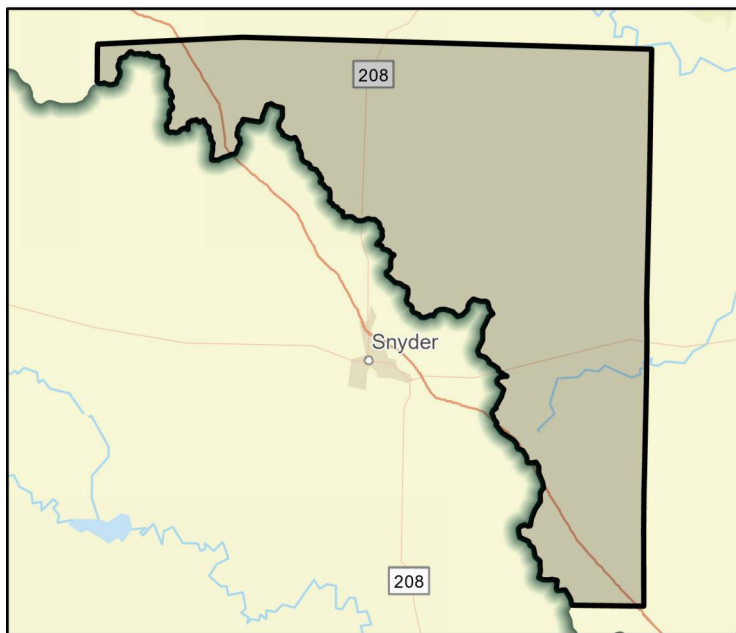
Farm/Ranch land impacted (acres) **6,805** Roadway(s) impacted (length) **18**

Number of low water crossings **6** Historical road closures **0**

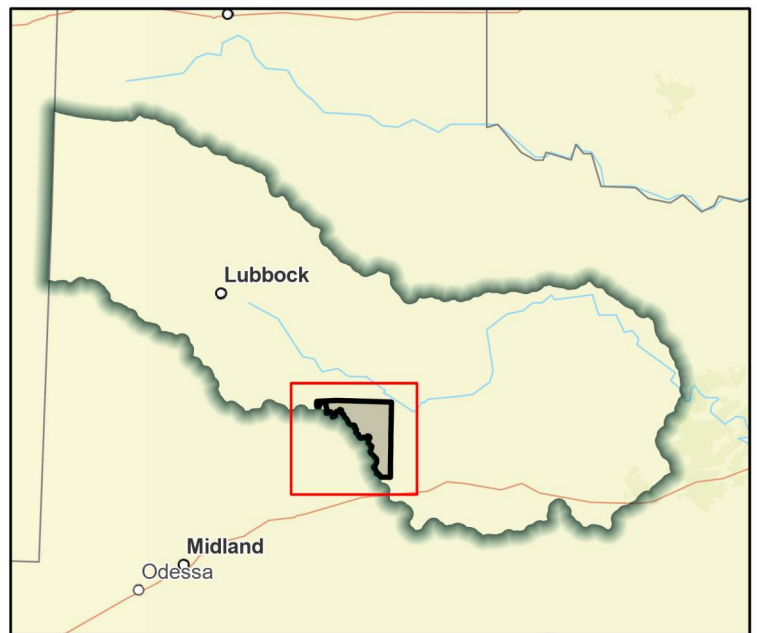
Estimated Cost and Funding Availability

Total Cost **\$897,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Shackelford County DCM**
ID# **071000187**
Sponsor (name of entity, not person) **Shackelford (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

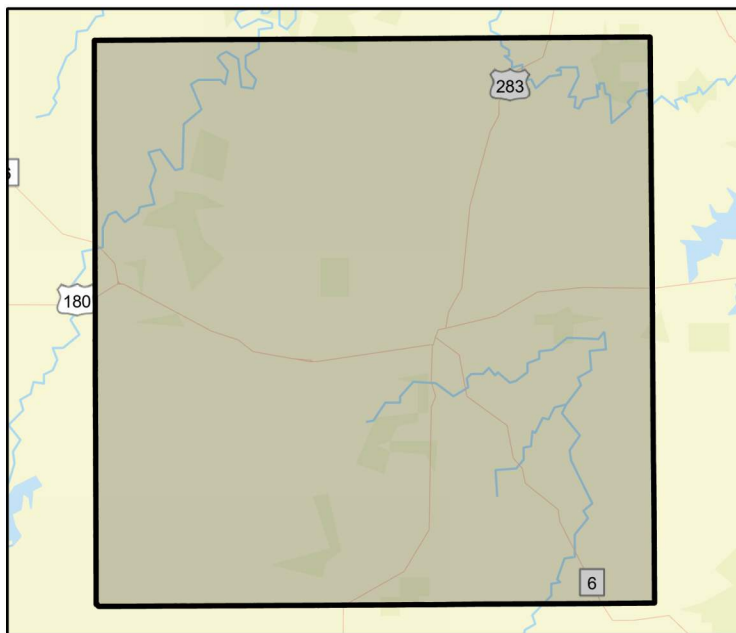
Study type **Other**
Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**
New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Shackelford** Watershed HUC# (if known) **120601020802, 120601020803, 120601020805, 120601020806,**
Drainage area (Square miles, est.) **912** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

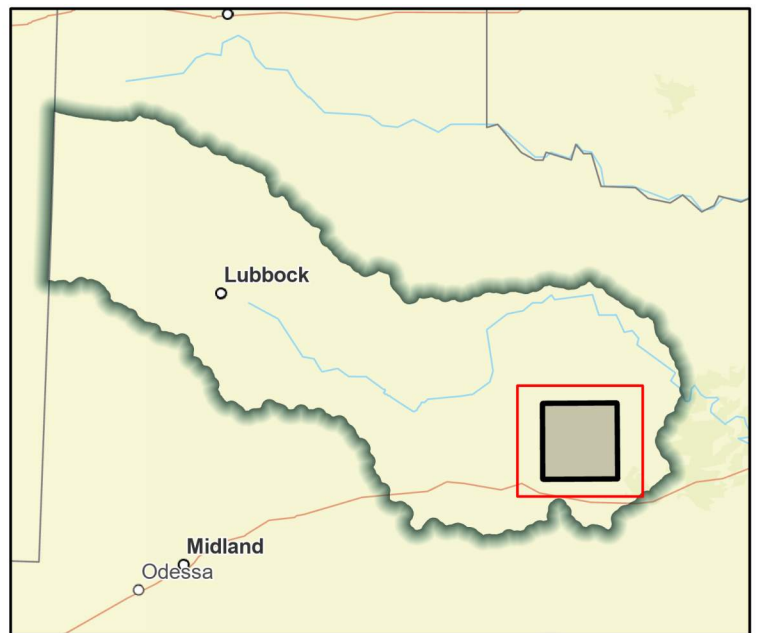
Population at risk **178** # of structures **347** Critical facilities **0**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**
Farm/Ranch land impacted (acres) **23,799** Roadway(s) impacted (length) **43**
Number of low water crossings **4** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Shackelford County DMP**
ID# **071000071**
Sponsor (name of entity, not person) **Shackelford (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

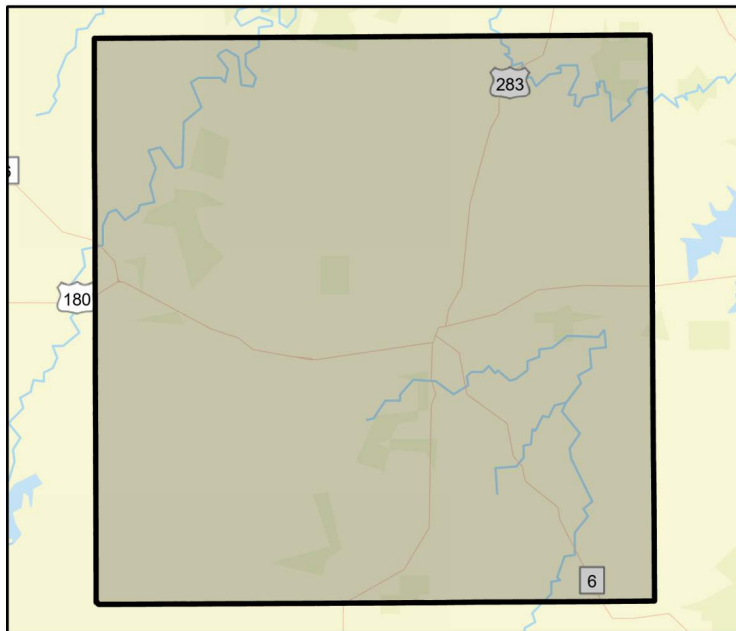
Study type **Watershed Planning**
Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**
New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**
County **Shackelford** Watershed HUC# (if known) **120601020802, 120601020803, 120601020805, 120601020806,**
Drainage area (Square miles, est.) **912** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

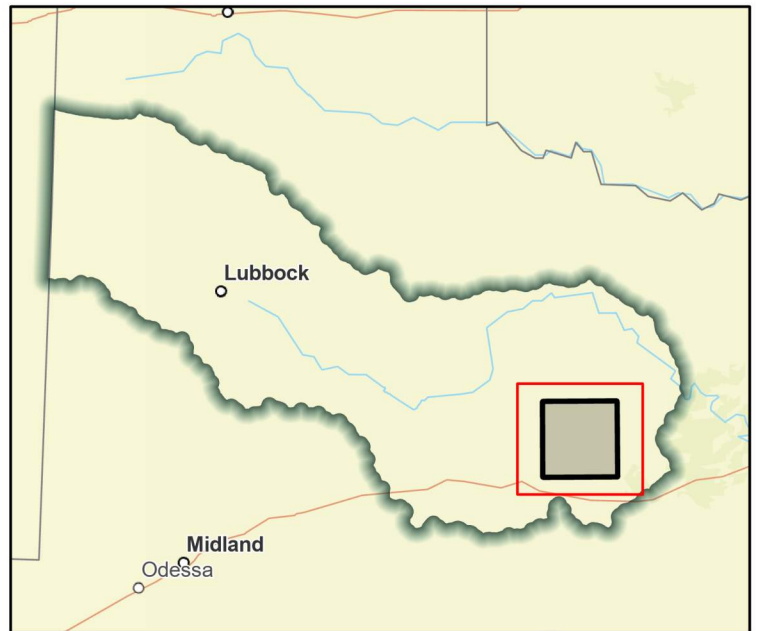
Population at risk **178** # of structures **347** Critical facilities **0**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**
Farm/Ranch land impacted (acres) **23,799** Roadway(s) impacted (length) **43**
Number of low water crossings **4** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Shackelford County GIS Development**

ID# **071000109**

Sponsor (name of entity, not person) **Shackelford (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Develop a GIS inventory of stormwater infrastructure**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Shackelford** Watershed HUC# (if known) **120601020802, 120601020803, 120601020805, 120601020806,**

Drainage area (Square miles, est.) **912** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **178** # of structures **347** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **23,799** Roadway(s) impacted (length) **43**

Number of low water crossings **4** Historical road closures **0**

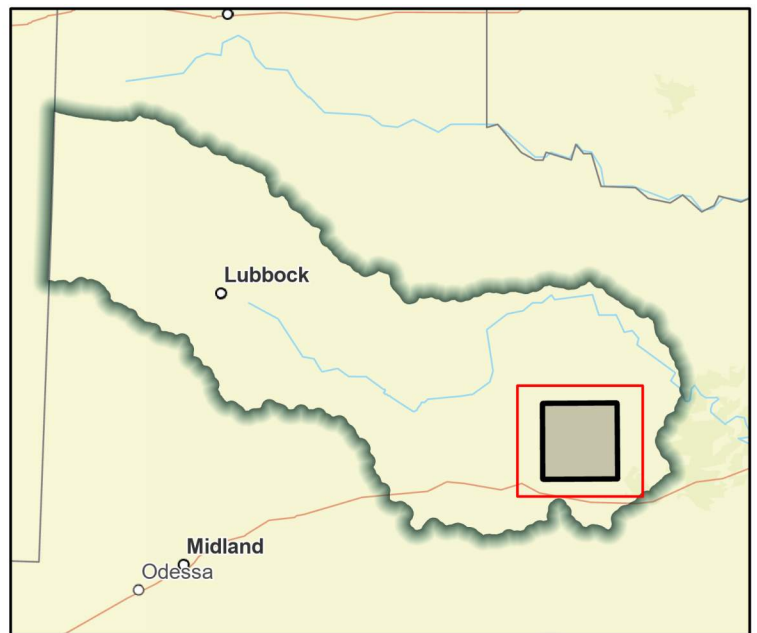
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Shackelford County Update FEMA Mapping**

ID# **071000026**

Sponsor (name of entity, not person) **Shackelford (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Update existing FEMA mapping**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Shackelford** Watershed HUC# (if known) **120601020802, 120601020803, 120601020805, 120601020806,**

Drainage area (Square miles, est.) **912** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **178** # of structures **347** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **23,799** Roadway(s) impacted (length) **43**

Number of low water crossings **4** Historical road closures **0**

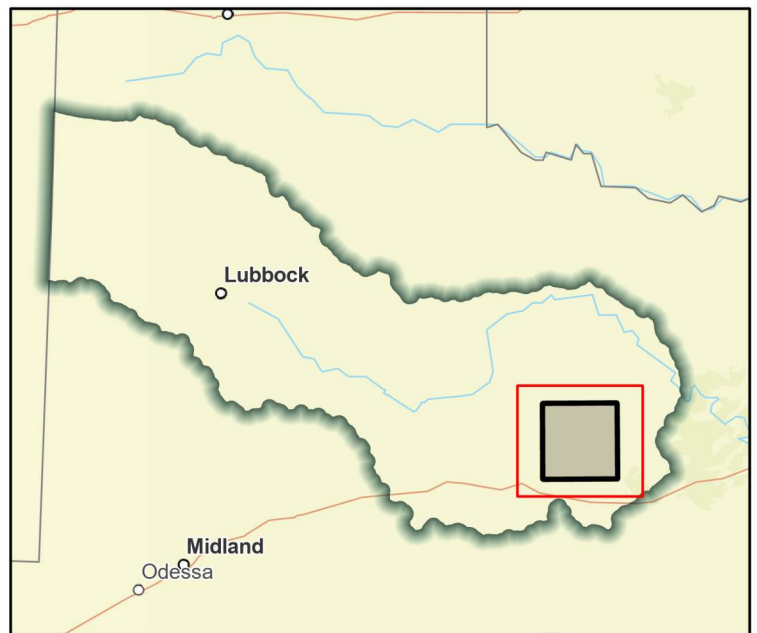
Estimated Cost and Funding Availability

Total Cost **\$932,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stephens County Buyout Program**

ID# **071000188**

Sponsor (name of entity, not person) **Stephens (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Develop a land acquisition program in flood hazard areas.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stephens** Watershed HUC# (if known) **120601040201, 120601040202, 120601040204, 120601040205,**

Drainage area (Square miles, est.) **561** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **709** # of structures **657** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

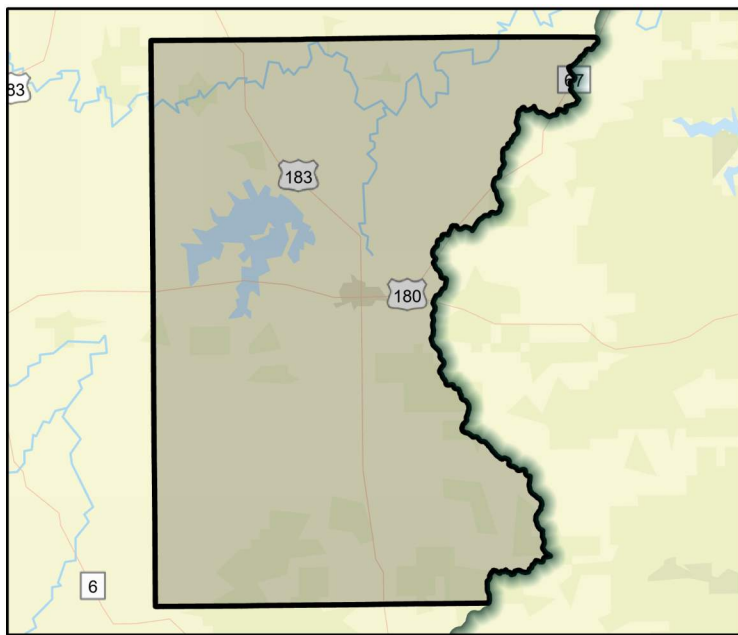
Farm/Ranch land impacted (acres) **28,369** Roadway(s) impacted (length) **64**

Number of low water crossings **2** Historical road closures **0**

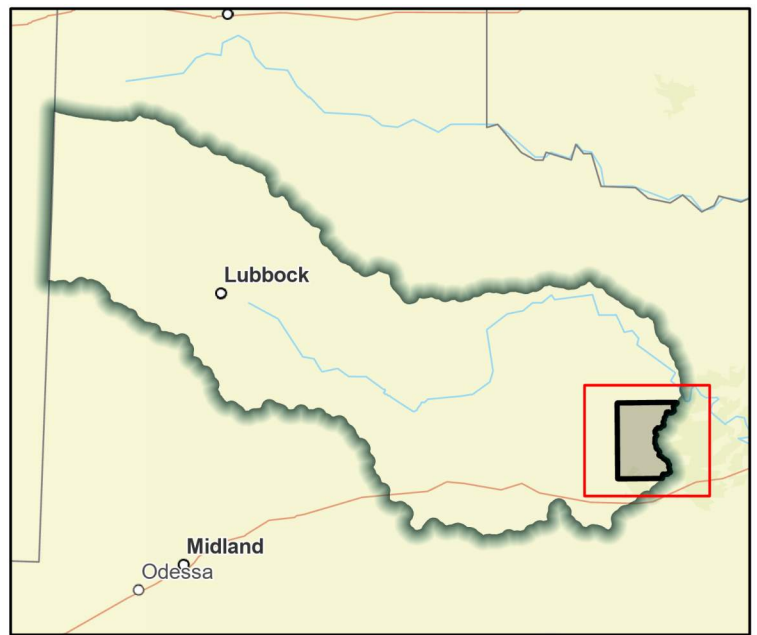
Estimated Cost and Funding Availability

Total Cost **\$1,000,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stephens County DCM**

ID# **071000189**

Sponsor (name of entity, not person) **Stephens (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stephens** Watershed HUC# (if known) **120601040201, 120601040202, 120601040204, 120601040205,**

Drainage area (Square miles, est.) **561** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **709** # of structures **657** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

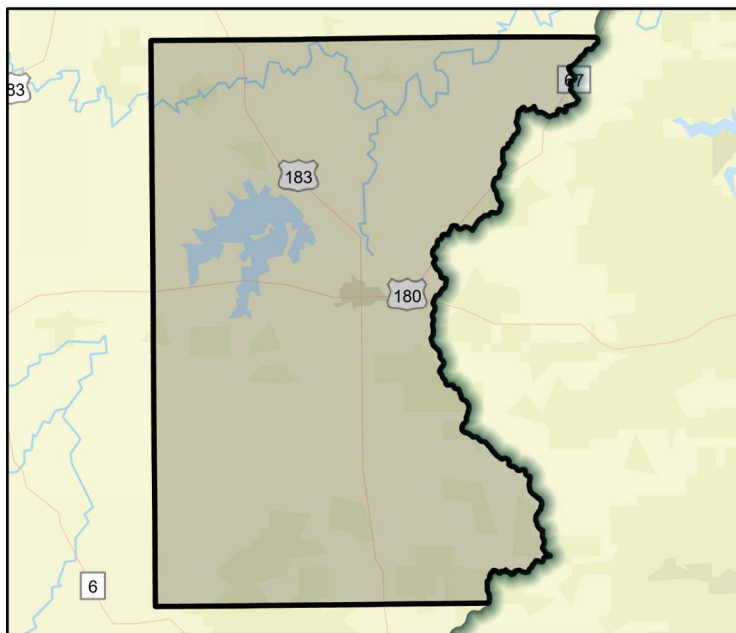
Farm/Ranch land impacted (acres) **28,369** Roadway(s) impacted (length) **64**

Number of low water crossings **2** Historical road closures **0**

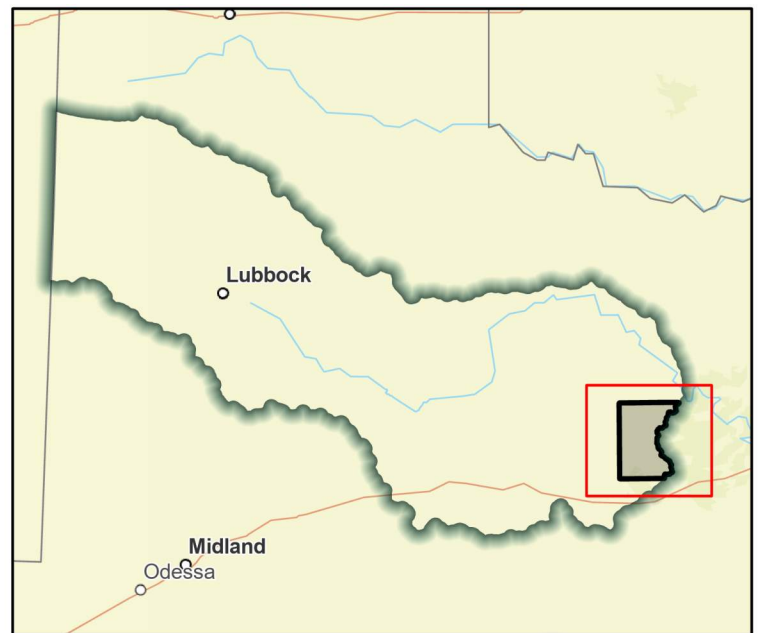
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stephens County DMP**

ID# **071000072**

Sponsor (name of entity, not person) **Stephens (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stephens** Watershed HUC# (if known) **120601040201, 120601040202, 120601040204, 120601040205,**

Drainage area (Square miles, est.) **561** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **709** # of structures **657** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

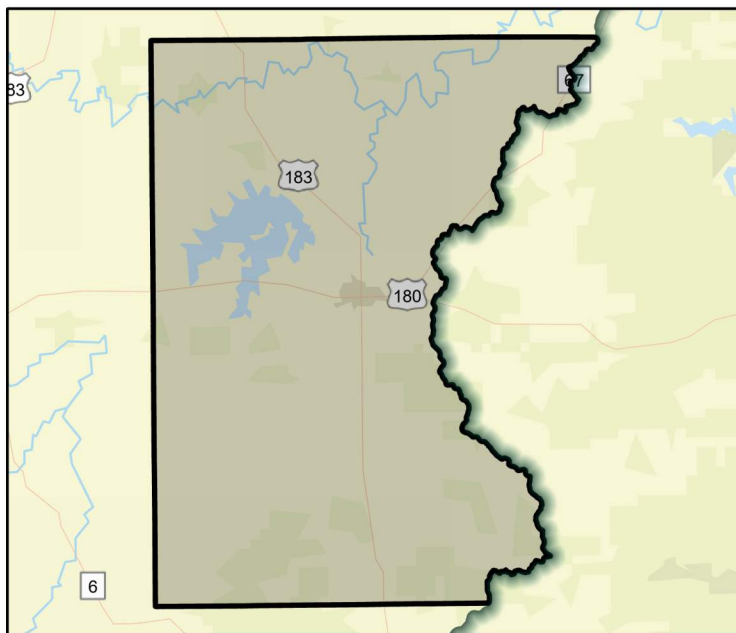
Farm/Ranch land impacted (acres) **28,369** Roadway(s) impacted (length) **64**

Number of low water crossings **2** Historical road closures **0**

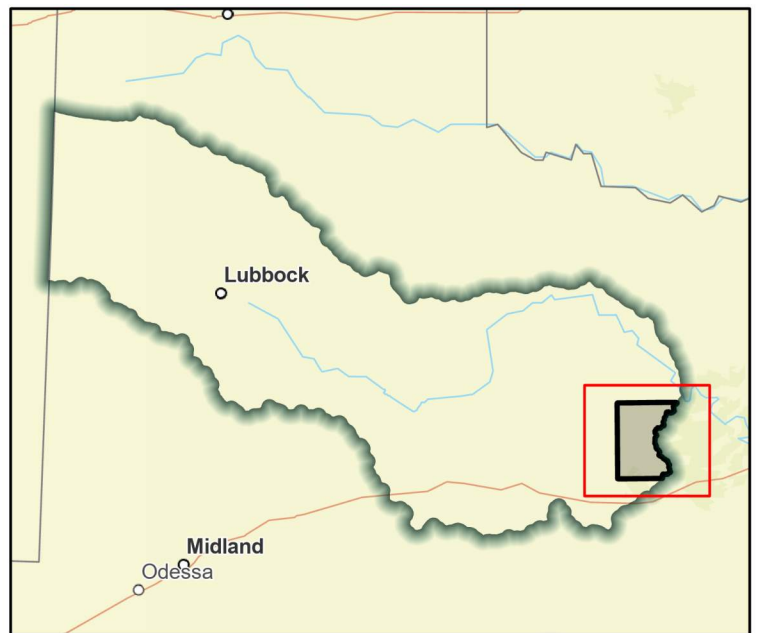
Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stephens County GIS Development**

ID# **071000110**

Sponsor (name of entity, not person) **Stephens (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Develop a GIS inventory of stormwater infrastructure**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stephens** Watershed HUC# (if known) **120601040201, 120601040202, 120601040204, 120601040205,**

Drainage area (Square miles, est.) **561** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **709** # of structures **657** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

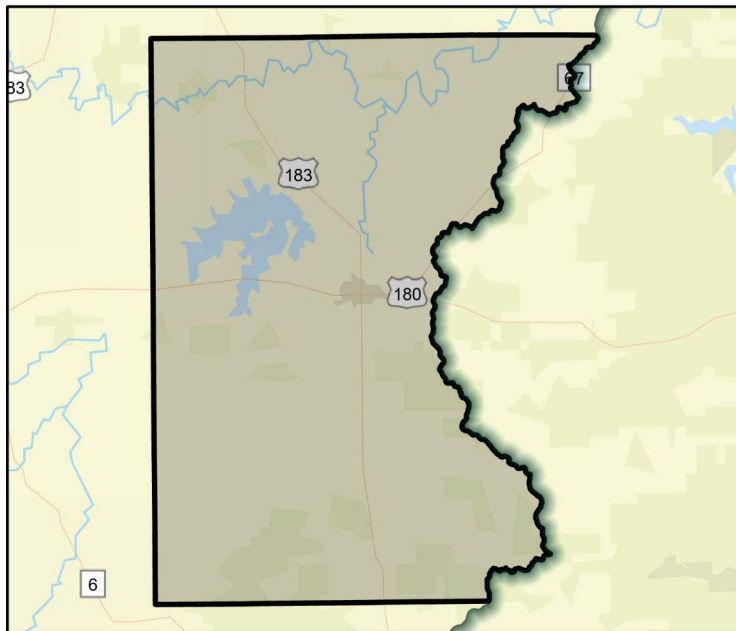
Farm/Ranch land impacted (acres) **28,369** Roadway(s) impacted (length) **64**

Number of low water crossings **2** Historical road closures **0**

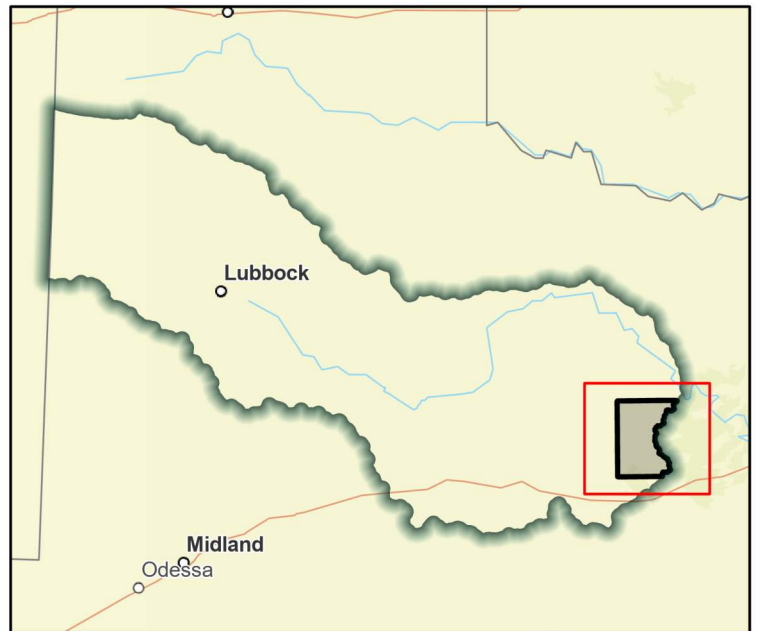
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stephens County Stream Restoration Program**

ID# **071000190**

Sponsor (name of entity, not person) **Stephens (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Implement stream restoration / channelization program to ensure adequate drainage / diversion of stormwater.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stephens** Watershed HUC# (if known) **120601040201, 120601040202, 120601040204, 120601040205,**

Drainage area (Square miles, est.) **561** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **709** # of structures **657** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

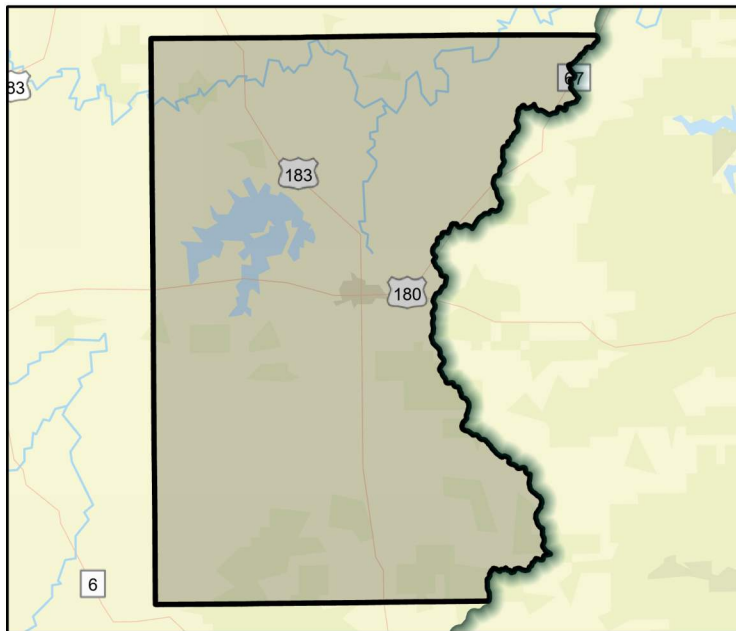
Farm/Ranch land impacted (acres) **28,369** Roadway(s) impacted (length) **64**

Number of low water crossings **2** Historical road closures **0**

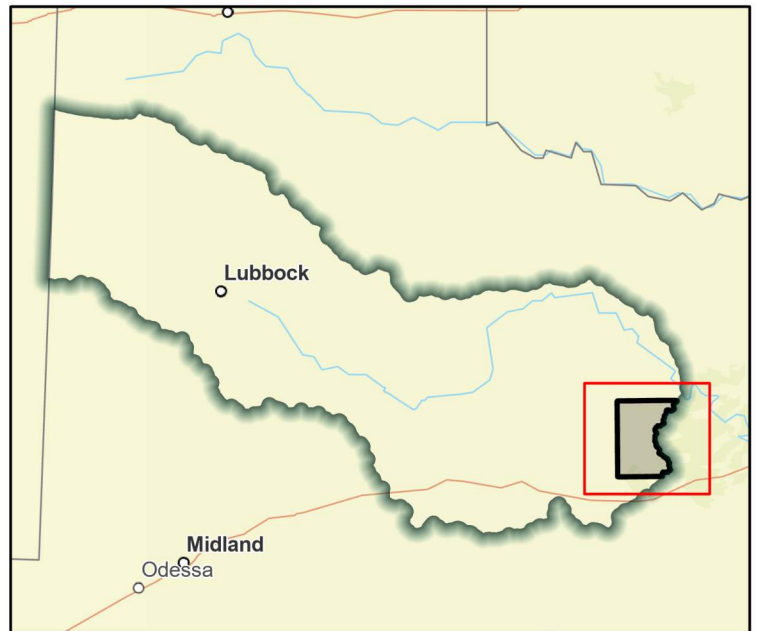
Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stephens County Update FEMA Mapping**

ID# **071000027**

Sponsor (name of entity, not person) **Stephens (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Update existing FEMA mapping**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stephens** Watershed HUC# (if known) **120601040201, 120601040202, 120601040204, 120601040205,**

Drainage area (Square miles, est.) **561** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **709** # of structures **657** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

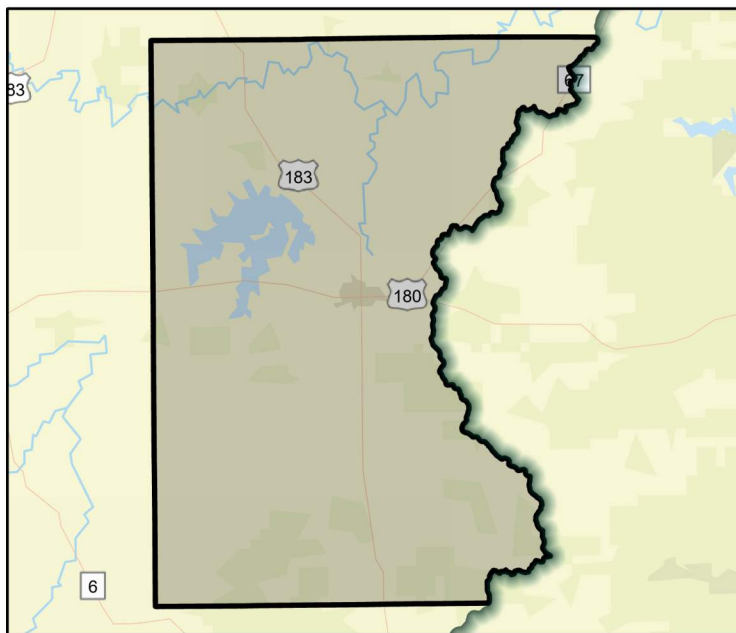
Farm/Ranch land impacted (acres) **28,369** Roadway(s) impacted (length) **64**

Number of low water crossings **2** Historical road closures **0**

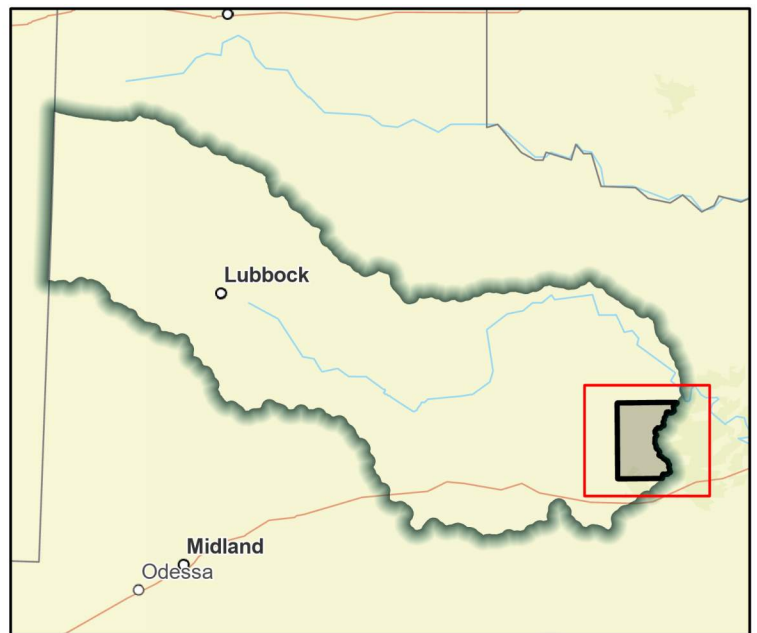
Estimated Cost and Funding Availability

Total Cost **\$920,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stephens Flood Protection Lift Station Program**

ID# **071000191**

Sponsor (name of entity, not person) **Stephens (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Flood-proof sewage treatment plants in flood hazard / low-lying areas.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stephens** Watershed HUC# (if known) **120601040201, 120601040202, 120601040204, 120601040205,**

Drainage area (Square miles, est.) **561** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **709** # of structures **657** Critical facilities **1**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

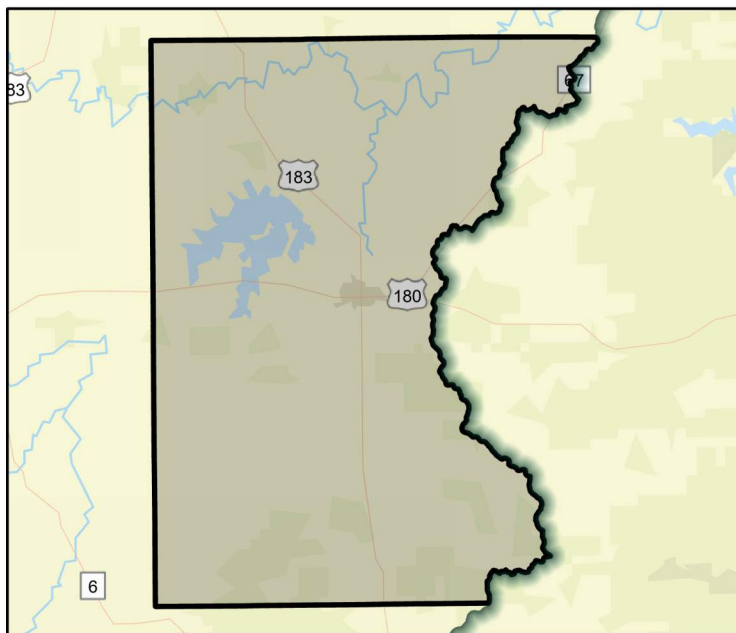
Farm/Ranch land impacted (acres) **28,369** Roadway(s) impacted (length) **64**

Number of low water crossings **2** Historical road closures **0**

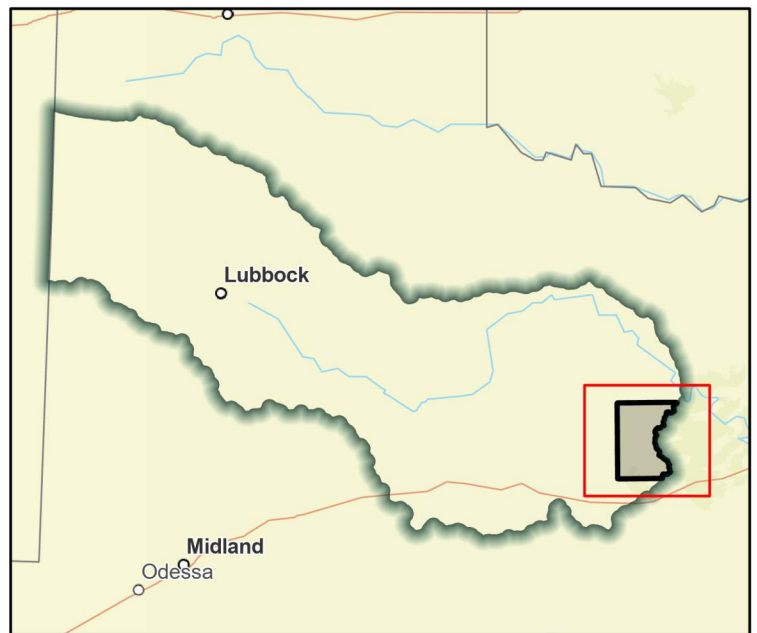
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stonewall County DCM**
ID# **071000192**
Sponsor (name of entity, not person) **Stonewall (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**
Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**
New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Stonewall** Watershed HUC# (if known) **120500040801, 120500040802, 120500040803, 120500040804,**
Drainage area (Square miles, est.) **925** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

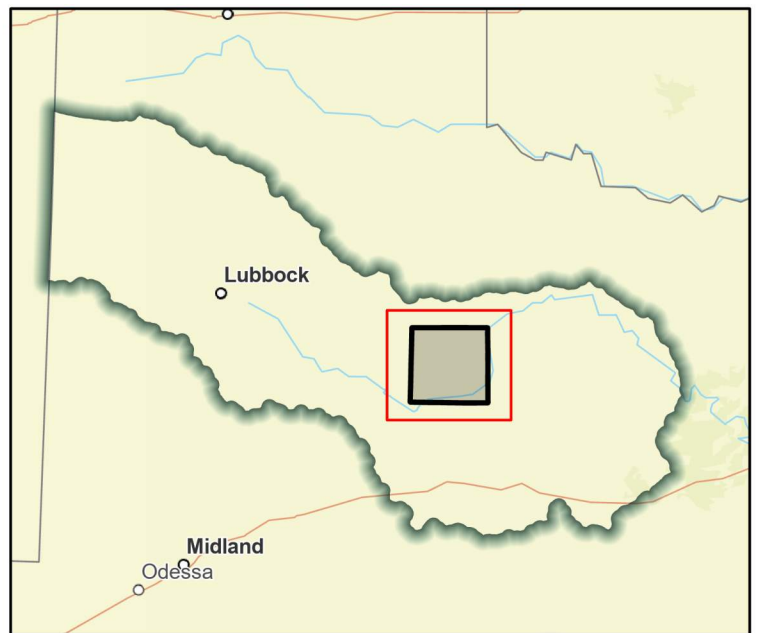
Population at risk **12** # of structures **67** Critical facilities **0**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**
Farm/Ranch land impacted (acres) **6,457** Roadway(s) impacted (length) **49**
Number of low water crossings **6** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stonewall County DMP**

ID# **071000073**

Sponsor (name of entity, not person) **Stonewall (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stonewall** Watershed HUC# (if known) **120500040801, 120500040802, 120500040803, 120500040804,**

Drainage area (Square miles, est.) **925** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **12** # of structures **67** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **6,457** Roadway(s) impacted (length) **49**

Number of low water crossings **6** Historical road closures **0**

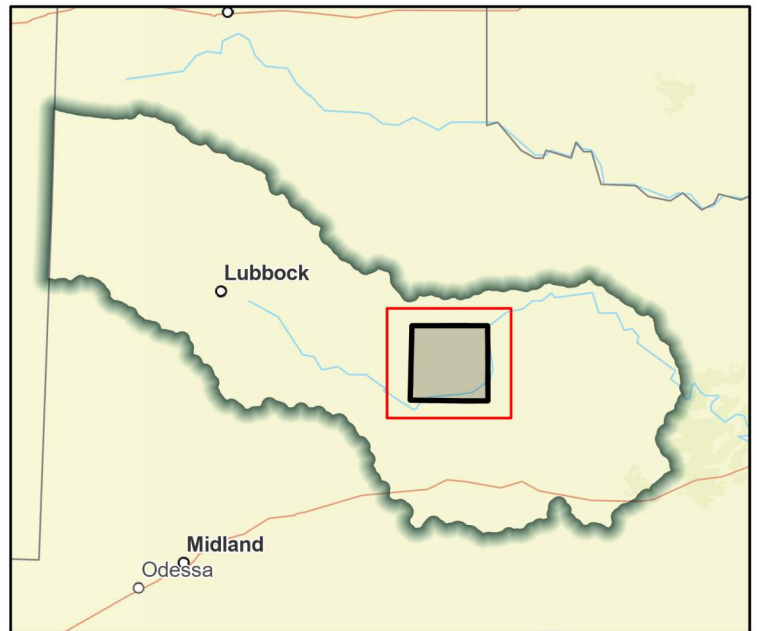
Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stonewall County GIS Development**

ID# **071000111**

Sponsor (name of entity, not person) **Stonewall (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Develop a GIS inventory of stormwater infrastructure**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stonewall** Watershed HUC# (if known) **120500040801, 120500040802, 120500040803, 120500040804,**

Drainage area (Square miles, est.) **925** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **12** # of structures **67** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **6,457** Roadway(s) impacted (length) **49**

Number of low water crossings **6** Historical road closures **0**

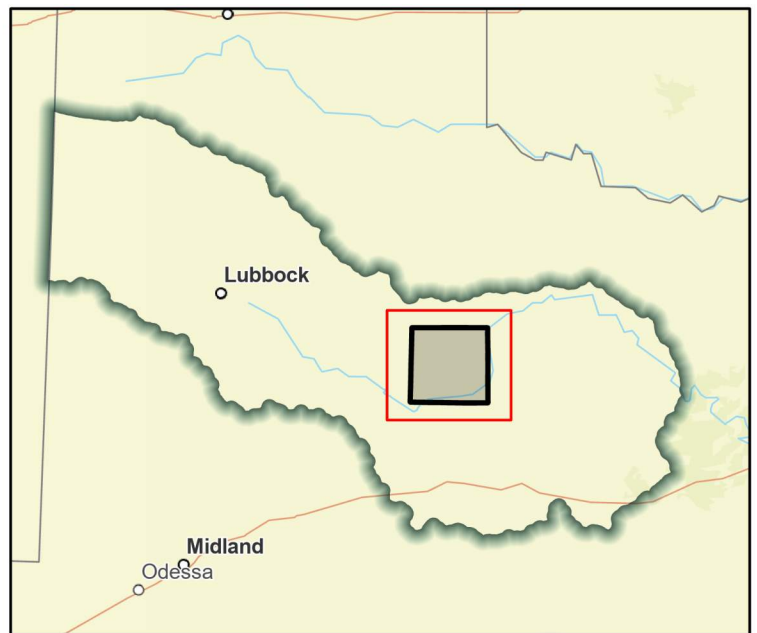
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stonewall County Initial FEMA Mapping**

ID# **071000016**

Sponsor (name of entity, not person) **Stonewall (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Create FEMA Mapping in previously unmapped areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stonewall** Watershed HUC# (if known) **120500040801, 120500040802, 120500040803, 120500040804,**

Drainage area (Square miles, est.) **925** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **12** # of structures **67** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **6,457** Roadway(s) impacted (length) **49**

Number of low water crossings **6** Historical road closures **0**

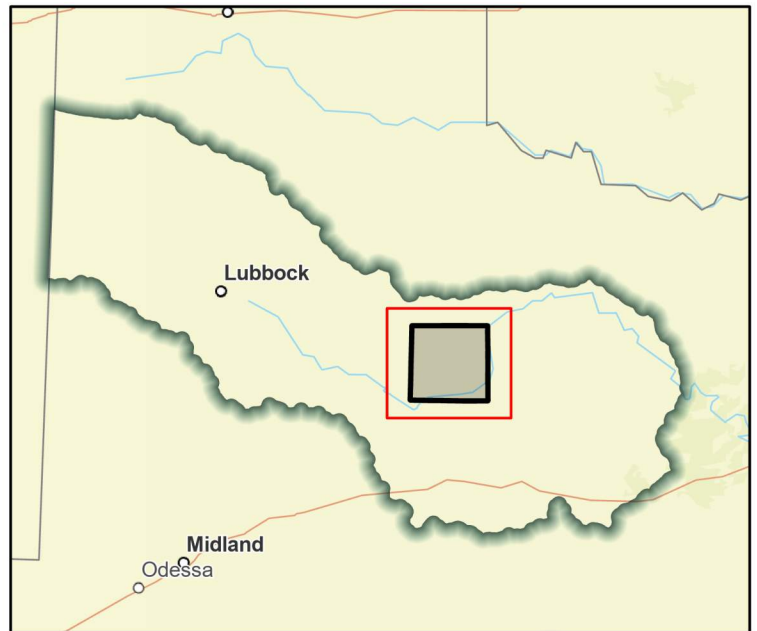
Estimated Cost and Funding Availability

Total Cost **\$893,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Stonewall County Stream Restoration Program**

ID# **071000193**

Sponsor (name of entity, not person) **Stonewall (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Implement stream restoration / channelization program to ensure adequate drainage / diversion of stormwater.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stonewall** Watershed HUC# (if known) **120500040801, 120500040802, 120500040803, 120500040804,**

Drainage area (Square miles, est.) **925** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **12** # of structures **67** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **6,457** Roadway(s) impacted (length) **49**

Number of low water crossings **6** Historical road closures **0**

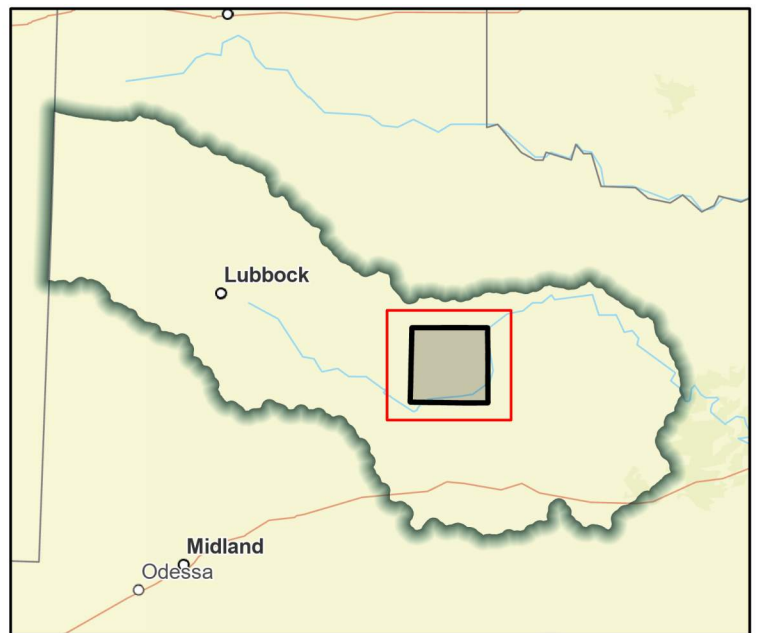
Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Swisher County DCM**

ID# **071000194**

Sponsor (name of entity, not person) **Swisher (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Swisher** Watershed HUC# (if known) **111201030201, 111201030202, 111201030203, 111201030204,**

Drainage area (Square miles, est.) **74** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **10** # of structures **5** Critical facilities **0**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

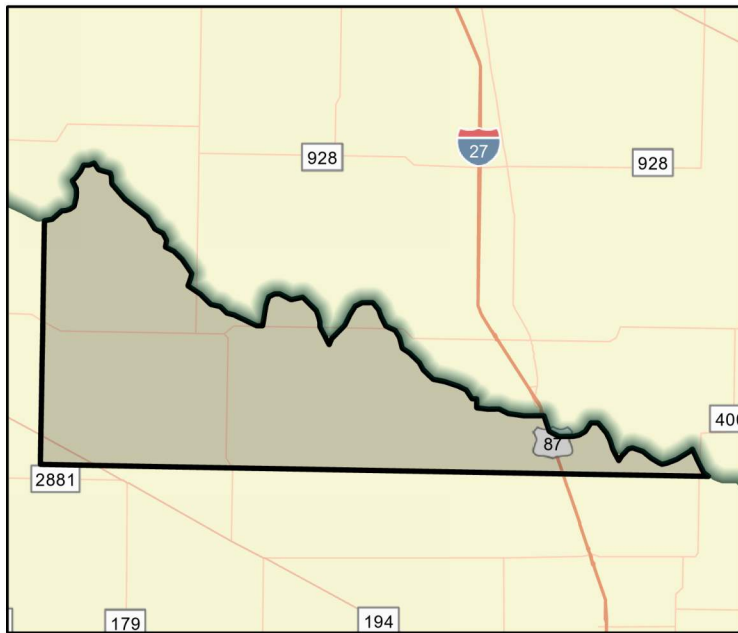
Farm/Ranch land impacted (acres) **4,233** Roadway(s) impacted (length) **47**

Number of low water crossings **0** Historical road closures **0**

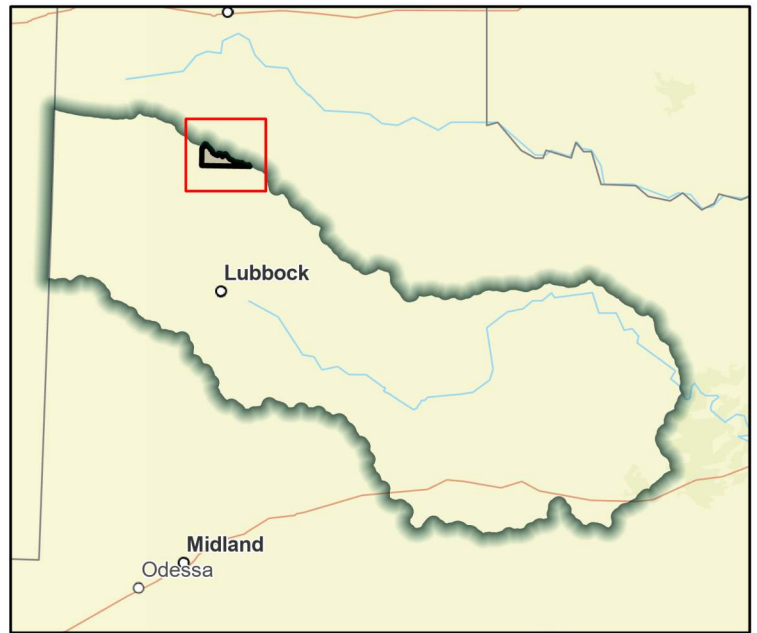
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Swisher County DMP**

ID# **071000074**

Sponsor (name of entity, not person) **Swisher (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate the TxDOT low water crossings county-wide**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Swisher** Watershed HUC# (if known) **111201030201, 111201030202, 111201030203, 111201030204,**

Drainage area (Square miles, est.) **74** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **10** # of structures **5** Critical facilities **0**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

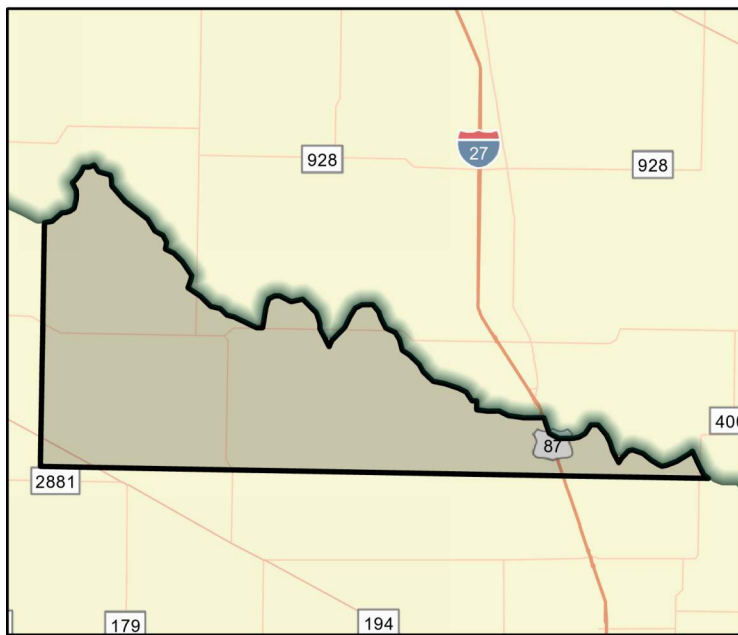
Farm/Ranch land impacted (acres) **4,233** Roadway(s) impacted (length) **47**

Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Swisher County GIS Development**

ID# **071000112**

Sponsor (name of entity, not person) **Swisher (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Develop a GIS inventory of stormwater infrastructure**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Swisher** Watershed HUC# (if known) **111201030201, 111201030202, 111201030203, 111201030204,**

Drainage area (Square miles, est.) **74** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **10** # of structures **5** Critical facilities **0**

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

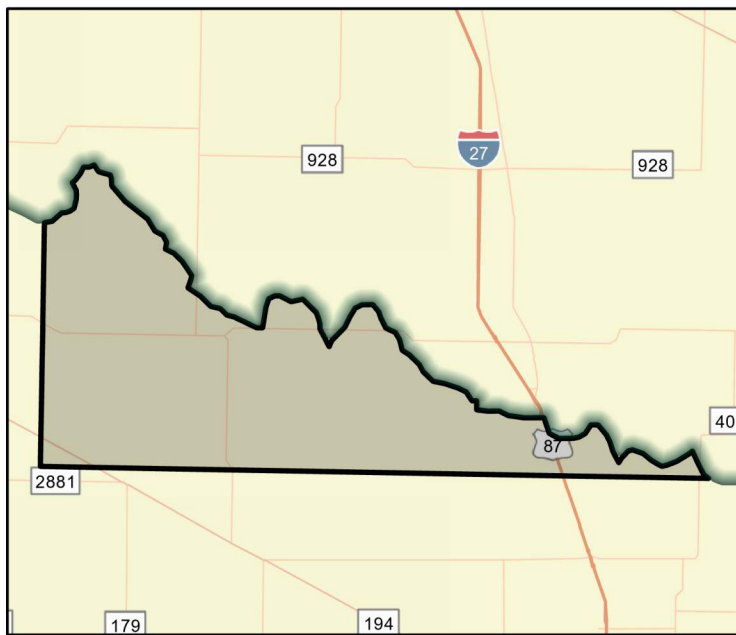
Farm/Ranch land impacted (acres) **4,233** Roadway(s) impacted (length) **47**

Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Swisher County Update FEMA Mapping
ID# 071000028
Sponsor (name of entity, not person) Swisher (County)
RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

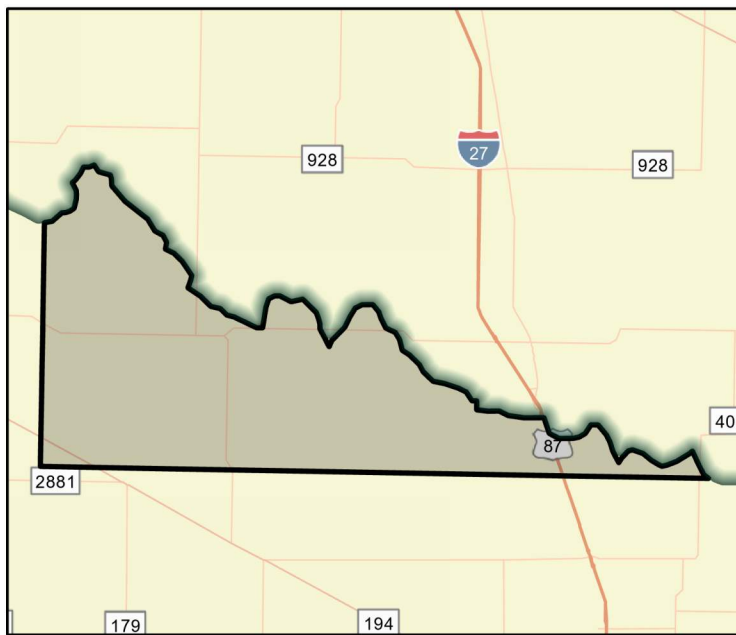
Study type Watershed Planning
Study description Update existing FEMA mapping
New Hydrologic or Hydraulic model? Yes Emergency Need? No Existing/Anticipated models in near term? No
County Swisher Watershed HUC# (if known) 111201030201, 111201030202, 111201030203, 111201030204,
Drainage area (Square miles, est.) 74 Goal(s) 07000011, 07000012

100-Year Flood Risk Summary

Population at risk 10 # of structures 5 Critical facilities 0
Flood risk type: Riverine? No Coastal? No Local? No Playa? Yes Other? No
Farm/Ranch land impacted (acres) 4,233 Roadway(s) impacted (length) 47
Number of low water crossings 0 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$920,000 Amount of Available Funding \$0 Federal funding availability No
Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Taylor County Dam Inspection Program
 ID# 071000195
 Sponsor (name of entity, not person) Taylor (County)
 RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

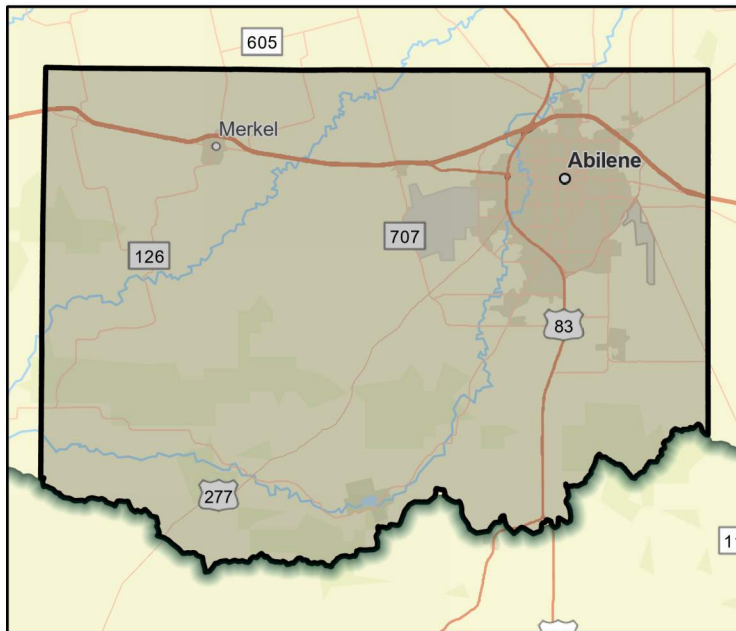
Study type Other
 Study description Annual dam inspection, partner with SWCD to help fund repairs and maintenance, partner with property owners to report new damage or erosion, and patrol for illegal dumping at dams.
 New Hydrologic or Hydraulic model? No Emergency Need? No Existing/Anticipated models in near term? No
 County Taylor Watershed HUC# (if known) 120601020501, 120601020502, 120601020503, 120601020504,
 Drainage area (Square miles, est.) 612 Goal(s) 07000031, 07000032

100-Year Flood Risk Summary

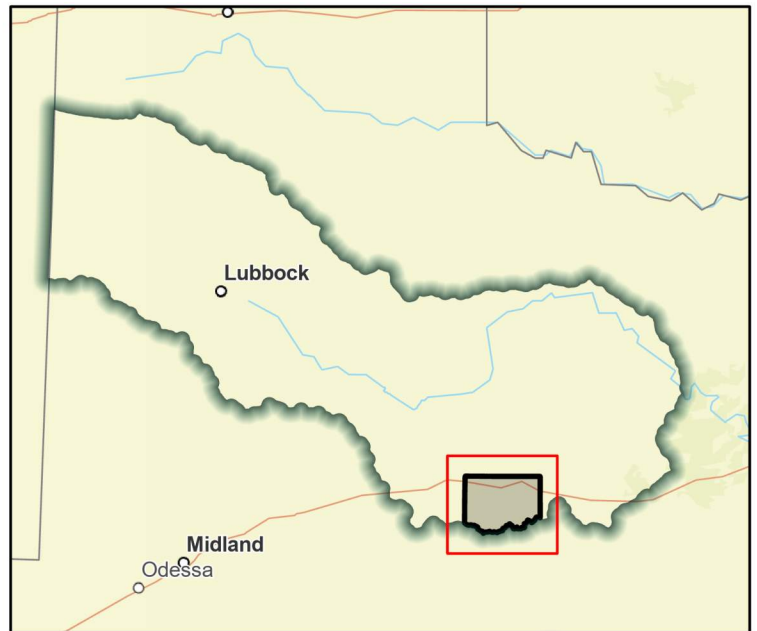
Population at risk 25,896 # of structures 11,167 Critical facilities 11
 Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No
 Farm/Ranch land impacted (acres) 7,516 Roadway(s) impacted (length) 245
 Number of low water crossings 72 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$100,000 Amount of Available Funding \$0 Federal funding availability No
 Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Taylor County DCM**

ID# **071000196**

Sponsor (name of entity, not person) **Taylor (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Taylor** Watershed HUC# (if known) **120601020501, 120601020502, 120601020503, 120601020504,**

Drainage area (Square miles, est.) **612** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **25,896** # of structures **11,167** Critical facilities **11**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

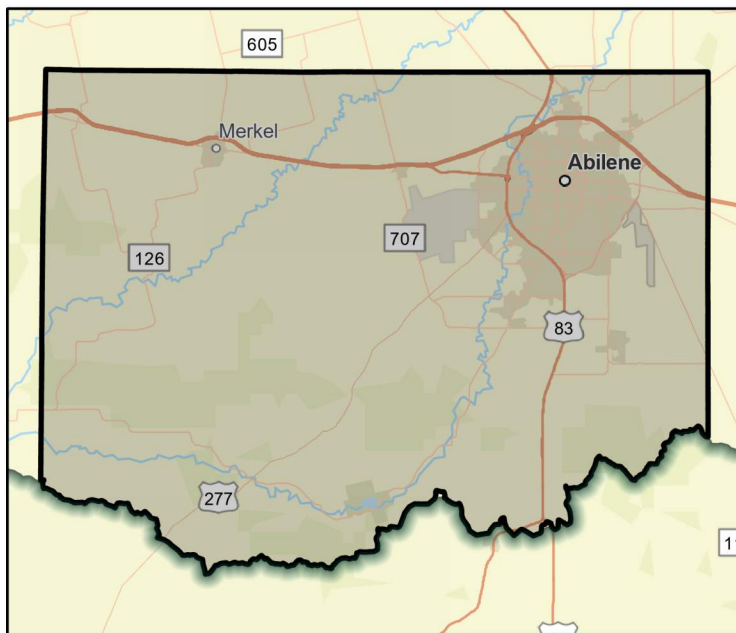
Farm/Ranch land impacted (acres) **7,516** Roadway(s) impacted (length) **245**

Number of low water crossings **72** Historical road closures **0**

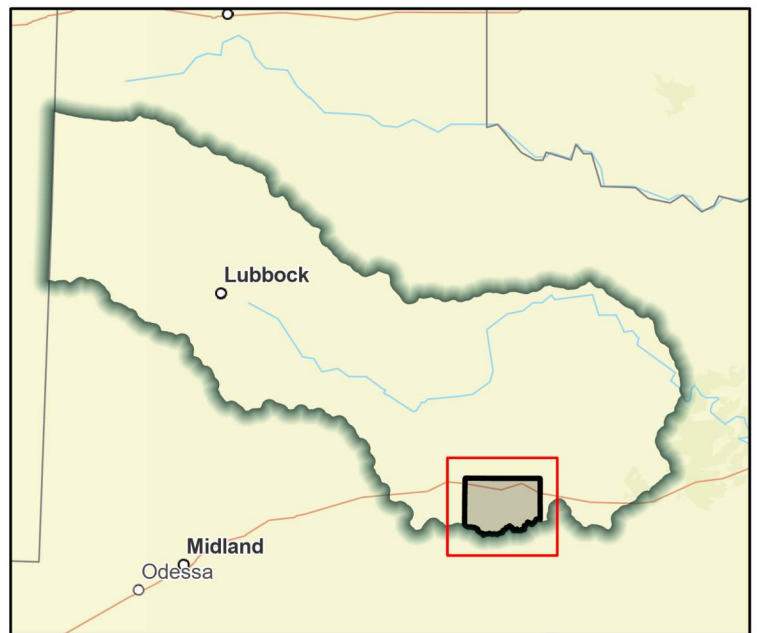
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Taylor County DMP
 ID# 071000075
 Sponsor (name of entity, not person) Taylor (County)
 RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

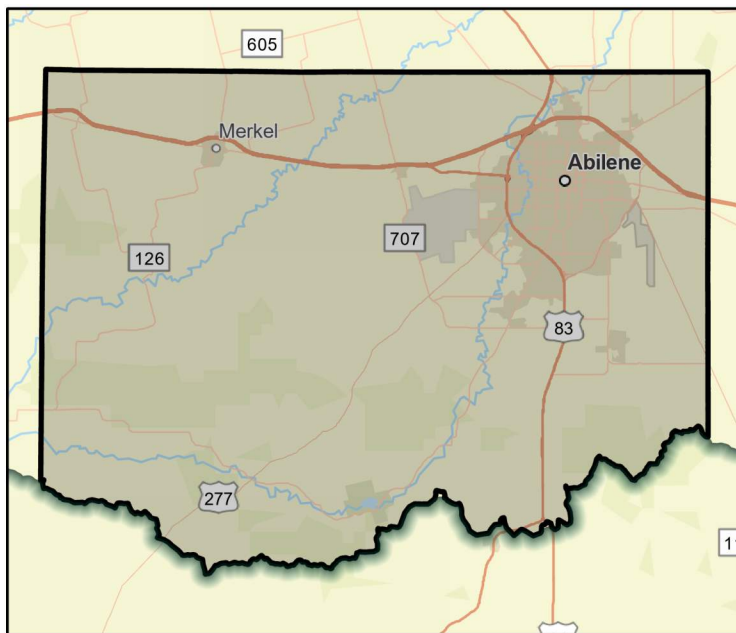
Study type Watershed Planning
 Study description Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas
 New Hydrologic or Hydraulic model? Yes Emergency Need? No Existing/Anticipated models in near term? Yes
 County Taylor Watershed HUC# (if known) 120601020501, 120601020502, 120601020503, 120601020504,
 Drainage area (Square miles, est.) 612 Goal(s) 07000011, 07000012

100-Year Flood Risk Summary

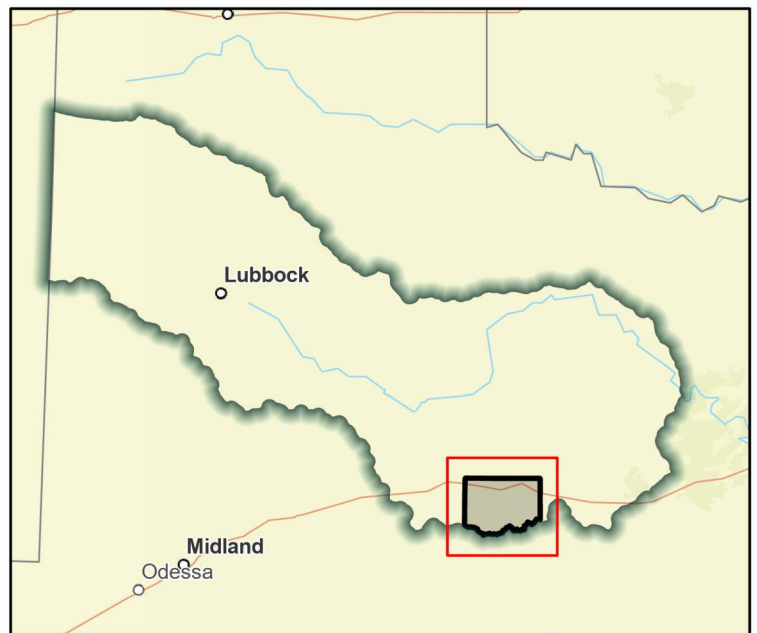
Population at risk 25,896 # of structures 11,167 Critical facilities 11
 Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No
 Farm/Ranch land impacted (acres) 7,516 Roadway(s) impacted (length) 245
 Number of low water crossings 72 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$500,000 Amount of Available Funding \$0 Federal funding availability No
 Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Taylor County GIS Development
ID# 071000113
Sponsor (name of entity, not person) Taylor (County)
RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

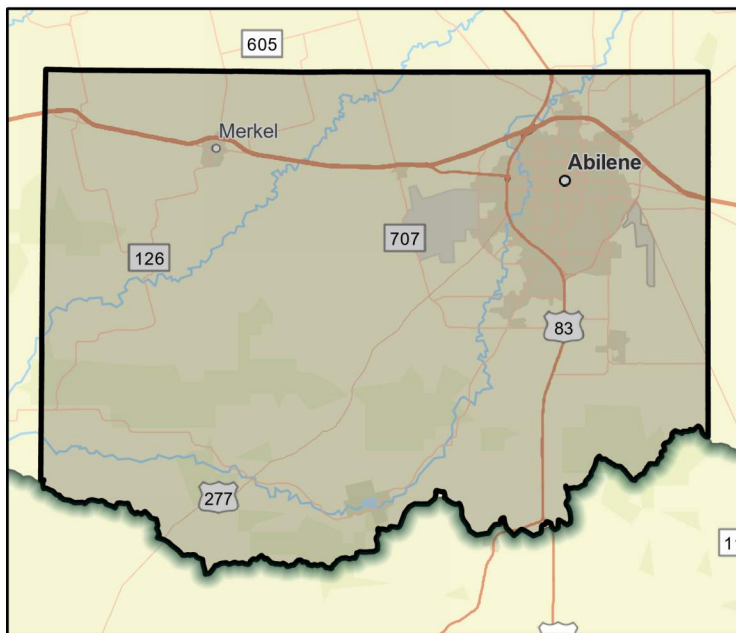
Study type Other
Study description Develop a GIS inventory of stormwater infrastructure
New Hydrologic or Hydraulic model? No Emergency Need? No Existing/Anticipated models in near term? No
County Taylor Watershed HUC# (if known) 120601020501, 120601020502, 120601020503, 120601020504,
Drainage area (Square miles, est.) 612 Goal(s) 07000011, 07000012

100-Year Flood Risk Summary

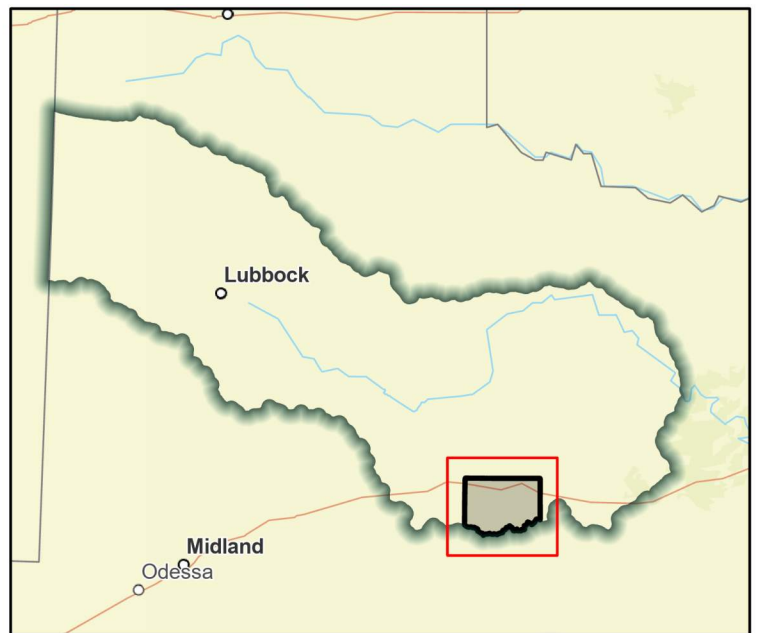
Population at risk 25,896 # of structures 11,167 Critical facilities 11
Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No
Farm/Ranch land impacted (acres) 7,516 Roadway(s) impacted (length) 245
Number of low water crossings 72 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$100,000 Amount of Available Funding \$0 Federal funding availability No
Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Taylor County Stream Restoration Program
 ID# 071000197
 Sponsor (name of entity, not person) Taylor (County)
 RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

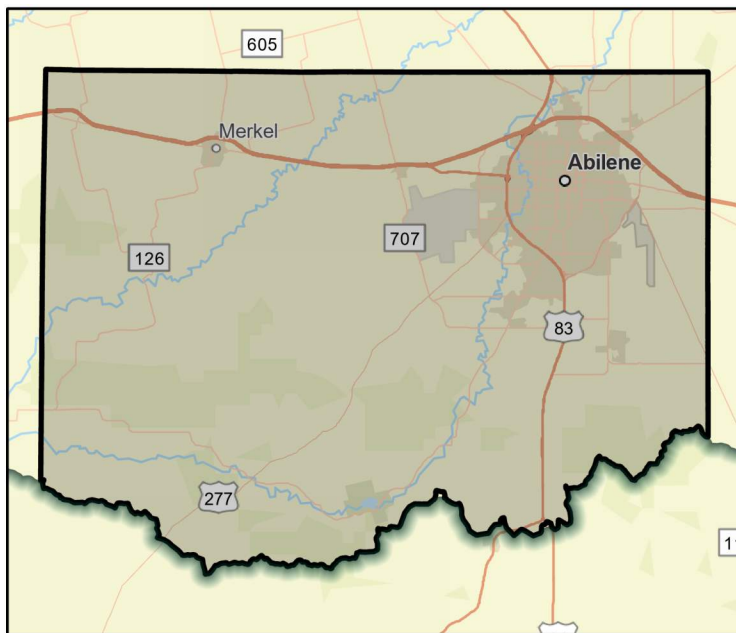
Study type Project Planning
 Study description Implement stream restoration / channelization program to ensure adequate drainage / diversion of stormwater.
 New Hydrologic or Hydraulic model? No Emergency Need? No Existing/Anticipated models in near term? No
 County Taylor Watershed HUC# (if known) 120601020501, 120601020502, 120601020503, 120601020504,
 Drainage area (Square miles, est.) 612 Goal(s) 07000041, 07000042

100-Year Flood Risk Summary

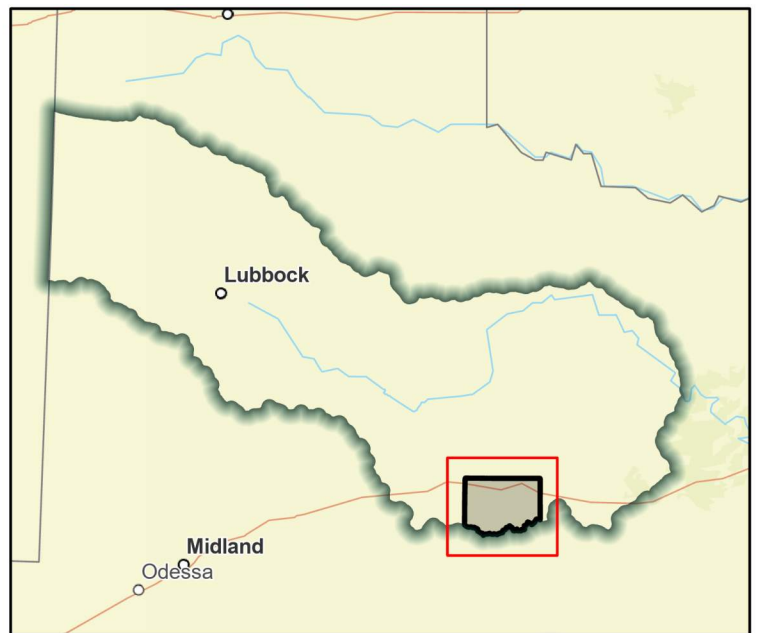
Population at risk 25,896 # of structures 11,167 Critical facilities 11
 Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No
 Farm/Ranch land impacted (acres) 7,516 Roadway(s) impacted (length) 245
 Number of low water crossings 72 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$500,000 Amount of Available Funding \$0 Federal funding availability No
 Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Terry County DCM

ID# 071000198

Sponsor (name of entity, not person) Terry (County)

RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

Study type Other

Study description Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.

New Hydrologic or Hydraulic model? No Emergency Need? No Existing/Anticipated models in near term? No

County Terry Watershed HUC# (if known) 120500040103, 120500040104, 120800010305, 120800010306,

Drainage area (Square miles, est.) 25 Goal(s) 07000083, 07000084, 07000085

100-Year Flood Risk Summary

Population at risk 5 # of structures 4 Critical facilities 0

Flood risk type: Riverine? No Coastal? No Local? No Playa? Yes Other? No

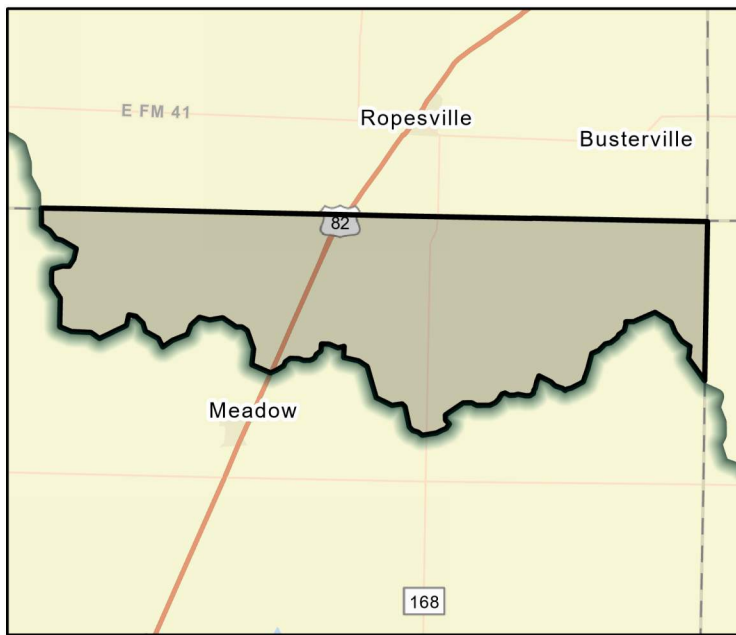
Farm/Ranch land impacted (acres) 3,373 Roadway(s) impacted (length) 27

Number of low water crossings 0 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$100,000 Amount of Available Funding \$0 Federal funding availability No

Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Terry County GIS Development

ID# 071000114

Sponsor (name of entity, not person) Terry (County)

RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

Study type Other

Study description Develop a GIS inventory of stormwater infrastructure

New Hydrologic or Hydraulic model? No Emergency Need? No Existing/Anticipated models in near term? No

County Terry Watershed HUC# (if known) 120500040103, 120500040104, 120800010305, 120800010306,

Drainage area (Square miles, est.) 25 Goal(s) 07000011, 07000012

100-Year Flood Risk Summary

Population at risk 5 # of structures 4 Critical facilities 0

Flood risk type: Riverine? No Coastal? No Local? No Playa? Yes Other? No

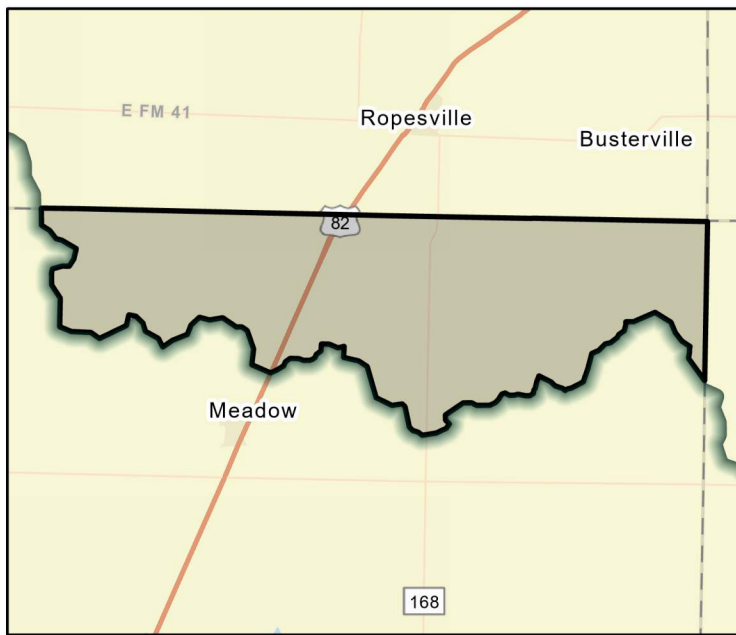
Farm/Ranch land impacted (acres) 3,373 Roadway(s) impacted (length) 27

Number of low water crossings 0 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$100,000 Amount of Available Funding \$0 Federal funding availability No

Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title Terry County Update FEMA Mapping
 ID# 071000029
 Sponsor (name of entity, not person) Terry (County)
 RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Study Details

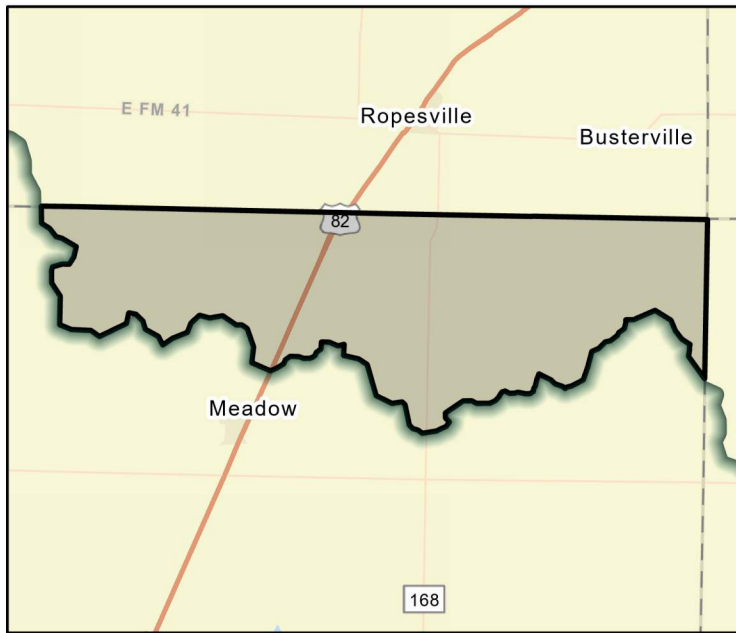
Study type Watershed Planning
 Study description Update existing FEMA mapping
 New Hydrologic or Hydraulic model? Yes Emergency Need? No Existing/Anticipated models in near term? No
 County Terry Watershed HUC# (if known) 120500040103, 120500040104, 120800010305, 120800010306,
 Drainage area (Square miles, est.) 25 Goal(s) 07000011, 07000012

100-Year Flood Risk Summary

Population at risk 5 # of structures 4 Critical facilities 0
 Flood risk type: Riverine? No Coastal? No Local? No Playa? Yes Other? No
 Farm/Ranch land impacted (acres) 3,373 Roadway(s) impacted (length) 27
 Number of low water crossings 0 Historical road closures 0

Estimated Cost and Funding Availability

Total Cost \$1,010,000 Amount of Available Funding \$0 Federal funding availability No
 Funding source None



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Throckmorton County DCM**
ID# **071000199**
Sponsor (name of entity, not person) **Throckmorton (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

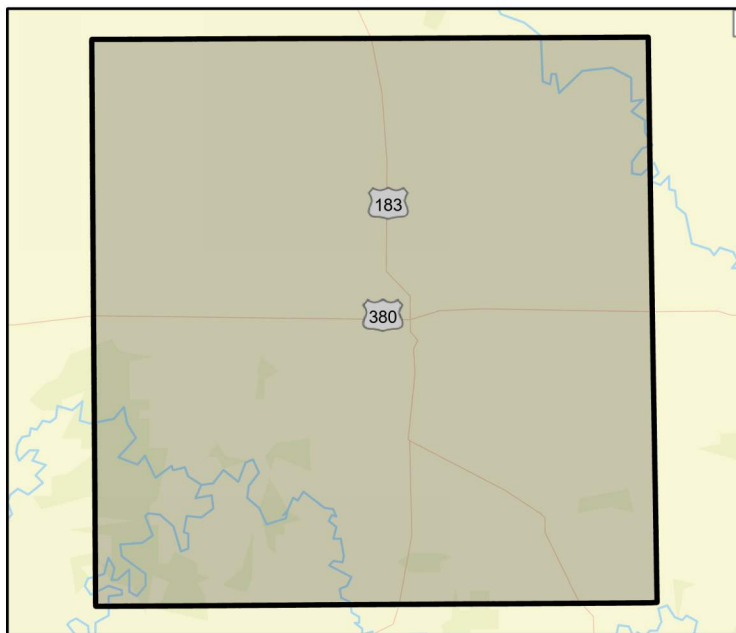
Study type **Other**
Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**
New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Throckmorton** Watershed HUC# (if known) **120601010502, 120601010503, 120601010504, 120601010505,**
Drainage area (Square miles, est.) **912** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

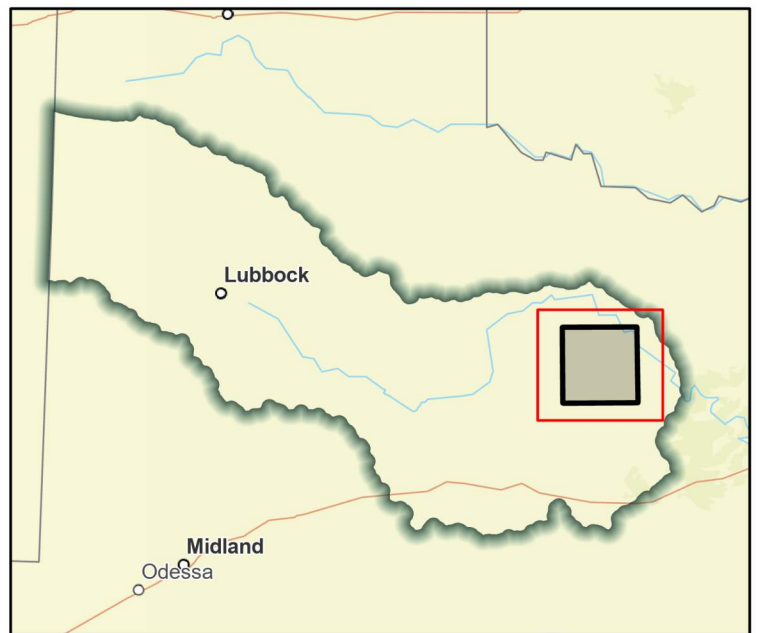
Population at risk **67** # of structures **98** Critical facilities **0**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**
Farm/Ranch land impacted (acres) **63,522** Roadway(s) impacted (length) **65**
Number of low water crossings **6** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Throckmorton County DMP**

ID# **071000076**

Sponsor (name of entity, not person) **Throckmorton (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Throckmorton** Watershed HUC# (if known) **120601010502, 120601010503, 120601010504, 120601010505,**

Drainage area (Square miles, est.) **912** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **67** # of structures **98** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

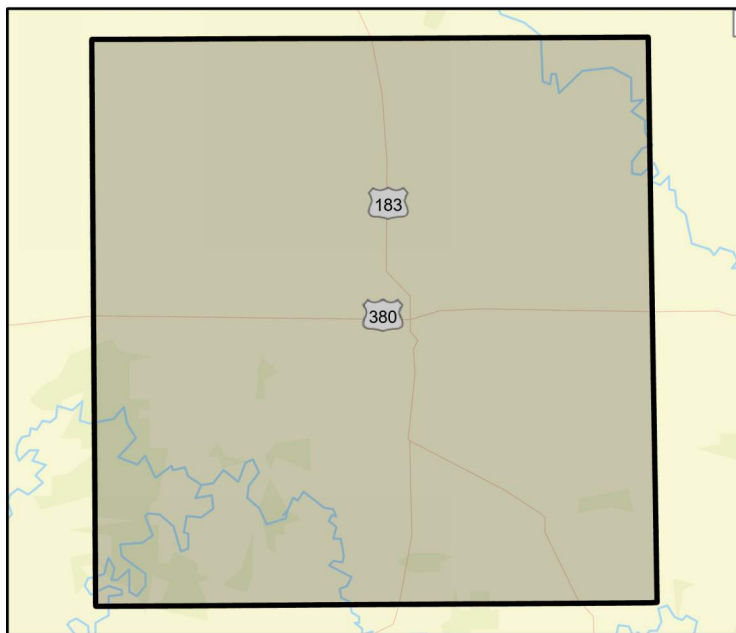
Farm/Ranch land impacted (acres) **63,522** Roadway(s) impacted (length) **65**

Number of low water crossings **6** Historical road closures **0**

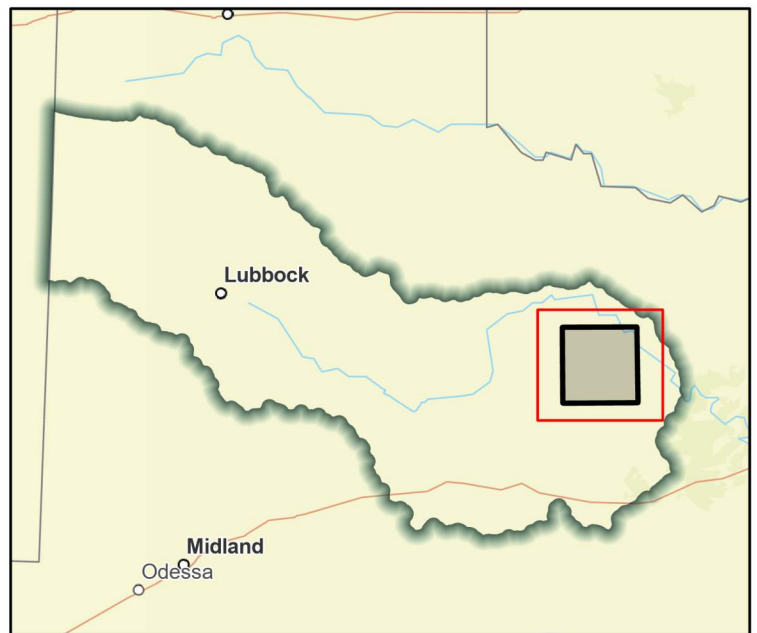
Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Throckmorton County GIS Development**
ID# **071000115**
Sponsor (name of entity, not person) **Throckmorton (County)**
RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

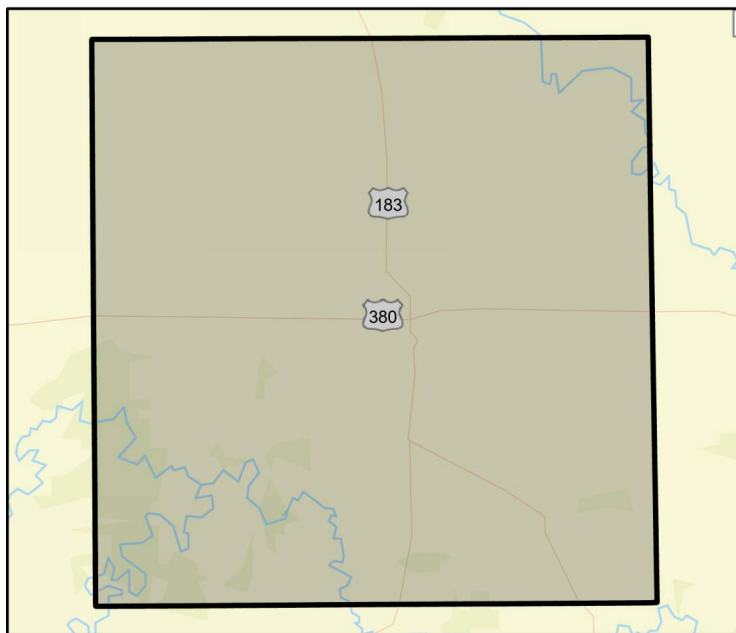
Study type **Other**
Study description **Develop a GIS inventory of stormwater infrastructure**
New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Throckmorton** Watershed HUC# (if known) **120601010502, 120601010503, 120601010504, 120601010505,**
Drainage area (Square miles, est.) **912** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

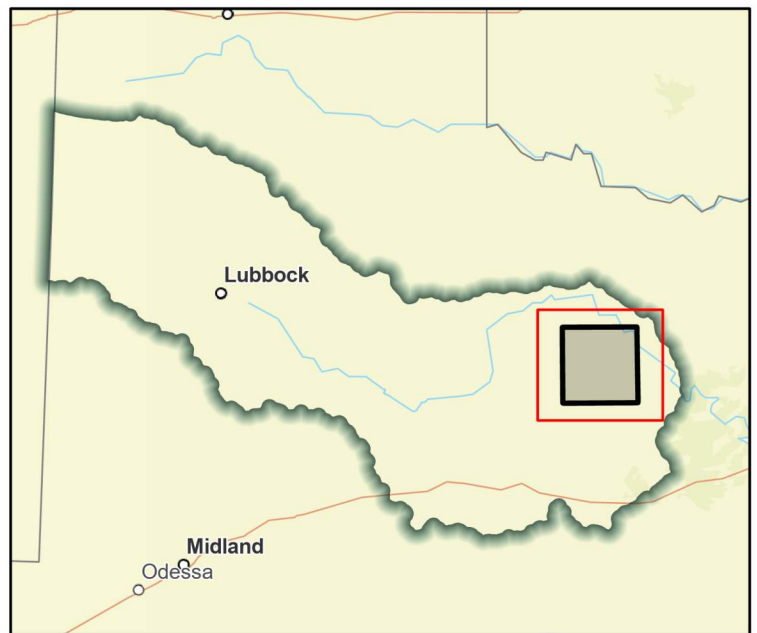
Population at risk **67** # of structures **98** Critical facilities **0**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**
Farm/Ranch land impacted (acres) **63,522** Roadway(s) impacted (length) **65**
Number of low water crossings **6** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Throckmorton County Update FEMA Mapping**

ID# **071000030**

Sponsor (name of entity, not person) **Throckmorton (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Update existing FEMA mapping**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Throckmorton** Watershed HUC# (if known) **120601010502, 120601010503, 120601010504, 120601010505,**

Drainage area (Square miles, est.) **912** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **67** # of structures **98** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

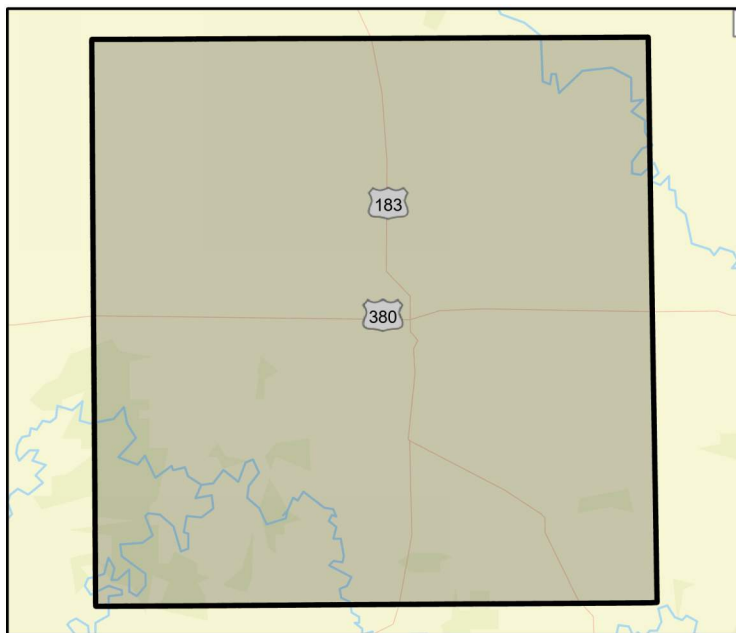
Farm/Ranch land impacted (acres) **63,522** Roadway(s) impacted (length) **65**

Number of low water crossings **6** Historical road closures **0**

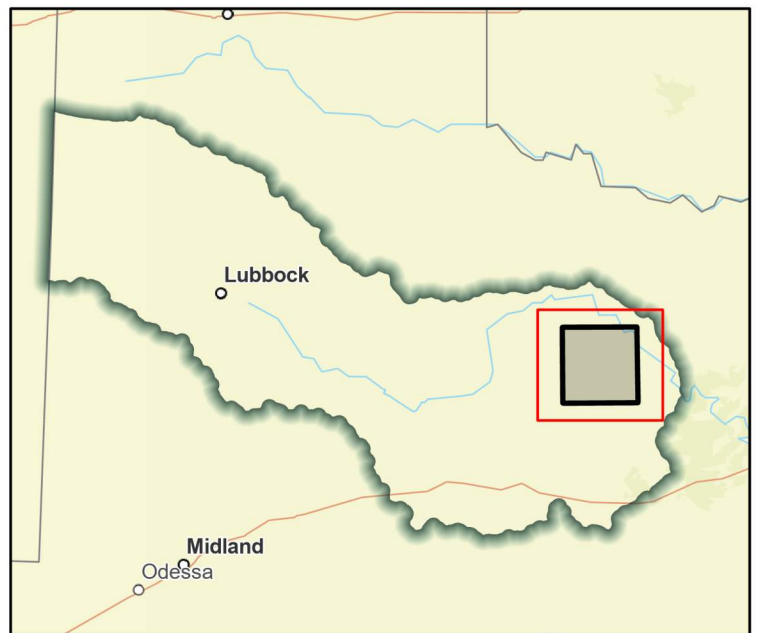
Estimated Cost and Funding Availability

Total Cost **\$1,010,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Town of Aspermont DMP**

ID# **071000077**

Sponsor (name of entity, not person) **Aspermont (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate town to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Stonewall** Watershed HUC# (if known) **120500040905, 120500070706, 120500070707**

Drainage area (Square miles, est.) **2** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **0** # of structures **0** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

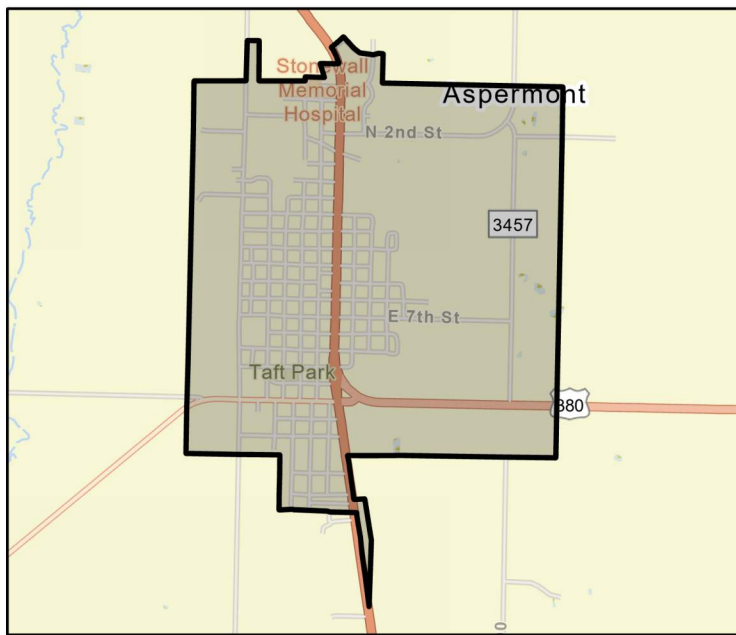
Farm/Ranch land impacted (acres) **2** Roadway(s) impacted (length) **1**

Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$250,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Town of Buffalo Gap DMP**

ID# **071000078**

Sponsor (name of entity, not person) **Buffalo Gap (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate town to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas. Evaluate areas with repetitive losses. Recommend mitigation needs.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Taylor** Watershed HUC# (if known) **120601020703**

Drainage area (Square miles, est.) **2** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **16** # of structures **18** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

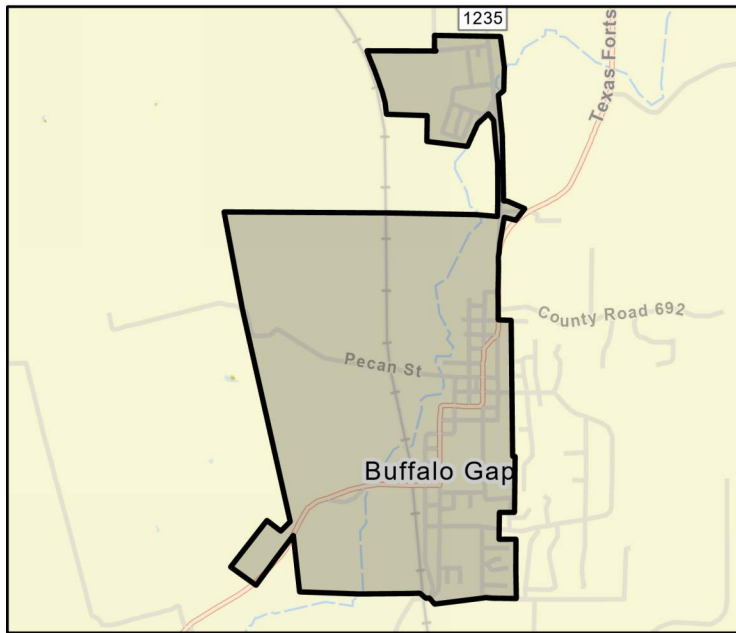
Farm/Ranch land impacted (acres) **0** Roadway(s) impacted (length) **1**

Number of low water crossings **0** Historical road closures **0**

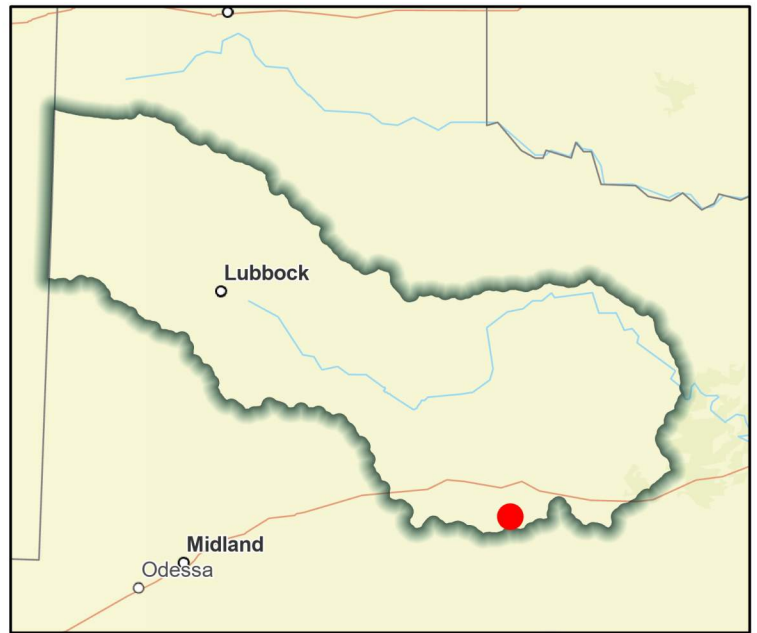
Estimated Cost and Funding Availability

Total Cost **\$250,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Town of Megargel DMP**

ID# **071000079**

Sponsor (name of entity, not person) **Megargel (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate town to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas. Evaluate the storm drain system for capacity and functionality.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Archer** Watershed HUC# (if known) **111302090105, 120601010806**

Drainage area (Square miles, est.) **0** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **0** # of structures **0** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

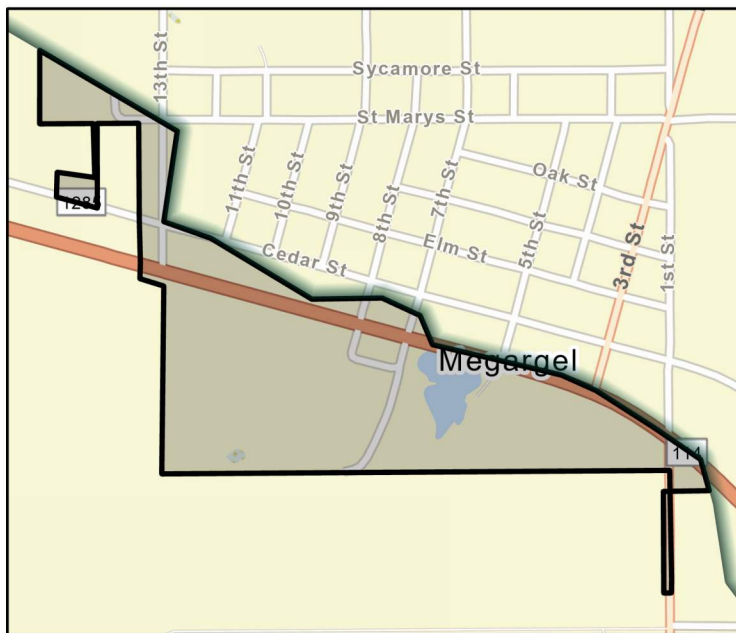
Farm/Ranch land impacted (acres) **0** Roadway(s) impacted (length) **0**

Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$250,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Town of Rochester DMP**

ID# **071000080**

Sponsor (name of entity, not person) **Rochester (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate town to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Haskell** Watershed HUC# (if known) **120601010401**

Drainage area (Square miles, est.) **0** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **26** # of structures **27** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **5** Roadway(s) impacted (length) **1**

Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$250,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Town of Rochester Relocate Critical Facilities High Hazard**

ID# **071000200**

Sponsor (name of entity, not person) **Rochester (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Raise electrical components of sewage lift stations above the Base Flood Elevation (BFE).**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Haskell** Watershed HUC# (if known) **120601010401**

Drainage area (Square miles, est.) **0** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **26** # of structures **27** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **5** Roadway(s) impacted (length) **1**

Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Town of Rule DMP**

ID# **071000081**

Sponsor (name of entity, not person) **Rule (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate town to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Haskell** Watershed HUC# (if known) **120601010401**

Drainage area (Square miles, est.) **1** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **47** # of structures **33** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

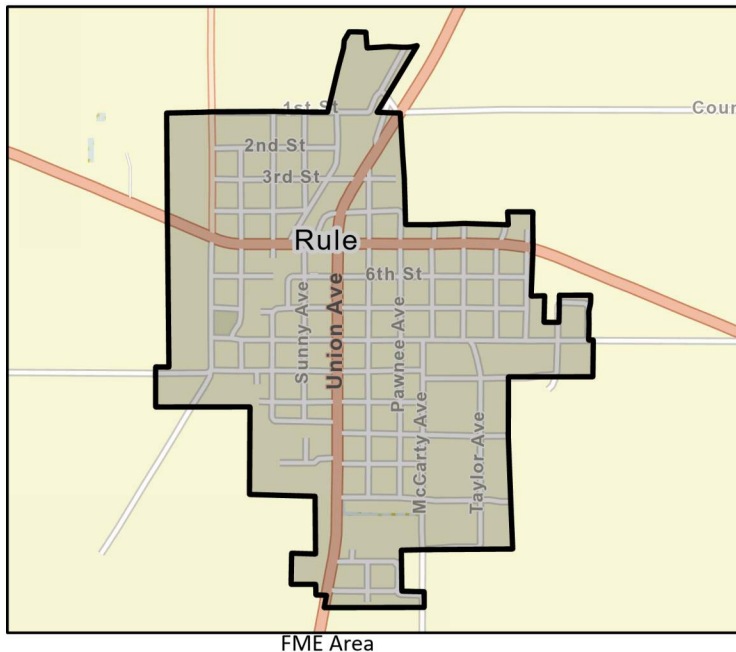
Farm/Ranch land impacted (acres) **1** Roadway(s) impacted (length) **2**

Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$250,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



Flood Management Evaluation (FME)



Title **Town of Rule Stream Restoration Program**

ID# **071000201**

Sponsor (name of entity, not person) **Rule (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Implement stream restoration / channelization program to ensure adequate drainage / diversion of stormwater.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Haskell** Watershed HUC# (if known) **120601010401**

Drainage area (Square miles, est.) **1** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **47** # of structures **33** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

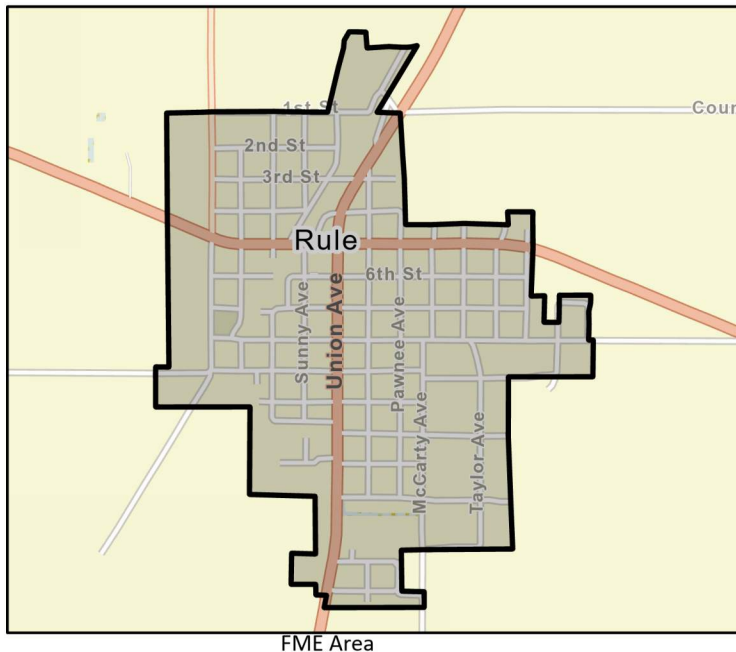
Farm/Ranch land impacted (acres) **1** Roadway(s) impacted (length) **2**

Number of low water crossings **0** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$250,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



Flood Management Evaluation (FME)



Title **Town of Throckmorton Relocate Critical Facilities High Hazard**

ID# **071000202**

Sponsor (name of entity, not person) **Throckmorton (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Relocate critical facilities out of high hazard areas.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Throckmorton** Watershed HUC# (if known) **120601010703, 120601010705**

Drainage area (Square miles, est.) **2** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **27** # of structures **26** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

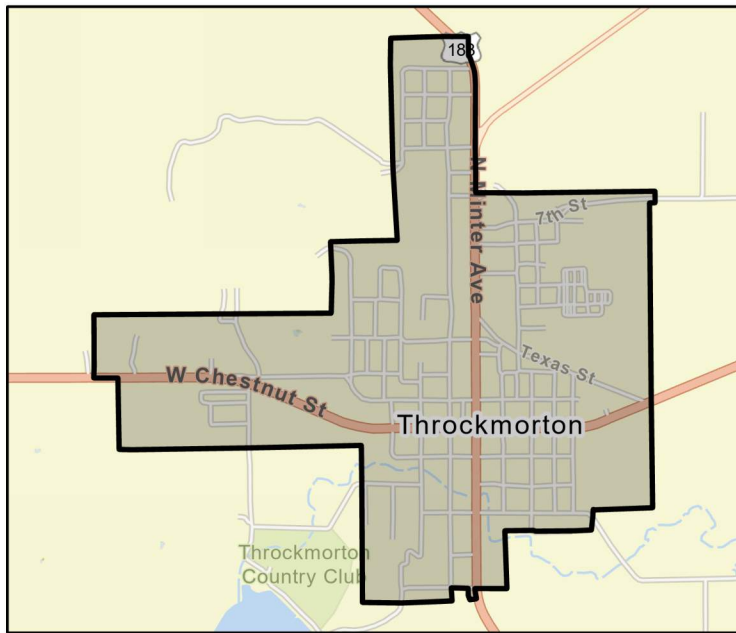
Farm/Ranch land impacted (acres) **27** Roadway(s) impacted (length) **2**

Number of low water crossings **0** Historical road closures **0**

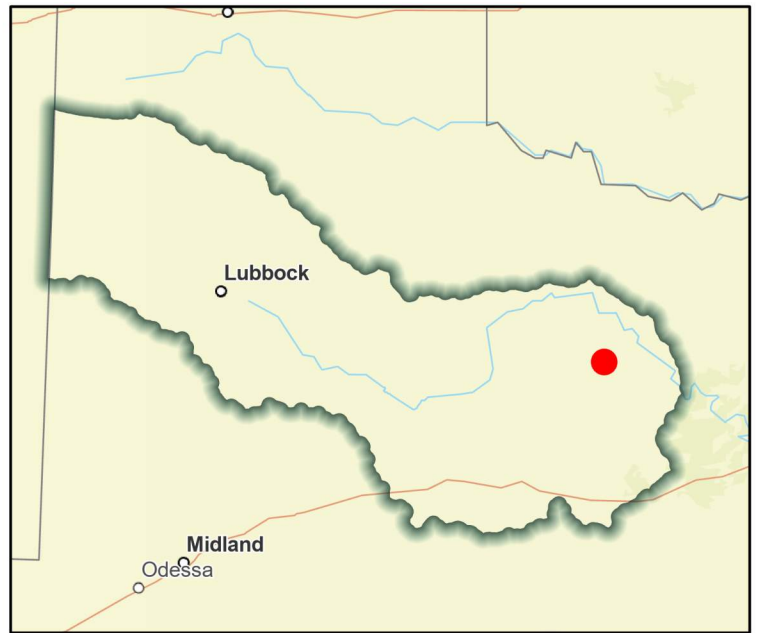
Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Town of Woodson DMP**

ID# **071000082**

Sponsor (name of entity, not person) **Woodson (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate town to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Throckmorton** Watershed HUC# (if known) **120601040203**

Drainage area (Square miles, est.) **1** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **25** # of structures **10** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **5** Roadway(s) impacted (length) **0**

Number of low water crossings **0** Historical road closures **0**

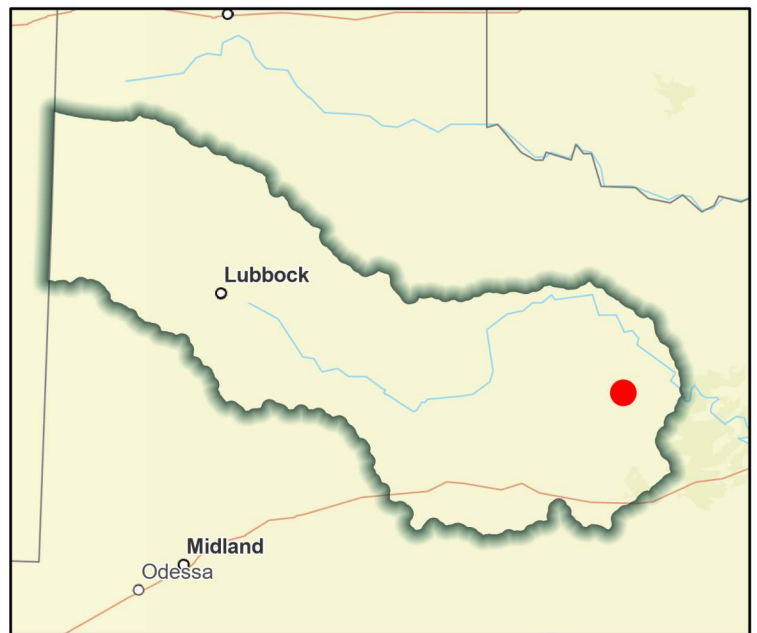
Estimated Cost and Funding Availability

Total Cost **\$250,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Town of Woodson Stream Restoration Program**

ID# **071000203**

Sponsor (name of entity, not person) **Woodson (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Project Planning**

Study description **Implement stream restoration / channelization program to ensure adequate drainage / diversion of stormwater.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Throckmorton** Watershed HUC# (if known) **120601040203**

Drainage area (Square miles, est.) **1** Goal(s) **07000041, 07000042**

100-Year Flood Risk Summary

Population at risk **25** # of structures **10** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

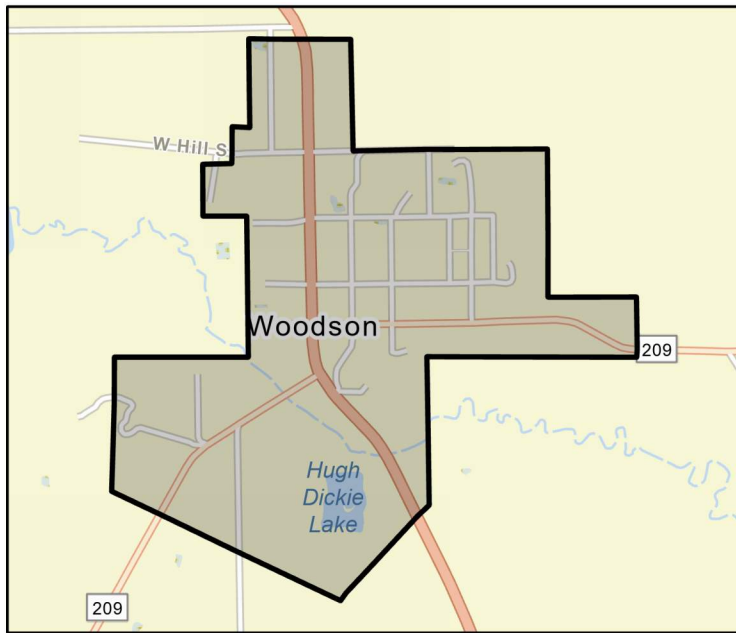
Farm/Ranch land impacted (acres) **5** Roadway(s) impacted (length) **0**

Number of low water crossings **0** Historical road closures **0**

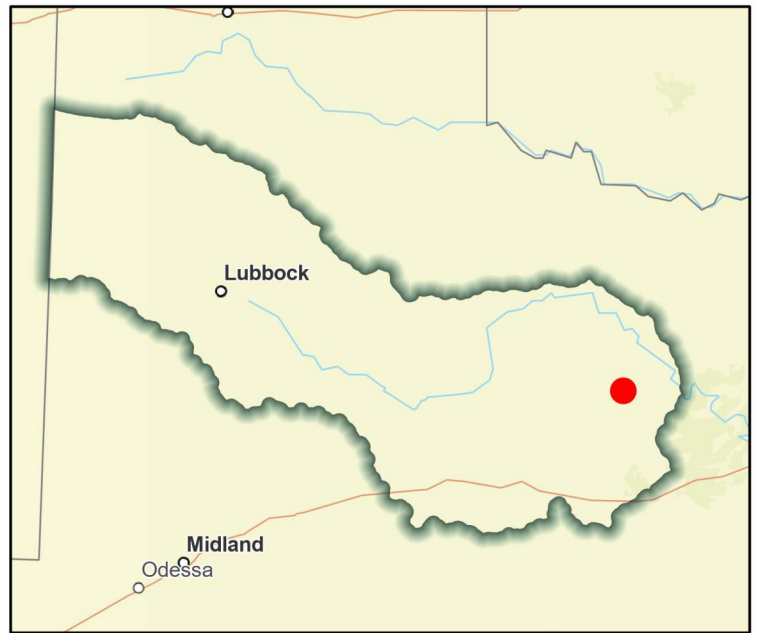
Estimated Cost and Funding Availability

Total Cost **\$250,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Upper Brazos Dam Inventory Evaluation**

ID# **071000204**

Sponsor (name of entity, not person) **South Plains Association of Governments**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Develop a baseline understanding of the risks associated with high and significant hazard and NRCS dams within the basin, including coordination with the Texas State Soil & Water Conservation Board dam maintenance plan.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **All** Watershed HUC# (if known) **120500011104,120601050203,120500070706,120601010707,120500070**

Drainage area (Square miles, est.) **20,028** Goal(s) **07000031, 07000032**

100-Year Flood Risk Summary

Population at risk **60,299** # of structures **28,532** Critical facilities **44**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**

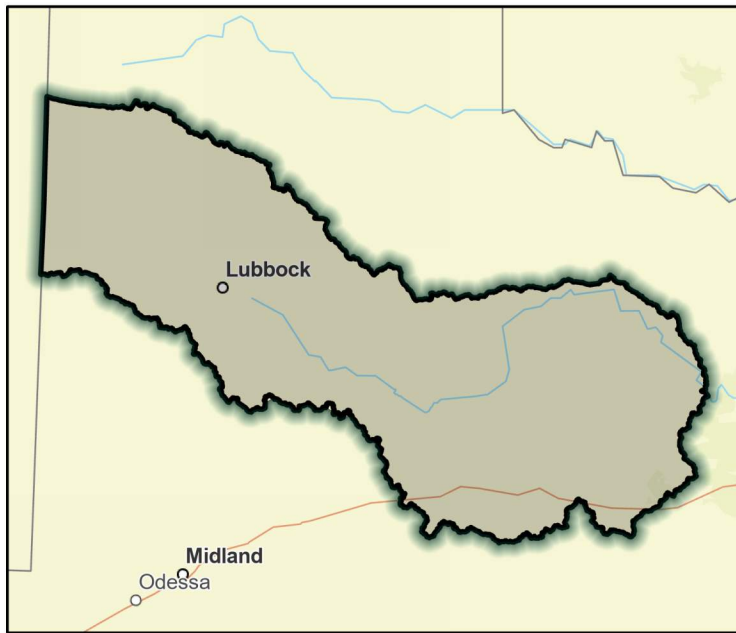
Farm/Ranch land impacted (acres) **869,138** Roadway(s) impacted (length) **5,944**

Number of low water crossings **292** Historical road closures **0**

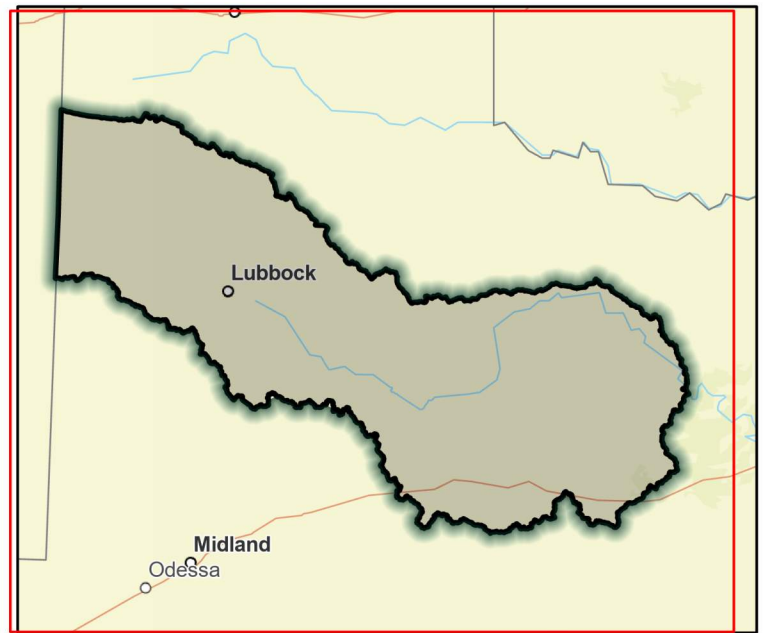
Estimated Cost and Funding Availability

Total Cost **\$750,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Upper Brazos Industry Flood Losses Inventory Evaluation**

ID# **071000205**

Sponsor (name of entity, not person) **South Plains Association of Governments**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Reduce the vulnerability of agriculture, ranching, energy and forestry to flood-related losses by establishing a baseline measurement.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **All** Watershed HUC# (if known) **120500011104,120601050203,120500070706,120601010707,120500070**

Drainage area (Square miles, est.) **20,028** Goal(s) **07000051, 07000052**

100-Year Flood Risk Summary

Population at risk **60,299** # of structures **28,532** Critical facilities **44**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**

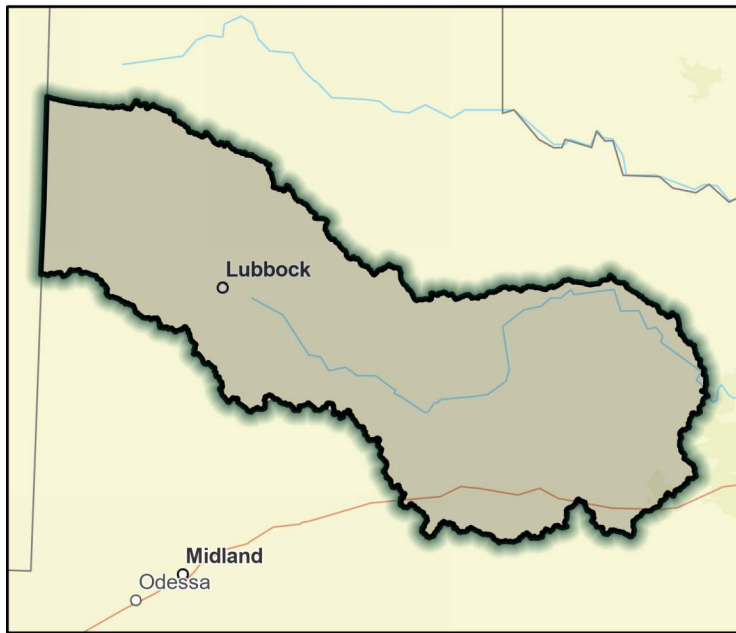
Farm/Ranch land impacted (acres) **869,138** Roadway(s) impacted (length) **5,944**

Number of low water crossings **292** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Upper Clear Fork Brazos Dams**

ID# **071000225**

Sponsor (name of entity, not person) _____

RFPG recommend? **Yes** Reason for Recommendation **-**

Study Details

Study type **Watershed Planning**

Study description **Perform a watershed-wide evaluation of 6 dams to assess flood protection performance for the 100-year and 500-year events, develop breach analyses mapping and assess hazard classification, develop risk indices, and evaluate dam safety performance.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **Yes**

County **Callahan, Taylor, Nolan, Mitchell,** Watershed HUC# (if known) **-**

Drainage area (Square miles, est.) **2,786** Goal(s) **07000031**

100-Year Flood Risk Summary

Population at risk **26,785** # of structures **12,219** Critical facilities **12**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **57,149** Roadway(s) impacted (length) **397**

Number of low water crossings **98** Historical road closures **98**

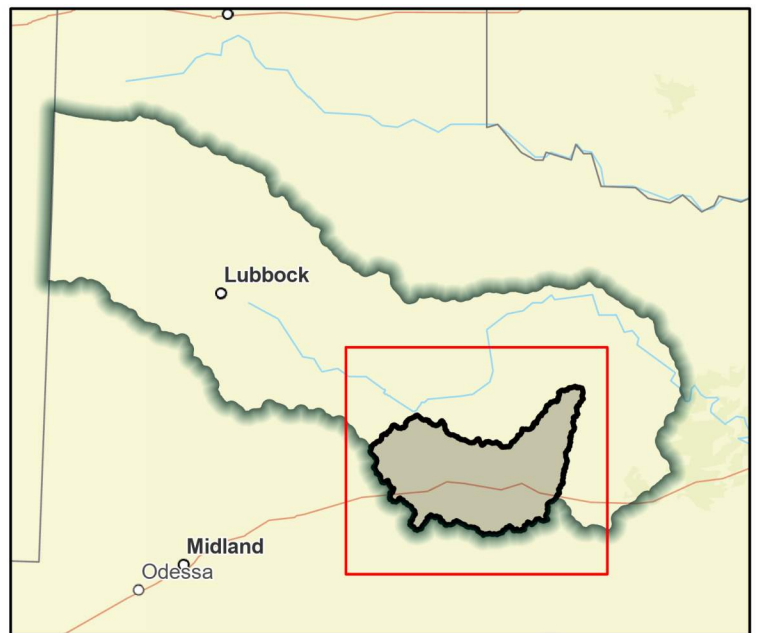
Estimated Cost and Funding Availability

Total Cost **\$277,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **White Dams**

ID# **071000219**

Sponsor (name of entity, not person) **White River MWD**

RFPG recommend? **Yes** Reason for Recommendation **-**

Study Details

Study type **Watershed Planning**

Study description **Perform a watershed-wide evaluation of 1 dam to assess flood protection performance for the 100-year and 500-year events, develop breach analyses mapping and assess hazard classification, develop risk indices, and evaluate dam safety performance.**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Crosby, Lubbock, Floyd, Hale, Kent, Garza,** Watershed HUC# (if known) **-**

Drainage area (Square miles, est.) **1,614** Goal(s) **07000031**

100-Year Flood Risk Summary

Population at risk **470** # of structures **433** Critical facilities **2**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

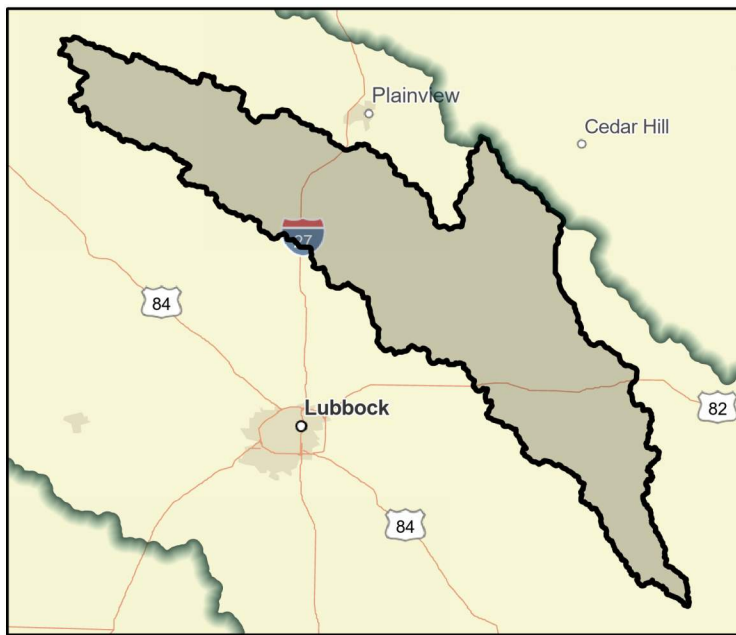
Farm/Ranch land impacted (acres) **82,527** Roadway(s) impacted (length) **614**

Number of low water crossings **7** Historical road closures **7**

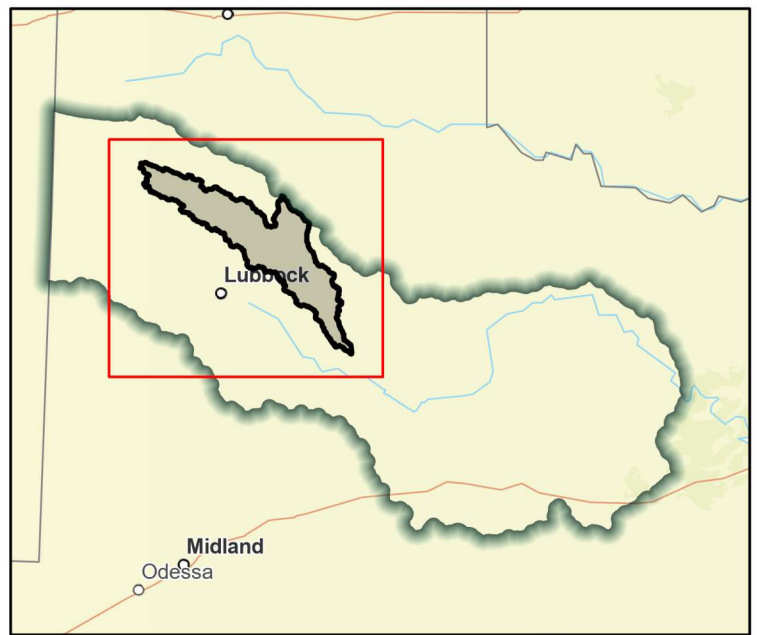
Estimated Cost and Funding Availability

Total Cost **\$58,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Yellow House Draw Dams**
ID# **071000222**
Sponsor (name of entity, not person) **Parmer SWCD**
RFPG recommend? **Yes** Reason for Recommendation **-**

Study Details

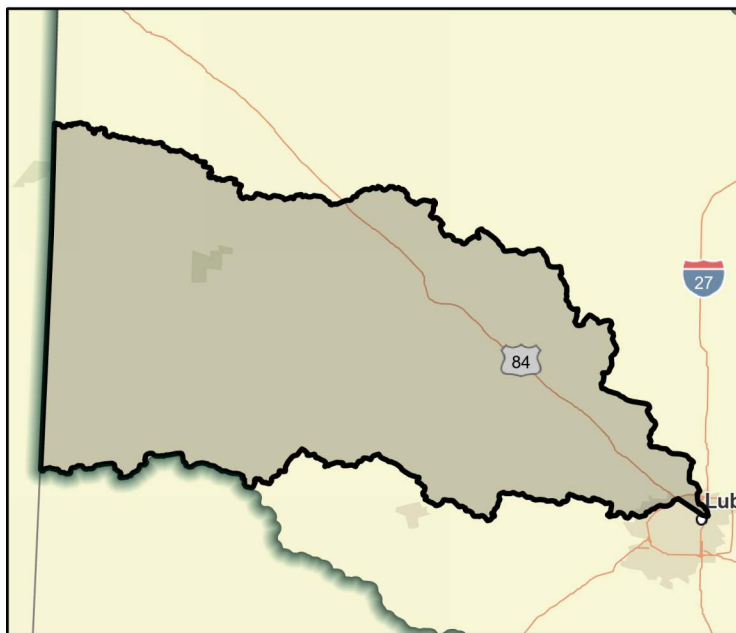
Study type **Watershed Planning**
Study description **Perform a watershed-wide evaluation of 1 dam to assess flood protection performance for the 100-year and 500-year events, develop breach analyses mapping and assess hazard classification, develop risk indices, and evaluate dam safety performance.**
New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**
County **Lubbock, Hockley, Cochran, Hale, Lamb,** Watershed HUC# (if known) **-**
Drainage area (Square miles, est.) **1,796** Goal(s) **07000031**

100-Year Flood Risk Summary

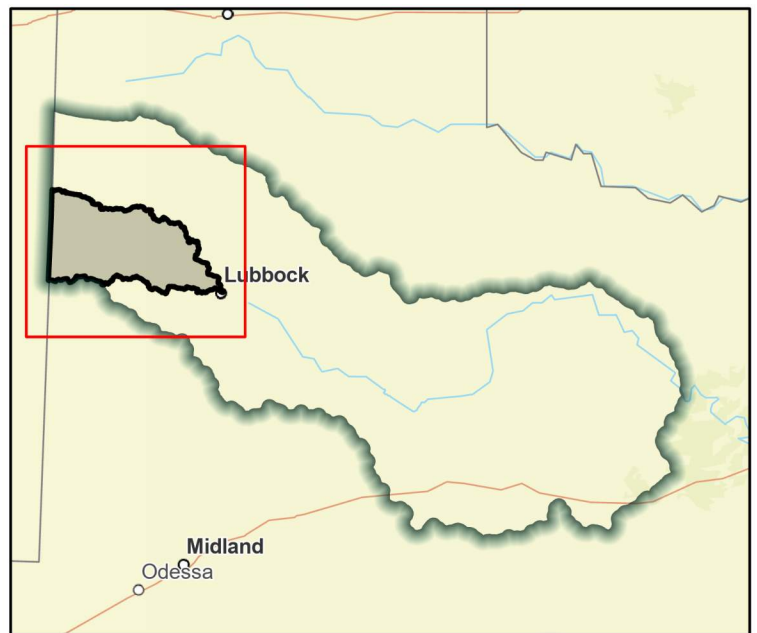
Population at risk **1,323** # of structures **995** Critical facilities **2**
Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**
Farm/Ranch land impacted (acres) **126,060** Roadway(s) impacted (length) **1,176**
Number of low water crossings **50** Historical road closures **50**

Estimated Cost and Funding Availability

Total Cost **\$58,000** Amount of Available Funding **\$0** Federal funding availability **No**
Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Young County DCM**

ID# **071000206**

Sponsor (name of entity, not person) **Young (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Other**

Study description **Consider stormwater criteria for infrastructure and floodplain ordinances to avoid new exposure to flood hazards.**

New Hydrologic or Hydraulic model? **No** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Young** Watershed HUC# (if known) **111302090201, 120301010101, 120301010102, 120301010103,**

Drainage area (Square miles, est.) **408** Goal(s) **07000083, 07000084, 07000085**

100-Year Flood Risk Summary

Population at risk **128** # of structures **190** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

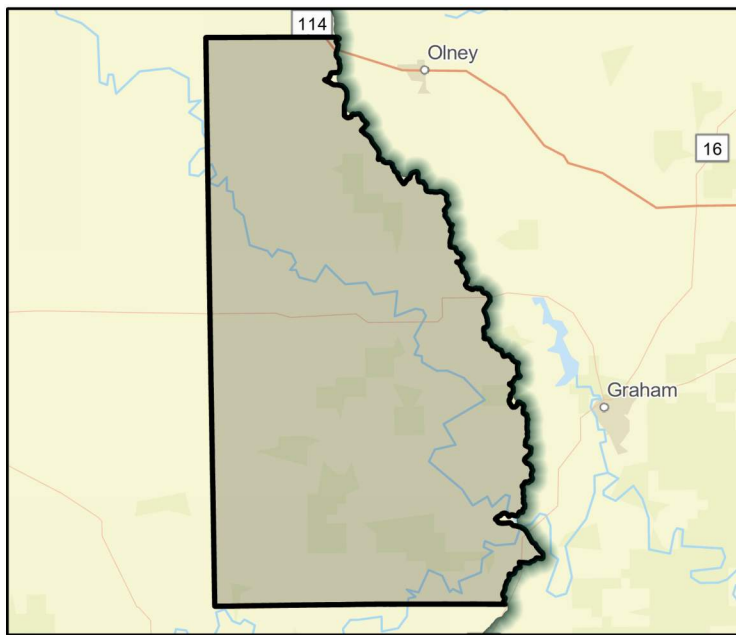
Farm/Ranch land impacted (acres) **25,847** Roadway(s) impacted (length) **53**

Number of low water crossings **1** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$100,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

Flood Management Evaluation (FME)



Title **Young County DMP**

ID# **071000083**

Sponsor (name of entity, not person) **Young (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Study Details

Study type **Watershed Planning**

Study description **Evaluate county to identify future projects, analyze roads/stream crossing for emergency response vehicles to high hazard areas**

New Hydrologic or Hydraulic model? **Yes** Emergency Need? **No** Existing/Anticipated models in near term? **No**

County **Young** Watershed HUC# (if known) **111302090201, 120301010101, 120301010102, 120301010103,**

Drainage area (Square miles, est.) **408** Goal(s) **07000011, 07000012**

100-Year Flood Risk Summary

Population at risk **128** # of structures **190** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

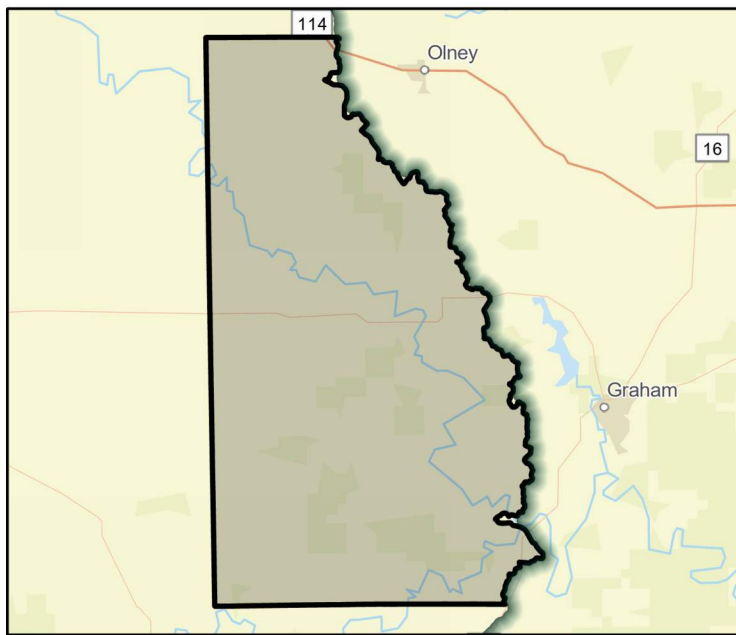
Farm/Ranch land impacted (acres) **25,847** Roadway(s) impacted (length) **53**

Number of low water crossings **1** Historical road closures **0**

Estimated Cost and Funding Availability

Total Cost **\$500,000** Amount of Available Funding **\$0** Federal funding availability **No**

Funding source **None**



FME Area



Regional view of FME area

AMENDED JULY 14, 2023

APPENDIX C - ADDITIONAL DATA

TASK 5 FMP ONE PAGE SUMMARY SHEETS

Flood Mitigation Project (FMP)



Title **4th and Elkhart**

ID# **073000017** Sponsor **Lubbock (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Project Description

Install new 2'x4' Box Culvert Under Elkhart Ave and Box Culvert From Playa 71 to Existing Channel, and Excavate at New Outfall

Watershed HUC# (if known) **120500030103** Emergency Need? **No**

Drainage area (mi² est.) **0**

Associated FME's **None** County **Lubbock**

Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

Population at risk **0** # of structures **0** Critical facilities **0**

Farm/Ranch land impacted (acres) **0** Roadway(s) impacted (length) **0**

Number of low water crossings **2** Historical road closures **2**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **This project increases the LOS to a 10-YR storm event** Reduction in # of road closures over 10 years **0**

Impacts

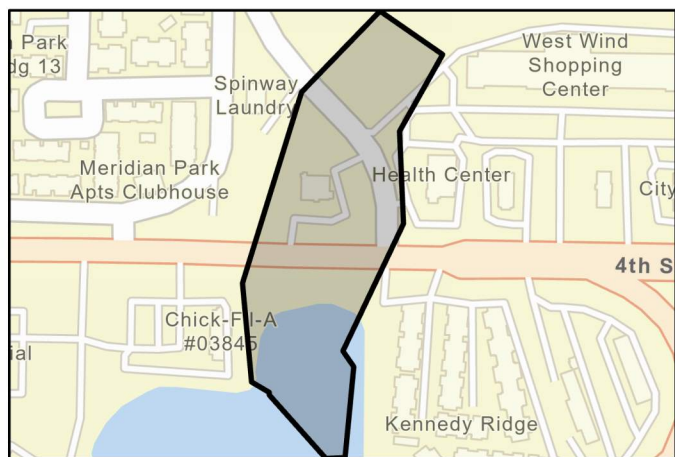
Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Project Cost **\$4,756,000** % Nature-Based **0** BCR **8.1**

Recurring costs **\$4,756** Issues **Potential utility conflicts will need to be further evaluated.**



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title **Bovina Buyout Program**

ID# **073000014** Sponsor **Parmer (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Project Description

Buy out 5 properties, pending owners' voluntary agreement, along East Street, that are directly across from the playa lake and to make the area into open green space

Watershed HUC# (if known) **120500050108** Emergency Need? **No**

Drainage area (mi² est.) **0**

Associated FME's **None** County **Parmer**

Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

Population at risk **0** # of structures **0** Critical facilities **0**

Farm/Ranch land impacted (acres) **0** Roadway(s) impacted (length) **0**

Number of low water crossings **0** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **5** # of structures removed from 100-yr **5**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits Reduction in # of road closures over 10 years **0**

Impacts

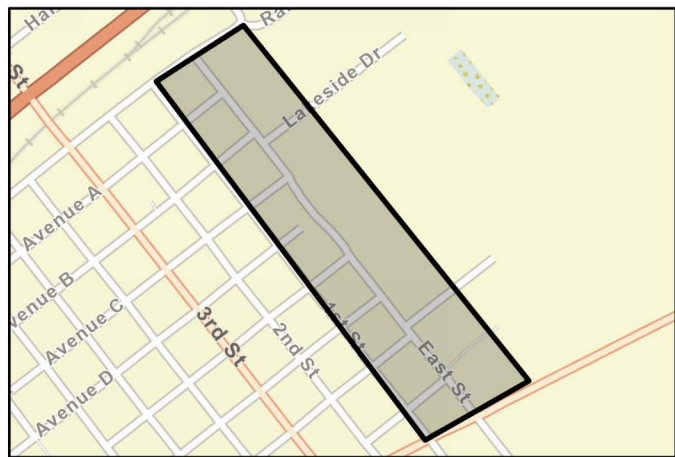
Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

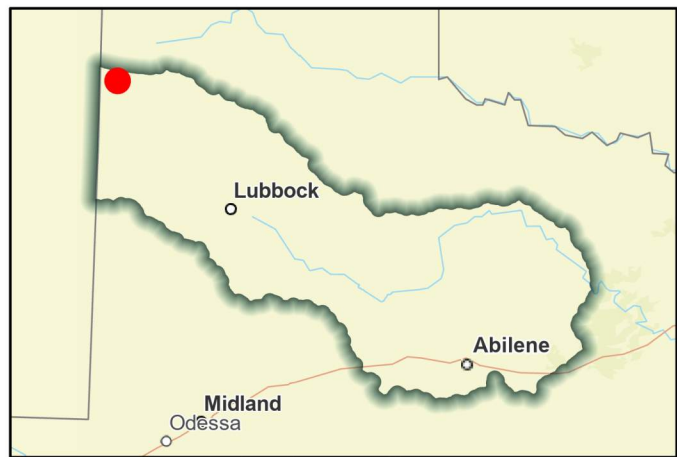
Estimated Cost

Project Cost **\$550,000** % Nature-Based **0** BCR **1.9**

Recurring costs **\$0** Issues



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title **Buttonwillow Creek Crossing**

ID# **073000018** Sponsor **Abilene (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **This project will provide access to residential areas during flood events both for**

Project Description

Low water crossing access during rain events.

Watershed HUC# (if known) **120601020708** Emergency Need? **No**

Drainage area (mi² est.) **0**

Associated FME's **None** County **Taylor**

Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **No** Other? **No**

Population at risk **0** # of structures **0** Critical facilities **0**

Farm/Ranch land impacted (acres) **0** Roadway(s) impacted (length) **0**

Number of low water crossings **1** Historical road closures **16**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **None** Reduction in # of road closures over 10 years **15**

Impacts

Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Project Cost **\$2,226,235** % Nature-Based **0** BCR **0.1**

Recurring costs **\$183,539** Issues **Utility Conflicts**



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title

ID# Sponsor

RFPG recommend? Reason for Recommendation

Project Description

Installation of sensors at three railroad underpass to monitor water levels

Watershed HUC# (if known) Emergency Need?

Drainage area (mi² est.)

Associated FME's County

Associated FMS's Associated FMP's

Existing 100-Year Flood Risk

Flood risk type: Riverine? Coastal? Local? Playa? Other?

Population at risk # of structures Critical facilities

Farm/Ranch land impacted (acres) Roadway(s) impacted (length)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

Impacts

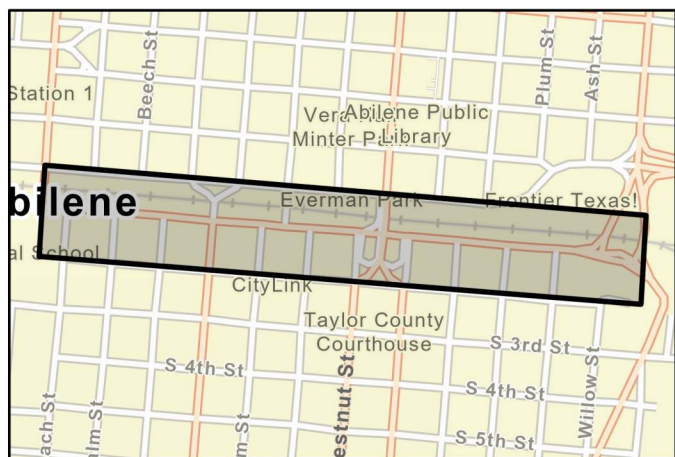
Negative impacts? Negative impacts description

Water supply contributions? Water supply contribution description

Estimated Cost

Project Cost % Nature-Based BCR

Recurring costs Issues



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title **City of Lubbock Stormwater Master Plan: Santa Fe Drive Improvements**

ID# **073000011** Sponsor **Lubbock (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Project Description

Playa excavation and open channel construction for playa overflow and culvert improvements.

Watershed HUC# (if known) **1220500030102** Emergency Need? **No**

Drainage area (mi² est.) **0**

Associated FME's **None** County **Lubbock**

Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Population at risk **214** # of structures **87** Critical facilities **0**

Farm/Ranch land impacted (acres) **0** Roadway(s) impacted (length) **1**

Number of low water crossings **0** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **84** # of structures removed from 100-yr **35**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits Reduction in # of road closures over 10 years **0**

Impacts

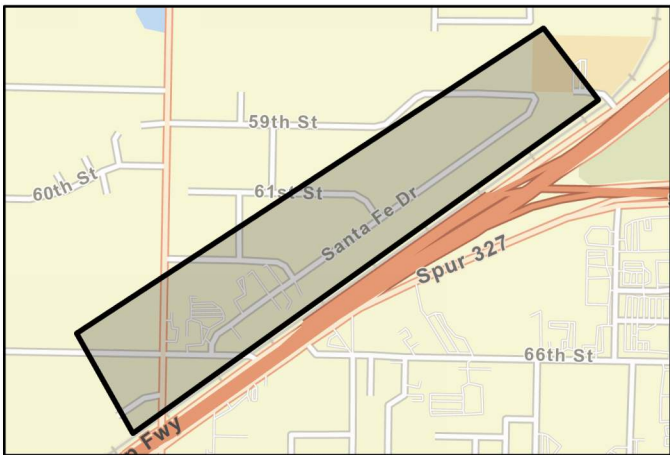
Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Project Cost **\$4,500,000** % Nature-Based **0** BCR **0.7**

Recurring costs **\$0** Issues



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title **Clovis & Quaker - Storm Drain Alternative 4**

ID# **073000023** Sponsor **Lubbock (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Aligns with TWDB, RFPG goals**

Project Description

Detention, channel, and storm drain improvements from Ursuline Street and Quaker Avenue to US-84 and L-289

Watershed HUC# (if known) **120500011305** Emergency Need? **No**

Drainage area (mi² est.) **20**

Associated FME's **None** County **Lubbock**

Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**

Population at risk **162** # of structures **30** Critical facilities **1**

Farm/Ranch land impacted (acres) **5** Roadway(s) impacted (length) **1**

Number of low water crossings **0** Historical road closures **3**

100-Year Flood Risk Reduction

Population removed from 100-yr **162** # of structures removed from 100-yr **30**

Critical facilities removed from 100-yr **1** Farm/Ranch land removed from 100-yr (acres) **1**

Road removed from 100-yr (miles) **1** Low water crossings removed from 100-yr **0**

Other benefits **-** Reduction in # of road closures over 10 years **2**

Impacts

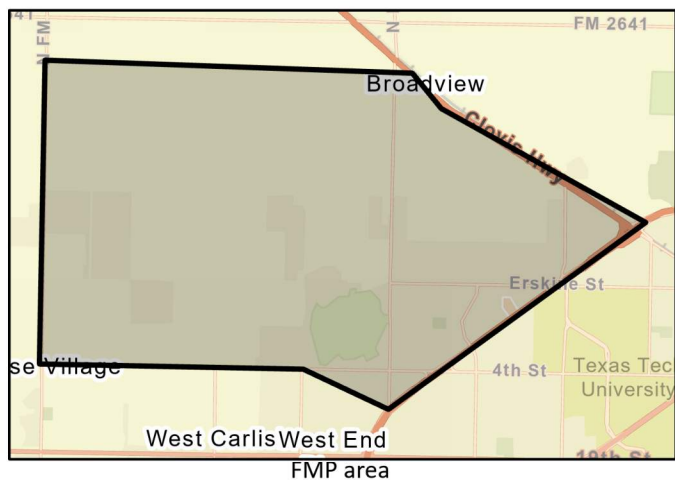
Negative impacts? **Yes** Negative impacts description **Increase in Flows**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Project Cost **\$8,964,000** % Nature-Based **29** BCR **1.7**

Recurring costs **\$8,963** Issues **-**



Flood Mitigation Project (FMP)



Title **Knox City Drainage Improvements**

ID# **073000022** Sponsor **Knox (County)**

RFPG recommend? **Yes** Reason for Recommendation **Aligns with TWDB, RFPG goals**

Project Description

Roadside ditch rehabilitation and improved culvert crossings under Main Street. Includes improvements to primary drainage ditch along north side of city limits.

Watershed HUC# (if known) **120601010402** Emergency Need? **No**
 Drainage area (mi² est.) **1**
 Associated FME's **None** County **Knox**
 Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **No** Other? **No**
 Population at risk **420** # of structures **233** Critical facilities **0**
 Farm/Ranch land impacted (acres) **39** Roadway(s) impacted (length) **6**
 Number of low water crossings **0** Historical road closures **0**

100-Year Flood Risk Reduction

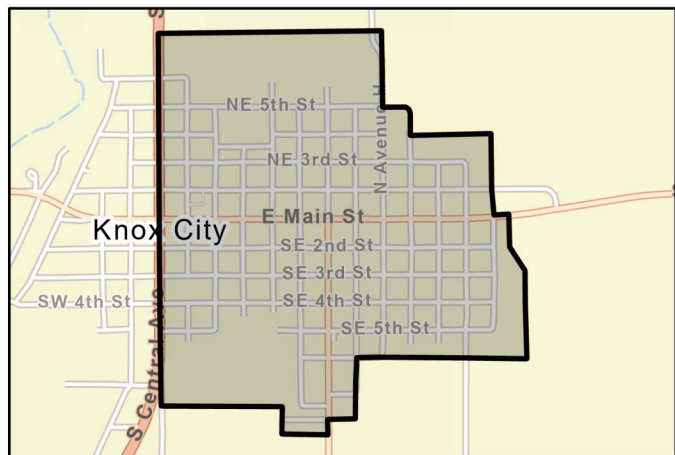
Population removed from 100-yr **2** # of structures removed from 100-yr **4**
 Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **8**
 Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**
 Other benefits **-** Reduction in # of road closures over 10 years **0**

Impacts

Negative impacts? **No** Negative impacts description **n/a**
 Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Project Cost **\$1,793,000** % Nature-Based **0** BCR **0.1**
 Recurring costs **\$1,792** Issues **-**



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title **McMillan Dam Rehabilitation**

ID# **073000024** Sponsor

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Project Description

The McMillan Dam forms Buffalo Springs Lake and is currently hydraulically inadequate to pass the TCEQ regulated PMF. The dam needs to be rehabilitated to meet dam safety criteria and TCEQ compliance.

Watershed HUC# (if known) **120500030104** Emergency Need? **No**

Drainage area (mi² est.) **0**

Associated FME's **None** County **Lubbock**

Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

Population at risk **7** # of structures **47** Critical facilities **1**

Farm/Ranch land impacted (acres) **0** Roadway(s) impacted (length) **1**

Number of low water crossings **0** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits Reduction in # of road closures over 10 years **0**

Impacts

Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Project Cost **\$16,916,000** % Nature-Based **0** BCR **0.1**

Recurring costs **\$20,000** Issues **-**



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title **Playa i6546 Improvements**

ID# **073000020** Sponsor **Idalou (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Aligns with TWDB, RFPG goals**

Project Description

Playa improvements to Playa i6546 to lower the 100-year water surface elevation by 1' to facilitate future drainage improvements for the City of Idalou

Watershed HUC# (if known) **120500030303** Emergency Need? **No**

Drainage area (mi² est.) **0**

Associated FME's **None** County **Lubbock**

Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **No** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**

Population at risk **0** # of structures **0** Critical facilities **0**

Farm/Ranch land impacted (acres) **5** Roadway(s) impacted (length) **0**

Number of low water crossings **0** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **2**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **-** Reduction in # of road closures over 10 years **0**

Impacts

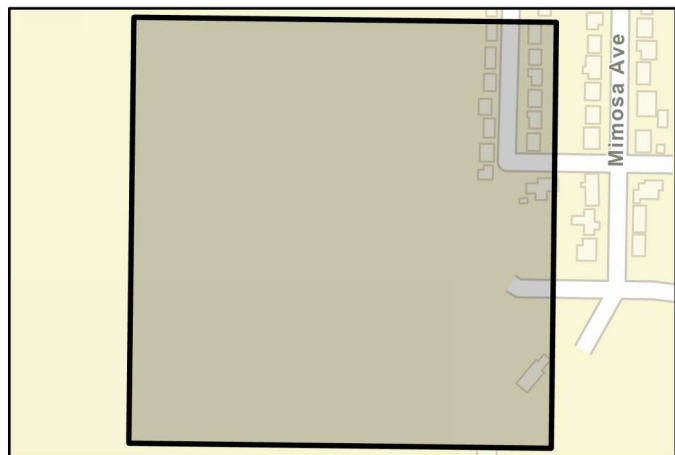
Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Project Cost **\$1,323,166** % Nature-Based **100** BCR **0.7**

Recurring costs **\$1,516** Issues **-**



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title **Playa i6658 Improvements**

ID# **073000021** Sponsor **Idalou (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Aligns with TWDB, RFPG goals**

Project Description

Playa improvements to Playa i6658 to lower the 100-year water surface elevation by 1' to facilitate future drainage improvements for the City of Idalou

Watershed HUC# (if known) **120500030303** Emergency Need? **No**

Drainage area (mi² est.) **0**

Associated FME's **None** County **Lubbock**

Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **No** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**

Population at risk **0** # of structures **0** Critical facilities **0**

Farm/Ranch land impacted (acres) **32** Roadway(s) impacted (length) **0**

Number of low water crossings **0** Historical road closures **2**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **6**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **-** Reduction in # of road closures over 10 years **2**

Impacts

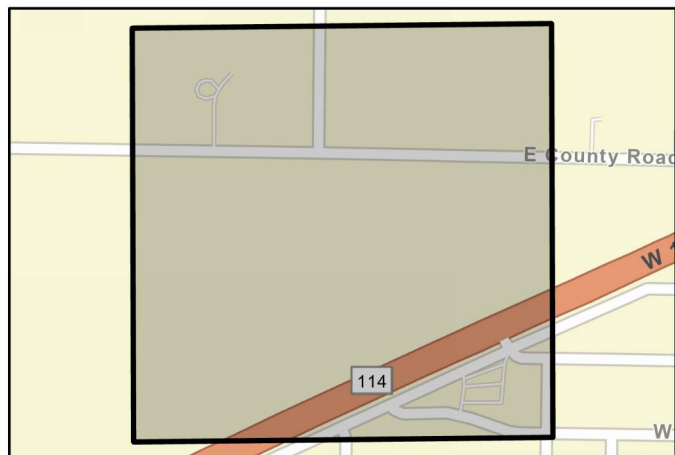
Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Project Cost **\$2,719,130** % Nature-Based **100** BCR **0.8**

Recurring costs **\$3,115** Issues **-**



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title

ID# Sponsor

RFPG recommend? Reason for Recommendation

Project Description

Watershed HUC# (if known) Emergency Need?

Drainage area (mi² est.)

Associated FME's County

Associated FMS's Associated FMP's

Existing 100-Year Flood Risk

Flood risk type: Riverine? Coastal? Local? Playa? Other?

Population at risk # of structures Critical facilities

Farm/Ranch land impacted (acres) Roadway(s) impacted (length)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

Impacts

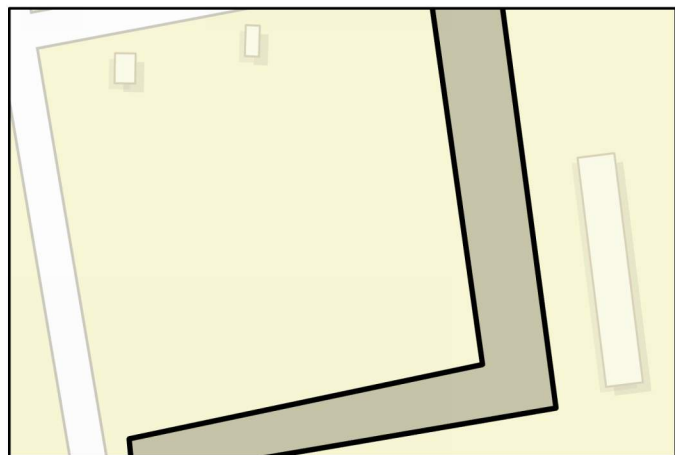
Negative impacts? Negative impacts description

Water supply contributions? Water supply contribution description

Estimated Cost

Project Cost % Nature-Based BCR

Recurring costs Issues



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title **Slaton Twin Lakes**

ID# **073000016** Sponsor **Slaton (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Project Description

Raising Road Between Twin Lakes

Watershed HUC# (if known) **120500030203** Emergency Need? **No**

Drainage area (mi² est.) **0**

Associated FME's **None** County **Lubbock**

Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **No** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

Population at risk **0** # of structures **0** Critical facilities **0**

Farm/Ranch land impacted (acres) **0** Roadway(s) impacted (length) **0**

Number of low water crossings **1** Historical road closures **1**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **This project increases the LOS to a 25-YR storm event** Reduction in # of road closures over 10 years **0**

Impacts

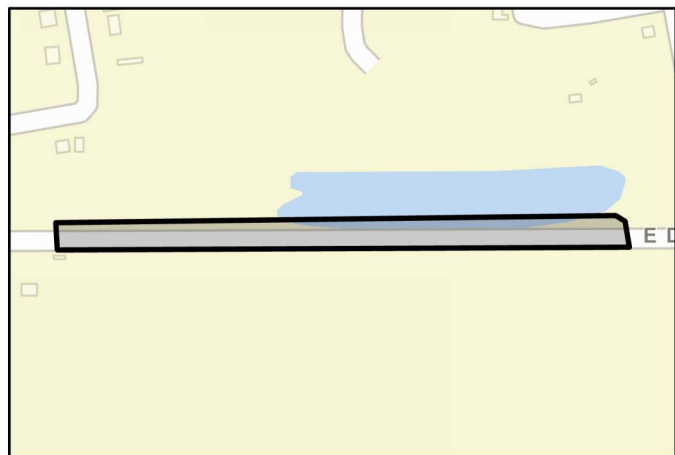
Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Project Cost **\$1,952,000** % Nature-Based **0** BCR **0.3**

Recurring costs **\$1,952** Issues **No major implementation issues identified.**



FMP area



Regional view of FMP area

Flood Mitigation Project (FMP)



Title **Treadaway & 27th Improvements**

ID# **073000019** Sponsor **Abilene (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Aligns with TWDB, RFPG goals**

Project Description

Proposed green detention ponds and additional culvert barrels to reduce flooding of intersection of 27th St and Treadaway.

Watershed HUC# (if known) **120601020708** Emergency Need? **No**

Drainage area (mi² est.) **0**

Associated FME's **None** County **Taylor**

Associated FMS's **None** Associated FMP's **None**

Existing 100-Year Flood Risk

Flood risk type: Riverine? **No** Coastal? **No** Local? **Yes** Playa? **No** Other? **No**

Population at risk **24** # of structures **8** Critical facilities **0**

Farm/Ranch land impacted (acres) **0** Roadway(s) impacted (length) **2**

Number of low water crossings **0** Historical road closures **18**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **-** Reduction in # of road closures over 10 years **0**

Impacts

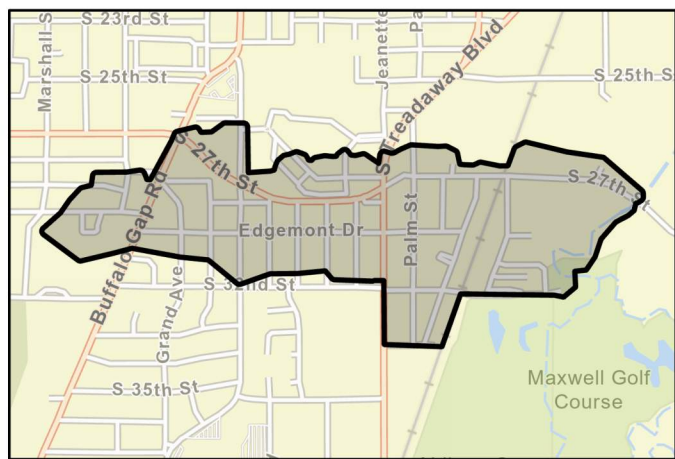
Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

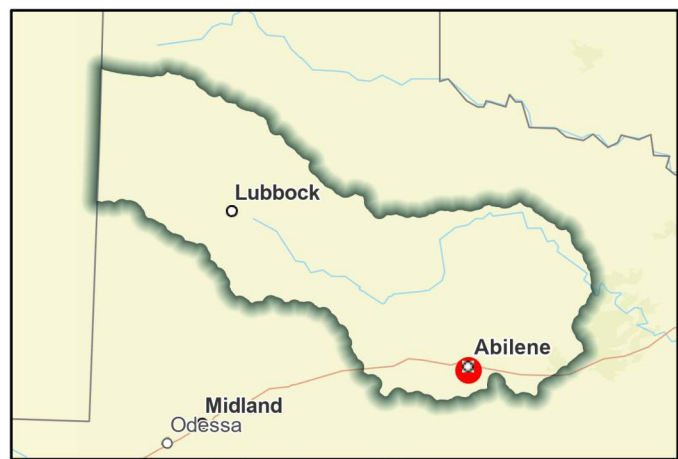
Estimated Cost

Project Cost **\$1,828,000** % Nature-Based **28** BCR **0.1**

Recurring costs **\$1,828** Issues **-**



FMP area



Regional view of FMP area

AMENDED JULY 14, 2023

APPENDIX C - ADDITIONAL DATA

TASK 5 FMS ONE PAGE SUMMARY SHEETS

Flood Management Strategy (FMS)



Title **Bailey County NFIP Participation**

ID# **072000001** Sponsor **Bailey (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance				
Strategy description	Application to join NFIP or adoption of equivalent standards.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None				
Watershed HUC# (if known)	120500010504,	120500010505,	120500010506,	120500010507,	Drainage area (mi ² , est.)
	120500010610,	120500010611,	120500010701,	120500010702,	826
					County
					Bailey

Existing 100-Year Flood Risk

Population at risk	759	# of structures	475	Critical facilities	1
Flood risk type:	Riverine? No	Coastal? No	Local? No	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	32,567	Roadway(s) impacted (miles)	499		
Number of low water crossings	13	Historical road closures	0		

100-Year Flood Risk Reduction

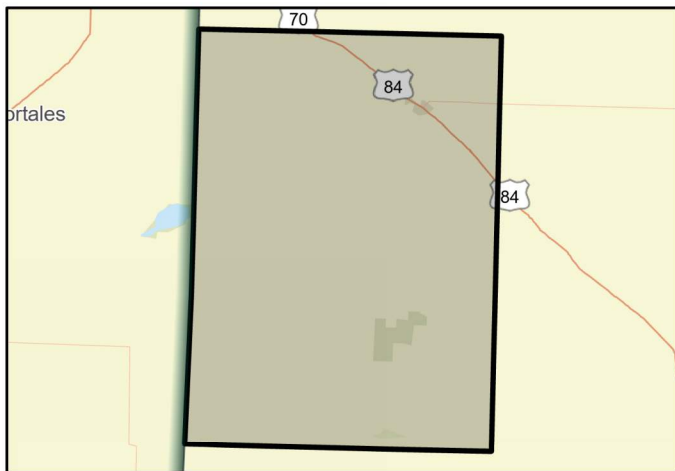
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Borden County NFIP Participation**

ID# **072000002** Sponsor **Borden (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance				
Strategy description	Application to join NFIP or adoption of equivalent standards.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None				
Watershed HUC# (if known)	120500040306,	120500040308,	120500040406,	120500040501,	Drainage area (mi ² , est.)
	120500040503,	120500040504,	120800020108,	120800020109,	55
					County
					Borden

Existing 100-Year Flood Risk

Population at risk	1	# of structures	10	Critical facilities	0
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	1,592	Roadway(s) impacted (miles)	5		
Number of low water crossings	0	Historical road closures	0		

100-Year Flood Risk Reduction

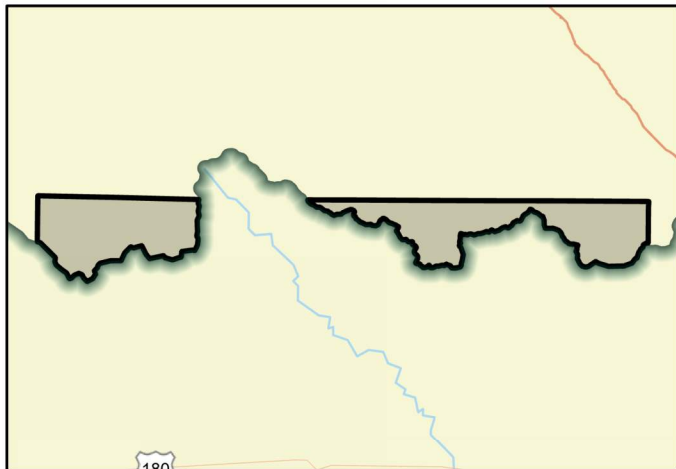
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Buffalo Springs Lake Warning System**

ID# **072000062** Sponsor **Buffalo Springs (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Flood Measurement and Warning		
Strategy description	Flood Warning signals - Sponsor Wish List.		
Associated FME's	None	Associated FMP's	None
Associated FMS's	None	Drainage area (mi ² , est.)	48
Watershed HUC# (if known)	120500030104	County	Lubbock

Existing 100-Year Flood Risk

Population at risk	285	# of structures	228	Critical facilities	0
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	1,195	Roadway(s) impacted (miles)	8		
Number of low water crossings	1	Historical road closures	0		

100-Year Flood Risk Reduction

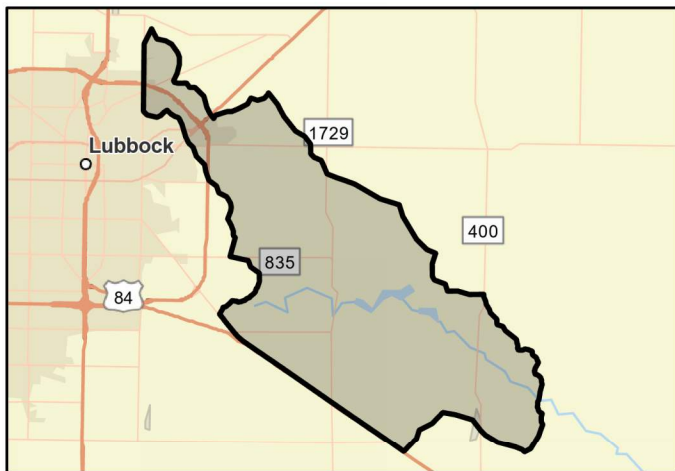
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Callahan County NFIP Coordination Program**

ID# **072000003** Sponsor **Callahan (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance				
Strategy description	County NFIP Compliance program to coordinate and assist local jurisdictions with reviewing the NFIP components to ensure continued compliance.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None				
Watershed HUC# (if known)	120601020707,	120601020709,	120601020710,	120601020801,	Drainage area (mi ² , est.) 433
	120601020802,	120601020803,	120601050101,	120601050102,	
	County				Callahan

Existing 100-Year Flood Risk

Population at risk	86	# of structures	81	Critical facilities	0
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? No	Other? No
Farm/Ranch land impacted (acres)	3,074	Roadway(s) impacted (miles)	56		
Number of low water crossings	12	Historical road closures	0		

100-Year Flood Risk Reduction

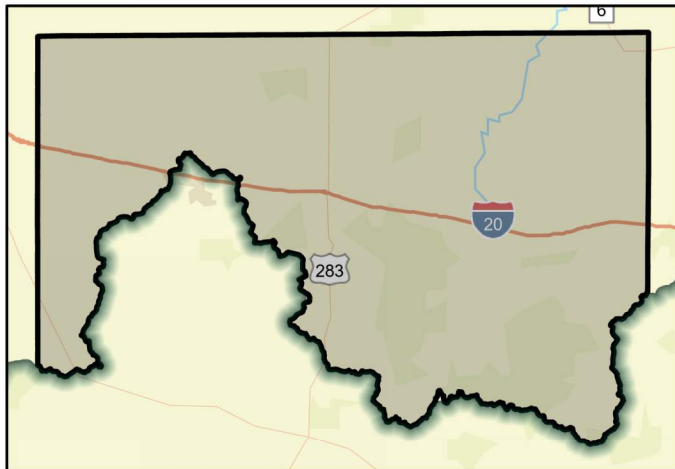
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$25,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **City of Abilene Creek Gauge Program**

ID# **072000004** Sponsor **Abilene (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type **Flood Measurement and Warning**

Strategy description **Install automated creek rain gauges and automated barriers for flooded road ways.**

Associated FME's **None** Associated FMP's **None**

Associated FMS's **None**

Watershed HUC# (if known) **120601020704, 120601020705, 120601020706, 120601020707, 120601020708, 120601020709, 120601020710, 120601020711,** Drainage area (mi², est.) **112**

County **Taylor**

Existing 100-Year Flood Risk

Population at risk **25,333** # of structures **10,861** Critical facilities **10**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **1,235** Roadway(s) impacted (miles) **218**

Number of low water crossings **58** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **None** Reduction in # of road closures over 10 years **0**

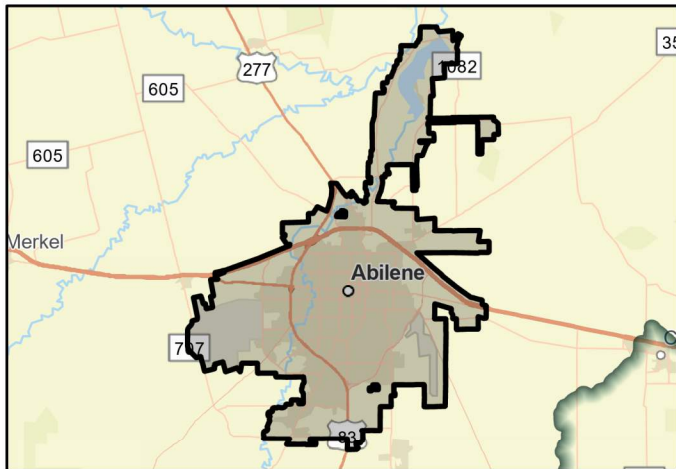
Impacts

Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Strategy Cost **\$175,000** Amount of available funding **\$0** % Nature-Based **0**



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **City of Abilene Turn Around, Don't Drown**

ID# **072000005** Sponsor **Abilene (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type **Education and Outreach**

Strategy description **Encourage annual public outreach and education activities to improve awareness of flood hazards using Turn Around, Don't Drown program**

Associated FME's **None** Associated FMP's **None**

Associated FMS's **None**

Watershed HUC# (if known) **120601020704, 120601020705, 120601020706, 120601020707, 120601020708, 120601020709, 120601020710, 120601020711,** Drainage area (mi², est.) **112**

County **Taylor**

Existing 100-Year Flood Risk

Population at risk **25,333** # of structures **10,861** Critical facilities **10**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **1,235** Roadway(s) impacted (miles) **218**

Number of low water crossings **58** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **None** Reduction in # of road closures over 10 years **0**

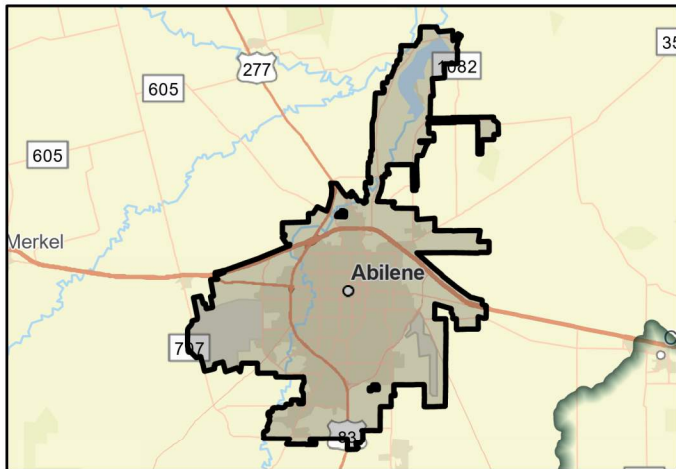
Impacts

Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Strategy Cost **\$50,000** Amount of available funding **\$0** % Nature-Based **0**



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Regulatory and Guidance"/>		
Strategy description	<input type="text" value="Application to join NFIP or adoption of equivalent standards."/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="1"/>
Watershed HUC# (if known)	<input type="text" value="120500011103, 120500011104"/>		County
			<input type="text" value="Lamb"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="6"/>	# of structures	<input type="text" value="13"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input type="text" value="No"/>	Coastal? <input type="text" value="No"/>	Local? <input type="text" value="No"/>	Playa? <input type="text" value="Yes"/>	Other? <input type="text" value="No"/>
Farm/Ranch land impacted (acres)	<input type="text" value="14"/>		Roadway(s) impacted (miles)	<input type="text" value="3"/>	
Number of low water crossings	<input type="text" value="0"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

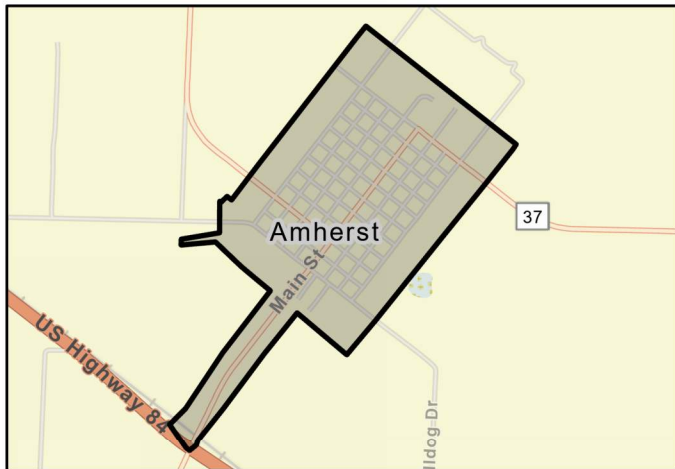
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Reason for Recommendation

Strategy Details

Strategy type	Regulatory and Guidance		
Strategy description	Cross-train Code Officers and Building Inspectors regarding permitting, inspection, and record-keeping requirements of the NFIP Program.		
Associated FME's	None	Associated FMP's	None
Associated FMS's	None	Drainage area (mi ² , est.)	3
Watershed HUC# (if known)	120601030301	County	Jones

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="349"/>	# of structures	<input type="text" value="53"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input type="text" value="Yes"/>	Coastal? <input type="text" value="No"/>	Local? <input type="text" value="No"/>	Playa? <input type="text" value="No"/>	Other? <input type="text" value="No"/>
Farm/Ranch land impacted (acres)	<input type="text" value="12"/>	Roadway(s) impacted (miles)	<input type="text" value="3"/>		
Number of low water crossings	<input type="text" value="0"/>	Historical road closures	<input type="text" value="0"/>		

100-Year Flood Risk Reduction

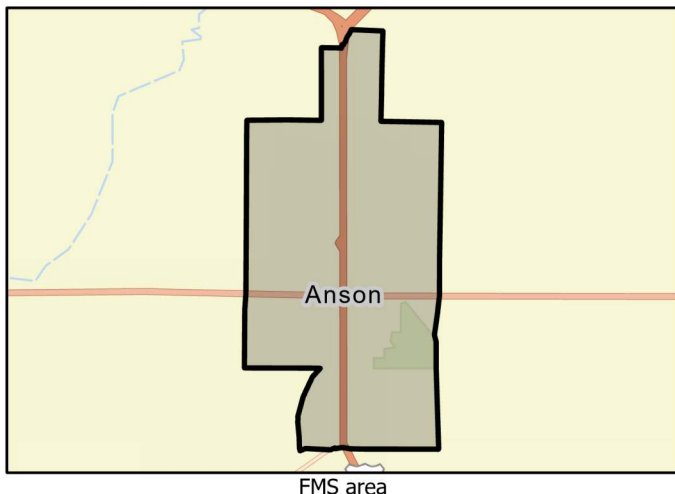
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$25,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

Impacts

Negative impacts? No Negative impacts description

Water supply contributions? No Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Regulatory and Guidance"/>		
Strategy description	<input type="text" value="Application to join NFIP or adoption of equivalent standards."/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="1"/>
Watershed HUC# (if known)	<input type="text" value="120500050108, 120500050109"/>		County
			<input type="text" value="Parmer"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="1"/>	# of structures	<input type="text" value="3"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input type="checkbox"/> No	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input type="checkbox"/> Yes	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="0"/>		Roadway(s) impacted (miles)	<input type="text" value="0"/>	
Number of low water crossings	<input type="text" value="0"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

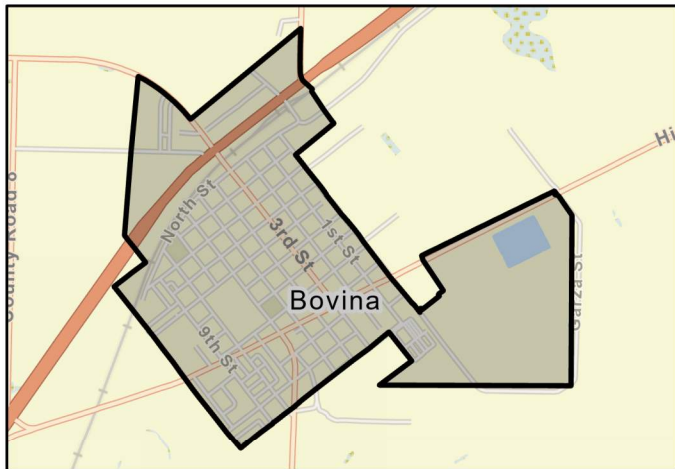
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="checkbox"/> No	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="checkbox"/> No	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Coastal? Local? Playa? Other?

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

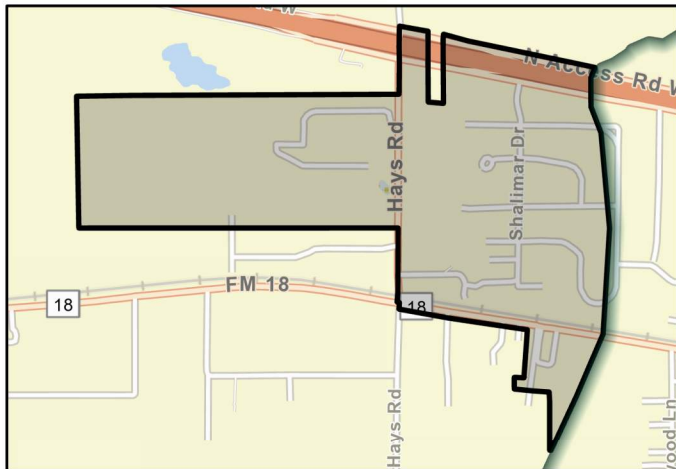
Impacts

Negative impacts? Negative impacts description

Water supply contributions? Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

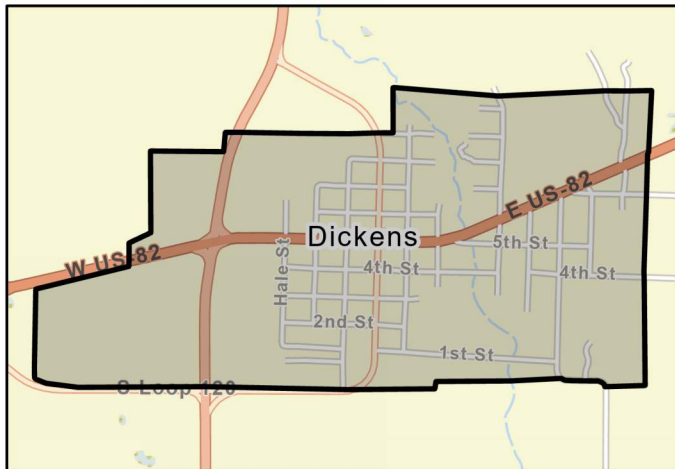
Impacts

Negative impacts? No Negative impacts description

Water supply contributions? No Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Regulatory and Guidance"/>		
Strategy description	<input type="text" value="Application to join NFIP or adoption of equivalent standards."/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="0"/>
Watershed HUC# (if known)	<input type="text" value="120500050404"/>	County	<input type="text" value="Hale"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="0"/>	# of structures	<input type="text" value="0"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input checked="" type="checkbox"/> Yes	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="0"/>	Roadway(s) impacted (miles)	<input type="text" value="0"/>		
Number of low water crossings	<input type="text" value="0"/>	Historical road closures	<input type="text" value="0"/>		

100-Year Flood Risk Reduction

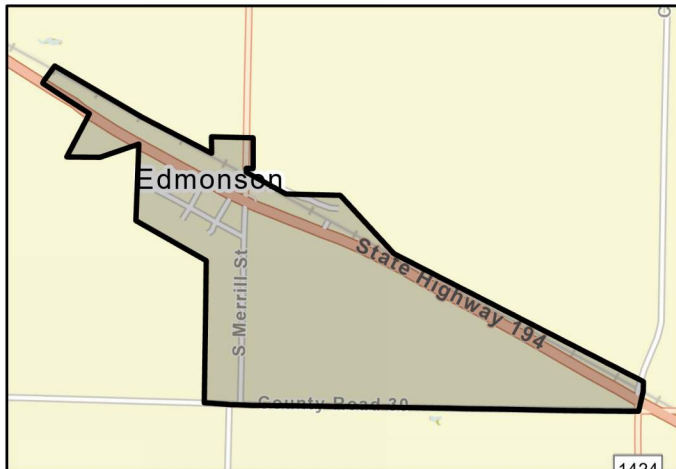
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

Impacts

Negative impacts? No Negative impacts description

Water supply contributions? No Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Yes Coastal? No Local? No Playa? Yes Other? No

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

Impacts

Negative impacts? No Negative impacts description

Water supply contributions? No Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Coastal? Local? Playa? Other?

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

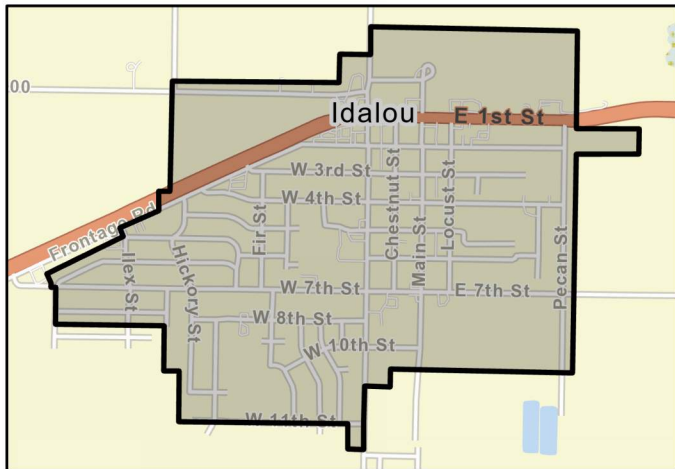
Impacts

Negative impacts? Negative impacts description

Water supply contributions? Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Regulatory and Guidance"/>		
Strategy description	<input type="text" value="Application to join NFIP or adoption of equivalent standards."/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="2"/>
Watershed HUC# (if known)	<input type="text" value="120500070501, 120500070502, 120500070607"/>		County
			<input type="text" value="Kent"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="1"/>	# of structures	<input type="text" value="1"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input type="checkbox"/> No	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="0"/>		Roadway(s) impacted (miles)	<input type="text" value="0"/>	
Number of low water crossings	<input type="text" value="0"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

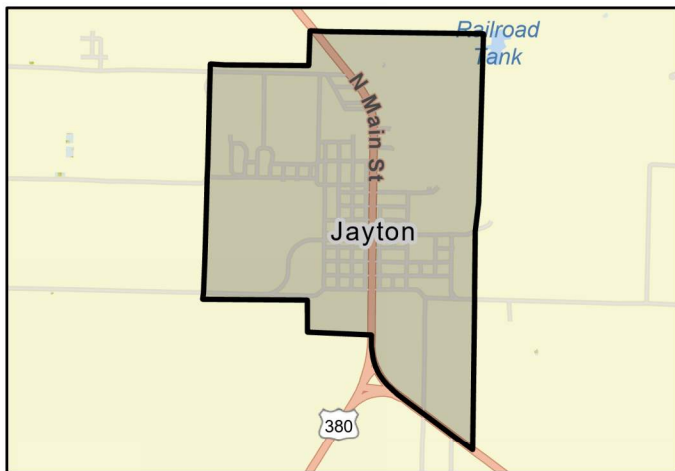
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Education and Outreach"/>		
Strategy description	<input type="text" value="Encourage annual public outreach and education activities to improve awareness of flood hazards using Turn Around, Don't Drown program"/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>		
Watershed HUC# (if known)	<input type="text" value="120500011201, 120500040201, 120500040202, 120500040203, 120500040204"/>	Drainage area (mi ² , est.)	<input type="text" value="10"/>
		County	<input type="text" value="Hockley"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="4,738"/>	# of structures	<input type="text" value="1,277"/>	Critical facilities	<input type="text" value="5"/>
Flood risk type:	Riverine? <input type="text" value="No"/>	Coastal? <input type="text" value="No"/>	Local? <input type="text" value="No"/>	Playa? <input type="text" value="Yes"/>	Other? <input type="text" value="No"/>
Farm/Ranch land impacted (acres)	<input type="text" value="718"/>	Roadway(s) impacted (miles)	<input type="text" value="46"/>		
Number of low water crossings	<input type="text" value="0"/>	Historical road closures	<input type="text" value="0"/>		

100-Year Flood Risk Reduction

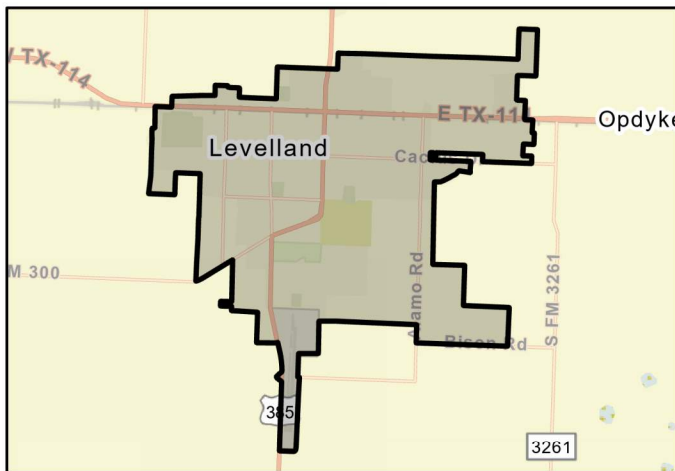
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Infrastructure Projects"/>				
Strategy description	<input type="text" value="Replace regulatory and warning traffic signs, install breakaway poles within the City limits, and install pavement markings at intersections and school zones to mitigate flood velocity damage during flooding events."/>				
Associated FME's	<input type="text" value="None"/>		Associated FMP's	<input type="text" value="None"/>	
Associated FMS's	<input type="text" value="None"/>				
Watershed HUC# (if known)	<input type="text" value="120500011305,"/>	<input type="text" value="120500020508,"/>	<input type="text" value="120500030102,"/>	<input type="text" value="120500030103,"/>	Drainage area (mi ² , est.) <input type="text" value="124"/>
	<input type="text" value="120500030104,"/>	<input type="text" value="120500030201,"/>	<input type="text" value="120500030202,"/>	<input type="text" value="120500030203,"/>	County <input type="text" value="Lubbock"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="17,975"/>	# of structures	<input type="text" value="4,916"/>	Critical facilities	<input type="text" value="9"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input checked="" type="checkbox"/> Yes	Playa? <input checked="" type="checkbox"/> Yes	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="3,514"/>		Roadway(s) impacted (miles)	<input type="text" value="169"/>	
Number of low water crossings	<input type="text" value="28"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

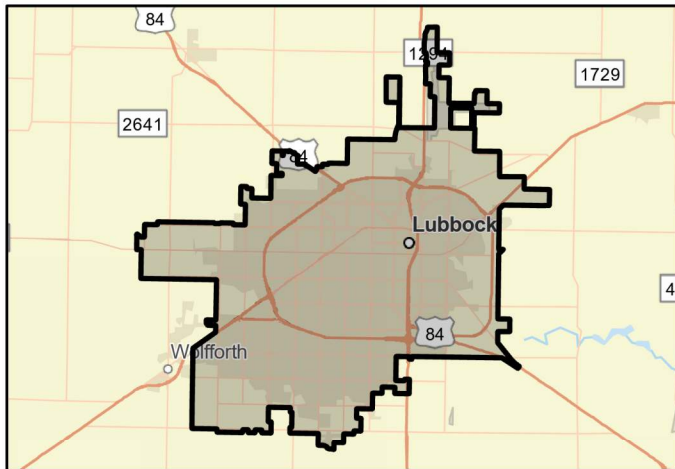
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$300,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Education and Outreach"/>				
Strategy description	<input type="text" value="Encourage annual public outreach and education activities to improve awareness of flood hazards using Turn Around, Don't Drown program"/>				
Associated FME's	<input type="text" value="None"/>		Associated FMP's	<input type="text" value="None"/>	
Associated FMS's	<input type="text" value="None"/>				
Watershed HUC# (if known)	<input type="text" value="120500011305,"/>	<input type="text" value="120500020508,"/>	<input type="text" value="120500030102,"/>	<input type="text" value="120500030103,"/>	Drainage area (mi ² , est.) <input type="text" value="135"/>
	<input type="text" value="120500030104,"/>	<input type="text" value="120500030201,"/>	<input type="text" value="120500030202,"/>	<input type="text" value="120500030203,"/>	County <input type="text" value="Lubbock"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="17,998"/>	# of structures	<input type="text" value="4,959"/>	Critical facilities	<input type="text" value="9"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input checked="" type="checkbox"/> Yes	Playa? <input checked="" type="checkbox"/> Yes	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="4,139"/>		Roadway(s) impacted (miles)	<input type="text" value="170"/>	
Number of low water crossings	<input type="text" value="28"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

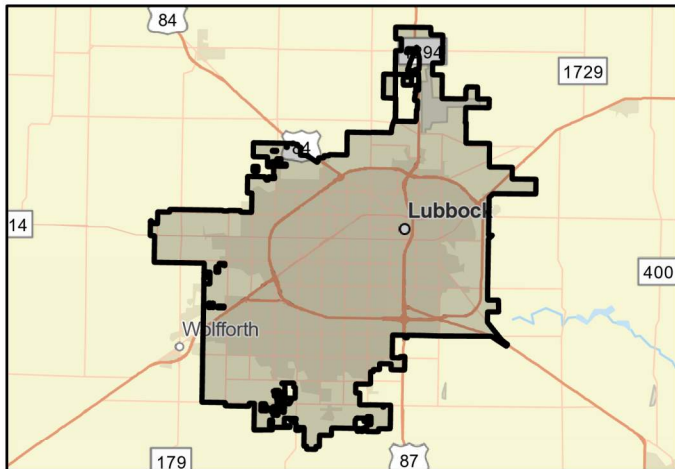
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>	
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>	
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>	
Other benefits	<input type="text" value="None"/>		Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Coastal? Local? Playa? Other?

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

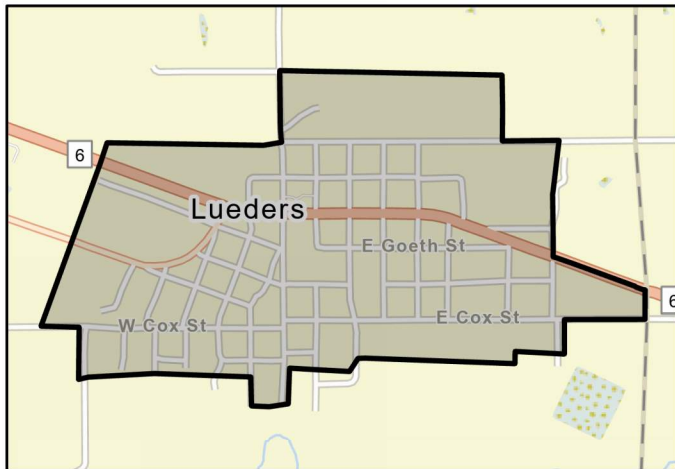
Impacts

Negative impacts? Negative impacts description

Water supply contributions? Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Regulatory and Guidance"/>		
Strategy description	<input type="text" value="Application to join NFIP or adoption of equivalent standards."/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="0"/>
Watershed HUC# (if known)	<input type="text" value="120601050105, 120601050106"/>		County
			<input type="text" value="Shackelford"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="16"/>	# of structures	<input type="text" value="18"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input type="checkbox"/> No	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="0"/>		Roadway(s) impacted (miles)	<input type="text" value="1"/>	
Number of low water crossings	<input type="text" value="0"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

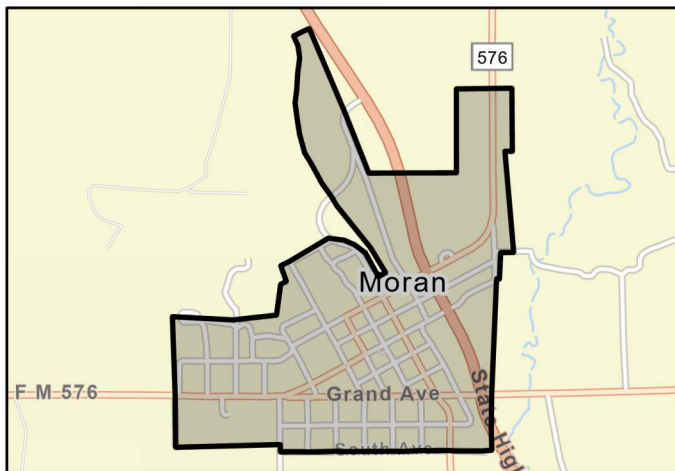
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Regulatory and Guidance"/>		
Strategy description	<input type="text" value="Application to join NFIP or adoption of equivalent standards."/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="1"/>
Watershed HUC# (if known)	<input type="text" value="120601010405"/>	County	<input type="text" value="Knox"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="1,065"/>	# of structures	<input type="text" value="690"/>	Critical facilities	<input type="text" value="4"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input type="checkbox"/> No	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="183"/>	Roadway(s) impacted (miles)	<input type="text" value="20"/>		
Number of low water crossings	<input type="text" value="0"/>	Historical road closures	<input type="text" value="0"/>		

100-Year Flood Risk Reduction

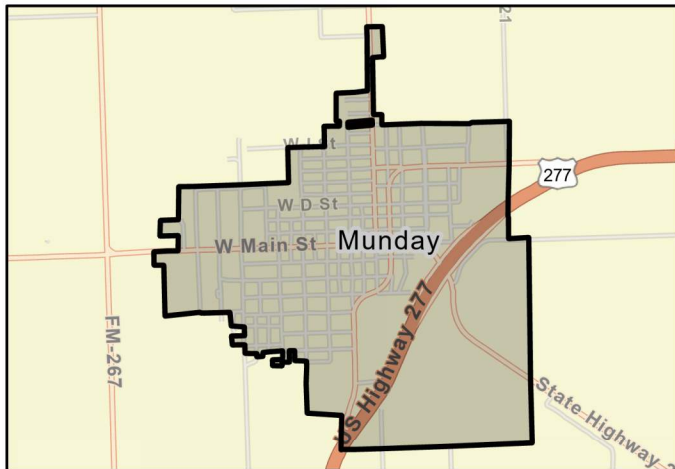
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Coastal? Local? Playa? Other?

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

Impacts

Negative impacts? Negative impacts description

Water supply contributions? Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Yes Coastal? No Local? No Playa? Yes Other? No

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

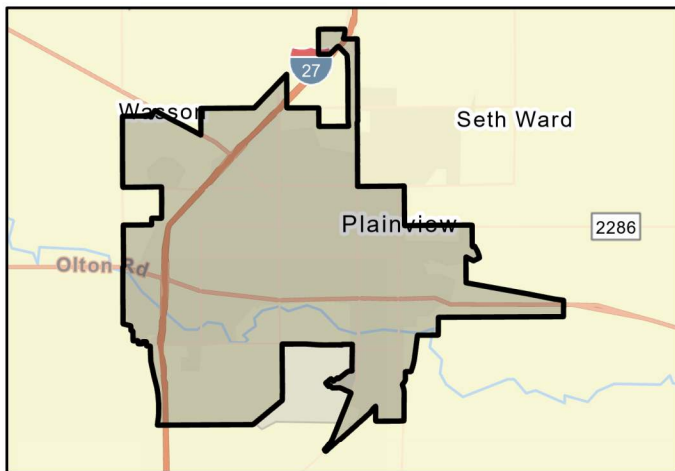
Impacts

Negative impacts? No Negative impacts description

Water supply contributions? No Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

Impacts

Negative impacts? No Negative impacts description

Water supply contributions? No Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? No Coastal? No Local? No Playa? Yes Other? No

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

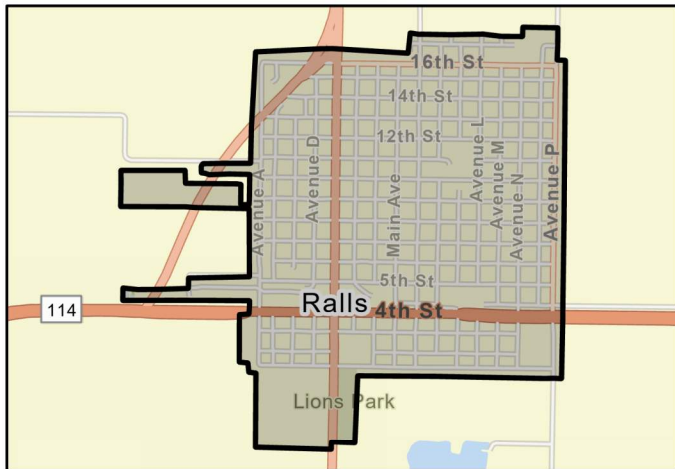
Impacts

Negative impacts? No Negative impacts description

Water supply contributions? No Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Coastal? Local? Playa? Other?

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

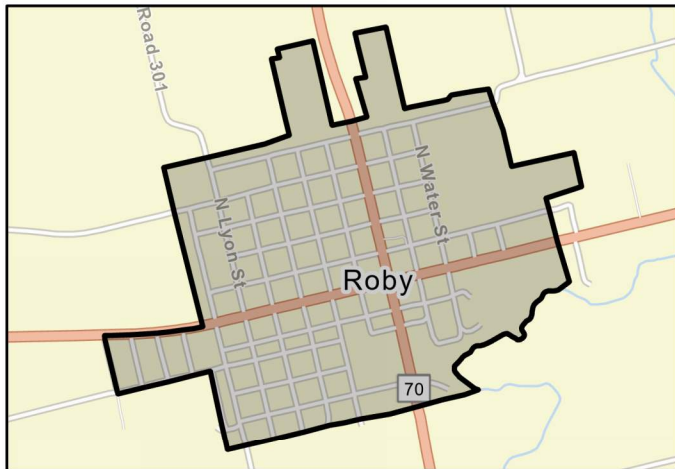
Impacts

Negative impacts? Negative impacts description

Water supply contributions? Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's Drainage area (mi², est.)

Watershed HUC# (if known) County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? No Coastal? No Local? No Playa? Yes Other? No

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

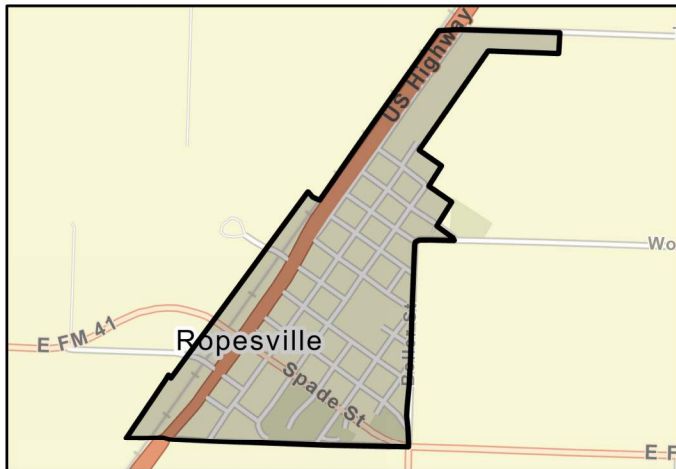
Impacts

Negative impacts? No Negative impacts description

Water supply contributions? No Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Education and Outreach"/>		
Strategy description	<input type="text" value="Encourage annual public outreach and education activities to improve awareness of flood hazards using Turn Around, Don't Drown program"/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="11"/>
Watershed HUC# (if known)	<input type="text" value="120601020302, 120601020303, 120601020304"/>		County
			<input type="text" value="Nolan"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="4"/>	# of structures	<input type="text" value="8"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input type="checkbox"/> No	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="0"/>		Roadway(s) impacted (miles)	<input type="text" value="2"/>	
Number of low water crossings	<input type="text" value="4"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>		Reduction in # of road closures over 10 years
			<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

Impacts

Negative impacts? No Negative impacts description

Water supply contributions? No Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title Crosby County NFIP Participation

ID# 072000029 Sponsor Crosby (County)

RFPG recommend? Yes Reason for Recommendation Alignment with Region Goals

Strategy Details

Strategy type	Regulatory and Guidance				
Strategy description	Application to join NFIP or adoption of equivalent standards.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None				
Watershed HUC# (if known)	111301040202,	120500030203,	120500030305,	120500030306,	Drainage area (mi ² , est.) 896
	120500030307,	120500030308,	120500030501,	120500060303,	County Crosby

Existing 100-Year Flood Risk

Population at risk	325	# of structures	279	Critical facilities	2
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	45,936	Roadway(s) impacted (miles)	350		
Number of low water crossings	6	Historical road closures	0		

100-Year Flood Risk Reduction

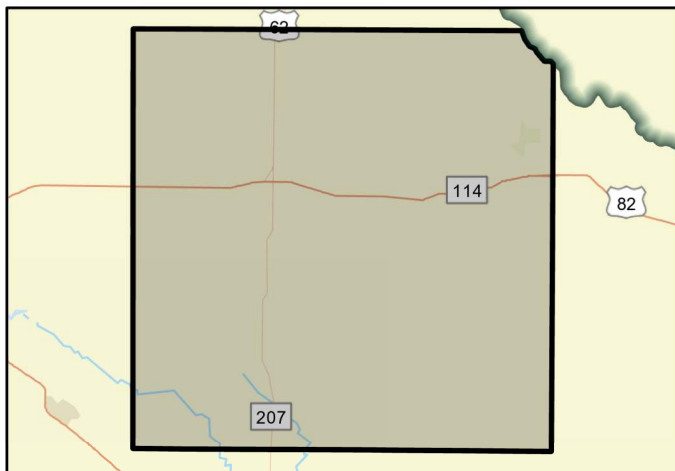
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Dawson County NFIP Participation**

ID# **072000030** Sponsor **Dawson (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance				
Strategy description	Application to join NFIP or adoption of equivalent standards.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None				
Watershed HUC# (if known)	120500040305,	120500040306,	120800020102,	120800020105,	Drainage area (mi ² , est.)
	120800020106,	120800020107,	120800020108,	120800020109,	4
					County
					Dawson

Existing 100-Year Flood Risk

Population at risk	0	# of structures	0	Critical facilities	0
Flood risk type:	Riverine? No	Coastal? No	Local? No	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	158	Roadway(s) impacted (miles)	3		
Number of low water crossings	0	Historical road closures	0		

100-Year Flood Risk Reduction

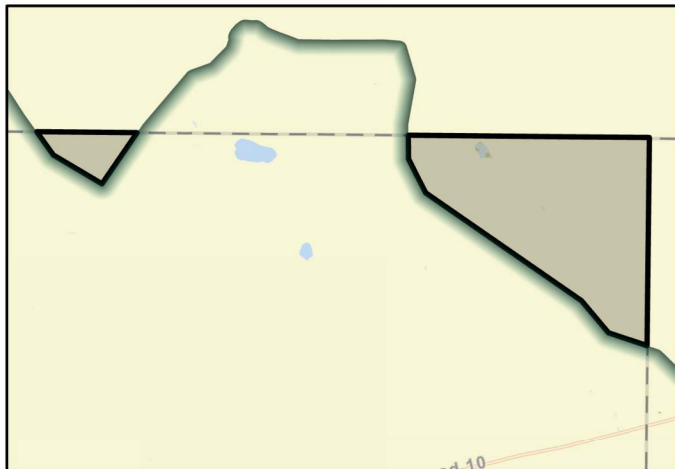
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Infrastructure Projects"/>		
Strategy description	<input type="text" value="Dredging Canyon Lakes"/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="6"/>
Watershed HUC# (if known)	<input type="text" value="120500030102, 120500020508, 120500011305, 120500030103"/>		County
			<input type="text" value="Lubbock"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="70"/>	# of structures	<input type="text" value="75"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input checked="" type="checkbox"/> Yes	Playa? <input checked="" type="checkbox"/> Yes	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="59"/>		Roadway(s) impacted (miles)	<input type="text" value="9"/>	
Number of low water crossings	<input type="text" value="16"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

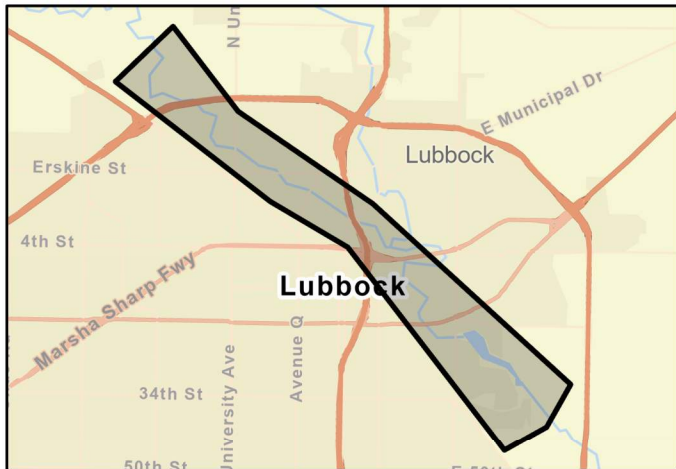
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$2,750,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Fisher County Flood Protection Dam**

ID# **072000051** Sponsor **Fisher (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type **Infrastructure Projects**

Strategy description **Flood protection dams north of Rotan**

Associated FME's **None** Associated FMP's **None**

Associated FMS's **None**

Watershed HUC# (if known) **120601020205** Drainage area (mi², est.) **36**

County **Fisher**

Existing 100-Year Flood Risk

Population at risk **39** # of structures **40** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **2,686** Roadway(s) impacted (miles) **13**

Number of low water crossings **0** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **None** Reduction in # of road closures over 10 years **0**

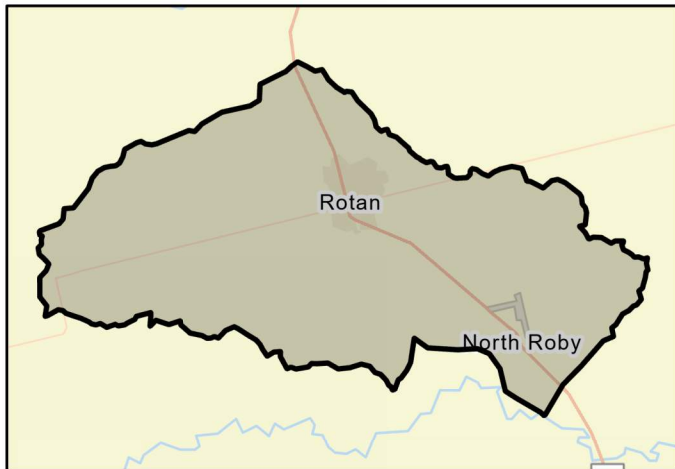
Impacts

Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Strategy Cost **\$75,000** Amount of available funding **\$0** % Nature-Based **0**



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Fisher County NFIP Participation**

ID# **072000031** Sponsor **Fisher (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance				
Strategy description	Application to join NFIP or adoption of equivalent standards.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None				
Watershed HUC# (if known)	120500040607,	120500040704,	120500040801,	120500040802,	Drainage area (mi ² , est.) 900
	120500040803,	120500040805,	120500040806,	120500040807,	
	County				Fisher

Existing 100-Year Flood Risk

Population at risk	89	# of structures	120	Critical facilities	0
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? No	Other? No
Farm/Ranch land impacted (acres)	23,747	Roadway(s) impacted (miles)	89		
Number of low water crossings	0	Historical road closures	0		

100-Year Flood Risk Reduction

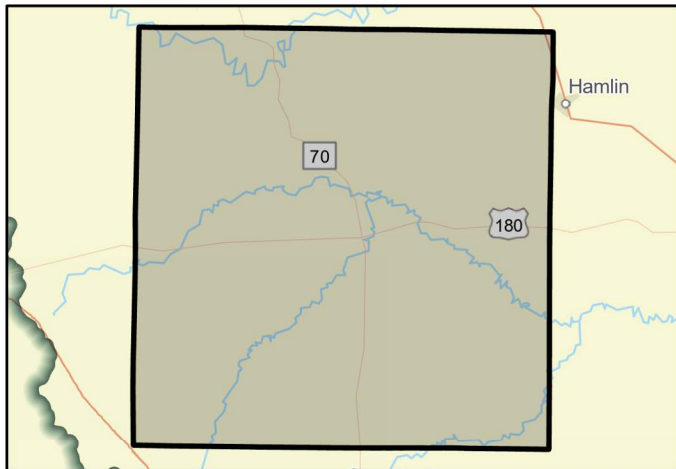
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Floyd County NFIP Participation**

ID# **072000032** Sponsor **Floyd (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance				
Strategy description	Application to join NFIP or adoption of equivalent standards.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None				
Watershed HUC# (if known)	111301030104,	111301030106,	111301030201,	111301030202,	Drainage area (mi ² , est.)
	111301030203,	111301030204,	111301030205,	111301030206,	407
					County
					Floyd

Existing 100-Year Flood Risk

Population at risk	99	# of structures	116	Critical facilities	0
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	28,587	Roadway(s) impacted (miles)	255		
Number of low water crossings	4	Historical road closures	0		

100-Year Flood Risk Reduction

Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Garza County NFIP Participation**

ID# **072000033** Sponsor **Garza (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance				
Strategy description	Application to join NFIP or adoption of equivalent standards.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None				
Watershed HUC# (if known)	120500030203,	120500030308,	120500030403,	120500030501,	Drainage area (mi ² , est.) 885
	120500030502,	120500030503,	120500030504,	120500030505,	County Garza

Existing 100-Year Flood Risk

Population at risk	315	# of structures	158	Critical facilities	0
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	10,113	Roadway(s) impacted (miles)	98		
Number of low water crossings	11	Historical road closures	0		

100-Year Flood Risk Reduction

Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Haskell County NFIP Cross Train Program**

ID# **072000034** Sponsor **Haskell (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance				
Strategy description	Cross-train Code Officers and Building Inspectors regarding permitting, inspection, and record-keeping requirements of the NFIP Program.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None		Drainage area (mi ² , est.)	907	
Watershed HUC# (if known)	120500040903,	120500040904,	120500040906,	120500040907,	County
	120601010201,	120601010203,	120601010206,	120601010301,	
					Haskell

Existing 100-Year Flood Risk

Population at risk	708	# of structures	788	Critical facilities	1
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? No	Other? No
Farm/Ranch land impacted (acres)	59,648	Roadway(s) impacted (miles)	226		
Number of low water crossings	15	Historical road closures	0		

100-Year Flood Risk Reduction

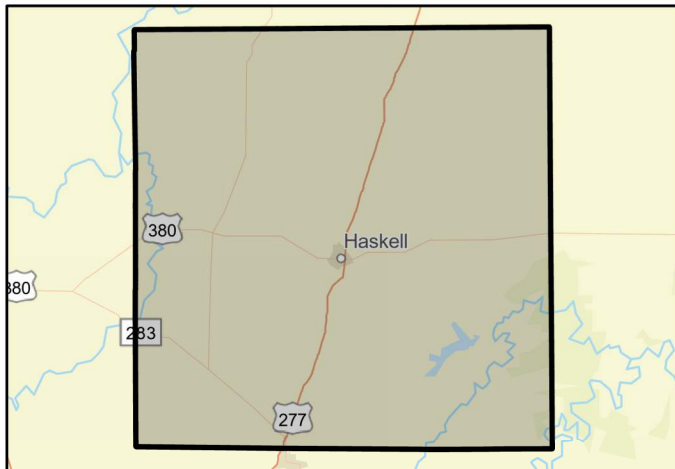
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$25,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Infrastructure Projects"/>		
Strategy description	<input type="text" value="Enhance lake capacity and harden dam structure. Placeholder for anticipated construction cost. Detailed costs following FME."/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="25"/>
Watershed HUC# (if known)	<input type="text" value="120500040507"/>	County	<input type="text" value="Garza"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="0"/>	# of structures	<input type="text" value="2"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input type="checkbox"/> No	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="140"/>	Roadway(s) impacted (miles)	<input type="text" value="0"/>		
Number of low water crossings	<input type="text" value="0"/>	Historical road closures	<input type="text" value="0"/>		

100-Year Flood Risk Reduction

Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$4,950,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Jones County Tax Incentive Program**

ID# **072000035** Sponsor **Jones (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Other				
Strategy description	Consider program of tax incentives for development of low-hazard land parcels.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None		Drainage area (mi ² , est.)	933	
Watershed HUC# (if known)	120500040901,	120601020310,	120601020404,	120601020504,	County
	120601020505,	120601020601,	120601020602,	120601020603,	

Existing 100-Year Flood Risk

Population at risk	1,118	# of structures	1,145	Critical facilities	2
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? No	Other? No
Farm/Ranch land impacted (acres)	47,149	Roadway(s) impacted (miles)	189		
Number of low water crossings	8	Historical road closures	0		

100-Year Flood Risk Reduction

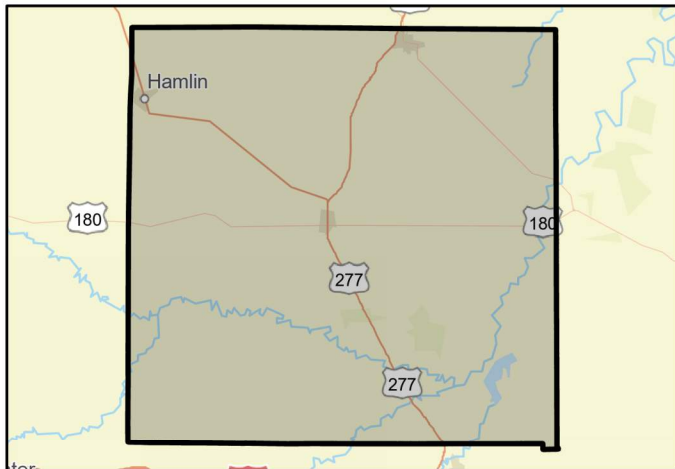
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$25,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Kent County NFIP Cross Train Program**

ID# **072000036** Sponsor **Kent (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance				
Strategy description	Cross-train Code Officers and Building Inspectors regarding permitting, inspection, and record-keeping requirements of the NFIP Program.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None		Drainage area (mi ² , est.)	888	
Watershed HUC# (if known)	120500030506,	120500040505,	120500040506,	120500040507,	County
	120500040601,	120500040602,	120500040603,	120500040604,	
					Kent

Existing 100-Year Flood Risk

Population at risk	3	# of structures	38	Critical facilities	1
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? No	Other? No
Farm/Ranch land impacted (acres)	3,244	Roadway(s) impacted (miles)	41		
Number of low water crossings	4	Historical road closures	0		

100-Year Flood Risk Reduction

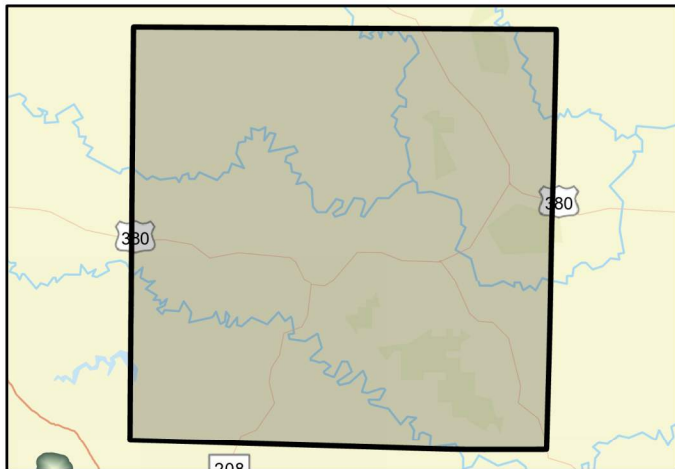
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$25,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Regulatory and Guidance"/>				
Strategy description	<input type="text" value="Application to join NFIP or adoption of equivalent standards."/>				
Associated FME's	<input type="text" value="None"/>		Associated FMP's	<input type="text" value="None"/>	
Associated FMS's	<input type="text" value="None"/>				
Watershed HUC# (if known)	<input type="text" value="111302040102,"/>	<input type="text" value="111302040103,"/>	<input type="text" value="111302040104,"/>	<input type="text" value="111302040108,"/>	Drainage area (mi ² , est.) <input type="text" value="336"/>
	<input type="text" value="111302040204,"/>	<input type="text" value="111302040205,"/>	<input type="text" value="111302040206,"/>	<input type="text" value="111302050102,"/>	County <input type="text" value="King"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="1"/>	# of structures	<input type="text" value="3"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input type="text" value="Yes"/>	Coastal? <input type="text" value="No"/>	Local? <input type="text" value="No"/>	Playa? <input type="text" value="No"/>	Other? <input type="text" value="No"/>
Farm/Ranch land impacted (acres)	<input type="text" value="409"/>		Roadway(s) impacted (miles)	<input type="text" value="7"/>	
Number of low water crossings	<input type="text" value="1"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>	
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>	
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>	
Other benefits	<input type="text" value="None"/>		Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Regulatory and Guidance"/>				
Strategy description	<input type="text" value="Application to join NFIP or adoption of equivalent standards."/>				
Associated FME's	<input type="text" value="None"/>		Associated FMP's	<input type="text" value="None"/>	
Associated FMS's	<input type="text" value="None"/>				
Watershed HUC# (if known)	<input type="text" value="111302040206,"/>	<input type="text" value="111302040301,"/>	<input type="text" value="111302040302,"/>	<input type="text" value="111302040303,"/>	Drainage area (mi ² , est.) <input type="text" value="432"/>
	<input type="text" value="111302040304,"/>	<input type="text" value="111302040305,"/>	<input type="text" value="111302040306,"/>	<input type="text" value="111302050204,"/>	County <input type="text" value="Knox"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="1,310"/>	# of structures	<input type="text" value="968"/>	Critical facilities	<input type="text" value="4"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input type="checkbox"/> No	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="33,293"/>		Roadway(s) impacted (miles)	<input type="text" value="130"/>	
Number of low water crossings	<input type="text" value="2"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

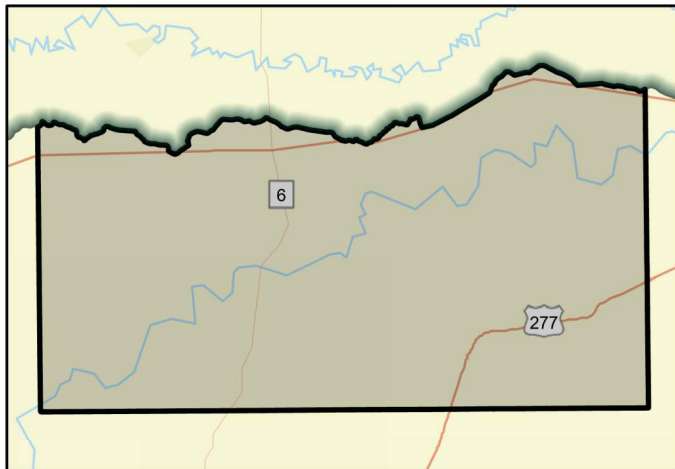
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Infrastructure Projects"/>		
Strategy description	<input type="text" value="Reinforcement of slopes and dam spillway"/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="47"/>
Watershed HUC# (if known)	<input type="text" value="120601010403"/>	County	<input type="text" value="Knox"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="10"/>	# of structures	<input type="text" value="16"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input type="text" value="Yes"/>	Coastal? <input type="text" value="No"/>	Local? <input type="text" value="No"/>	Playa? <input type="text" value="No"/>	Other? <input type="text" value="No"/>
Farm/Ranch land impacted (acres)	<input type="text" value="1,282"/>	Roadway(s) impacted (miles)	<input type="text" value="10"/>		
Number of low water crossings	<input type="text" value="0"/>	Historical road closures	<input type="text" value="0"/>		

100-Year Flood Risk Reduction

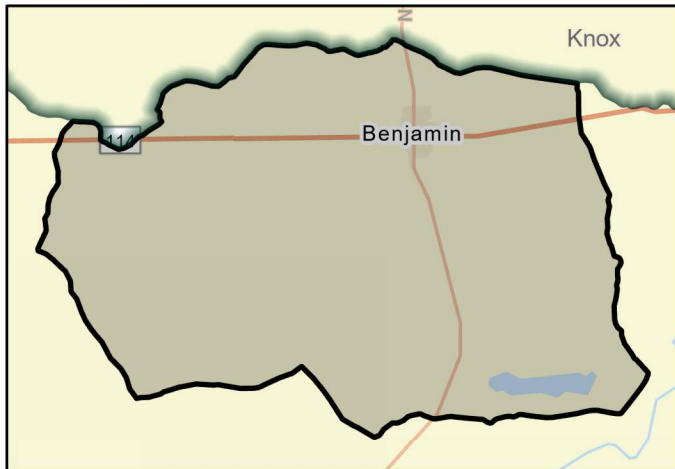
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$500,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Infrastructure Projects"/>		
Strategy description	<input type="text" value="Expand spillway"/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="46"/>
Watershed HUC# (if known)	<input type="text" value="120601030208"/>	County	<input type="text" value="Haskell"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="146"/>	# of structures	<input type="text" value="181"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input type="checkbox"/> No	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="1,009"/>	Roadway(s) impacted (miles)	<input type="text" value="5"/>		
Number of low water crossings	<input type="text" value="0"/>	Historical road closures	<input type="text" value="0"/>		

100-Year Flood Risk Reduction

Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$400,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Flood Measurement and Warning"/>		
Strategy description	<input type="text" value="Enhance and expand existing limited alert system equipment currently in place at McMillan Dam"/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="0"/>
Watershed HUC# (if known)	<input type="text" value="120500030104"/>	County	<input type="text" value="Lubbock"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="0"/>	# of structures	<input type="text" value="0"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input type="checkbox"/> No	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="0"/>	Roadway(s) impacted (miles)	<input type="text" value="0"/>		
Number of low water crossings	<input type="text" value="0"/>	Historical road closures	<input type="text" value="0"/>		

100-Year Flood Risk Reduction

Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Infrastructure Projects"/>		
Strategy description	<input type="text" value="Make repairs to McMillian Dam as identified as high risk by TCEQ to prevent failure."/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="0"/>
Watershed HUC# (if known)	<input type="text" value="120500030104"/>	County	<input type="text" value="Lubbock"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="5"/>	# of structures	<input type="text" value="3"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input type="checkbox"/> No	Playa? <input checked="" type="checkbox"/> Yes	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="0"/>		Roadway(s) impacted (miles)	<input type="text" value="0"/>	
Number of low water crossings	<input type="text" value="0"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

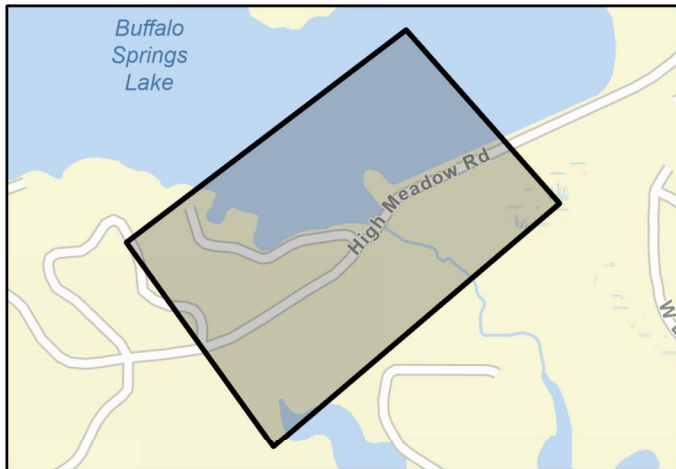
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$58,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Nolan County Warning System**

ID# **072000061** Sponsor **Nolan (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Flood Measurement and Warning				
Strategy description	Install county-wide outdoor warning sirens for any emergency of natural and/or man-made hazardous events. The warning sirens would be strategically placed in the following locations within the County: Cities of Sweetwater, Roscoe, Blackwell, Nolan, Mary				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None				
Watershed HUC# (if known)	120601020101,	120601020102,	120601020103,	120601020104,	Drainage area (mi ² , est.) 461
	120601020201,	120601020301,	120601020302,	120601020303,	
	County				Nolan

Existing 100-Year Flood Risk

Population at risk	412	# of structures	264	Critical facilities	1
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? No	Other? No
Farm/Ranch land impacted (acres)	9,929	Roadway(s) impacted (miles)	41		
Number of low water crossings	21	Historical road closures	0		

100-Year Flood Risk Reduction

Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$375,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Ransom Canyon Evacuation Route**

ID# **072000057** Sponsor **Ransom Canyon (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type **Infrastructure Projects**

Strategy description **As part of the Village's Emergency Operations Plan, construct an alternate evacuation route for residents affected by McMillan Dam failure**

Associated FME's **None** Associated FMP's **None**

Associated FMS's **None**

Watershed HUC# (if known) **120500030104** Drainage area (mi², est.) **1**

County **Lubbock**

Existing 100-Year Flood Risk

Population at risk **131** # of structures **53** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **Yes** Other? **No**

Farm/Ranch land impacted (acres) **5** Roadway(s) impacted (miles) **1**

Number of low water crossings **1** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **None** Reduction in # of road closures over 10 years **0**

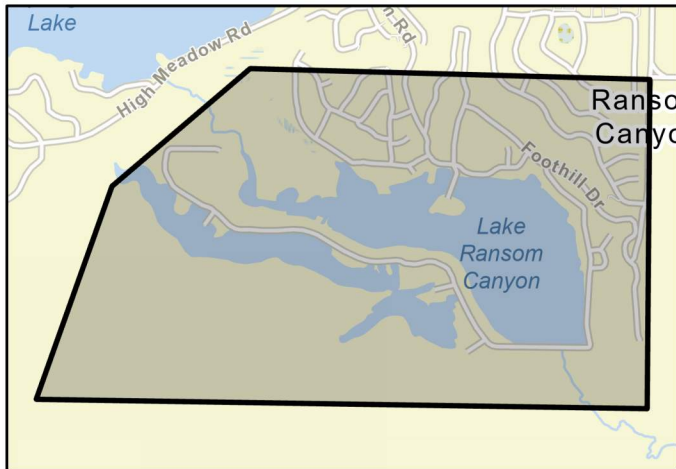
Impacts

Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Strategy Cost **\$500,000** Amount of available funding **\$0** % Nature-Based **0**



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Scurry County NFIP Participation**

ID# **072000039** Sponsor **Scurry (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type **Regulatory and Guidance**

Strategy description **Application to join NFIP or adoption of equivalent standards.**

Associated FME's **None** Associated FMP's **None**

Associated FMS's **None**

Watershed HUC# (if known) **120500040504, 120500040505, 120500040506, 120500040602, 120500040605, 120500040606, 120500040607, 120500040701,** Drainage area (mi², est.) **393**
County **Scurry**

Existing 100-Year Flood Risk

Population at risk **23** # of structures **13** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **6,805** Roadway(s) impacted (miles) **18**

Number of low water crossings **6** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **None** Reduction in # of road closures over 10 years **0**

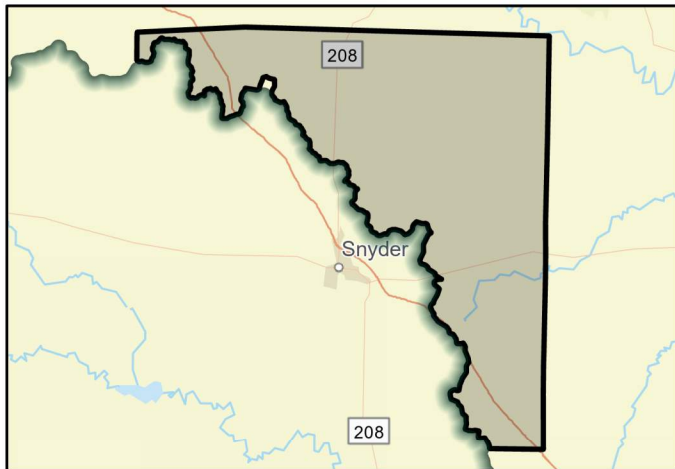
Impacts

Negative impacts? **No** Negative impacts description **n/a**

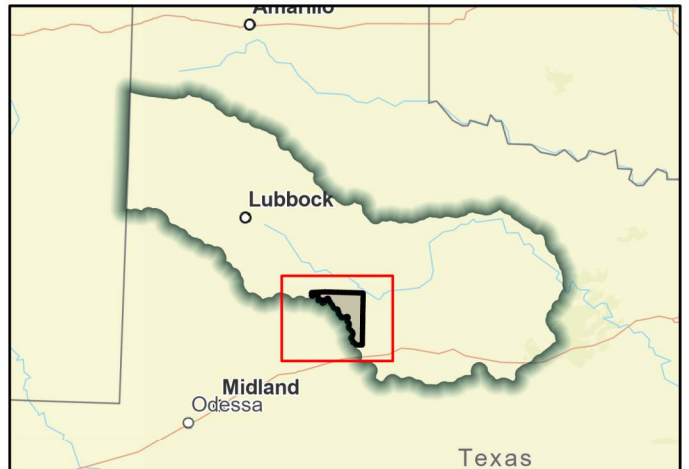
Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Strategy Cost **\$50,000** Amount of available funding **\$0** % Nature-Based **0**



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Infrastructure Projects"/>		
Strategy description	<input type="text" value="Dam hardening"/>		
Associated FME's	<input type="text" value="None"/>	Associated FMP's	<input type="text" value="None"/>
Associated FMS's	<input type="text" value="None"/>	Drainage area (mi ² , est.)	<input type="text" value="41"/>
Watershed HUC# (if known)	<input type="text" value="120601030102"/>	County	<input type="text" value="Jones"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="4"/>	# of structures	<input type="text" value="11"/>	Critical facilities	<input type="text" value="0"/>
Flood risk type:	Riverine? <input type="text" value="Yes"/>	Coastal? <input type="text" value="No"/>	Local? <input type="text" value="No"/>	Playa? <input type="text" value="No"/>	Other? <input type="text" value="No"/>
Farm/Ranch land impacted (acres)	<input type="text" value="1,525"/>	Roadway(s) impacted (miles)	<input type="text" value="8"/>		
Number of low water crossings	<input type="text" value="0"/>	Historical road closures	<input type="text" value="0"/>		

100-Year Flood Risk Reduction

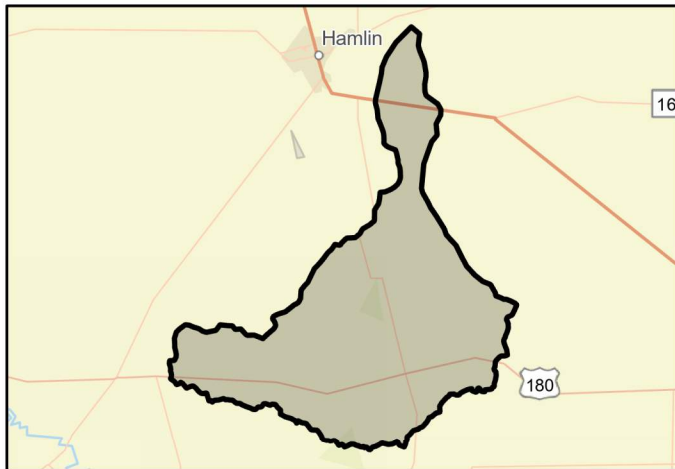
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$50,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's

Watershed HUC# (if known) Drainage area (mi², est.)

County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Coastal? Local? Playa? Other?

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

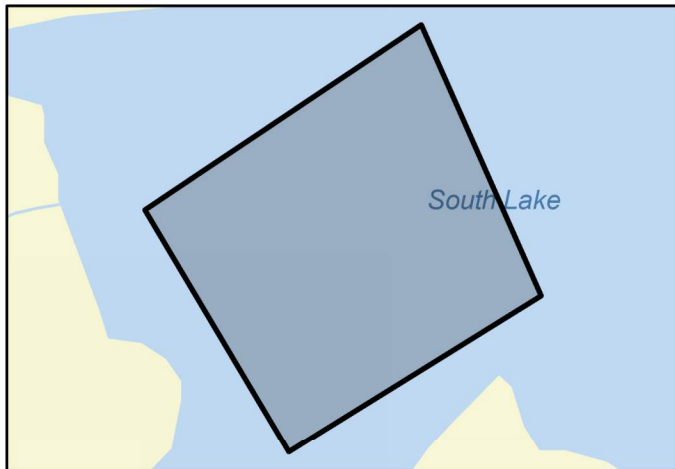
Impacts

Negative impacts? Negative impacts description

Water supply contributions? Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



Flood Management Strategy (FMS)



Title **Taylor County Gauge/Flood Barrier Program**

ID# **072000060** Sponsor **Taylor (County)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Flood Measurement and Warning				
Strategy description	Install automated creek rain gauges and automated barriers for flooded roadways.				
Associated FME's	None		Associated FMP's	None	
Associated FMS's	None		Drainage area (mi ² , est.)	612	
Watershed HUC# (if known)	120601020501,	120601020502,	120601020503,	120601020504,	County Taylor
	120601020505,	120601020601,	120601020604,	120601020605,	

Existing 100-Year Flood Risk

Population at risk	25,896	# of structures	11,167	Critical facilities	11
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? No	Other? No
Farm/Ranch land impacted (acres)	7,516	Roadway(s) impacted (miles)	245		
Number of low water crossings	72	Historical road closures	0		

100-Year Flood Risk Reduction

Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$150,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type

Strategy description

Associated FME's Associated FMP's

Associated FMS's Drainage area (mi², est.)

Watershed HUC# (if known) County

Existing 100-Year Flood Risk

Population at risk # of structures Critical facilities

Flood risk type: Riverine? Yes Coastal? No Local? No Playa? No Other? No

Farm/Ranch land impacted (acres) Roadway(s) impacted (miles)

Number of low water crossings Historical road closures

100-Year Flood Risk Reduction

Population removed from 100-yr # of structures removed from 100-yr

Critical facilities removed from 100-yr Farm/Ranch land removed from 100-yr (acres)

Road removed from 100-yr (miles) Low water crossings removed from 100-yr

Other benefits Reduction in # of road closures over 10 years

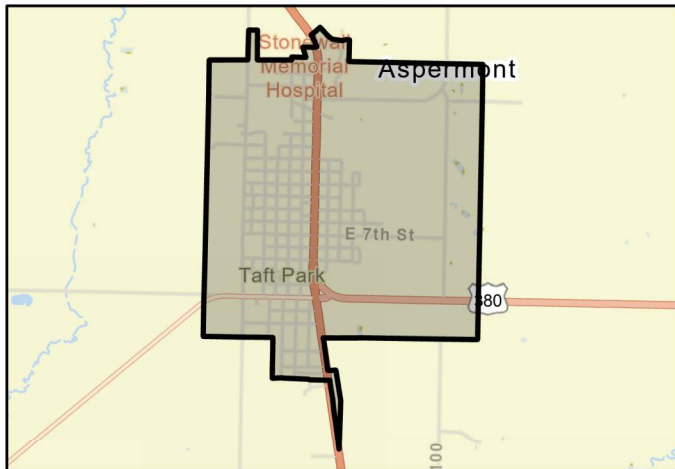
Impacts

Negative impacts? No Negative impacts description

Water supply contributions? No Water supply contribution description

Estimated Cost

Strategy Cost Amount of available funding % Nature-Based



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Town of Impact NFIP Participation**

ID# **072000041** Sponsor **Impact (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance		
Strategy description	Application to join NFIP or adoption of equivalent standards.		
Associated FME's	None	Associated FMP's	None
Associated FMS's	None	Drainage area (mi ² , est.)	0
Watershed HUC# (if known)	120601020711	County	Taylor

Existing 100-Year Flood Risk

Population at risk	24	# of structures	18	Critical facilities	0
Flood risk type:	Riverine? Yes	Coastal? No	Local? No	Playa? No	Other? No
Farm/Ranch land impacted (acres)	0	Roadway(s) impacted (miles)	1		
Number of low water crossings	0	Historical road closures	0		

100-Year Flood Risk Reduction

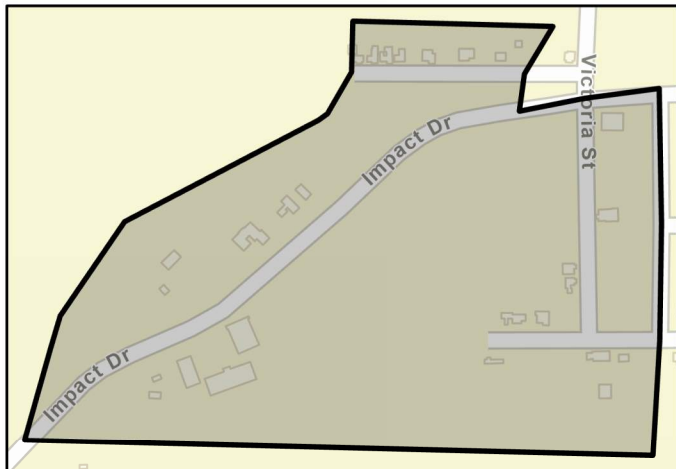
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Town of Lockney NFIP Participation**

ID# **072000042** Sponsor **Lockney (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance		
Strategy description	Application to join NFIP or adoption of equivalent standards.		
Associated FME's	None	Associated FMP's	None
Associated FMS's	None	Drainage area (mi ² , est.)	1
Watershed HUC# (if known)	111301030203, 120500060306	County	Floyd

Existing 100-Year Flood Risk

Population at risk	7	# of structures	7	Critical facilities	0
Flood risk type:	Riverine? No	Coastal? No	Local? No	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	0	Roadway(s) impacted (miles)	3		
Number of low water crossings	0	Historical road closures	0		

100-Year Flood Risk Reduction

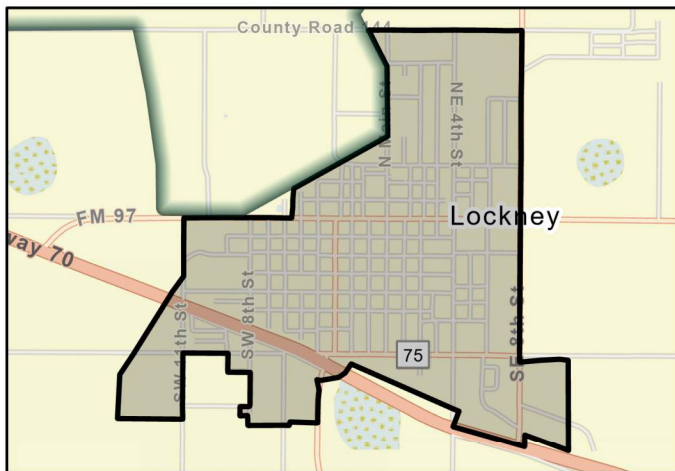
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Town of Rochester NFIP Participation**

ID# **072000043** Sponsor **Rochester (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type **Regulatory and Guidance**

Strategy description **Application to join NFIP or adoption of equivalent standards.**

Associated FME's **None** Associated FMP's **None**

Associated FMS's **None**

Watershed HUC# (if known) **120601010401** Drainage area (mi², est.) **0**

County **Haskell**

Existing 100-Year Flood Risk

Population at risk **26** # of structures **27** Critical facilities **0**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **No** Playa? **No** Other? **No**

Farm/Ranch land impacted (acres) **5** Roadway(s) impacted (miles) **1**

Number of low water crossings **0** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **None** Reduction in # of road closures over 10 years **0**

Impacts

Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Strategy Cost **\$75,000** Amount of available funding **\$0** % Nature-Based **0**



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Town of Smyer NFIP Participation**

ID# **072000044** Sponsor **Smyer (Municipality)**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Regulatory and Guidance		
Strategy description	Application to join NFIP or adoption of equivalent standards.		
Associated FME's	None	Associated FMP's	None
Associated FMS's	None	Drainage area (mi ² , est.)	1
Watershed HUC# (if known)	120500030101, 120500030103		County
			Hockley

Existing 100-Year Flood Risk

Population at risk	11	# of structures	6	Critical facilities	0
Flood risk type:	Riverine? No	Coastal? No	Local? No	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	9	Roadway(s) impacted (miles)	1		
Number of low water crossings	0	Historical road closures	0		

100-Year Flood Risk Reduction

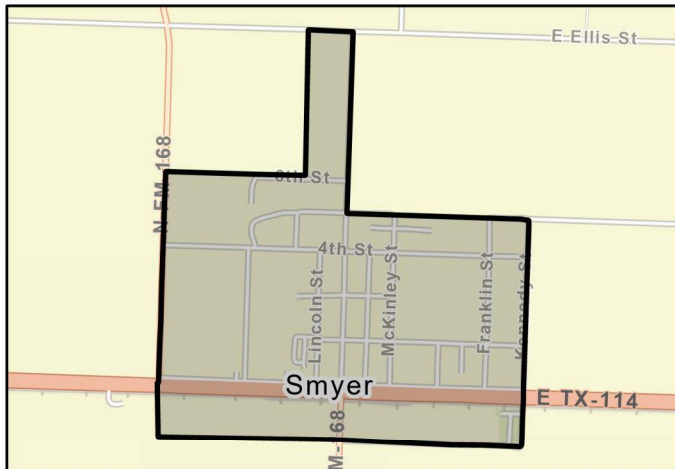
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$50,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Upper Brazos Building Codes Outreach Program**

ID# **072000045** Sponsor **South Plains Association of Governments**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Education and Outreach					
Strategy description	Outreach Program: Encourage communities to adopt current building codes, adopt new construction codes for setting the minimum floor elevation					
Associated FME's	None		Associated FMP's	None		
Associated FMS's	None					
Watershed HUC# (if known)	120601020802,	120601020803,	120601020805,	120601020806,	Drainage area (mi ² , est.)	20,028
	120601020901,	120601020903,	120601020904,	120601020905,	County	All

Existing 100-Year Flood Risk

Population at risk	60,299	# of structures	28,532	Critical facilities	44
Flood risk type:	Riverine? Yes	Coastal? No	Local? Yes	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	869,138	Roadway(s) impacted (miles)	5,944		
Number of low water crossings	292	Historical road closures	0		

100-Year Flood Risk Reduction

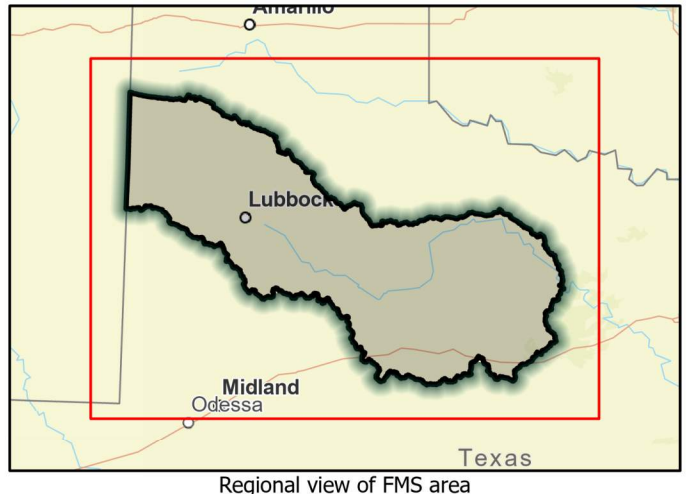
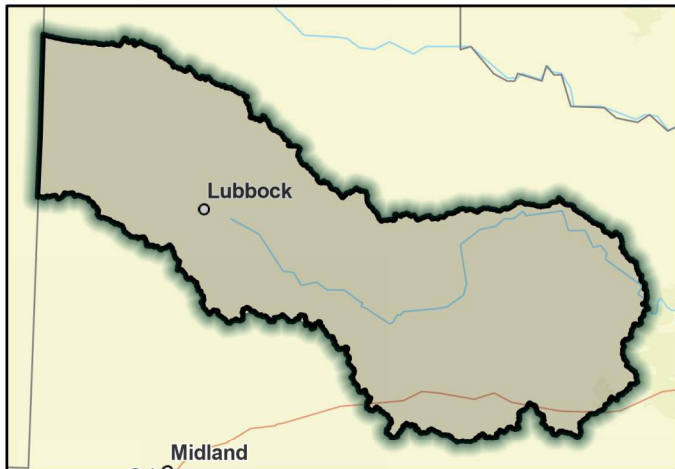
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$100,000	Amount of available funding	\$0	% Nature-Based	0
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Flood Management Strategy (FMS)



Title **Upper Brazos Industry Flood Losses Outreach Program**

ID# **072000047** Sponsor **South Plains Association of Governments**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type **Education and Outreach**

Strategy description **Encourage best practices to reduce the vulnerability of agriculture, ranching, energy and forestry to flood-related losses through community outreach.**

Associated FME's **None** Associated FMP's **None**

Associated FMS's **None**

Watershed HUC# (if known) **120601020802, 120601020803, 120601020805, 120601020806, 120601020901, 120601020903, 120601020904, 120601020905,** Drainage area (mi², est.) **20,028**

County **All**

Existing 100-Year Flood Risk

Population at risk **60,299** # of structures **28,532** Critical facilities **44**

Flood risk type: Riverine? **Yes** Coastal? **No** Local? **Yes** Playa? **Yes** Other? **No**

Farm/Ranch land impacted (acres) **869,138** Roadway(s) impacted (miles) **5,944**

Number of low water crossings **292** Historical road closures **0**

100-Year Flood Risk Reduction

Population removed from 100-yr **0** # of structures removed from 100-yr **0**

Critical facilities removed from 100-yr **0** Farm/Ranch land removed from 100-yr (acres) **0**

Road removed from 100-yr (miles) **0** Low water crossings removed from 100-yr **0**

Other benefits **None** Reduction in # of road closures over 10 years **0**

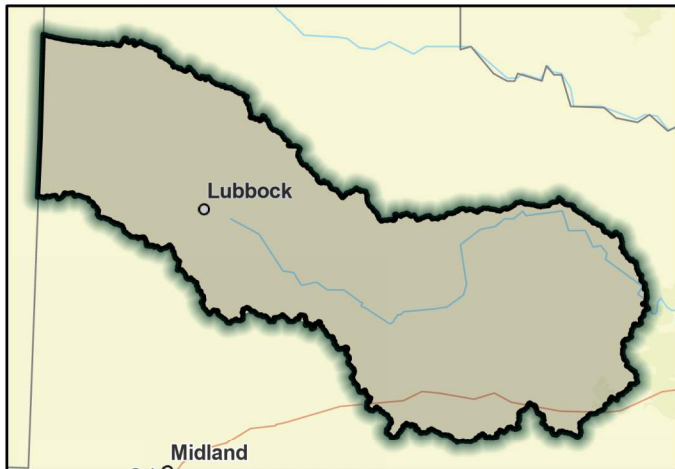
Impacts

Negative impacts? **No** Negative impacts description **n/a**

Water supply contributions? **No** Water supply contribution description **None**

Estimated Cost

Strategy Cost **\$100,000** Amount of available funding **\$0** % Nature-Based **0**



FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title **Upper Brazos Public Awareness Outreach Program**

ID# **072000046** Sponsor **South Plains Association of Governments**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Education and Outreach					
Strategy description	Encourage annual public outreach and education activities to improve awareness of flood hazards, flood planning, and projects associated with emergency response associated with flooding.					
Associated FME's	None		Associated FMP's	None		
Associated FMS's	None					
Watershed HUC# (if known)	120601020802,	120601020803,	120601020805,	120601020806,	Drainage area (mi ² , est.)	20,028
	120601020901,	120601020903,	120601020904,	120601020905,	County	All

Existing 100-Year Flood Risk

Population at risk	60,299	# of structures	28,532	Critical facilities	44
Flood risk type:	Riverine? Yes	Coastal? No	Local? Yes	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	869,138	Roadway(s) impacted (miles)	5,944		
Number of low water crossings	292	Historical road closures	0		

100-Year Flood Risk Reduction

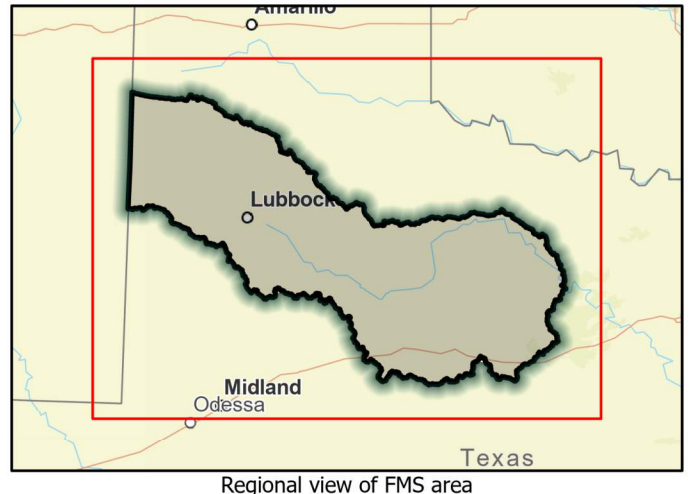
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$100,000	Amount of available funding	\$0	% Nature-Based	0
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Flood Management Strategy (FMS)



Title **Upper Brazos Stormwater Maintenance Outreach Program**

ID# **072000048** Sponsor **South Plains Association of Governments**

RFPG recommend? **Yes** Reason for Recommendation **Alignment with Region Goals**

Strategy Details

Strategy type	Education and Outreach					
Strategy description	Outreach Program: Encourage maintenance programs on storm water infrastructure, Dams, ditches, and channels.					
Associated FME's	None		Associated FMP's	None		
Associated FMS's	None					
Watershed HUC# (if known)	120601020802,	120601020803,	120601020805,	120601020806,	Drainage area (mi ² , est.)	20,028
	120601020901,	120601020903,	120601020904,	120601020905,	County	All

Existing 100-Year Flood Risk

Population at risk	60,299	# of structures	28,532	Critical facilities	44
Flood risk type:	Riverine? Yes	Coastal? No	Local? Yes	Playa? Yes	Other? No
Farm/Ranch land impacted (acres)	869,138	Roadway(s) impacted (miles)	5,944		
Number of low water crossings	292	Historical road closures	0		

100-Year Flood Risk Reduction

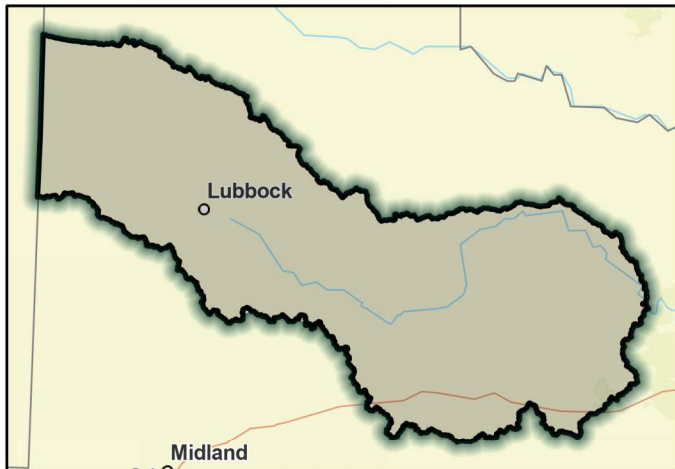
Population removed from 100-yr	0	# of structures removed from 100-yr	0
Critical facilities removed from 100-yr	0	Farm/Ranch land removed from 100-yr (acres)	0
Road removed from 100-yr (miles)	0	Low water crossings removed from 100-yr	0
Other benefits	None	Reduction in # of road closures over 10 years	0

Impacts

Negative impacts?	No	Negative impacts description	n/a
Water supply contributions?	No	Water supply contribution description	None

Estimated Cost

Strategy Cost	\$100,000	Amount of available funding	\$0	% Nature-Based	0
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FMS area



Regional view of FMS area

Flood Management Strategy (FMS)



Title

ID# Sponsor

RFPG recommend? Yes Reason for Recommendation

Strategy Details

Strategy type	<input type="text" value="Education and Outreach"/>				
Strategy description	<input type="text" value="Basin wide Study Program: Reach out to proper authorities with jurisdiction to improve on Warning signs, lights, or systems."/>				
Associated FME's	<input type="text" value="None"/>		Associated FMP's	<input type="text" value="None"/>	
Associated FMS's	<input type="text" value="None"/>				
Watershed HUC# (if known)	<input type="text" value="120601020802,"/>	<input type="text" value="120601020803,"/>	<input type="text" value="120601020805,"/>	<input type="text" value="120601020806,"/>	Drainage area (mi ² , est.) <input type="text" value="20,028"/>
	<input type="text" value="120601020901,"/>	<input type="text" value="120601020903,"/>	<input type="text" value="120601020904,"/>	<input type="text" value="120601020905,"/>	County <input type="text" value="All"/>

Existing 100-Year Flood Risk

Population at risk	<input type="text" value="60,299"/>	# of structures	<input type="text" value="28,532"/>	Critical facilities	<input type="text" value="44"/>
Flood risk type:	Riverine? <input checked="" type="checkbox"/> Yes	Coastal? <input type="checkbox"/> No	Local? <input checked="" type="checkbox"/> Yes	Playa? <input checked="" type="checkbox"/> Yes	Other? <input type="checkbox"/> No
Farm/Ranch land impacted (acres)	<input type="text" value="869,138"/>		Roadway(s) impacted (miles)	<input type="text" value="5,944"/>	
Number of low water crossings	<input type="text" value="292"/>		Historical road closures	<input type="text" value="0"/>	

100-Year Flood Risk Reduction

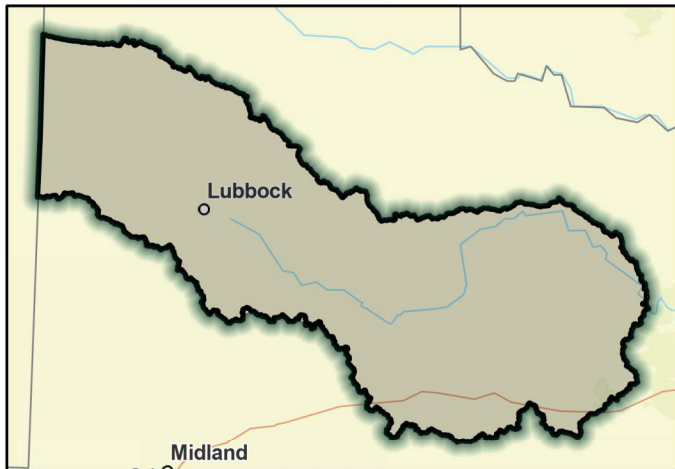
Population removed from 100-yr	<input type="text" value="0"/>	# of structures removed from 100-yr	<input type="text" value="0"/>
Critical facilities removed from 100-yr	<input type="text" value="0"/>	Farm/Ranch land removed from 100-yr (acres)	<input type="text" value="0"/>
Road removed from 100-yr (miles)	<input type="text" value="0"/>	Low water crossings removed from 100-yr	<input type="text" value="0"/>
Other benefits	<input type="text" value="None"/>	Reduction in # of road closures over 10 years	<input type="text" value="0"/>

Impacts

Negative impacts?	<input type="text" value="No"/>	Negative impacts description	<input type="text" value="n/a"/>
Water supply contributions?	<input type="text" value="No"/>	Water supply contribution description	<input type="text" value="None"/>

Estimated Cost

Strategy Cost	<input type="text" value="\$100,000"/>	Amount of available funding	<input type="text" value="\$0"/>	% Nature-Based	<input type="text" value="0"/>
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FMS area



Regional view of FMS area

AMENDED JULY 14, 2023

APPENDIX C - ADDITIONAL DATA

TASK 10 SPAG STAKEHOLDER INTRODUCTION LETTER

May 25, 2021

RE: Flood Planning Data Collection Survey

Dear Flood Planning Stakeholder,

In 2019, the 86th Texas Legislature passed Senate Bill 8 initiating the very first statewide flood planning effort. Subsequently, the Texas Water Development Board (TWDB) established the Region 7 Upper Brazos Regional Flood Planning Group on October 1, 2020. As one of fifteen RFPGs across the state, our foremost responsibility is the development of a Regional Flood Plan (RFP) for Region 7 Upper Brazos Regional Flood Planning Group (UBRFPG) which will identify flood risks; establish flood mitigation and floodplain management goals; and recommend evaluations, strategies, and projects to reduce flood risks in our communities.

Region 7 UBRFPG, which is administered by South Plains Association of Governments (SPAG), is working with Freese and Nichols, Inc. to accomplish the goal of creating a plan that accurately reflects and addresses flood risk management needs throughout the region via survey. Additionally, the team will be reaching out to stakeholders to solicit participation. **The survey will be issued in early June and responses will be accepted for 30 days.**

Please utilize the upcoming survey as a platform to share your experience and expertise with flood issues, flood risk concerns, and flood mitigation projects and strategies, as well as identifying any other priorities that you would like to see accomplished over this first-ever flood planning cycle. Your feedback, suggestions and recommendations as it relates to flood management issues, provisions, projects and strategies that should be considered is a crucial part of the information gathering process to complete a comprehensive flood plan and will directly contribute to the 2023 Regional Flood Plan (RFP).

Region 7 UBRFPG will hold a virtual public meeting, June 17, 2020 at 10 a.m. which includes an additional opportunity for the public to contribute to the discussion on the existing conditions mapping. For additional information or any questions, please contact our Planning Group Sponsor, Kelly Davila of SPAG at kdavila@spag.org.

Your participation is critical in this effort to safeguard our region and provide protection of life and property against flood risks in our communities. We would greatly appreciate your response to the upcoming survey and thank you for your consideration.

Sincerely,



Kelly Davila
Director of Regional Services/Economic Development
SPAG

AMENDED JULY 14, 2023

APPENDIX C - ADDITIONAL DATA

TASK 10 UPPER BRAZOS COMMUNITY OFFICIALS WEB SURVEY

Upper Brazos Regional Flood Plan

In the wake of historic flooding in Texas, the 2019 Texas Legislature passed legislation to create Texas' first-ever regional and state flood planning process. The Region 7 Upper Brazos Regional Flood Planning Group (RFPG) was established by the Texas Water Development Board (TWDB) on October 1, 2020. The RFPG is responsible for developing the first regional flood plan by January 2023, which will culminate in the first-ever state flood plan for Texas.

Short on time? The survey allows for incomplete responses. Fill out as many questions as you have information for. Please also provide feedback on the

Introduction

Tell us about yourself and your community.

1. Phone number

2. Email

3. 1. Which of the following best describes you?

Select only one.

- I am the floodplain manager for a community participating in the National Flood Insurance Program (NFIP).
- I am a public-sector employee with flood-related responsibilities.
- I am an elected or appointed official with flood-related responsibilities.
- I am a person interested in the regional flood planning process.
- Other (describe)

4. 2. What type of entity do you represent?

Select only one.

- Myself/General Public
- County
- Municipality
- Industrial Interests
- Agricultural Interests
- Environmental Interests

Upper Brazos Regional Flood Plan Community Officials Survey

- Small Business Interests
- Electrical Utilities
- Water Utilities
- Water Districts
- River Authorities
- Flood Districts
- State/Federal
- Other (please specify)

5. 3. What is the name of your entity?

6. 4. What is your job title?

7. 5. In which county is your entity located?

- Archer
- Bailey
- Baylor
- Callahan
- Castro
- Cochran
- Crosby
- Dickens
- Eastland
- Fisher
- Floyd
- Garza
- Hale
- Haskell
- Hockley
- Jones
- Kent
- King
- Knox
- Lamb
- Lubbock
- Lynn

Upper Brazos Regional Flood Plan Community Officials Survey

- Nolan
- Parmer
- Scurry
- Shackelford
- Stephens
- Stonewall
- Swisher
- Taylor
- Throckmorton
- Young

8. 6. In which city is your entity located?

- Abernathy
- Abilene
- Albany
- Amherst
- Anson
- Anton
- Aspermont
- Baird
- Benjamin
- Bovina
- Breckenridge
- Buffalo Gap
- Bula
- Cisco
- Clyde
- Cotton Center
- Crosbyton
- Desdemona
- Dickens
- Dimmitt
- Earth
- Edmonson
- Eliasville
- Enochs
- Farwell
- Floydada

Upper Brazos Regional Flood Plan Community Officials Survey

- Fluvanna
- Girard
- Goree
- Guthrie
- Hale Center
- Hamlin
- Hart
- Haskell
- Hawley
- Hermleigh
- Idalou
- Impact
- Jayton
- Knox City
- Lawn
- Levelland
- Littlefield
- Lockney
- Lorenzo
- Lubbock
- Lueders
- Maple
- Maryneal
- McAdoo
- McCaulley
- Mergargel
- Merkel
- Moran
- Morton
- Muleshoe
- Munday
- New Deal
- New Home
- Newcastle
- Nolan
- O'Brian
- Old Glory
- Olton
- Opdyke

Upper Brazos Regional Flood Plan Community Officials Survey

- Ovalo
- Paint Creek
- PEP
- Petersburg
- Plainview
- Post
- Potosi
- Putnam
- Ralls
- Ransom Canyon
- Reese Village
- Roby
- Rochester
- Ropesville
- Roscoe
- Rotan
- Rule
- Sagerton
- Seth Ward
- Seymour
- Shallowater
- Slaton
- Smyer
- South Bend
- Spade
- Springlake
- Spur
- Stamford
- Sudan
- Sundown
- Sweetwater
- Sylvester
- Tahoka
- Throckmorton
- Trent
- Tuscola
- Tye
- Weinert
- Whiteface

Upper Brazos Regional Flood Plan Community Officials Survey

- Wilson
- Wolfforth
- Woodson

9. 7. Are you aware of any other jurisdiction beyond cities and counties with flood-related responsibilities in your area, such as a drainage district, levee district, flood control district, etc.?

- Yes
- No

10. 8. If yes, please provide the name of the entity, the name of the contact person, contact information for that entity.

Inventory

The Regional Flood Plan will develop an inventory of natural features and major flood infrastructure within the region. The following section will help us identify and evaluate key features in your community.

11. 9. Does your entity maintain GIS datasets or other digital inventories for any of the following natural features in your jurisdiction?

Select all that apply.

- Rivers, creeks, tributaries, and functioning floodplains
- Wetlands
- Playa lakes
- Sink holes
- Alluvial fans
- No digital inventory of natural features
- Other (please specify)

If so, please provide this information by utilizing the [Upload Data](#) engagement tool on the homepage to provide any supporting data and documentation.

12. 10. Does your entity maintain GIS datasets or other digital inventories of the following constructed features in your jurisdiction?

Select all that apply.

- Levees

Upper Brazos Regional Flood Plan Community Officials Survey

- Stormwater tunnels
- Stormwater canals
- Flood protection dams
- Detention/retention ponds
- Weirs
- Storm drain systems
- No digital inventory of constructed features
- Other (please specify)

If so, please provide this information by utilizing the Upload Data engagement tool on the homepage to provide any supporting data and documentation.

13. 11. If available, provide a link to the location of the data on your entity's website.

14. 12. What percentage of the following infrastructure or natural feature within your jurisdiction would you consider non-functional?

Non-functional: The infrastructure is not providing its intended or design level of service.

Stormwater tunnels

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Stormwater canals

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Upper Brazos Regional Flood Plan Community Officials Survey

Flood protection dams

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Weirs

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Storm drain systems

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Levees

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Rivers, creeks, tributaries, and functioning floodplains

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Upper Brazos Regional Flood Plan Community Officials Survey

Wetlands

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Playa Lakes

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Sink Holes

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Alluvial fans

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

15. 13. What is the main reason your infrastructure is non-functional?

Please indicate the reason the infrastructure is non-functional.

Stormwater tunnels

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

Upper Brazos Regional Flood Plan Community Officials Survey

Stormwater canals

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

Flood protection dams

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

Weirs

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

Storm drain systems

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

Levees

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

Rivers, creeks, tributaries, and functioning floodplains

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

Upper Brazos Regional Flood Plan Community Officials Survey

Wetlands

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

Playa lakes

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

Sink holes

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

Alluvial fans

- N/A
- Lack of adequate standards during original construction
- Inherited due to ownership change or annexation
- Impacts from development
- Inadequate budget to construct proper system

16. 14. What percentage of the following infrastructure or natural feature within your jurisdiction would you consider deficient?

Deficient: The infrastructure or natural feature is in poor structural or non-structural condition and needs replacement, restoration, or rehabilitation.

Stormwater tunnels

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Upper Brazos Regional Flood Plan Community Officials Survey

Stormwater canals

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Flood protection dams

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Weirs

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Storm drain systems

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Levees

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Upper Brazos Regional Flood Plan Community Officials Survey

Rivers, creeks, tributaries, and functioning floodplains

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Wetlands

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Playa Lakes

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Sink Holes

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

Alluvial fans

- N/A
- 0%
- 25%
- 50%
- 75%
- 100%

17. 15. What is the main reason your infrastructure is deficient?

Please indicate the reason the infrastructure is deficient.

Stormwater tunnels

- N/A
- Lack of adequate standards during original construction
- Infrastructure has reached its useful life
- Impacts from development
- Damage from flood or other natural event
- Inadequate budget to maintain system

Stormwater canals

- N/A
- Lack of adequate standards during original construction
- Infrastructure has reached its useful life
- Impacts from development
- Damage from flood or other natural event
- Inadequate budget to maintain system

Flood protection dams

- N/A
- Lack of adequate standards during original construction
- Infrastructure has reached its useful life
- Impacts from development
- Damage from flood or other natural event
- Inadequate budget to maintain system

Weirs

- N/A
- Lack of adequate standards during original construction
- Infrastructure has reached its useful life
- Impacts from development
- Damage from flood or other natural event
- Inadequate budget to maintain system

Storm drain systems

- N/A
- Lack of adequate standards during original construction
- Infrastructure has reached its useful life
- Impacts from development
- Damage from flood or other natural event
- Inadequate budget to maintain system

Upper Brazos Regional Flood Plan Community Officials Survey

Levees

- N/A
- Lack of adequate standards during original construction
- Infrastructure has reached its useful life
- Impacts from development
- Damage from flood or other natural event
- Inadequate budget to maintain system

Rivers, creeks, tributaries, and functioning floodplains

- N/A
- Lack of adequate standards during original construction
- Infrastructure has reached its useful life
- Impacts from development
- Damage from flood or other natural event
- Inadequate budget to maintain system

Playa Lakes

- N/A
- Lack of adequate standards during original construction
- Infrastructure has reached its useful life
- Impacts from development
- Damage from flood or other natural event
- Inadequate budget to maintain system

Sink Holes

- N/A
- Lack of adequate standards during original construction
- Infrastructure has reached its useful life
- Impacts from development
- Damage from flood or other natural event
- Inadequate budget to maintain system

Alluvial fans

- N/A
- Lack of adequate standards during original construction
- Infrastructure has reached its useful life
- Impacts from development
- Damage from flood or other natural event
- Inadequate budget to maintain system

Flood Prone Areas

The Regional Flood Plan will identify flood hazards and vulnerability in the region. The following section will help us identify who and what might be

16. Are you aware of flooding that has occurred in your area? If so, please provide list of historical flood events that have affected your jurisdiction. Please provide as much information as possible, such as the date(s), specific location(s) (if appropriate), newspaper articles, the financial value of damages (if known), number of swift water rescues, injuries, and/or fatalities (if known).

You may provide written feedback here, identify areas on the [web map](#), and/or upload historical information through the [upload data](#) page.

18. Please Describe

Floodplain Management

The Regional Flood Plan will consider how current floodplain management practices and regulations impact flood risks. The following section will help us evaluate these practices and identify specific flood mitigation and management goals appropriate for this region.

19. 17. Does your community participate in the following programs?

Select all that apply

- National Flood Insurance Program (NFIP)
- Community Rating System (CRS)
- Do not participate but interested in National Flood Insurance Program (NFIP)
- Do not participate but interested in Community Rating System (CRS)
- I don't know
- Do not participate in either program and not currently interested (please describe)

20. 18. Does your community participate in the following floodplain management activities?

Select all that apply

- Development review/regulation
- Floodplain or drainage capital projects
- Local assistance with home elevation
- Acquisition of repetitive loss properties
- Flood risk communication campaigns and public outreach
- Flood warning systems (Examples: flashers or staff gages)
- Emergency alert systems
- Priority evacuation areas
- Identification of vulnerable populations
- Programmed operations & maintenance
- Reactive maintenance following complaints or damages after a storm
- Programmed inspection/repair/rehab
- Asset inventory and comprehensive condition assessments
- Ordinance enforcement
- None of the above
- Other (please specify)

Does your community have any of the following floodplain management regulation and policies?

Select all that apply.

21. 19. Development standards

- Floodplain ordinance
- Drainage ordinance
- Stormwater management ordinances
- Building standards for flood proofing and flood protection
- Consideration for fully developed or future conditions land use
- Zoning/land use regulations
- None of the above
- Other (please specify)

22. 20. Infrastructure engineering design standards or Drainage Criteria Manual

- Roadways
- Crossings (bridges and culverts)
- Storm drainage systems
- Detention facilities
- Dams
- Levees/Floodwalls
- None of the above
- Other (please specify)

23. 21. Higher standards

- Freeboard
- Detention policy
- Fill restrictions
- None of the above
- Other (please specify)

24. 22. What future conditions scenarios are required to be evaluated for flood protection projects in your jurisdiction?

- Existing development
- Projected development over a future time horizon
- Fully developed areas
- 0.2% ACE or 500-year Floodplain as a proxy
- We do not use future conditions considerations for flood protection projects.
- Other (please specify)

Please utilize the [Upload Data](#) engagement tool on the homepage to provide any supporting data and documentation.

25. 23. Identify the resources your jurisdiction uses to predict future land use and development.

- TX Demographic Center Population Projections
- Future Land Use Plan from Comprehensive Plan
- Annexation Plans
- Utility CCNs
- Public Improvement Districts
- Texas Enterprise Zones

Upper Brazos Regional Flood Plan Community Officials Survey

- Transportation Plans
- None of the above
- Other (please specify)

Please utilize the Upload Data engagement tool on the homepage to provide any supporting data and documentation.

26. 24. Which of the following best describes how your community enforces its Floodplain Management practices?

Select one

- We actively enforce the entire floodplain management ordinance, perform many inspections throughout construction process, issue fines, violations, and Section 1316s where appropriate, and enforce substantial damage and substantial improvement.
- We enforce much of the ordinance, perform limited inspections and are limited in issuance of fines and violations.
- We provide permitting of development in the floodplain, may not perform inspections, may not issue fines or violations.
- We do not currently enforce floodplain management regulations.
- Additional comments on enforcement:

The Regional Flood Plan Group (RFPG) will consider recommending or adopting consistent minimum standards across the entire region. “Recommended” standards would not require the communities to adopt the minimum standards to have projects included in the Regional Flood Plan and to be eligible for funding. “Adopted” standards would require the communities to adopt the minimum standards to have projects included in the Regional Flood Plan and to be eligible for funding. Recommended and

27. 25. Should the Regional Flood Planning Group (RFPG) “recommend” consistent minimum flood risk management standards across the entire Region?

These standards would be considered regional best practices, but would not be required to be adopted by local communities to participate in the Plan and be eligible for funding.

28. Yes (please describe)

29. No (please describe)

30. 26. What are some minimum flood risk management standards the Regional Flood Planning Group (RFPG) should consider recommending?

Select all that apply.

- Participation in the NFIP or equivalent standards
- Regulate development in the FEMA floodplain or other floodplain designation identified by the RFPG
- Establish higher standards for development or freeboard (additional feet above) known floodplain, Examples: Future Conditions BFE (base flood elevation), Feet above Existing BFE, 0.2% ACE (500-year floodplain) BFE, Feet Above street or curb
- Establish infrastructure protection standards, Minimum design criteria for buildings, critical facilities (hospitals, schools, fire stations, etc.), roadways, drainage infrastructure (culverts, bridges, storm drain, detention facilities, dams, or levees), property acquisition, and open space
- The RFPG should not recommend minimum flood risk management standards.
- Other (please specify)

31. 27. Should the Regional Flood Planning Group (RFPG) "adopt" consistent minimum flood risk management standards across the entire Region?

These standards would be required to be adopted by local communities to participate in the Plan and be eligible for funding.

32. Yes (please describe)

33. No (please describe)

34. 28. What are some minimum flood risk management standards the Regional Flood Planning Group (RFPG) should consider adopting?

Select all that apply

- Participation in the NFIP or equivalent standards
- Regulate development in the FEMA floodplain or other floodplain designation identified by the RFPG
- Establish higher standards for development or freeboard (additional feet above) known floodplain, Examples: Future Conditions BFE (base flood elevation), Feet above existing BFE, 0.2% ACE (500-year floodplain) BFE, Feet above street or curb
- Establish infrastructure protection standards, Minimum design criteria for buildings, critical facilities (hospitals, schools, fire stations, etc.), roadways, drainage infrastructure (culverts, bridges, storm drain, detention facilities, dams, or levees), property acquisition, and open space
- The RFPG should not adopt minimum flood risk management standards.

Other (please specify)

35. 29. Please provide any additional thoughts on minimum flood risk management standards for the Regional Flood Planning Group (RFPG) should consider.

36. 30. What are the top 3 priorities the Regional Flood Planning Group (RFPG) should include in the establishment of regional goals?

Select up to 3

- Implement protective standards and policies
- Identify and communicate flood risk
- Quantify potential reduction in risk to life and property
- Restore failing/aging infrastructure
- Implement flood warning and response mechanisms
- Provide or enhance inter-jurisdictional cooperation
- Other (please specify)

37. 31. Are there certain areas within the region that have especially unique circumstances that warrant their own sub-regional goals?

For example, the RFPGs may wish to consider the unique needs of urban vs. rural areas, areas with detailed vs. approximate floodplain mapping and modeling, or upstream vs. downstream areas.

- No
- Yes (please describe)

32. Do you have any suggestions in the categories of Legislative, Regulatory/Administrative, or Revenue Generation that could help the region in the areas of floodplain management, flood mitigation planning, and mitigation, and/or reducing flooding impacts to life and property?

38. Legislative

39. Regulatory/Administrative

40. Revenue Generation

Flood Planning

The Regional Flood Plan will identify potential study needs and potentially feasible flood management strategies and projects. The following section will help us incorporate the needs of your community.

41. 33. What types of local and regional flood planning information does your jurisdiction have?

Check all that apply.

- Hazard Mitigation Plan
- Master Drainage Plans/Stormwater Drainage Plans
- Flood Protection Plans
- Flood Studies/Flood Risk Assessments
- Watershed Plans
- CRS Plan
- Floodplain Management Plan
- Flood risk screening tools
- Models, including hydrology, hydraulics, or any available screening level models
- None of the above

Please utilize the Upload Data engagement tool on the homepage to provide any supporting data and documentation.

42. 34. What additional relevant planning documents or information does your jurisdiction have?

Check all that apply.

- Flood disaster reports

Upper Brazos Regional Flood Plan Community Officials Survey

- Transportation plans
- Substantial Damage Estimation (SDE) forms
- Emergency Action Plans (flood-related portions)
- Other information relevant to the RFPG
- None of the above

Please utilize the Upload Data engagement tool on the homepage to provide any supporting data and documentation.

43. 35. Are there priority areas in your community with no inundation maps or detailed studies that could benefit from a flood study? If yes, please describe the reason for the need.

- No or limited inundation maps
- Outdated maps in need of updated study
- Need maps to identify flooding for urban areas, low lying areas, and/or streets
- No areas in need of study

Please use the [web map](#) to identify specific areas.

44. 36. Is there funding in your community for the necessary flood studies?

- No funding identified
- Partial local funding available
- Full funding identified
- Full funding secured
- Other (please specify)

45. 37. Have grants or loans been secured for all or a portion of this funding?

- N/A
- No
- Yes (please specify)

46. 38. Identify the resources your jurisdiction uses to identify how physical changes to the land might affect future flood risk.

- Subsidence studies
- Analysis of sedimentation of flood control structures
- Studies on geomorphic changes

Upper Brazos Regional Flood Plan Community Officials Survey

- Watershed studies with future conditions analysis
- None of the above
- Other (please specify)

Please utilize the Upload Data engagement tool on the homepage to provide any supporting data and documentation.

47. 39. What has your jurisdiction done to address flooding concerns?

- Nothing yet
- Performed existing drainage system maintenance
- Performed project identification and planning activities
- Performed more detailed analyses of areas to identify the source of the flooding
- Upgraded existing drainage infrastructure
- Constructed new drainage systems
- Wetland/floodplain/open space restoration/preservation
- Implemented and enforced drainage design criteria/floodplain management policies
- Other (please specify)

48. 40. What, if any, major infrastructure or flood mitigation projects are currently under development?

Select all of the projects that apply.

- Levees
- Stormwater tunnels
- Stormwater canals
- Flood protection dams
- Detention/retention ponds
- Weirs
- Storm drain systems
- Other (please specify)

Please utilize the Upload Data engagement tool on the homepage to provide any supporting data and documentation.

49. 41. What is the current status of the major infrastructure or flood mitigation projects currently under development?

- Project identified
- Project in conceptual planning phase
- Project in feasibility analysis phase

Upper Brazos Regional Flood Plan Community Officials Survey

- Project in Preliminary Design
- Project in Final Design
- Project in Construction
- Other (please specify)

Describe the project location(s) using the web map feature.

Please utilize the Unload Data engagement tool on the homepage to provide

50. 42. Is there funding in your community for the necessary engineering evaluations and/or design and construction of proposed flood mitigation projects?

Select one

- No funding identified
- Partial funding available
- Full funding identified
- Full funding secured
- Other (please specify)

51. 43. Have grants or loans been secured for all or a portion of this funding?

- Yes
- No
- N/A

52. 44. Are there non-structural flood mitigation projects in your community with funding needs? If so, what level of funding is there in your community for these projects?

- No non-structural flood mitigation projects are needed in my community
- There is a need to identify non-structural flood mitigation projects in my community
- Projects are identified with no funding identified
- Projects are identified with partial funding available
- Projects are identified with full funding identified
- Projects are identified with full funding secured
- Other (please specify)

Funding

Flood studies (evaluations), management strategies, and projects identified in the Regional Flood Plan will be eligible for TWDB funding through grants and loans. The following section will help us understand the current funding mechanisms in your community and identify the proposed role of State financing.

53. 45. Which of the following describes your local funding sources for flood management activities?

Select all that apply

- General Fund
- Bond Program
- Stormwater utility or Drainage fee
- Special Tax Districts
- Impact Fees
- Permitting Fees
- Ad Valorem Tax
- I don't know
- No current dedicated funding but interested
- We do not have a local funding source for flood management activities
- Other (please specify)

54. 46. Have you ever applied for Federal or State grants or loan programs?

If yes, please select all that apply.

- No
- Flood Infrastructure Fund (FIF) [TWDB]
- Building Resilient Infrastructure and Communities Program (BRIC) [FEMA]
- Hazard Mitigation Grant Program (HMGP) [FEMA, TDEM]
- Pre-Disaster Mitigation (PDM) [FEMA, TDEM]
- Flood Mitigation Assistance (FMA) [FEMA, TWDB]
- U.S. Department of Agriculture - Natural Resources Conservation Service (NRCS)
- Community Development Block Grant-Disaster Recovery (CDBG-DR) [HUD, GLO]
- U.S. Army Corps of Engineers Small Continuing Authorities Program (USACE CAP)
- Cooperating Technical Partners Program (CTP) [TWDB]
- State Water Implementation Fund for Texas (SWIFT) [TWDB]
- Flood Protection Planning Grant [TWDB]
- Texas Water Development Fund (DFund) [TWDB]
- Clean Water State Revolving Fund (CWSRF) [TWDB]

- I don't know
- Other (please specify)

55. 47. If you have not considered applying for Federal or State grant/loan programs, please state main reasons below?

Flood Response

The Regional Flood Plan will document the existing flood response preparations in the region. The following section will help us understand the practices your community uses for emergency response.

56. 48. Select the flood response measures your jurisdiction uses for emergency response:

Select all that apply

- Public Emergency Alert System (i.e. reverse 911)
- Flood warning signs
- Flood warning signs with flashing lights
- Flood gauges
- Rain/stream gauges with alerts
- Public-facing website
- Portable/temporary traffic message boards
- Coordination with TxDOT message boards
- Flood forecasting tool
- Crew(s) set up barricades or close gates
- Automatic low water crossing gates
- Outdoor siren/message speaker system
- Swift water rescue team
- Cameras
- None of the above
- Other (please specify)

57. 49. If your jurisdiction plans to implement changes or additions to the emergency response system over the next five years, select the measures that you anticipate implementing:

- Public Emergency Alert System (i.e. reverse 911)
- Flood warning signs

Upper Brazos Regional Flood Plan Community Officials Survey

- Flood warning signs with flashing lights
- Flood gauges
- Rain/stream gauges with alerts
- Public-facing website
- Portable/temporary traffic message boards
- Coordination with TxDOT message boards
- Flood forecasting tool
- Crew(s) set up barricades or close gates
- Automatic low water crossing gates
- Outdoor siren/message speaker system
- Swift water rescue team
- Cameras
- None of the above
- Other (please specify)

58. 50. Does your community have staff dedicated to flood response activities during emergency situations?

- No
- Yes (Please describe)

59. 51. Are the staff embedded within the emergency operations center (or similar centralized location) during the event?

- No
- Yes (Please describe)

60. 52. Indicate the entities with whom you coordinate actions related to flood events (preparation, response, recovery and cleanup).

Select all that apply.

	Before	During	After	N/A
Flood Control District	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
City	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
County	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
USACE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TxDOT	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOAA/NWS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Upper Brazos Regional Flood Plan Community Officials Survey

Local dam owner/operator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local levee owner/operator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TDEM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ag Extension Agents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brush/bulk debris contractor (on-call)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consultant engineer (on-call)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Local or regional assistance through existing MOUs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

61. 53. Any suggestions/recommendations to improve flood response?

Thank you for participating in the Flood Planning process

62. Phone Number

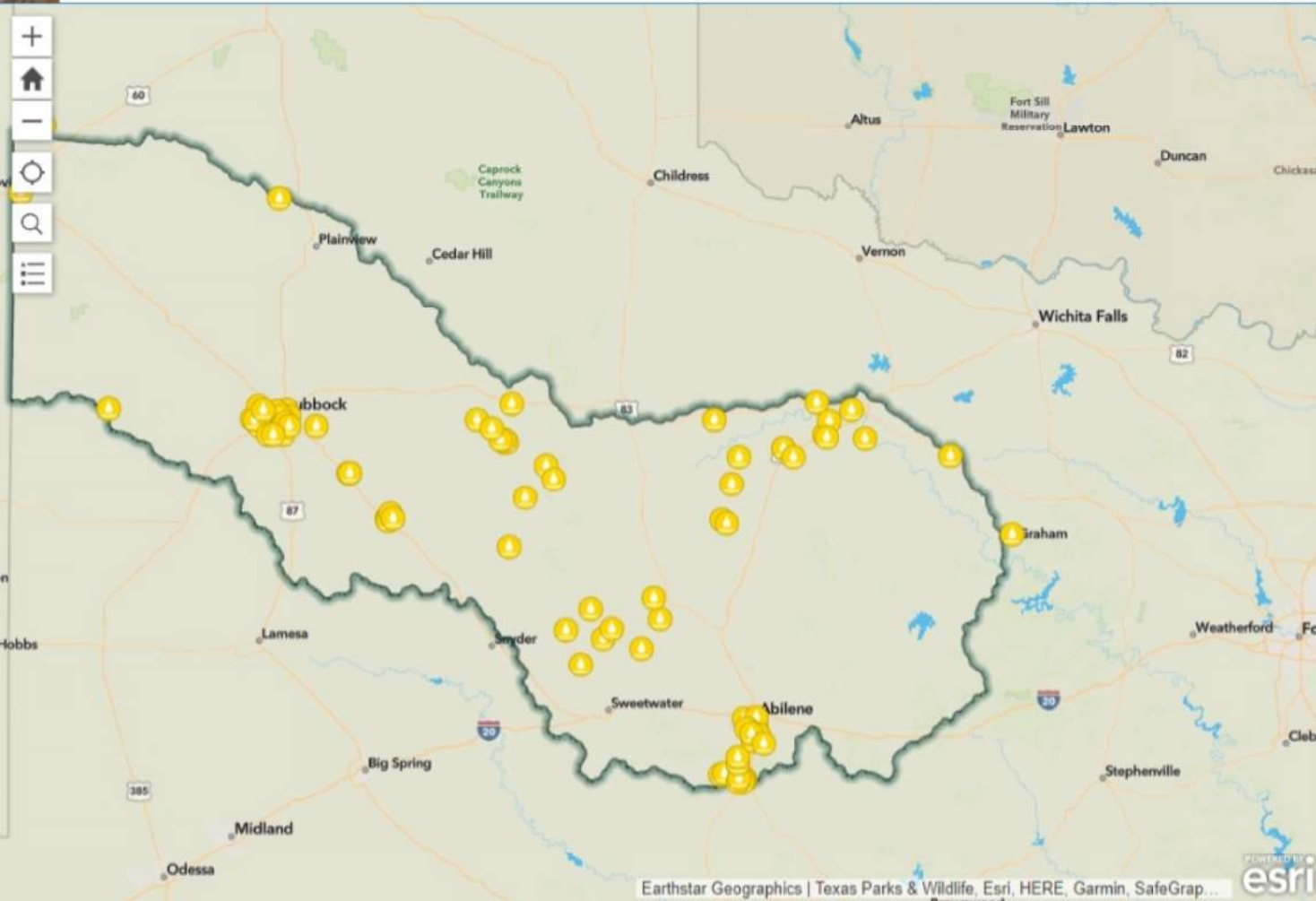
63. Email

AMENDED JULY 14, 2023

APPENDIX C - ADDITIONAL DATA

TASK 10 UPPER BRAZOS PUBLIC COMMENT WEB MAP CAPTURE

Upper Brazos Regional Flood Plan Comments Survey



Region 7 Flood Plan Comment Map - Public

- Flood Prone Areas >
- Flood Projects in Progress >

AMENDED JULY 14, 2023

APPENDIX C - ADDITIONAL DATA

TASK 10 UPPER BRAZOS DATA COLLECTION WEBSITE CAPTURE



Upper Brazos Regional Flood Plan

In the wake of historic flooding in Texas, the 2019 Texas Legislature passed legislation to create Texas' first-ever regional and state flood planning process. The Region 7 Upper Brazos Regional Flood Planning Group (RFPG) was established by the Texas Water Development Board (TWDB) on October 1, 2020. The RFPG is responsible for developing the first regional flood plan by January 2023, which will culminate in the first-ever state flood plan for Texas.

Get Involved!

We are looking for your help to develop the first-ever flood plan for the Upper Brazos Region. Please use the links below to provide your input.

<h4>Put it on the Map</h4>	<h4>Take the Survey</h4>	<h4>Upload Data</h4>
<p>Use the interactive map to help us identify areas of flood risk in your region.</p>	<p>Take the survey to provide input on flooding issues and floodplain management goals specific to your region.</p>	<p>Help us collect data to strengthen this plan.</p>
<p>See the interactive map</p>	<p>Take the Survey</p>	<p>Upload Data</p>

Web Map Tutorial Video

Web Map Survey Tutorial
 Lauren
 Development Board (TWDB) on October 1, 2020. The RFPG is responsible for developing the first regional flood plan by January 2023, which will culminate in the first-ever state flood plan for Texas.

Get Involved!

We are looking for your help to develop the first-ever flood plan for the Canadian-Upper Red Region. Please use the links below to provide your input.

<h4>Put it on the Map</h4>	<h4>Take the Survey</h4>	<h4>Upload Data</h4>
<p>Use the interactive map to help us identify areas of flood risk in your region.</p>	<p>Take the survey to provide input on flooding issues and floodplain management goals specific to your region.</p>	<p>Help us collect data to strengthen this plan.</p>
<p>See the interactive map</p>	<p>Take the Survey</p>	<p>Upload Data</p>

02:26 [View Video](#)

For additional information, please visit the RFPG website: upperbrazosflood.org

Contact Us

Email_FloodRegion7@freese.com

AMENDED JULY 14, 2023

APPENDIX C - ADDITIONAL DATA

TASK 10 UPPER BRAZOS OUTREACH WEB MAP CAPTURE

Region 7 Upper Brazos Regional Flood Planning

County Selection

- Archer
- Bailey
- Baylor
- Borden
- Callahan
- Castro
- Cochran
- Crosby
- Dawson
- Dickens

[Reset](#) [Select all](#)

Watershed Selection
Selection required

Point Infrastructure

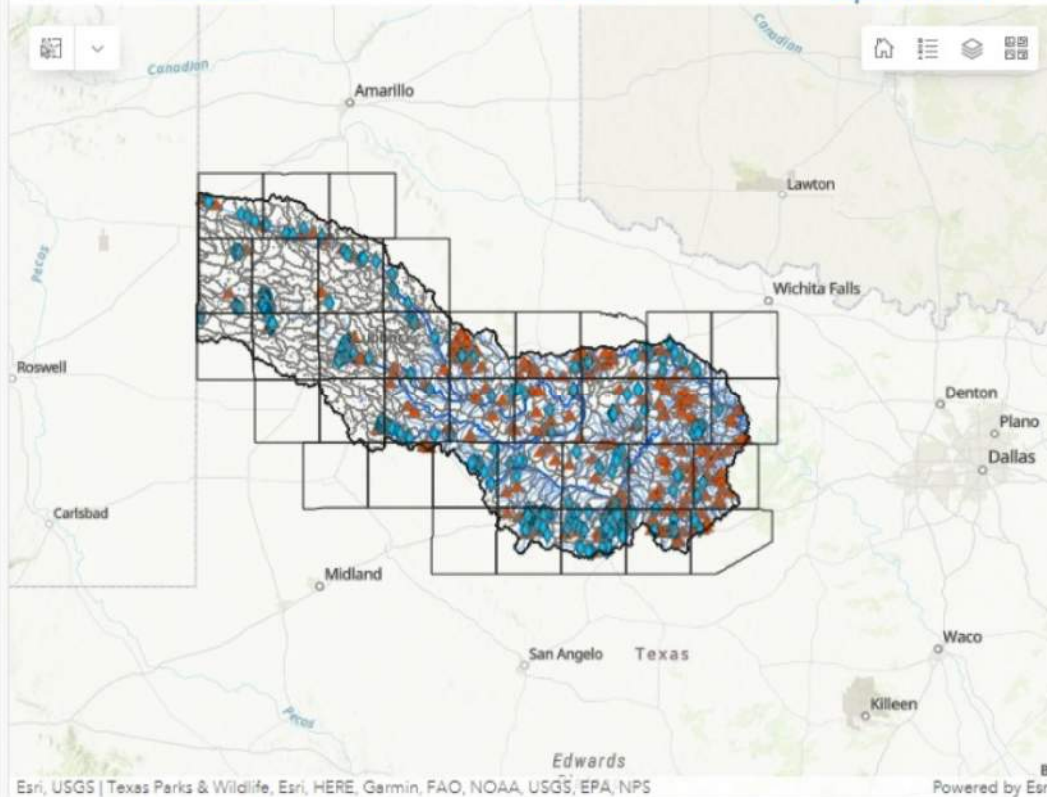
557
Records

Line Infrastructure

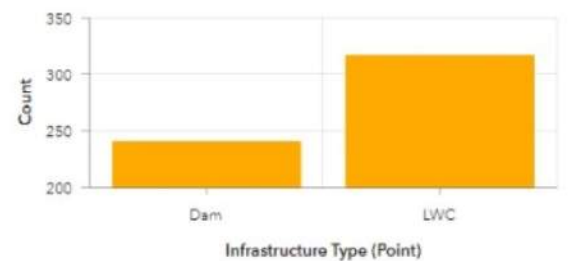
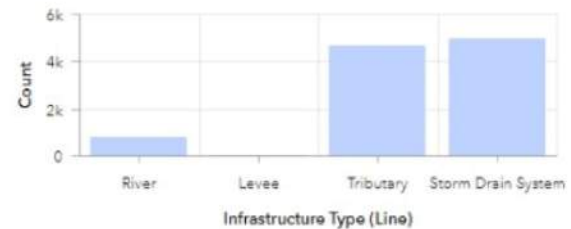
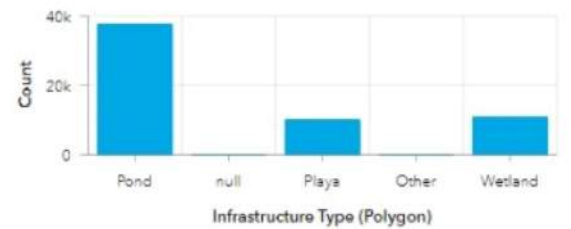
7k
Miles

Polygon Infrastructure

273
Square Miles



Disclaimer: This dashboard displays DRAFT data prepared for Region 7 as part of the Texas Regional Flood Planning process. This information is an interim working product for the RFPG and will not become final until formally adopted by the RFPG as part of the Final Regional Flood Plan in January 2023.



AMENDED JULY 14, 2023

APPENDIX C - ADDITIONAL DATA

TASK 12 TECHNICAL MEMORANDUMS

1500 Broadway Street, Suite 206 + Lubbock, Texas 79401 + 806-686-2700 + FAX 817-735-7491

www.freese.com

TO:	Upper Brazos Regional Flood Planning Group
FROM:	Heather Keister, P.E., CFM, Holly Ahumada, P.E., CFM
SUBJECT:	City of Lubbock 4 th St and Elkhart Ave
PROJECT:	SPA21394
DATE:	June 8, 2023
CC:	



FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

1. BACKGROUND

This project is proposed to be a part of the 2023 Regional Flood Plan in the Upper Brazos Region (Region 7). This specific project is located in Lubbock, Texas. Elkhart Avenue and 4th Street are frequently inundated due to playa overflow during the 10-year storm. This playa was added to the Northwest Lubbock Drainage System through a 24-inch storm drain lateral. The purpose of the lateral is to restore capacity to the playa between storm events, but it does not prevent playa overflow. The image below is provided to give a clear depiction of the project area.

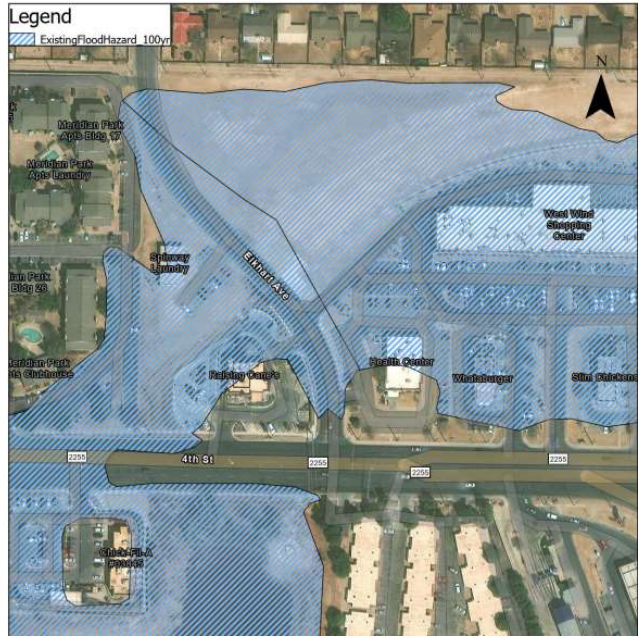


Figure 1 - Project Area

2. DATA GATHERING

The project team leveraged a 1D ICPR model that had been created for another project and collected during the RFP data collection process due to the existing modeling being up-to-date and inclusive of the project area. Within this model, a new scenario was developed for proposed conditions where new 1D nodes and links were added to the playa on the southwest corner of the Elkhart Avenue and 4th Street intersection. The project team coordinated with the City of Lubbock to move the project forward.

3. EXISTING CONDITIONS

The previously created 1D ICPR model was utilized to evaluate existing conditions. 4th Street is overtopped by approximately 18-inches in the 100-year storm and 10-inches in the 10-year storm. Currently the AADT is approximately 22,154 cars for this intersection, and when the road floods it restricts access of emergency services and people to the restaurants, stores, and apartment buildings near 4th Street and Elkhart Avenue.

4. CONCEPTUAL ALTERNATIVE

A 1% ACE LOS is not feasible due to utility and infrastructure limitations, and 10% ACE LOS alternative was identified instead. The playa on the southwest corner of the intersection fills up and overflows onto 4th Street. The conceptual alternative is to construct a new 2'x4' box culvert underneath Elkhart Avenue and three (3) 3'x10' box culverts under 4th Street, to connect Playa 71 to an existing drainage channel. In addition, the alternative includes excavation at the new box culvert outfall. This proposed alternative would eliminate overtopping for the 10-year event and decrease depth in the 100-year

event from 18-inches to 11-inches, allowing people and emergency services to be able to access all the nearby businesses and homes safely and effectively.



Figure 2 - Conceptual Alternative ICPR Model

4.01 OPINION OF PROBABLE CONSTRUCTION COST

An opinion of probable construction cost (OPCC) has been included in **Table 1**. There was an assumption made that the Operations and Maintenance (O&M) costs are 0.1% of the total cost, therefore the O&M cost is \$4,756.

Table 1 - Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION					
1	MOBILIZATION (7.5%)	1	LS		\$ 235,264
2	TRAFFIC CONTROL	1	LS	\$ 65,000	\$ 65,000
3	SITE PREPARATION	7	STA	\$ 3,000	\$ 21,000
4	DEVELOP AND IMPLEMENT SWPPP	1	LS	\$ 20,000	\$ 20,000
5	REMOVE EXISTING ASPHALT PAVEMENT	1800	SY	\$ 15	\$ 27,000
6	REMOVE TREES (6"-12")	3	EA	\$ 750	\$ 2,250
7	ROCK RIPRAP	130	SY	\$ 150	\$ 19,500
8	EXCAVATION AND HAUL	4100	CY	\$ 25	\$ 102,500
9	CONCRETE PAVEMENT	1800	SY	\$ 90	\$ 162,000
10	SIDEWALK	200	SF	\$ 6	\$ 1,200
11	LIME TREATMENT	1800	SY	\$ 15	\$ 27,000
12	EROSION CONTROL BLANKETS, HYDROMULCH, AND TOPSOIL	5000	SY	\$ 15	\$ 75,000
13	TEMPORARY IRRIGATION	1	LS		\$ 40,000
14	2'x4' RCB	50	LF	\$ 420	\$ 21,000
15	10'x3' RCB	1500	LF	\$ 1,500	\$ 2,250,000
16	HEADWALLS	1	LS		\$ 78,000
17	COMBINATION RAIL	150	LF	\$ 160	\$ 24,000
18	TRENCH SAFETY	700	LF	\$ 2	\$ 1,400
19	CONTINGENCY FOR UTILITY RELOCATION	1	LS	\$ 200,000	\$ 200,000
SUBTOTAL:					\$ 3,372,114
CONTINGENCY PERCENTAGE:				30%	\$ 1,011,634
SUBTOTAL:					\$ 4,383,748
DESIGN FEE:				20%	\$ 876,750
ENVIRONMENTAL PERMITTING AND MITIGATION:					\$ 200,000
CONSTRUCTION SUBTOTAL:					\$ 5,460,497
PROPERTY AND EASEMENTS					
1	EASEMENT ACQUISITION	32,000	SF	\$ 1	\$ 32,000
COST OF ACQUISITION:				10%	\$ 3,200
SUBTOTAL:					\$ 35,200
PROJECT TOTAL:					\$ 5,496,000
Sept 2020 = 11499; May 2023 = 13288.27		PROJECT COSTS IN SEPT 2020 DOLLARS			\$ 4,756,000
<p>1. This estimate does not include cost for relocating franchise utilities.</p> <p>2. The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.</p>					

4.02 BENEFIT COST ANALYSIS

The Benefit Cost Ratio (BCR) was determined utilizing the Benefit Cost Analysis (BCA) Input Workbook, as seen in **Table 2**. Using the workbook, the BCR was determined to be 8.1.

Table 2 - Benefit Cost Analysis

Input Into BCA Toolkit		
Project Useful Life	30	
Event Damages	Baseline	Project
10 - year storm	\$33,624,398	\$0
50 - year storm	\$21,551,254	\$808,852
100 - year storm	\$18,013,073	\$4,336,192
Total Benefits from BCA Toolkit	\$30,633,108	
Other Benefits (Not Recreation)	\$3,528	
Recreation Benefits	-	
Total Costs	\$3,800,345	
Net Benefits	\$26,836,290	
Net Benefits with Recreation	\$26,836,290	
Final BCR	8.1	
Final BCR with Recreation	8.1	

5. NO NEGATIVE IMPACTS CERTIFICATION

The Technical Guidelines for Regional Flood Planning [1] require a certification of no negative impacts from an engineer. The following requirements must be met for the no negative impact certification to be met:

1. Stormwater does not increase inundation in areas beyond the public right-of-way, project property, or easement.
2. Stormwater does not increase inundation of storm drainage networks, channels, and roadways beyond design capacity.
3. Maximum increase of 1D Water Surface Elevation must round to 0.0 feet (< 0.05ft) measured along the hydraulic cross-section.
4. Maximum increase of 2D Water Surface Elevations must round to 0.3 feet (< 0.35ft) measured at each computational cell.
5. Maximum increase in hydrologic peak discharge must be < 0.5 percent measured at computational nodes (sub-basins, junctions, reaches, reservoirs, etc.). This discharge restriction does not apply to a 2D overland analysis.

The No Negative Impacts Certification is provided in **Table 3**.

Table 3 - No Negative Impacts Certification

FMP Name	City of Lubbock: 4 th and Elkhart
FMP Meets ALL No Negative Impacts Requirements from Exhibit C Section 3.6.A (Yes/ No)	Yes
Negative Impact Description	Not Applicable
Planning level Mitigation Plan (Yes/ No)	Not Applicable
Mitigation Plan Description	Not Applicable
No Negative Impact Determination (Yes/No)	Yes
Basis of No Negative Impact Determination (Model, Study, Engineering Judgement)	Model
Model ID	070000000009
Model Name	Blue Sky Lateral 1D Model
Model Submitted	Yes
Study Name and Location	4 th and Elkhart, Lubbock, TX
Engineer of Record (Optional)	Freese & Nichols
Engineering Judgement Description	Not Applicable

6. CONCLUSION

As provided by the results of this technical memorandum, it is recommended that the City of Lubbock move forward with this project. The completion of this project would alleviate transportation hazards for the residents of Lubbock. This would allow residents and emergency services to have a safer time traveling through 4th Street and Elkhart Avenue during rain events.

7. REFERENCES

1. Texas Water Development Board (TWDB). Exhibit C Technical Guidelines for Regional Flood Planning, Apr. 2021, www.twdb.texas.gov/flood/planning/planningdocu/2023/doc/04_Exhibit_C_TechnicalGuidelines_April2021.pdf.

1500 Broadway Street, Suite 206 + Lubbock, Texas 79401 + 806-686-2700 + FAX 817-735-7491

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TO:	Upper Brazos Regional Flood Planning Group
FROM:	Heather Keister, P.E., CFM, Holly Ahumada, P.E., CFM
SUBJECT:	City of Slaton Division St
PROJECT:	SPA21394
DATE:	June 9, 2023
CC:	



FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

1. BACKGROUND

This project is proposed to be a part of the 2023 Regional Flood Plan in the Upper Brazos Region (Region 7) and is located in Slaton, Texas. Division Street runs between 2 playas named N. Twin Lake and S. Twin Lake. During the 25-yr storm event and higher, Division Street is inundated due to the playas flooding.

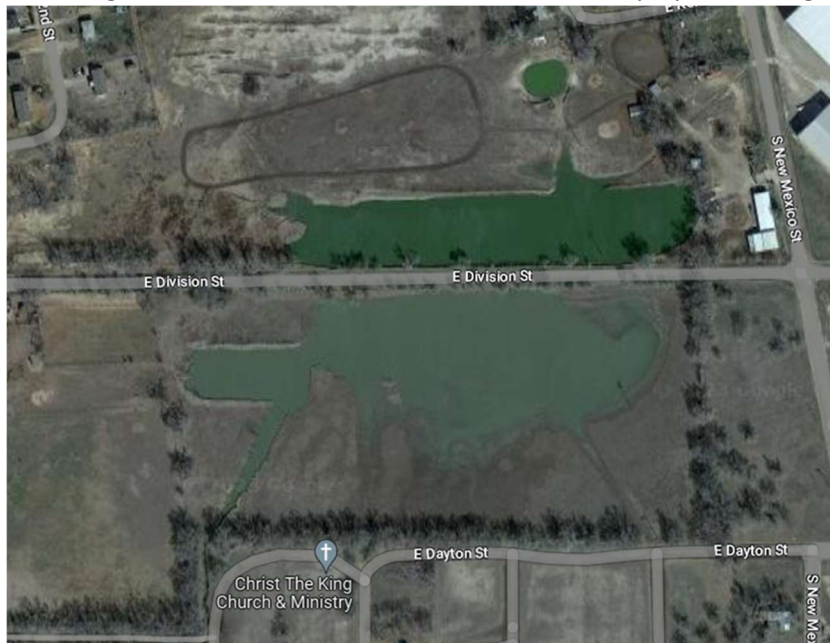


Figure 1 - Project Area

2. DATA GATHERING

LIDAR data from the City of Slaton was utilized. There were no previous models or studies available other than anecdotal flood complaints. A site visit was conducted on February 17th, 2023. The project team coordinated with the City of Slaton to move the project forward.

3. EXISTING CONDITIONS

ICPR was used to create a model for this project. A 2D terrain and breaklines were brought into the program, then a 2D mesh was built and adjusted where necessary. The N. Twin Lake and S. Twin Lake were then modeled for pond storage volumes. Next, a culvert underneath the road was modeled as a 1D culvert link and road overflow as a 1D weir link. Based on the existing conditions there is a roadway overtopping of 12 inches with a flooding duration of 103 hours for a 25-year storm. The AADT for Division St is 198 cars, and when the road floods it restricts access to these cars and emergency services.

4. CONCEPTUAL ALTERNATIVE

A 1% LOS is not feasible because larger storm events inundate the whole area as the Twin Lakes fill up equalize over Division Street. FNI evaluated the project for a 25-year design storm. The conceptual alternative is to raise the road by 0.8-feet, which will eliminate roadway overtopping in the 25-year event, decreasing the roadway depth from 12-inches to 0-inches, and decreasing depth in the 100-year event from 24-inches to 18-inches. This would allow residents to get home and emergency services to be able to drive across Division St safely and effectively.



Figure 2 - Conceptual Alternative ICPR Model

4.01 OPINION OF PROBABLE CONSTRUCTION COST

An opinion of probable construction cost (OPCC) has been included in **Table 1**. There was an assumption made that the Operations and Maintenance (O&M) costs are 0.1% of the total cost, therefore the O&M cost is \$1,952.

Table 1 - Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION					
1	MOBILIZATION (7.5%)	1	LS		\$ 100,403
2	TRAFFIC CONTROL	1	LS	\$ 30,000	\$ 30,000
3	SITE PREPARATION	15	STA	\$ 3,000	\$ 45,000
4	DEVELOP AND IMPLEMENT SWPPP	1	LS	\$ 15,000	\$ 15,000
5	REMOVE EXISTING ASPHALT PAVEMENT	5000	SY	\$ 15	\$ 75,000
6	REMOVE EXISTING CULVERT	60	LF	\$ 50	\$ 3,000
7	EMBANKMENT (FILL)	900	CY	\$ 30	\$ 27,000
8	ASPHALT PAVEMENT	5000	SY	\$ 80	\$ 400,000
9	LIME TREATMENT	5000	SY	\$ 15	\$ 75,000
10	COMBINATION RAIL	2600	LF	\$ 160	\$ 416,000
11	EROSION CONTROL BLANKETS, HYDROMULCH, AND TOPSOIL	1100	SY	\$ 15	\$ 16,500
12	TEMPORARY IRRIGATION	1	LS		\$ 50,000
13	24" RCP	60	LF	\$ 120	\$ 7,200
14	HEADWALLS	1	LS		\$ 29,000
15	CONTINGENCY FOR UTILITY RELOCATION	1	LS	\$ 150,000	\$ 150,000
SUBTOTAL:					\$ 1,439,103
CONTINGENCY PERCENTAGE:				30%	\$ 431,731
SUBTOTAL:					\$ 1,870,833
DESIGN FEE:				20%	\$ 374,167
ENVIRONMENTAL PERMITTING AND MITIGATION:					\$ 10,000
CONSTRUCTION SUBTOTAL:					\$ 2,255,000
PROPERTY AND EASEMENTS					
1	EASEMENT ACQUISITION	0	SF	\$ 1	\$ -
COST OF ACQUISITION:				10%	\$ -
SUBTOTAL:					\$ -
PROJECT TOTAL:					\$ 2,255,000
Sept 2020 = 11499; May 2023 = 13288.27		PROJECT COSTS IN SEPT 2020 DOLLARS			\$ 1,952,000
<p>1. This estimate does not include cost for relocating franchise utilities.</p> <p>2. The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.</p>					

4.02 BENEFIT COST ANALYSIS

The Benefit Cost Ratio (BCR) was determined utilizing the Benefit Cost Analysis (BCA) Input Workbook, as seen in **Table 2**. Using the workbook, the BCR was determined to be 0.3.

Table 2 - Benefit Cost Analysis

Input Into BCA Toolkit		
Project Useful Life	30	
Event Damages	Baseline	Project
25 - year storm	\$2,586,342	\$0
50 - year storm	\$1,055,712	\$513,654
100 - year storm	\$1,065,766	\$1,045,657
Total Benefits from BCA Toolkit	\$453,277	
Other Benefits (Not Recreation)	\$0	
Recreation Benefits	-	
Total Costs	\$1,559,772	
Net Benefits	-\$1,106,495	
Net Benefits with Recreation	-\$1,106,495	
Final BCR	0.3	
Final BCR with Recreation	0.3	

5. NO NEGATIVE IMPACTS CERTIFICATION

The Technical Guidelines for Regional Flood Planning [1] require a certification of no negative impacts from an engineer. The following requirements must be met for the no negative impact certification to be met:

1. Stormwater does not increase inundation in areas beyond the public right-of-way, project property, or easement.
2. Stormwater does not increase inundation of storm drainage networks, channels, and roadways beyond design capacity.
3. Maximum increase of 1D Water Surface Elevation must round to 0.0 feet (< 0.05ft) measured along the hydraulic cross-section.
4. Maximum increase of 2D Water Surface Elevations must round to 0.3 feet (< 0.35ft) measured at each computational cell.
5. Maximum increase in hydrologic peak discharge must be < 0.5 percent measured at computational nodes (sub-basins, junctions, reaches, reservoirs, etc.). This discharge restriction does not apply to a 2D overland analysis.

The No Negative Impacts Certification is provided in **Table 3**.

Table 3 - No Negative Impacts Certification

FMP Name	City of Slaton: Division Street
FMP Meets ALL No Negative Impacts Requirements from Exhibit C Section 3.6.A (Yes/ No)	Yes
Negative Impact Description	Not Applicable
Planning level Mitigation Plan (Yes/ No)	Not Applicable
Mitigation Plan Description	Not Applicable
No Negative Impact Determination (Yes/No)	Yes
Basis of No Negative Impact Determination (Model, Study, Engineering Judgement)	Model
Model ID	070000000008
Model Name	City of Slaton ICPR Model – Twin Lakes
Model Submitted	Yes
Study Name and Location	Twin Lakes Improvement, Slaton, Tx
Engineer of Record (Optional)	Freese & Nichols
Engineering Judgement Description	Not Applicable

6. CONCLUSION

As provided by the results of this technical memorandum, it is recommended that the City of Slaton move forward with this project. The completion of this project would alleviate transportation hazards and allow the residents of Slaton and emergency services to have a safer time traveling across Division St.

7. REFERENCES

1. Texas Water Development Board (TWDB). Exhibit C Technical Guidelines for Regional Flood Planning, Apr. 2021,
www.twdb.texas.gov/flood/planning/planningdocu/2023/doc/04_Exhibit_C_TechnicalGuidelines_April2021.pdf.

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www.freeze.com

TO:	Upper Brazos Regional Flood Planning Group
FROM:	Heather Keister, P.E., CFM, Holly Ahumada, P.E., CFM
SUBJECT:	City of Slaton Stadium Channel Improvements
PROJECT:	SPA21394
DATE:	June 9, 2023
CC:	



FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

1. BACKGROUND

This project is proposed to be a part of the 2023 Regional Flood Plan in the Upper Brazos Region (Region 7) and is located in Slaton, Texas. There is a Slaton ISD football stadium near Compress Lake that is inundated during large storm events. The image below is provided to give a clear depiction of the project area.



Figure 1 - Project Area

2. DATA GATHERING

LIDAR data from the City of Slaton was utilized. There were no previous models or studies available other than anecdotal flood complaints. A site visit was conducted on February 17th, 2023. The project team coordinated with the City of Slaton to move the project forward.

3. EXISTING CONDITIONS

ICPR was used to create a model of this project. A 2D terrain and breaklines were brought into the program, then a 2D mesh was built and adjusted where necessary. Compress Lake was then modeled for pond storage volume. Next, upstream channels and culverts were modeled as 1D links and nodes leading into Compress Lake and around the football stadium, ending at N 20th Avenue. Based on the existing conditions, the football stadium is inundated starting in the 25-year storm event.

4. CONCEPTUAL ALTERNATIVE

A 1% LOS is not feasible because the entire area is inundated in a 50-year design storm. This is due to Compress Lake filling up and backing into the football stadium. Due to this issue, a 25-year design storm had to be used. The conceptual alternative is to deepen and widen the earthen channel to a 60-foot bottom width upstream of the football stadium to N. 20th Street. This will remove the football stadium from the 25-year storm event. In addition, the recreational benefits would increase due to the football stadium not being flooded.



Figure 2 - Conceptual Alternative ICPR Model

4.01 OPINION OF PROBABLE CONSTRUCTION COST

An opinion of probable construction cost (OPCC) has been included in **Table 1**. There was an assumption made that the Operations and Maintenance (O&M) costs are 0.1% of the total cost, therefore the O&M cost is \$675.

Table 1 - Opinion of Probable Construction Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION		ALT 1			ALT 1
1	MOBILIZATION (7.5%)	1	LS		\$ 34,425
2	TRAFFIC CONTROL	1	LS	\$ 20,000	\$ 20,000
3	SITE PREPARATION	7.5	STA	\$ 3,000	\$ 22,500
4	DEVELOP AND IMPLEMENT SWPPP	1	LS	\$ 20,000	\$ 20,000
5	ROCK RIPRAP	200	SY	\$ 150	\$ 30,000
6	EXCAVATION AND HAUL	3000	CY	\$ 25	\$ 75,000
7	EMBANKMENT (FILL)	50	CY	\$ 30	\$ 1,500
8	EROSION CONTROL BLANKETS, HYDROMULCH, AND TOPSOIL	6000	SY	\$ 15	\$ 90,000
9	TEMPORARY IRRIGATION	1	LS		\$ 50,000
10	CONTINGENCY FOR UTILITY RELOCATION	1	LS	\$ 150,000	\$ 150,000
SUBTOTAL:					\$ 493,425
CONTINGENCY PERCENTAGE:				30%	\$ 148,028
SUBTOTAL:					\$ 641,453
DESIGN FEE:				20%	\$ 128,291
ENVIRONMENTAL PERMITTING AND MITIGATION:					\$ 10,000
CONSTRUCTION SUBTOTAL:					\$ 779,743
PROPERTY AND EASEMENTS					
1	EASEMENT ACQUISITION	0	SF	\$ 1	\$ -
COST OF ACQUISITION:				10%	\$ -
SUBTOTAL:					\$ -
PROJECT TOTAL:					\$ 780,000
Sept 2020 = 11499; May 2023 = 13288.27		PROJECT COSTS IN SEPT 2020 DOLLARS			\$ 675,000
<p>1. This estimate does not include cost for relocating franchise utilities.</p> <p>2. The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.</p>					

4.02 BENEFIT COST ANALYSIS

The Benefit Cost Ratio (BCR) was determined utilizing the Benefit Cost Analysis (BCA) Input Workbook, as seen in **Table 2**. Using the workbook, the BCR was determined to be 1.0.

Table 2 - Benefit Cost Analysis

Input Into BCA Toolkit		
Project Useful Life	30	
Event Damages	Baseline	Project
25 - year storm	\$18,806	\$0
100 - year storm	\$52,317	\$52,317
Total Benefits from BCA Toolkit	\$11,677	
Other Benefits (Not Recreation)	\$0	
Recreation Benefits	\$649,215	
Total Costs	\$683,376	
Net Benefits	-\$671,699	
Net Benefits with Recreation	-\$22,484	
Final BCR	0.0	
Final BCR with Recreation	1.0	

5. NO NEGATIVE IMPACTS CERTIFICATION

The Technical Guidelines for Regional Flood Planning [1] require a certification of no negative impacts from an engineer. The following requirements must be met for the no negative impact certification to be met:

1. Stormwater does not increase inundation in areas beyond the public right-of-way, project property, or easement.
2. Stormwater does not increase inundation of storm drainage networks, channels, and roadways beyond design capacity.
3. Maximum increase of 1D Water Surface Elevation must round to 0.0 feet (< 0.05ft) measured along the hydraulic cross-section.
4. Maximum increase of 2D Water Surface Elevations must round to 0.3 feet (< 0.35ft) measured at each computational cell.
5. Maximum increase in hydrologic peak discharge must be < 0.5 percent measured at computational nodes (sub-basins, junctions, reaches, reservoirs, etc.). This discharge restriction does not apply to a 2D overland analysis.

The No Negative Impacts Certification is provided in **Table 3**.

Table 3 - No Negative Impacts Certification

FMP Name	City of Slaton: Slaton Channel Improvements
FMP Meets ALL No Negative Impacts Requirements from Exhibit C Section 3.6.A (Yes/ No)	Yes
Negative Impact Description	Not Applicable
Planning level Mitigation Plan (Yes/ No)	Not Applicable
Mitigation Plan Description	Not Applicable
No Negative Impact Determination (Yes/No)	Yes
Basis of No Negative Impact Determination (Model, Study, Engineering Judgement)	Model
Model ID	070000000007
Model Name	City of Slaton ICPR Model - Channels
Model Submitted	Yes
Study Name and Location	Slaton Channel Improvements, Slaton, Tx
Engineer of Record (Optional)	Freese & Nichols
Engineering Judgement Description	Not Applicable

6. CONCLUSION

As provided by the results of this technical memorandum, it is recommended that the City of Slaton move forward with this project. By completing this project, the residents of Slaton would be able to have more access to the football stadium and have a safer time traveling through the area during large rain events.

7. REFERENCES

1. Texas Water Development Board (TWDB). Exhibit C Technical Guidelines for Regional Flood Planning, Apr. 2021, www.twdb.texas.gov/flood/planning/planningdocu/2023/doc/04_Exhibit_C_TechnicalGuidelines_April2021.pdf.

TECHNICAL MEMORANDUM

REGION 7
UPPER BRAZOS
Regional Flood Planning Group

TO: Upper Brazos Regional Flood Planning Group
FROM: Kirt Harle, P.E., Jacob and Martin, LLC
SUBJECT: City of Abilene Buttonwillow Creek Crossing
DATE: June 20, 2023

1. BACKGROUND

During the creation of the 2023 Regional Flood Plan, the planning group determined that only few projects in the Upper Brazos Region (Region 7), were identified as “shovel ready” or ready to proceed with design and construction. As part of the amended plan, several projects were identified as candidates to move from a Flood Management Evaluation (FME) phase to a Flood Mitigation Project (FMP) phase. One of these projects is the Buttonwillow Creek crossing in Abilene, Texas. This low water crossing is located on Chimney Rock Road, between Button Willow Parkway and Broken Bough Trail, and is more clearly depicted in **Figure 1** below.



Figure 1: Project Area

This area was identified in the City of Abilene 2020 Master Drainage Plan [1] as a capital improvement project. This crossing is the primary route for vehicles to access Buffalo Gap Road, a major thoroughfare in Abilene. During rain events, this low water crossing floods, which restricts access for passenger and emergency vehicles.

2. SCOPE

Jacob & Martin was tasked to evaluate the Buttonwillow Creek crossing and to develop conceptual alternatives to address flooding associated with the existing low water crossing. The evaluation included establishment of existing flood limits, and proposed improvements in accordance with the Regional Flood Planning Group (RFPG) FMP requirements [2].

3. METHODOLOGY

To effectively evaluate the level of flooding associated with this crossing, a hydraulic model of the existing conditions is needed. The existing conditions model should accurately detail floodplain limits for the 10%, 4%, 2%, and 1% annual chance events (ACE), or 10-year, 25-year, 50-year, and 100-year recurrence intervals, respectively. All available data was gathered and utilized in the analysis (previous studies, Hydrologic and Hydraulic (H&H) models, photos, survey/as-built data, etc.). If insufficient data was available, site visit(s) to collect field measurements were performed to confirm elevation data, structure configuration channel geometry and culvert flowlines.

Hydrologic and Hydraulic models, such as HEC-HMS and HEC-RAS, are widely used tools in the industry for calculating stormwater runoff and modeling streamflow, water surface elevation and flooding extents. An existing HEC-RAS model for Buttonwillow Creek was obtained from the Department of Homeland Security's (DHS) Federal Emergency Management Agency (FEMA) Estimated Base Flood Elevation Viewer (further described below) [3]. After careful review, it was determined that this model aligns with typical engineering standards for hydraulic riverine modeling. It was assumed that the hydrologic component (further methodology is explained in the BLE report [4]) of the model was sufficient to meet the purposes of this evaluation. This model was used as the base data for the existing conditions model discussed previously. One noticeable item in the hydraulic model that was missing were the crossings of Buttonwillow Creek. There was no information regarding culverts, low water crossings, or any other drainage structures included in the model. Site reconnaissance and field survey data was obtained in the project area to accurately reflect site conditions in the existing model. The updated model was used for the existing conditions scenario. To create the proposed conditions scenario, the existing conditions were used as a basis for evaluation of different hydraulic conditions (such as culvert configuration, sizes, etc.) to determine the most effective improvement to the project area. It should be noted that the existing hydrology was also used for the proposed conditions model. The City of Abilene development code provides the following guidance for stormwater detention: "On-site stormwater detention shall be required for all new developments to offset increased runoff resulting from new developments except for those developments for which approved regional detention facilities have been established or for which alternate plans have been approved by the City Engineer. Design standards for all stormwater detention and drainage facilities shall be established by adopted Abilene Drainage Standards. [5]" Therefore, for this evaluation it was assumed that existing and proposed hydrologic conditions upstream of the project area are similar. It should also be noted that any detention or retention facilities in the watershed were neglected for the purpose of this study.

4. DATA GATHERING

In 2017, the Department of Homeland Security's (DHS) Federal Emergency Management Agency (FEMA) contracted with Compass Production and Technical Services Joint Venture (Compass PTS JV) to "complete a Base Level Engineering (BLE) analysis for the Upper Clear Fork Brazos Watershed in Northwest Central Texas, to support FEMA's validation of effective Zone A Special Flood Hazard Area (SFHA). The BLE process involves using best available data and incorporating automated techniques with traditional model development procedures to produce regulatory quality flood hazard boundaries for the 1-percent annual chance event as well as estimates of flood hazard boundaries for multiple recurrence intervals. [4]" Hydraulic data was obtained through FEMA's Estimated Base Flood Elevation Viewer [3] for the Upper Clear Fork Brazos Watershed, of which Buttonwillow Creek is located in. This service is publicly available through a collaborative effort with the United States Geological Survey (USGS) and FEMA. The data downloaded contains the hydraulic model used to create the flood hazard information with an associated base level engineering report.

The methodology outlined in the BLE report was reviewed for compatibility with typical water resources engineering standards, as well as site specific information pertinent to the Abilene region. After careful review, the BLE report was deemed to be in alignment with typical engineering standards and data contained in the report and model can be accurately used in calculations and preliminary engineering for this study. The current FEMA Flood Insurance Rate Map (FIRM) has an effective date of January 6, 2012. Since the BLE is the most recent data available, and the BLE has additional data beyond the FIRM, this information was used in this evaluation. During design of the project, FEMA should be contacted for appropriate direction since the project is in a regulatory floodplain/floodway.

As previously mentioned, the downloaded model was missing several key drainage structures at road crossings. A topographic field survey was performed in March of 2023 to obtain the required data to accurately model these key crossings.

To ensure that the downloaded model had the most current topographic data, LiDAR for the Upper Clear Fork Brazos watershed was downloaded from TNRIS [6]. The LiDAR data used in the model was generated in 2014. The LiDAR and topographic survey data was input into HEC-RAS to create a terrain model. All cross sections in the HEC-RAS model were cut from the terrain, and bank locations were determined from this elevation data.

During this evaluation, several meetings were held with the City of Abilene to discuss the existing condition and history of this crossing, proposed alternatives, challenges and notable information to include in the analysis.

5. EXISTING CONDITIONS

As previously mentioned, the existing conditions model was obtained from FEMA and modified to match surveyed field conditions. Specific modifications included adding field data from topographic survey, adding cross sections in key crossing locations, geo-referencing project for GIS compatibility, and terrain association with 2014 FEMA LiDAR [6]. Results from the HEC-RAS model at the project site are illustrated in **Figure 2** and **Figure 3** below.

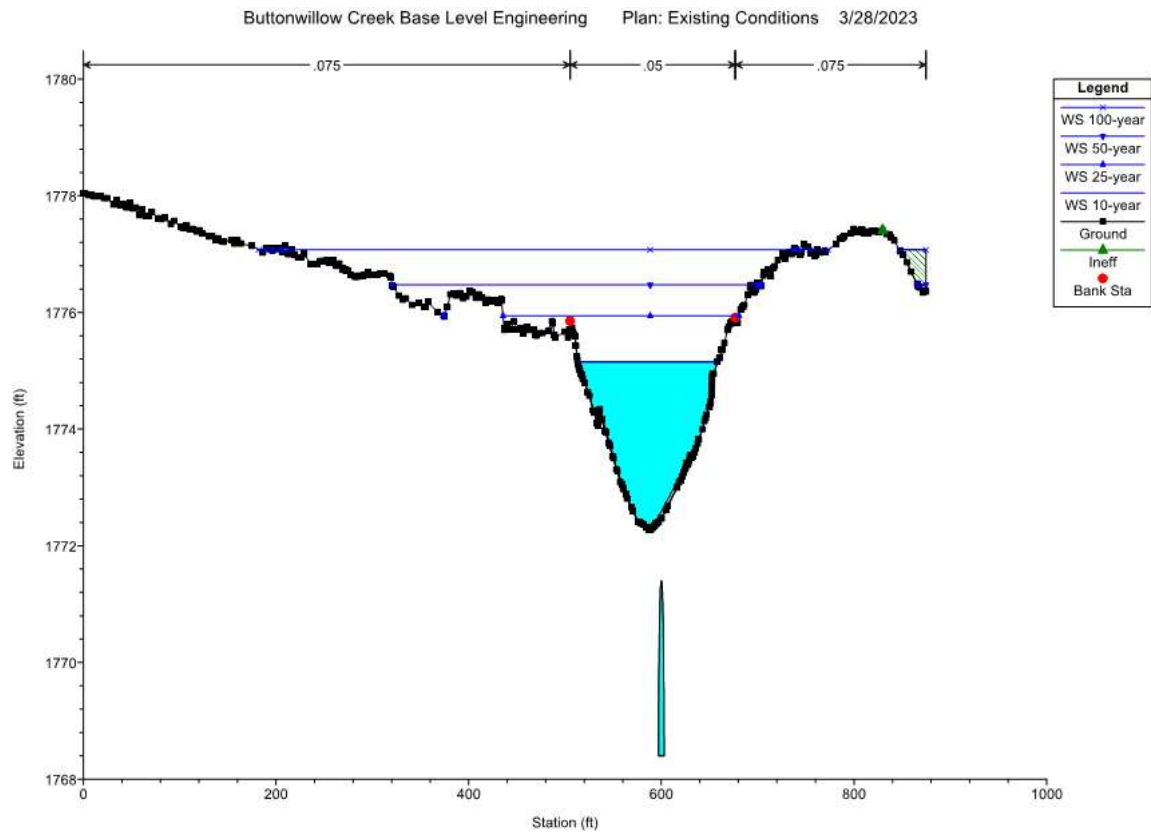


Figure 2: Existing Chimney Rock Road Upstream Crossing

The model results show a 100-year water surface elevation of 1777.07' at the upstream side of Chimney Rock Road. As shown in the above figure, the 10-year water surface is approximately 3' above the road. These results match historical observations the City has described.

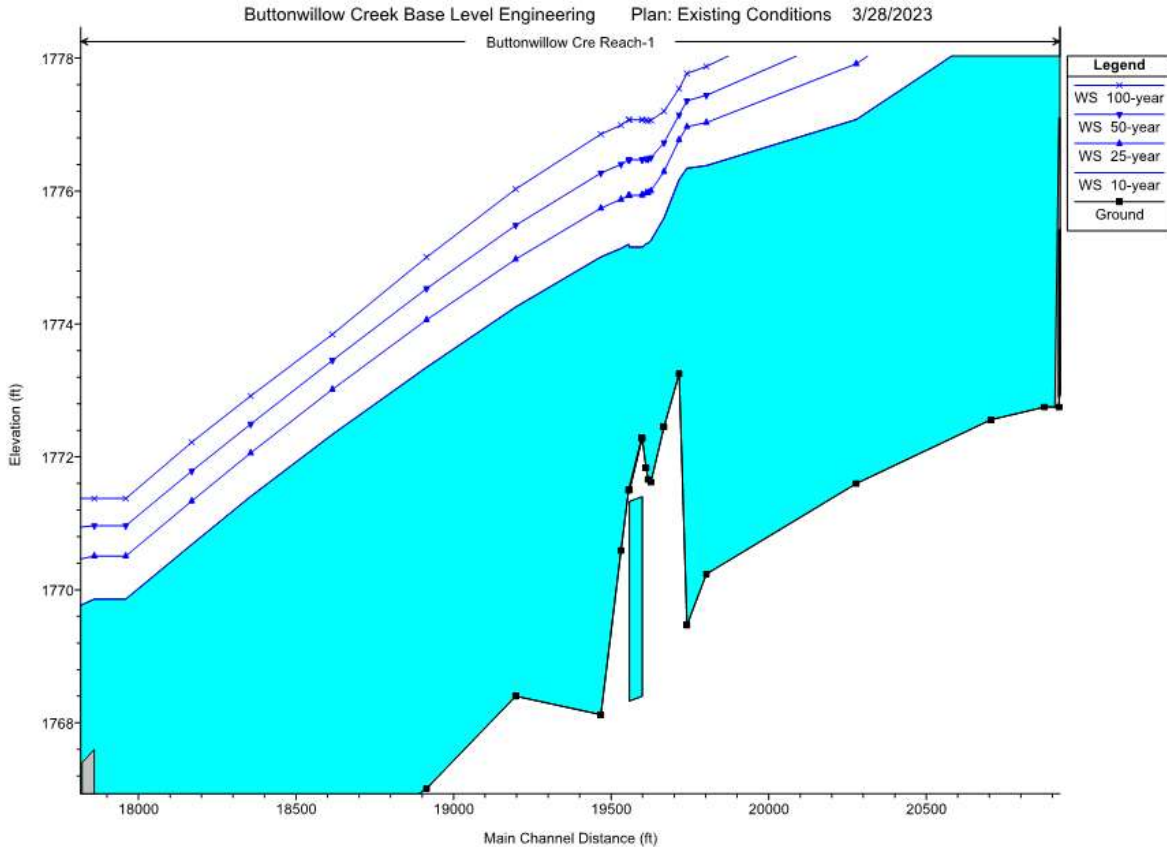


Figure 3: Existing Chimney Rock Road Profile

Due to downstream restrictions at road crossings of Buttonwillow Creek, there is a significant tailwater effect on this crossing. It is recommended that downstream structures be improved in the future to fully address the flooding issues associated with Buttonwillow Creek. The tailwater effect limits the impact of any improvements at this crossing.

5.1 PRE-PROJECT LEVEL OF SERVICE

As previously mentioned, the 10%, 4%, 2% and 1% annual chance events were analyzed as part of this study. As shown in the HEC-RAS model, the pre-project level of service is below the 10% ACE. The flood depth for the 10% ACE is approximately 2.87 feet. The 2020 Abilene Master Drainage Plan lists the largest event passing as the 2-year event (50% ACE). The flood depth for the 1% ACE is approximately 4.79 feet.

6. CONCEPTUAL ALTERNATIVE

It should be noted that the goal of this evaluation is to improve the level of service of this crossing during rain events, not to reduce the number of structures in the 100-year floodplain. Because of the utility conflicts in the area, any improvements will be difficult to construct in the field. The proposed alternative is expected to be constructable with some utility relocations being required.

From a topographic survey of the project area, there is an existing low point just upstream of Chimney Rock Road. At this location, there are several existing oil and gas transmission lines. The first component of the proposed alternative is to regrade this area to a uniform section and

install concrete riprap to channelize flow. The second component is to construct a weir inlet structure between the existing back of curb and an existing sewer line on the south side of Chimney Rock Road. The final component of the proposed alternative is a series of seven (7) 12'w x 7'h box culverts downstream of the weir. It should be noted that there will be grading changes from the existing conditions to place the box culverts and weir structure, as well as raising the road to revert from a low water crossing to a standard crossing. The modifications to the geometry at Chimney Rock Road were modeled in HEC-RAS. These modeling results are shown in **Figure 4** below.

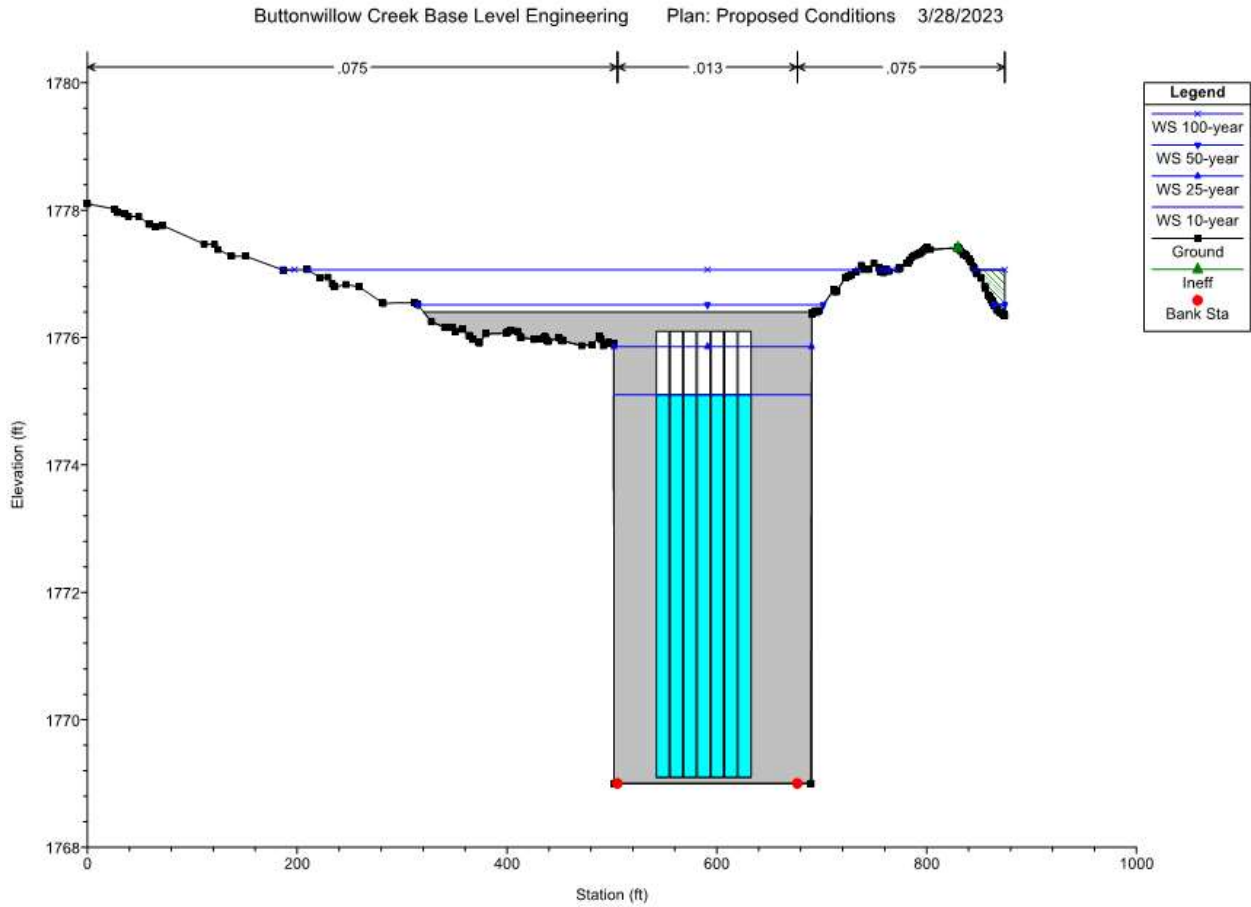


Figure 4: Proposed Chimney Rock Road Upstream Crossing

The HEC-RAS model results show relatively little change in the 100-year water surface elevation (decrease by 0.01'). Raising the road to approximately 1776.4' allows for accessibility across the creek during the 50-year storm, which has a water depth of approximately 0.1'. During the 100-year storm, the road will be inundated and not accessible. **Figure 5** below shows the stream profile at the Chimney Rock Road crossing with the proposed culverts.

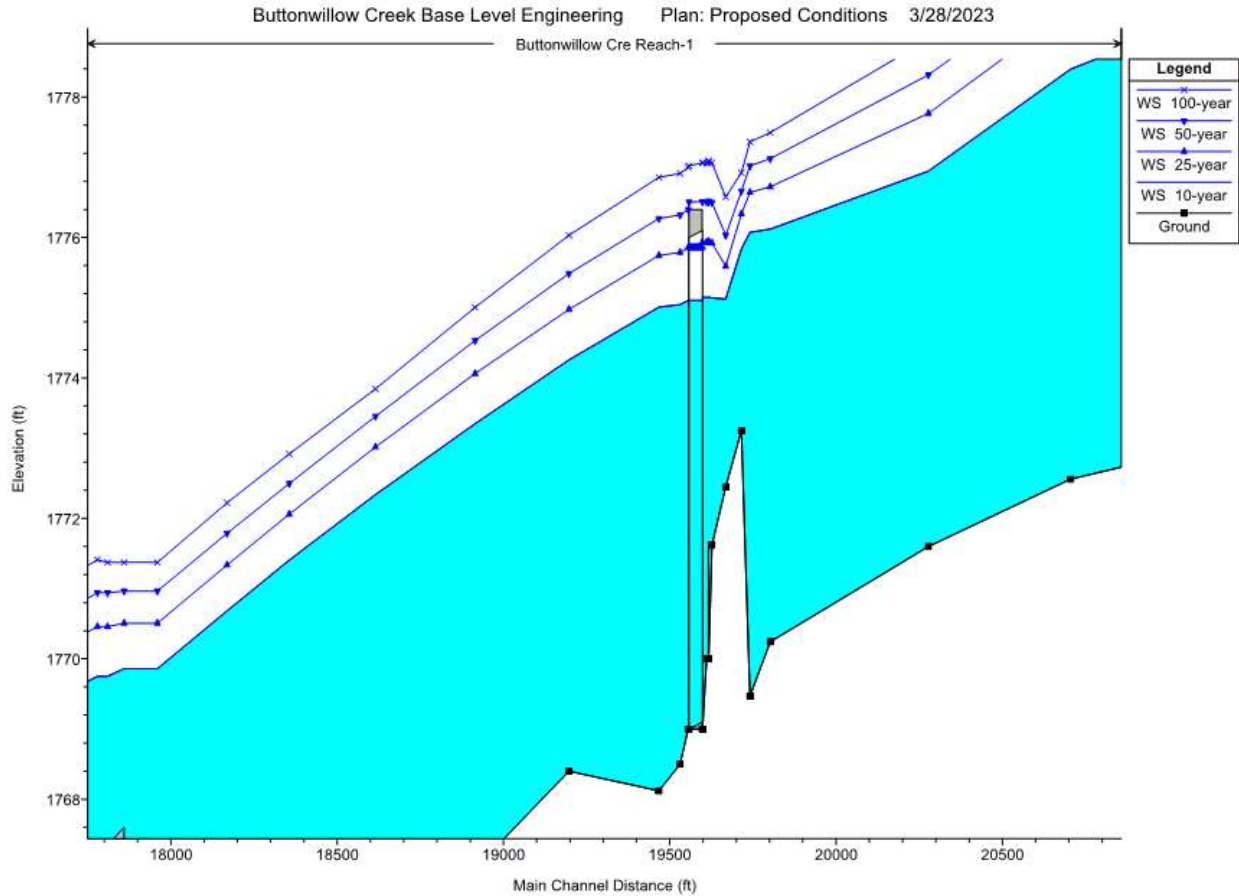


Figure 5: Proposed Chimney Rock Road Profile

Table 1 below provided a comparison of existing and proposed conditions on the upstream and downstream side of Chimney Rock Road.

Table 1: HEC-RAS Results Table for Chimney Rock Road Crossing

	Existing		Proposed	
ACE	Upstream	Downstream	Upstream	Downstream
10%	1775.15	1775.15	1775.1	1775.1
4%	1775.94	1775.93	1775.86	1775.86
2%	1776.47	1776.47	1776.51	1776.5
1%	1777.07	1777.07	1777.06	1777.02

As shown in **Table 1**, the proposed improvements result in a water surface decrease in all but the 2% ACE, which results in an increase of 0.04' on the upstream side of Chimney Rock Road. This increase is negligible and is not expected to have any negative impacts.

6.1 POST-PROJECT LEVEL OF SERVICE

With the improvements described in this report, the post-project level of service is the 2% ACE. The flood depth for the 2% ACE is approximately 0.11 feet. This is considered an acceptable depth for vehicular travel. As previously mentioned, there is a significant tailwater effect at this crossing that makes the 1% ACE an unfeasible level of service. The 1% ACE flood depth is

approximately 0.66 feet. It is believed that with further improvements downstream the proposed culvert crossing at Chimney Rock Road would be inlet controlled and the proposed improvements would pass the 1% ACE.

6.2 FMP IMPLEMENTATION ISSUES

It should be noted that there is an extensive network of utilities in the project area that will make any construction project a challenge. Specifically, there are at least five (5) high pressure oil and gas transmission lines in a 100-foot wide easement paralleling Chimney Rock Road at the Buttonwillow Creek crossing, as well as water, sewer, cable, and distribution gas lines. TxDOT also recently constructed a large (7'x3') RCB storm drain in this area that outfalls on the north (downstream) side of Chimney Rock Road into Buttonwillow Creek. All these factors will pose a challenge to any construction that occurs in the area.

7. OPINION OF PROBABLE COST

An opinion of probable cost has been included in **Table 2** below. This cost includes construction and non-construction items such as engineering, surveying and legal costs.

Table 2: Opinion of Probable Cost

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
CONSTRUCTION COSTS					
1	Mobilization, Bonds and Insurance	1	LS	\$ 96,125.00	\$96,125.00
2	Excavation and Haul Off	1	LS	\$ 50,000.00	\$50,000.00
3	Concrete Riprap	2,000	SY	\$ 100.00	\$200,000.00
4	7'X12' Reinforced Concrete Box Culverts	400	LF	\$ 3,000.00	\$1,200,000.00
5	Weir Structure	1	EA	\$ 50,000.00	\$50,000.00
6	Headwall	1	EA	\$ 30,000.00	\$30,000.00
7	Pavement Repair	1,500	SY	\$ 75.00	\$112,500.00
8	36" RCP Storm Drain	500	LF	\$ 300.00	\$150,000.00
9	Storm Drain Manhole	3	EA	\$ 10,000.00	\$30,000.00
10	Utility Adjustments	1	LS	\$ 100,000.00	\$100,000.00
	Construction Subtotal				\$2,018,625.00
	Contingencies				\$201,900.00
TOTAL CONSTRUCTION COSTS:					\$2,220,525
NONCONSTRUCTION COSTS					
	Engineering, Surveying and Materials Testing				\$333,100
	Environmental				\$10,000
	Fiscal/Legal				\$20,000
TOTAL NONCONSTRUCTION COSTS:					\$363,100
PROJECT TOTAL					\$2,583,625

The costs above are in current (2023 dollars). As listed in the RFP technical guidance, estimates are required to be based on September 2020 prices. Using **Equation 1** below, it is possible to convert the current cost estimate to 2020 prices.

Equation 1: Cost Adjustments for use with a Cost Index

$$C_b = C_o * (F_b / F_o)$$

Where:

C_b = Current Cost

C_o = Previous Cost

F_b = Index Factor at Base Year (13345.00 [June 2023])

F_o = Index Factor at Previous Time (11499 [September 2020])

Engineering News-Record construction cost index history [7] was used to obtain the current and 2020 index factors to convert current prices to September 2020 prices, as required by the RFPG. Using **Equation 1**, the 2020 total estimated cost is \$2,226,234.84.

It is not anticipated that any additional operations and maintenance costs would be incurred due to the proposed project. However, in the event the project was funded with a loan, there would be debt service that would contribute to recurring costs. Using a 20-year loan period, with 100% loan and a 3.5% interest rate, the annual debt service would be approximately \$182,000.

8. NO NEGATIVE IMPACTS CERTIFICATION

As required by the Technical Guidelines for Regional Flood Planning [2], an engineer's certification of no negative impact is required. The following requirements should be met to establish no negative impact:

1. Stormwater does not increase inundation in areas beyond the public right-of-way, project property, or easement.
2. Stormwater does not increase inundation of storm drainage networks, channels, and roadways beyond design capacity.
3. Maximum increase of 1D Water Surface Elevation must round to 0.0 feet (< 0.05ft) measured along the hydraulic cross-section.
4. Maximum increase of 2D Water Surface Elevations must round to 0.3 feet (< 0.35ft) measured at each computational cell.
5. Maximum increase in hydrologic peak discharge must be < 0.5 percent measured at computational nodes (sub-basins, junctions, reaches, reservoirs, etc.). This discharge restriction does not apply to a 2D overland analysis.

A No Negative Impacts Certification is included in **Table 3** below.

Table 3: No Negative Impacts Certification

FMP Name	City of Abilene Master Drainage Plan: Buttonwillow Creek Crossing
FMP Meets ALL No Negative Impacts Requirements from Exhibit C Section 3.6.A (Yes/ No)	Yes
Negative Impact Description	Not Applicable
Planning level Mitigation Plan (Yes/ No)	Not Applicable
Mitigation Plan Description	Not Applicable
No Negative Impact Determination (Yes/No)	Yes
Basis of No Negative Impact Determination (Model, Study, Engineering Judgement)	Model
Model ID	
Model Name	Buttonwillow Creek Base Level Engineering
Model Submitted	Yes
Study Name and Location	Buttonwillow Creek Crossing, Abilene, Texas
Engineer of Record (Optional)	Jacob & Martin
Engineering Judgement Description	Not Applicable

9. CONCLUSION

Based on the results described in this report, it is recommended that the City of Abilene proceed with applying for funding to reconstruct the Buttonwillow Creek crossing at Chimney Rock Road. Once completed, this project will improve emergency and residential vehicular access to the many residences cut off during rain events.

10. REFERENCES

1. HDR. *Abilene Master Drainage Plan*. HDR. , Final Report ed., 2020, www.abilenetx.gov/DocumentCenter/View/10385/2020-Abilene-Master-Drainage-Plan-Report-PDF?bidId=.
2. Texas Water Development Board (TWDB). Exhibit C Technical Guidelines for Regional Flood Planning, Apr. 2021, www.twdb.texas.gov/flood/planning/planningdocu/2023/doc/04_Exhibit_C_TechnicalGuidelines_April2021.pdf.
3. Federal Emergency Management Agency (FEMA). *Estimated Base Flood Elevation (estBFE) Viewer*, FEMA. webapps.usgs.gov/infrm/estBFE/.
4. COMPASS PTS JV. Upper Clear Fork Brazos Watershed, TX Base Level Engineering (BLE) Results, Mar. 2017.
5. City of Abilene. Drainage Standards, 1 May 2007, www.abilenetx.gov/DocumentCenter/View/2961/Drainage-Standards-PDF.
6. Federal Emergency Management Agency (FEMA). Upper Clear Fork Brazos River Lidar, 2014-12-24. <https://data.tnris.org/collection?c=34e6ffc2-8854-4047-9c3b-498bf10d032c&geo=-99.75476434808178,32.39020252003698,-99.75181899295805,32.39303663034427#8.75/32.6261/-100.0625>.
7. Engineering News-Record. Construction Cost Index History, ENR, June 2023, www.enr.com/economics/historical_indices/construction_cost_index_history.

TECHNICAL MEMORANDUM #1

TO: City of Abilene
Freese and Nichols

DATE: May 19th, 2023

FROM: Audrey Giesler Klump, EIT, CFM

AVO: 43793 (Halff)

EMAIL: aGiesler@halff.com

SUBJECT: Technical Memorandum –
City of Abilene: Treadaway & 27th Drainage Project

Introduction

The City of Abilene submitted a proposed flood management evaluation (FME) to the Upper Brazos Regional Flood Planning Group (RFPG) prior to the Final Plan deadline. The FME description proposed investigating green solutions to reduce street flooding in and near the intersection of 27th Street and Treadaway Boulevard within Abilene’s city limits.

The Upper Brazos RFPG selected the City of Abilene’s FME for further investigation as part of an effort by the Texas Water Development Board (TWDB) to include more “shovel-ready” projects (FMPs) in the Amended Regional Flood Plan.

This document presents the data available to the consultant team to-date, the current analysis and model (if needed) approach, and description of alternative(s) for the City’s consideration. This memo also documents the alternatives included in the Texas Water Development Board’s first Upper Brazos Regional Flood Plan as part of the 2023 Amended Plan.

Data Collection

Previous Studies & Area History

No hydraulic modeling or analysis that may have taken place in this area was available to the consultant team at the time of project initiation. The FEMA floodplains across the City of Abilene became effective January 6, 2012.

Further investigation into the proposed project showed the western portion of 27th Street is subject to flooding during the 2-year and higher frequency events. The existing drainage system for the area consists of a wide, shallow, concrete-lined ditch that runs along the north side of 27th for approximately 100 feet upstream of the intersection and flows into a small detention basin at the northwest corner of 27th & Treadaway before crossing under Treadaway. A two, 2’x5’ boxes relieve the detention basin into a concrete-lined ditch along the north side of 27th Street, moving east. The shallow and wide concrete-lined ditch continues for approximately 300 feet until Palm Street. At Palm Street, the concrete ditch discharges into the roadway gutter and conveys via street flow for approximately 950 feet until the railroad crossing. At the railroad crossing, conveyance returns to 15 foot wide, concrete-lined ditch and crosses under railroad in

a three-barrel, three-foot diameter RCP culvert for approximately 70 feet. Conveyance continues in the concrete-lined ditch for approx. 650 feet before becoming grass-lined for approximately 1000 feet to outfall into Cedar Creek. The map of the project area is seen in Figure 1.

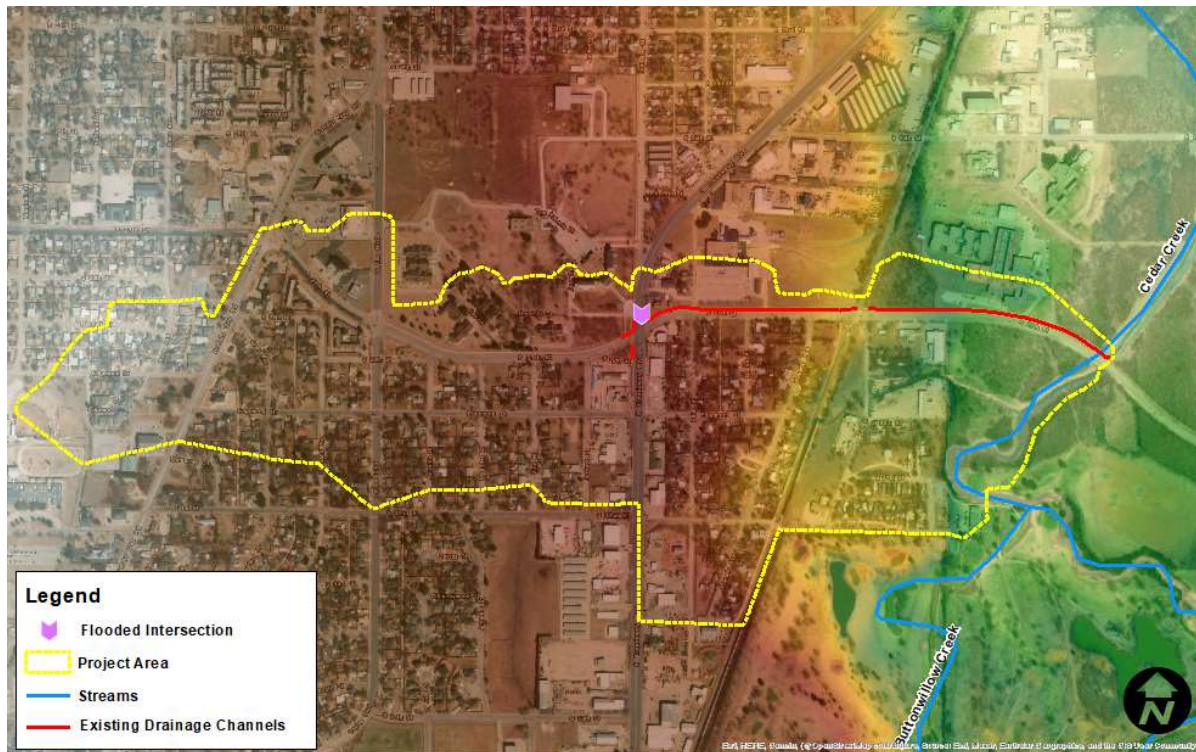


Figure 1: Project Area

After meeting with City of Abilene representatives, the City requested the consultant team focus on reducing roadway flooding at the intersection of Treadaway and 27th Street. Treadaway Blvd was raised prior to the project and has caused some drainage inefficiencies since. Flooding prevents drivers from seeing the road and on multiple occasions, drivers have accidentally driven into the ditch on the northwest and southwest sides of the intersection. (No fatalities have been recorded.)

The City also expressed high interest in implementing green solutions for this project.

Topography

The topographic data source was the 2019 TNRIS LiDAR data. The LiDAR point clouds were processed in ArcGIS into a terrain dataset to generate a ground surface Digital Elevation Model (DEM). This ground surface from the LiDAR data set resulted in a raster with a 3-foot by 3-foot resolution. This was the terrain data utilized for this analysis.

GIS Data & As Built Plans

The GIS data used in this study was generated by Halff. The City provided utility schematics for potential conflicts in the area. A DMP and HMP was also provided by the city.

Hydrologic Layers

The most recent available Soil Survey Geographic (SSURGO) databases were downloaded from the United States Department of Agriculture's Web Soil Survey on June 13th, 2022. Based on this data, the soils shapefile was formatted to include the hydrologic soil group (HSG) type (A, B, C, and D) for each soil map unit. The study watersheds are mostly made of up of HSG C with minimal areas of HSG B and D, and no areas had an HSG of A. A map of the soils data can be seen in **Figure 2**. The soil classification and land use indicate a curve number provided by the City of Abilene in their drainage criteria manual, seen in **Table 1**.

Table 1: Curve Numbers

Land Classification	Soil Classification			
	B	C	D	No Data
General Retail	95	96	97	96
Planned Development	79	86	89	86
Agricultural Open	84	89	91	89
Heavy Industrial	98	98	98	98
Residential 6	89	92	94	92
Residential Multi-Family	95	96	97	96
Residential 8	88	91	93	91
Poor Range	79	86	89	86
Channel Concrete	98	98	98	98
Neighborhood Office	95	96	97	96
Neighborhood Retail	95	96	97	96
Channel Grass	79	86	89	86
Transportation	98	98	98	98
Residential Medium Density	87	91	93	91
General Commercial	95	96	97	96
Mobile Home	95	96	97	96
Residential 12	87	91	93	91
Light Industrial	87	91	93	91
No data	79	86	89	86

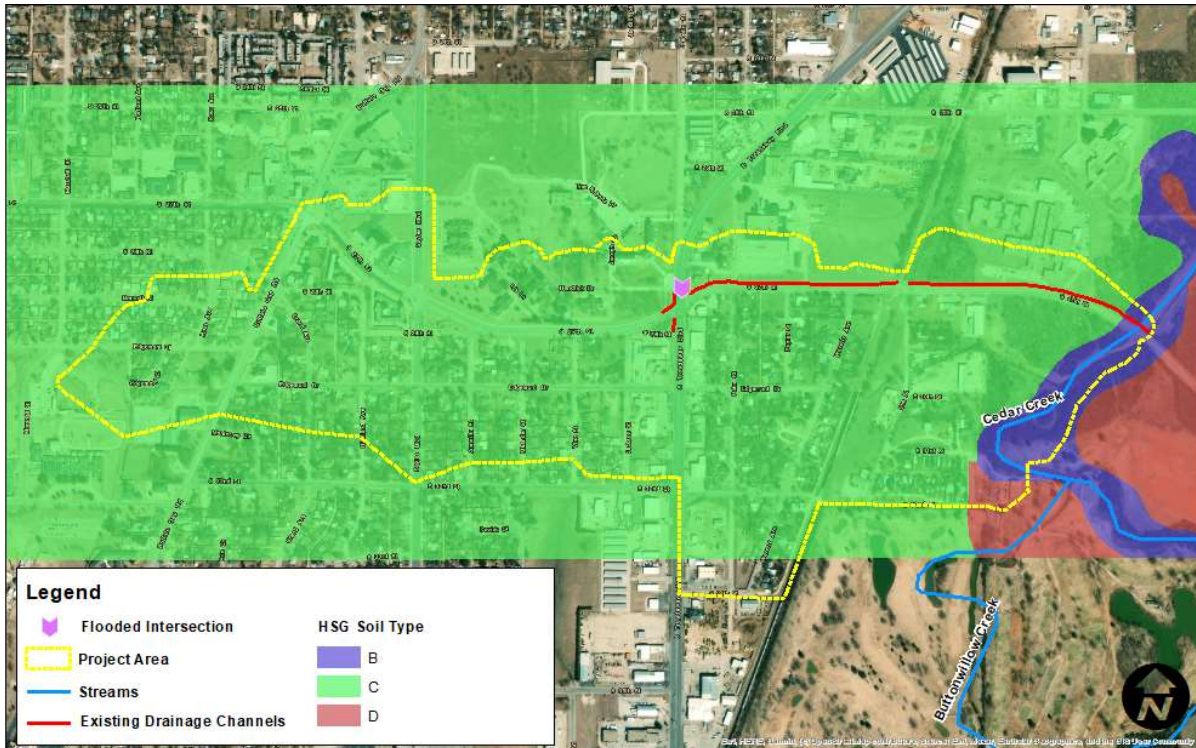


Figure 2: Soils

The land use data that was used for this study was sourced from City of Abilene planning and zoning data page. The City of Abilene catalogs the land use of the drainage area into 14 land use classifications shown in

Table 2: Land Use **2**. A map of the land use can be found in **Figure 3**.

Table 2: Land Use

Land Cover	
Agricultural Open	Planned Development
Channel Concrete	Poor Range
Channel Grass	Residential 6
General Retail	Residential 8
Heavy Industrial	Residential Medium Density
Neighborhood Office	Residential Multi-Family
Neighborhood Retail	Transportation

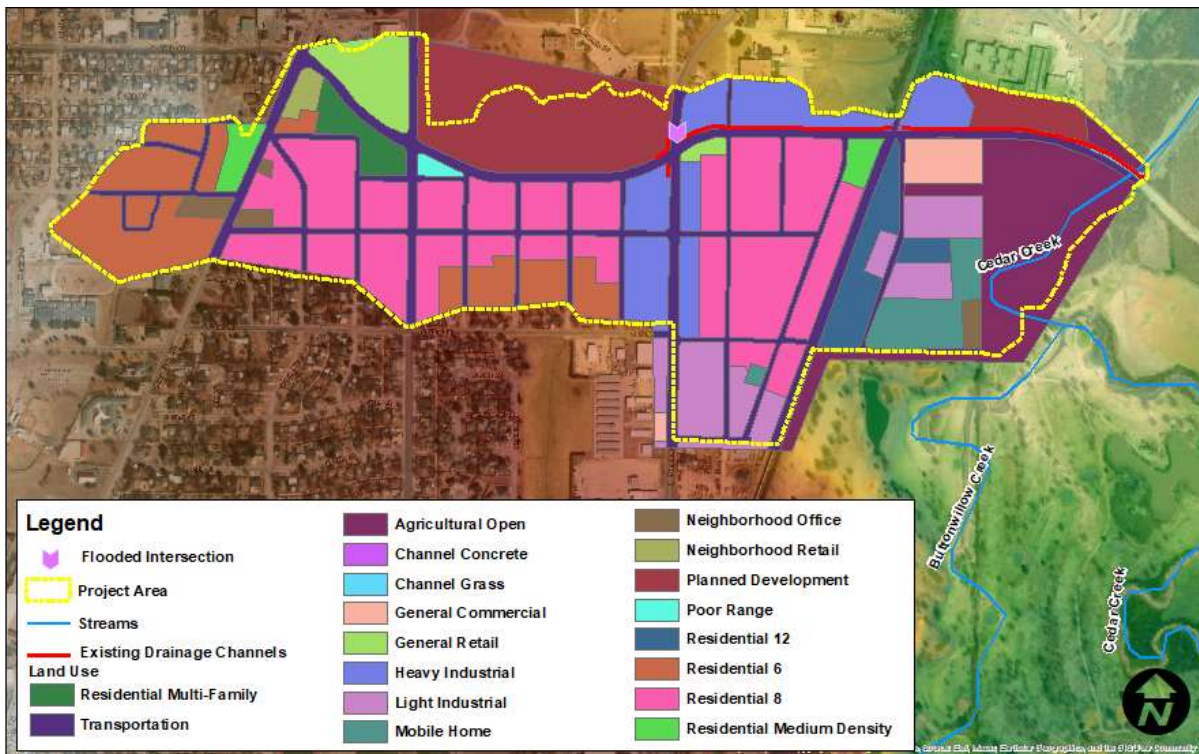


Figure 3: Land Use

Precipitation

The SCS Type II rainfall distribution method was used as for all frequency events. The 24-hour precipitation depths were obtained using the NOAA Atlas 14 Precipitation Frequency Data Server. The location of the precipitation was pulled from the drainage area. The precipitation data is summarized in **Table 3**.

Table 3: Rainfall Data

Precipitation Frequencies		
Recurrence Interval	Duration	Depth (inches)
10% ACE (10-year)	15 Minutes	1.32
	1 Hour	2.33
	2 Hours	2.87
	3 Hours	3.19
	6 Hours	3.77
	12 Hours	4.39
	1 Day	5.03
1% ACE (100-year)	15 Minutes	1.94
	1 Hour	3.44
	2 Hours	4.38
	3 Hours	5
	6 Hours	6.09
	12 Hours	7.24
	1 Day	8.44

Modeling Approach

Existing Conditions

The consultant team built a 2D ROM HEC-RAS model to identify natural flow patterns through the drainage area for the 10- and 100-year storm event.

The model extents run along 27th street between Marshall Street, which is just west of Buffalo Gap Road, to 32nd Road just east of South Treadaway Boulevard. Only the structures in this study that were modeled were the culverts along 27th Street. The 2019 TNRIS LiDAR ground surface DEM was used as the basis for generating the 2D Terrain for the HEC-RAS 2D flow area. The 2D flow area's computational mesh is the tool that HEC-RAS uses to interpret the terrain and define hydraulic properties for each cell throughout the 2D flow area. HEC-RAS computes one water surface elevation at each cell center at each time step. The cell faces act like cross sections, and they control flow transfers from cell to cell. The computational time step was calculated as a variable time step with 10 seconds used as a starting time step. The watershed boundary delineated during the hydrologic analysis was used as the extent of the rain on mesh model.

In accordance with local standards and the TWDB scope for the Upper Brazos Regional Flood Plan, the existing conditions simulations include the 50% (2-year), 20% (5-year), 10% (10-year), 4% (25-year), 2% (50-year), 1% (100-year) and 0.2% (500-year) annual chance events (ACE).

Manning's n-values were applied to the HEC-RAS land cover layer using the ultimate conditions land use designations discussed previously. The 2D flow area incorporates properties from land

cover layer, which is the HEC-RAS term for the Manning's "n-value" surface roughness layer, to create properties for each cell.

Flow hydrograph, normal depth, and precipitation boundary condition data were applied to the ROM model where applicable. Normal depth boundary conditions were applied at the ROM limits to prevent artificial backwater effects. The normal depth boundary condition slope at outfalls were measured along the channel centerline and varied by outfall location.

The ROM simulations produced flood depth, velocity, and water surface elevation mapping for each ultimate condition's scenario within RAS Mapper. The ultimate 10- and 100-year storm event flood depth boundaries were exported from RAS Mapper as DEMs, restricted to depths above 0.5-feet.

Conceptual Alternatives

Conceptual alternatives analyzed improvements primarily to the 1% (100-year) ACE. It was determined that a 2% ACE (50-year) level of service could be met with this alternative.

The proposed alternatives explore the addition of culverts, culvert barrels, improved ditches, and small detention ponds in the drainage area to reducing the flooding along 27th Street to less than six inches. The small detention ponds qualify as green infrastructure elements and costs have been increased to allow them to be designed as rain gardens, as the City indicated.

Alternative 0.1B

Alternative 0.1B consists of realigning the culverts underneath Treadaway to be more hydraulically efficient, and adding a third barrel to the Treadaway culvert. The culvert realignment and addition will require coordination with gas utilities in the area, and potentially electric services to the traffic light. Gas line realignment has been accounted for in the cost estimate. Currently, the culverts under Treadaway rely on inflows to pass through the small detention basin to be utilized, however, the culvert realignment allows the small detention basin on the northwest corner of Treadaway & 27th to be used entirely for storage instead of conveyance. Acquisition of the corner plot is also recommended, to allow for the detention basin to be expanded to enhance storage capacity further. This detention basin may be designed as a rain garden with coordination with the Kendrick Home for Children to minimize the visibility of the basin on that corner. The cost estimate does include the necessary resources to design the basin as a rain garden and the associated landscaping.

The smaller crossing under 27th Street is already hydraulically efficient in its alignment, however, the intersection is designed to allow flows to overtop 27th Street quickly and easily. Subsequently, raising the road must be considered cautiously. This alternative does recommend raising 27th Street by approximately 4 inches in the 300ft leading into the intersection from the west. To offset the increase in water surface elevation, another rain garden is proposed at the southwest corner of Treadaway & 27th in the City-owned gore adjacent to the small crossing underneath 27th Street. The cost estimate includes sufficient resources to design and landscape this detention area as a rain garden, though costs may be reduced by foregoing that aspect.

One more detention area is recommended at the gore at the corner of 27th Street and Meanders Street. Of the three ponds, this pond provides the most local impact, reducing flows farther down 27th Street and also reducing water surface elevations along 29th Street. Sheet flow

through this area contributes to the flooding occurring at the Treadaway & 27th intersection. The construction of this detention area alleviates some of the more upstream troubles. As with the other two ponds, the cost estimate includes designing this pond as a rain garden.

Lastly, as the road is still overtopped less than 6", this alternative does include flood warning signage leading into the intersection from both directions of 27th Street and guardrails for all ditches surrounding the intersection. Guardrails are not included for the detention basins as the cost estimate assumes they will all be constructed as rain gardens with vegetation. The total cost of Alternative 0.1B is about \$2.1 million. The breakdown of the total study cost is shown in Table 4.

Table 4: Cost Estimate of Alternative 0.1B

Total Study Costs		Costs
Construction-related (capital costs)	Design and Permitting	\$112,435
Construction-related (capital costs)	Environmental; archaeological & historical resources	\$200,000
	Temporary and/or permanent easements; land acquisition	\$48,000
	Mitigation; utility relocation	\$200,000
	Legal assistance; fiscal services & costs (bond counsel); outreach	-
	Direct construction costs of components/facilities (w 30% cont.)	\$562,174
	Buyouts; property elevations	-
	Interest during construction	\$75,642
	Project management (by engineer)	-
	Inspection; pilot testing; warranty; manuals	-
	other special services or relevant costs	\$412,530
	Contingency (30%)	\$483,234
Total Construction Costs		\$2,094,015

Recommendations and Conclusions

It is the recommendation of the consultant team that this alternative be included in the Upper Brazos Regional Flood Plan Amendment. This project is necessary to alleviate transportation hazards and potential life-threatening situations within the City of Abilene. If this alternative is not constructed, intersection will remain a safety risk to drivers within the area.

TECHNICAL MEMORANDUM #1

TO: City of Knox
Freese and Nichols

DATE: May 26th, 2023

FROM: Audrey Giesler Klump, EIT, CFM

AVO: 43793 (Halff)

EMAIL: aGiesler@halff.com

SUBJECT: Technical Memorandum –
Knox City Drainage Improvements

Introduction

The City of Knox City submitted a proposed flood management evaluation (FME) to the Upper Brazos Regional Flood Planning Group (RFPG) prior to the Final Plan deadline. The FME description indicated that flooding issues along Canal Street were the primary concern.

The Upper Brazos RFPG selected Knox City's FME for further investigation as part of an effort by the Texas Water Development Board (TWDB) to include more "shovel-ready" projects (FMPs) in the Amended Regional Flood Plan.

This document presents the data available to the consultant team to-date, the current analysis and model (if needed) approach, and description of alternative(s) for the City's consideration. This memo also documents the alternatives included in the Texas Water Development Board's first Upper Brazos Regional Flood Plan as part of the 2023 Amended Plan.

Data Collection

Previous Studies & Area History

No hydraulic modeling or analysis that may have taken place in this area was available to the consultant team at the time of project initiation. The FEMA floodplains across the City of Knox City became effective November 1, 1989.

Preliminary investigations did not show inlets, manholes, or other signs of a subterranean storm drain system within the area of focus. City staff confirmed that stormwater is primarily conveyed through the roadways during high-rainfall events.

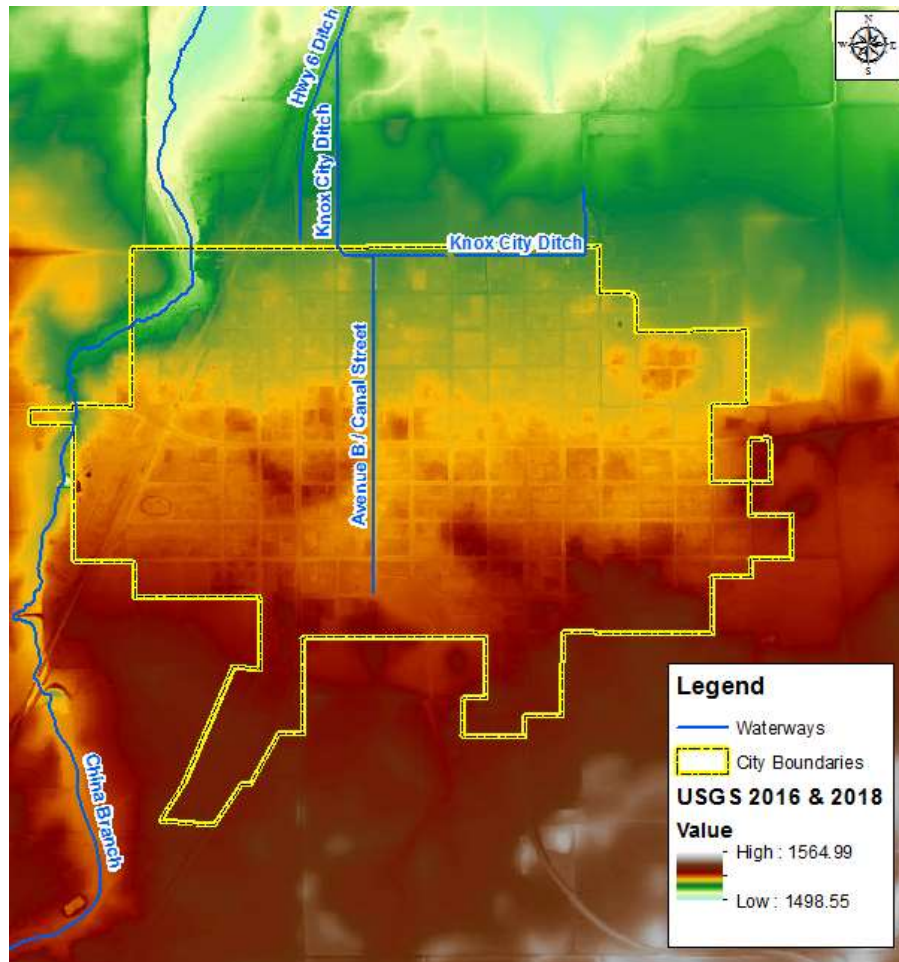


Figure 1: Project Area

Topography

The topographic data source was a combination of 2016 USGS and 2018 USGS LiDAR data. The LiDAR point clouds were processed in ArcGIS into a terrain dataset to generate a ground surface Digital Elevation Model (DEM). This ground surface from the LiDAR data set resulted in a raster with a 3-foot by 3-foot resolution.

Information from City staff indicated that FM 222, also known as Main Street, had been resealed with a 3"-6" coat of hot mix within the past couple of years. Previously, stormwater could convey across Main Street, to continue traveling in a generally northern direction, as the City is sloped to do. City staff shared the concern that this additional rise to Main Street had caused adverse impacts to the drainage patterns through the City. Due to the age of the LiDAR used, this rise was not reflected in the original topography used in the model. Subsequently, an additional 4"

rise was added to the terrain representing the recent recoat of Main Street through Knox City. This was the terrain data utilized for this analysis.

A drainage channel follows the northern edge of the city limits, with the channel to the east of Avenue D outfalling into an open field and the channel to the west of Avenue D outfalling into the roadside ditch for Highway 6.

GIS Data & As Built Plans

The GIS data used in this study was generated by Halff. The City does not currently have, to their knowledge, any GIS data relevant to hydrologic and hydraulic studies at this time.

Hydrologic Layers

The most recent available Soil Survey Geographic (SSURGO) databases were downloaded from the United States Department of Agriculture's Web Soil Survey. Based on this data, the soils shapefile was formatted to include the hydrologic soil group (HSG) type (A, B, C, and D) for each soil map unit. The study watersheds are predominantly made up of HSG type B with additional areas of HSG type A and C present mostly in the upstream (southern) part of the watershed. No areas of HSG type D were noted in the drainage area. A map of the soils data can be seen in **Figure 2**. The soil classification and land use indicate a curve number, as seen in **Table 1**.

Table 1: Curve Numbers Present in Model

Land Classification	Soil Classification			
	A	B	C	D
Barren Land	-	79	-	-
Cultivated Crops	67	78	85	89
Deciduous Forest	-	60	73	-
Developed, Open Space	43	64	76	-
Developed, Low Intensity	51	68	79	-
Developed, Medium Intensity	71	81	87	-
Developed, High Intensity	89	92	94	-
Evergreen Forest	-	60	73	-
Grassland-Herbaceous	30	58	71	-
Mixed Forest	36	60	73	-
Open Water	-	98	98	-
Pasture-Hay	-	69	-	-
Shrub-Scrub	49	69	79	-
Woody Wetlands	-	60	-	-

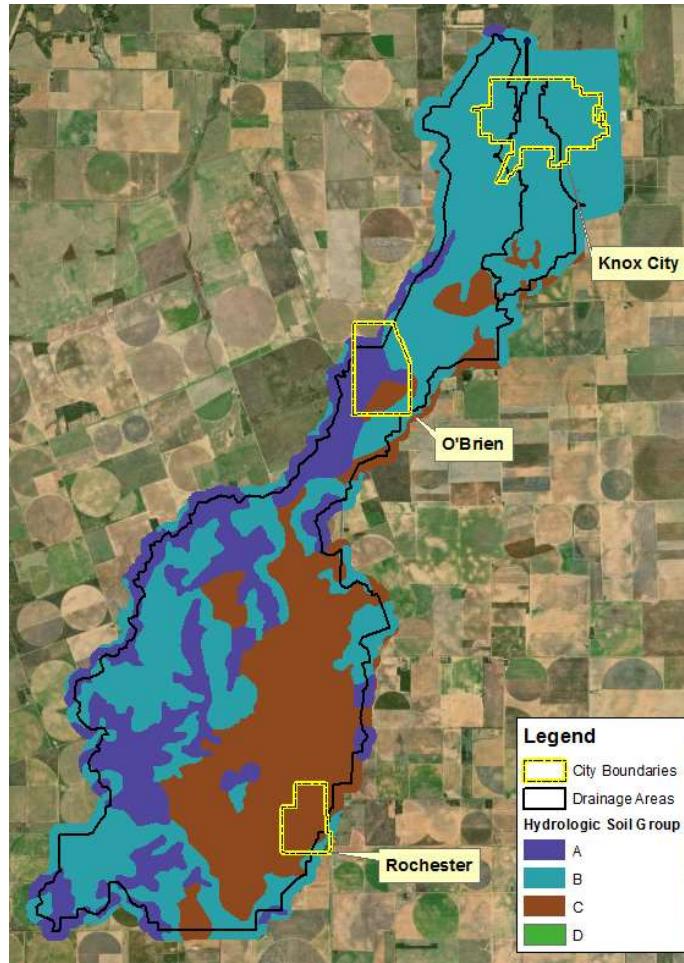


Figure 2: Soils

The land use data that was used for this study was sourced from the National Land Cover Database, dated 2019. The City of Knox City itself is developed medium and low intensity, with isolated areas of developed open space and developed high intensity. Outside of the city limits, the area is almost completely cultivated crops, with some pockets of shrub/scrub and mixed forest. A couple of other incorporations within the larger China Branch watershed can be seen in the land use as well. A map of the land use can be found in **Figure 3**.

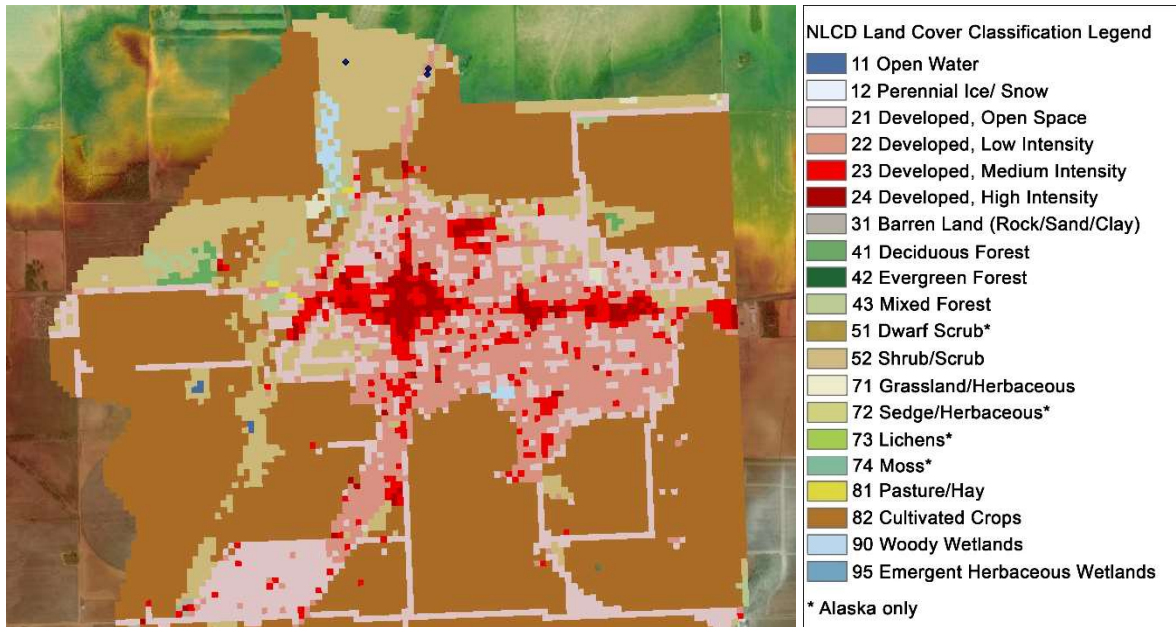


Figure 3: Land Use

Precipitation

The 24-hour precipitation depths were obtained using the NOAA Atlas 14 Precipitation Frequency Data Server. The location of the precipitation was pulled from the centroid of Knox City proper. Due to the size of the study area, TP40 area reduction was used. The precipitation depth totals are summarized in **Table 2**.

Table 2: Rainfall Data

Precipitation Frequencies		
Recurrence Interval	Duration	Depth
2-Year (50% ACE)	24 Hours	2.56 in.
5-Year (20% ACE)		4.04 in.
10-Year (10% ACE)		4.86 in.
25-Year (4% ACE)		6.08 in.
50-Year (2% ACE)		7.14 in.
100-Year (1% ACE)		8.28 in.
500-Year (0.2% ACE)		11.10 in.

Modeling Approach

Existing Conditions

The consultant team built a 2D ROM HEC-RAS model to identify natural flow patterns through the drainage area for the 2-year, 5-year, 10-year, 25-year, 50-year, 100-year, and the 500-year.

Initial statements indicated a possibility that China Branch was overflowing its banks, causing the inundation seen in Knox City. Therefore, the model includes the drainage area for China Spring Branch, as well as the significantly smaller drainage area that flows through Knox City itself. The smaller drainage area encompassing Knox City proper was delineated from the two outfalls of the drainage ditch along the north edge of the City's development. This smaller drainage area was combined with the delineated China Branch basin to form the 2D mesh of the Knox City model. According to the rain-on-mesh (ROM) model, overflows from China Branch do not directly impact the City of Knox City.

Flow hydrograph, normal depth, and precipitation boundary condition data were applied to the ROM model where applicable. Normal depth boundary conditions were applied at the ROM limits to prevent artificial backwater effects. The normal depth boundary condition slope at outfalls were measured along the channel centerline and varied by outfall location.

The ROM simulations produced flood depth, velocity, and water surface elevation mapping for each ultimate condition's scenario within RAS Mapper. The ultimate 10- and 100-year storm event flood depth boundaries were exported from RAS Mapper as DEMs, restricted to depths above 0.5 feet.

The existing conditions model shows the City's roadways as being the primary conveyance for stormwater through the City, particularly Avenue B, also known as Canal Street. Avenue B is

Conceptual Alternatives

Conceptual alternatives analyzed improvements primarily to the 4% (25-year) ACE.

Alternative Option 1

Ditch rehab

The City of Knox City formerly utilized a roadside ditch system for smaller-flow events, though the ditch system has not been maintained and has begun to phase out. Certain sections of the City, however, stand to benefit greatly from rehabilitations to the roadside ditch system, as it increases stormwater storage in the ROW. Multiple ditch re-excavations are proposed, as shown in Table 3. All ditches were proposed as tying into the existing conveyance elevations at the upstream and downstream ends, with bottom widths of 3 feet and 3:1 side slopes.

Ditch Along	Direction	From Cross Street	To Cross Street
NE 4 th Street	E-W	Avenue A	Avenue B
NE 3 rd Street	E-W	Avenue A	Avenue D
NE 2 nd Street	E-W	Avenue J	Avenue H
SE 3 rd Street	E-W	Avenue A	Avenue C
SE 4 th Street	E-W	Avenue C	Avenue D
Avenue B	N-S	Main St.	NE 2 nd St.
Avenue C	N-S	SE 2 nd St.	Main St.
Avenue D	N-S	Main St.	NE 3 rd St.
Avenue H	N-S	NE 2 nd St.	NE 5 th St.
Avenue I	N-S	SE 3 rd St.	Main St.
Avenue J	N-S	SE 3 rd St.	NE 2 nd St.
Avenue K	N-S	SE 3 rd St.	Main St.

The outfalls at the northern ends of Avenue B, Avenue E, and Avenue G are also proposed to be regraded.

To support the use of these drainage ditches, a culvert crossing is proposed under either side of NE 2nd Street at Avenue D. Similar to the existing crossing at Avenue J, these culverts are sized at 3'x1'

Culvert crossings under Main Street

Three new crossings under Main Street are proposed as part of Alternative Option 1, along with an improvement under the crossing at Avenue J. Due to Main Street being less than a foot above the cross street elevation, grate inlets are proposed at the corners of Main Street and Avenue B (southeast), Avenue D (southwest and southeast), and Avenue I (southwest). These inlets connect to 3'x1' boxes that travel under Main Street to allow more frequent flows to pass under Main Street.

Northern channel excavation & weir

The existing drainage pattern of Knox City conveys stormwater from the south to the north, primarily along roadways. These roadways either dead-end or convert into outfall channels to the drainage ditch along the north city limits. Due to the increased volume of water moved through the improved drainage system, this alternative further recommends improvements to the drainage ditch, just short of Avenue A to Avenue H, leaving the Avenue D crossing in place. The proposed base width of the ditch is 20 feet, maintaining the ditch's current side slopes of 2:1. Due to the increase flow that can move through the ditch, a weir is proposed at the western edge of the improvements, utilizing 4, 12" diameter RCPs and 4, 18" RCPs to match the current flows in the channel. This prevents downstream impacts from affecting the western portion of the City of Knox City and Highway 6.

The total cost of Alternative Option 1 is about \$2.06 million. The breakdown of the total study cost is shown in **Table 3**.

Table 3: Cost Estimate of Alternative Option 1

Total Study Costs		Costs
Construction-related (capital costs)	Design and Permitting	\$82,000
Construction-related (capital costs)	Environmental; archaeological & historical resources	\$200,000
	Temporary and/or permanent easements; land acquisition	-
	Mitigation; utility relocation	\$200,000
	Legal assistance; fiscal services & costs (bond counsel); outreach	-
	Direct construction costs of components/facilities (w 30% cont.)	\$1,055,000
	Buyouts; property elevations	-
	Interest during construction	\$44,000
	Project management (by engineer)	-
	Inspection; pilot testing; warranty; manuals	-
	other special services or relevant costs	-
	Contingency (30%)	\$474,000
Total Construction Costs		\$2,055,000

Positive impacts are seen in several areas of Knox City during the 25-year storm, specifically on the northeast side of town in the vicinity of NE 5th Street and Avenue D, along Avenue H to the north of Main Street, at the NE 2nd Street and Avenue D intersection, the Avenue K and SE 3rd Street intersection, and Avenue C between SE 4th Street and SE 3rd Street. In all of these areas, reductions in ponding reach over 0.25 feet and inundation boundaries are decreased.

Recommendations and Conclusions

The City of Knox City relies on the roadway systems to convey stormwater during heavy rainfall events. Terrain and City knowledge indicate that a roadside ditch system used to provide conveyance for smaller events, however, the system has fallen into disrepair. The City may choose to recut certain areas, as this alternative recommends. The City may also include future investigations into implementing a storm drain system throughout the city limits.

The primary drainage ditch to the north of the City conveys most of the stormwater for the City to the east of Highway 6. This ditch outfalls into an open field or to the roadside ditch along Highway 6, in turn outfalling to China Branch. Further investigations may warrant improvements to the roadside ditch along Highway 6 in order to improve drainage within the City of Knox City.

Lastly, the City is positioned downstream of an unrefined drainage swale, ultimately culminating in severe inundation of Avenue B and Avenue C as the flood waters from the swale attempt to pass through town. Detention options were investigated as part of this study, prior to the City expressing disinterest in land acquisition. Detention to the south of town to mitigate some of the flows coming off of the agricultural fields to the south would greatly reduce the flooding seen throughout the eastern half of Knox City.

The Upper Brazos Regional Flood Planning Group's Technical Consultant recommends the improvements mentioned here as a first phase towards reducing flood risk within the City of Knox City.

Lubbock Clovis Quaker Memo

for
The Upper Brazos Regional Flood Planning Group
and
The City of Lubbock

Prepared by

Halff

43793
May 15th, 2023

1 Introduction

In the northwest of the city of Lubbock, between Clovis Road (US highway 84 or US 84) and N Loop 289, a partially-developed area experiences frequent flooding with increased runoff rate at multiple locations along Quaker Avenue during moderate to heavy rainfall. Multiple playas in the area are overwhelmed during these events and the City has an investment to improve conditions in the area.

1.1 STUDY LOCATION

There are multiple playas that fill after a single large storm event or frequent events and flood Quaker Ave at multiple crossings from west to east. These flows converge to a culvert at the intersection of US 84 and North Loop of 289 and ultimately drain to Yellowhouse Canyon. The project limits that outline the area from the NQCDIP is seen in Error! Reference source not found. in **Appendix**.

1.2 PURPOSE AND STUDY SCOPE

The purpose of this memo is to recap the finding of the North Quaker and Clovis Road Drainage Improvements Project (NQCDIP) and the proposed alternative. The NQCDIP studied the existing conditions of the area as well as possible solutions to improve the flooding of Quaker Avenue.

1.3 METHODOLOGY

Methods used in the creation of the Clovis and Quaker existing and proposed conditions modeling were taken from the City of Lubbock Drainage Criteria Manual (DCM), dated December 2019 and the TxDOT Hydraulic Design Manual, dated July 2019. The modeling software used for the hydrologic and hydraulic (H&H) analysis was Stream line Technologies' ICPR, version 4.0.7.

Further detail about methodology used in the hydrologic and hydraulic analysis can be seen in the NQCDIP Report.

2 Data Collection

2.1 PREVIOUS STUDIES

Previous studies in the area were collected from the City of Lubbock and Hugo Reed and Associates, Inc (HRA) archives. The studies considered in the analysis are found in the appendix of NQCDIP and include:

- Tract A, Wildwood
- Lots 54-140, Uptown West
- Lots 26-58, Spanish Bit Court
- Tracts A-C, Avalon North
- Clovis Road Apartments
- Slide Road – Marshall Street to US Highway 84

- City of Lubbock Master Drainage Plan (MDP)
- FEMA Flood Insurance Study for Lubbock Count

2.2 TOPOGRAPHY AND SOIL DATA

The city of Lubbock provided aerial imagery with six-inch pixel resolution from 2020 and LiDAR digital elevation model (DEM) with 1 ft contours from 2016. The NQCDIP used soil data from Natural Resources Conservation Service (NRCS) Web Soil Survey including soil classification and hydrologic soil groups. These data sets were all projected to NAD83 State Plane Coordinate, Texas North Central Zone with a vertical datum of NAVD88. More information can be found in the NQCDIP report.

3 Existing Conditions

The existing conditions analyzed by HRA evaluated depths, peak flow rates, and playa overflow rates along Quaker Avenue. Drainage area delineation was performed in a previous study by HRA and Halff based on city data. Maps of the land use, soil groups, and drainage areas in the project area can be found in the NQCDIP.

3.1.1 Time of Concentration

The Kerby-Kirpich method was used to calculate time of concentration (Tc) with a minimum of 15 minutes as laid out in the DCM. The calculations can be found in the NQCDIP appendix.

3.1.2 Playa Volumetrics

Using the 2016 City’s aerial LiDAR and contours, the volumetrics of the playa’s were calculated in the NQCDIP, seen in **Table 1**.

Table 1: Existing Conditions Playa Volumetrics (from NQCDIP)

Playa	Overflow Elevation	Total Storage	Initial Elevation	Effective Storage
	(NAV88)	ac-ft	(NAV88)	ac-ft
L048	3259.9	137.22	3255.0	95.26
L049	3249.6	31.57	3249.6	0.00
L050	3232.6	26.53	3232.6	0.00
L051	3226	176.83	3219.6	106.69
L106	3270.2	444.42	3266.4	207.88
L109	3259.3	113.77	3256.9	66.76
L111	3287.8	125.72	3286.8	52.22
L112	3260.6	200.61	3257.5	125.03
L113	3254.4	15.91	3254.4	0.00
L154	3265.8	71.93	3265.8	0.00
L155	3240.8	23.14	3240.8	0.00

4 Hydrology & Hydraulics

Rainfall data used in the NQCDIP was sourced from the DCM and are shown in Table 2 **Table 2**.

Table 2: Rainfall Depths (24-Hour Storm)

Return Period	Depth (in)
10%	4.25

2%	6.08
1%	6.94
0.2%	8.38

Several hydrologic parameters were developed to assist in the creation of the H&H models, including basin delineation, time of concentration calculations, and composite curve numbers utilizing soil types and land use. These parameters are described and shown in detail in the Clovis & Quaker report.

Hydrologic results for existing conditions were produced through the ICPR software and are also detailed in the report. Hydrologic characteristics and results for a future fully-developed (FFD) condition were also developed as part of the Clovis & Quaker study and can be found in the NQCDIP report.

The results of the existing conditions hydraulic analysis are in **Table 3** and used to determine when the playa would overflow. Other results can be found in the NQCDIP report.

Table 3: Existing Conditions Playa Overflow Hydraulics (from NQCDIP)

Playa	Overflow Elevation (NAVD88)	Peak Water Surface Elevation (NAVD88)	Peak Discharge Rate (cfs)	Downstream Receiving Location
L111	3287.8	3288.71	556	L112
L112	3260.6	3261.56	499	L113
L154	3265.8	3266.64	1332	L113
L109	3259.3	3259.84	179	L113
L113	3254.4	3255.94	1501	L155
L155	3240.8	3242.1	1635	Yellowhouse Draw
L049	3249.6	3250.08	488	Yellowhouse Draw
L050	3232.6	3233.17	665	Yellowhouse Draw
L106	3270.2	3271.17	511	L048
L048	3259.9	3261.19	483	L051
L051	3226	3227.01	475	Yellowhouse Draw

5 Drainage Improvements Analysis

Four different scenarios were processed in the Clovis & Quaker Study to simulate improved drainage of the project area. FFD hydrologic conditions were applied to all improved-condition scenarios. The evaluated scenarios are detailed in the report but summarized below.

1. No action,
2. Playa excavation and additional retention/detention basins,
3. Scenario 2 with the addition of a storm drain system to the Yellowhouse Draw; multiple storm drain alignments investigated
4. Scenario 2 with an overflow channel and drain down pipe to Clovis Road/Loop 289.

The recommended improvement, as agreed upon by the City and the consultant during post-analysis meetings in 2022, is titled “Storm Drain Alternative 4” in the report.

Storm Drain Alternative 4 includes construction of a new detention pond network and further improvement of several playas in the area. Details regarding the storage improvements of the playas and detention pond sizing can be found in the Clovis & Quaker report. A drain down pipe and an overflow channel connect these detention features, and ultimately outfall into an existing detention basin with sufficient capacity to mitigate negative impacts. The detention pond network itself crosses under one roadway, while the overflow channel crosses a second roadway. Utility conflicts are present with the proposed solution, however, the cost to resolve them is included in the opinion of probable cost.

Prices in September 2020 US Dollars are required for TWDB consideration, however, the Clovis & Quaker study was completed in December 2022. In December 2022 USD, the cost of the Clovis & Quaker alternative is approximately \$10,300,000. For the TWDB’s consideration, the September 2020 USD cost is approximately \$9,000,000.

6 Conclusions

This NQCDIP study concludes that the FEMA FIRM does not reflect an accurate flood risk that is seen within the study area. Further development within the drainage area will worsen the risk without implementing upstream mitigation.

Storm Drain Alternative 4 is recommended by the Upper Brazos Regional Flood Planning Group’s consultant team as an improvement to health and safety of the surrounding population through reduction of flood risk.

TECHNICAL MEMORANDUM #1

TO: City of Idalou
Freese and Nichols

DATE: May 20th, 2023

FROM: Audrey Giesler Klump, EIT, CFM

AVO: 43793 (Halff)

EMAIL: aGiesler@halff.com

SUBJECT: Technical Memorandum –
H&H Analysis and Alternatives for Idalou Playa Improvements

Introduction

The City of Idalou submitted a proposed study (FME) to the Upper Brazos Regional Flood Planning Group (RFPG) prior to the Final Plan deadline. The FME description that was submitted states, “establish native grass buffers around Playa Lakes to filter out soil and contaminants from flooding; replenish dry Playa Lakes to ensure protection of aquifers and mitigate declining water tables due to drought”.

The Upper Brazos RFPG selected the City of Idalou’s proposed FME for further investigation as part of an effort by the Texas Water Development Board (TWDB) to include more “shovel-ready” projects (FMPs) in the Amended Regional Flood Plan.

This document presents the data available to the consultant team to-date, the current analysis and model (if needed) approach, and approach to alternative(s) for the City’s consideration. This memo also documents the alternatives included in the Texas Water Development Board’s first Upper Brazos Regional Flood Plan as part of the 2023 Amended Plan.

Data Collection

Previous Studies & Area History

No hydraulic modeling or analysis that may have taken place in this area was available to the consultant team at the time of project initiation. The FEMA floodplains across the City of Idalou became effective September 28, 2009.

Further investigation into the proposed project by FNI showed a particular playa to the south of the City of Idalou city limits (i6464) that was of interest to the City previously. The natural terrain around this playa has since been bermed and of minimal use to the City from a drainage standpoint.

After meeting with the City of Idalou representatives, the City requested the consultant team shift focus to analyze playa improvements to two other playas within the City limits. One playa on the western side of the City was anticipated to be the ultimate outfall of multiple drainage improvement projects that the City of Idalou and Lubbock County were considering. This playa is accessible from 9th Street and West 11th Street and is shown in **Figure 1** in purple (i6546). The City was also interested in investigating playa improvements for a playa to the north side of town that currently spans East County Road 6100 and North County Road 3240, shown in orange (i6658). A third playa is located to the east side of town and is currently an integral part of wastewater treatment procedures (i6556), shown in blue, which the City was not interested in investigating at this time.

Topography

Topographic data relied heavily on the 2021 LiDAR flight for Lubbock County. The appropriate DEMs were stitched together in GIS to cover the entire area of interest for the City of Idalou and the playa drainage areas.

Utilizing the 2019 Lubbock County LiDAR, storage-elevation curves were developed for the four playas impacting the study area. Figure 1 shows the contours of the playas within the study area.

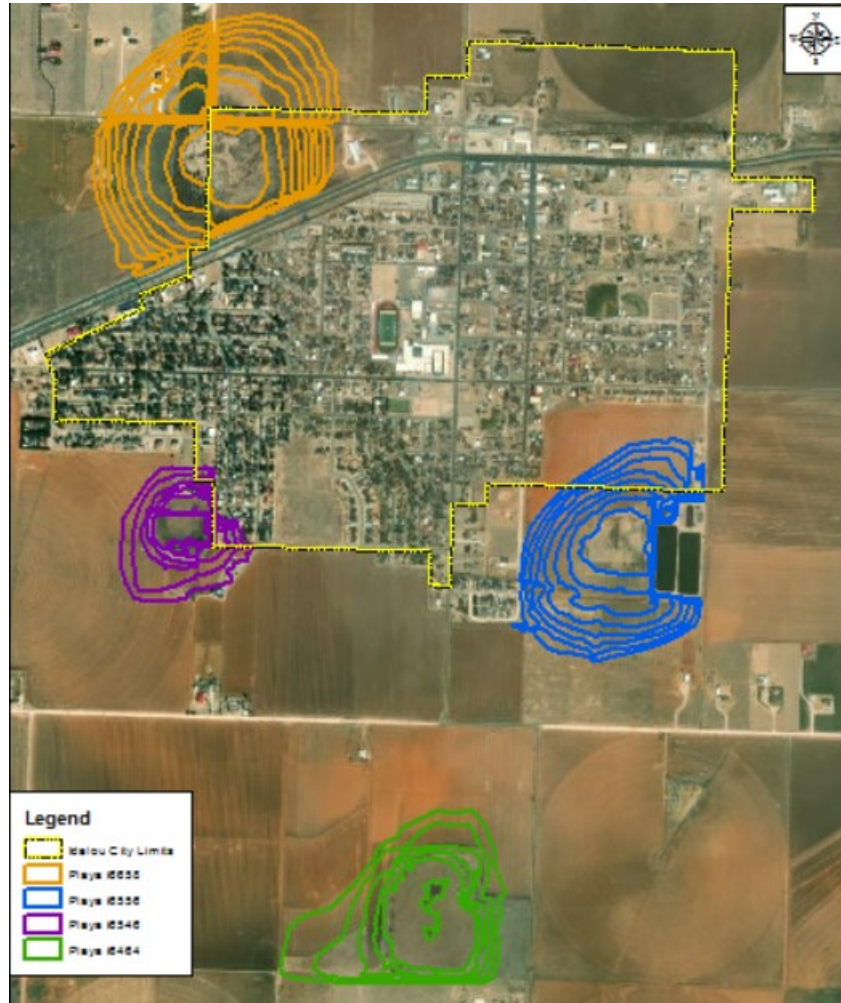


Figure 1. Playa Contours within Area of Interest

Table 1 shows the storage-elevation curves for the four playas. These were used to analyze the potential storage of these features during various rainfall events.

Table 1. Storage-Elevation Tables for Existing Condition Analysis of Playas

Elevation (ft)	Storage (ac-ft)
3184	0
3185	19.60
3186	52.19
3187	99.17
3188	159.10
3189	230.94
3190	313.77
3191	407.24
3192	512.04

Playa i6556	
Elevation (ft)	Storage (ac-ft)
3174	0
3175	12.69
3176	33.55
3177	63.26
3178	101.90
3179	149.00
3180	204.69
3181	269.35

Playa i6546	
Elevation (ft)	Storage (ac-ft)
3180	0.0
3181	4.20
3182	12.68
3183	24.27
3184	41.98
3185	68.37

Playa i6464	
Elevation (ft)	Storage (ac-ft)
3167	0.0
3168	10.89
3169	34.64
3170	65.81
3171	108.35
3172	166.92

Hydrologic Layers

Hydrologic data available in the area was limited to soils information through the Web Soil Survey, provided by USGS. The City of Idalou is largely hydrologic soil group B, with large areas of C type soils along the northern and southern city limits. The playas in the area display type D soils – indicative of the characteristic clay lining.

Land use data was developed using aerial imagery retrieved from Google Earth and Esri. The City of Idalou is mostly residential with a concentration of commercial properties in the center of the City Limits. Portions of agricultural land use are present towards the edges of the City, particularly to the north.

Precipitation

Rainfall was retrieved from the National Oceanic and Atmospheric Administration's Atlas 14 viewer to inform the hydrology of the model. **Table 2** shows the 24-hour depths for the frequency events analyzed.

Table 2. 24-Hour Atlas 14 Depths for the City of Idalou

Frequency	Total Depth (in)
50% ACE 2-Year	2.74
10% ACE 10-Year	4.26
4% ACE 25-Year	5.27
2% ACE 50-Year	6.06
1% ACE 100-Year	6.92
0.2% ACE 500-Year	9.21

Modeling Approach

Existing Conditions

The consultant team built an ICPR model to analyze the current condition of the three playas within the City limits.

The model extents included the City of Idalou and the three playas that provide direct drainage to the City. The ICPR model assumed that roadways are the primary conveyance of storm water from the developed areas within the City to the three, currently accessible playas. Cross sections for semi-overland and/or concentrated flow were developed for areas between the roadways and the playas themselves.

In accordance with local standards and the TWDB scope for the Upper Brazos Regional Flood Plan, the existing conditions simulations include the 50% (2-year), 20% (5-year), 10% (10-year), 4% (25-year), 2% (50-year), 1% (100-year) and 0.2% (500-year) annual chance events (ACE).

The existing condition model also included a simulation indicating whether or not the additional, bermed playa to the south would provide drainage relief to the City. Base-level modeling showed that the playa would provide minimal direct benefit to the City's drainage patterns without further improvement.

Figure 2 below shows the ICPR-modeled 100-year simulation against the FEMA-effective floodplains.

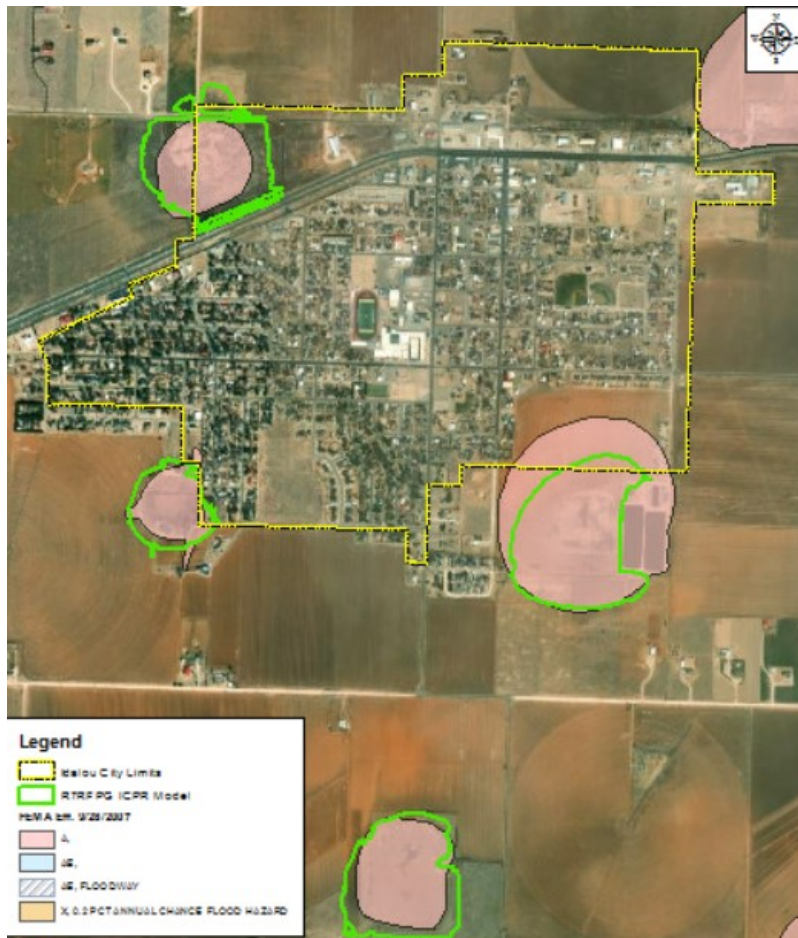


Figure 2. R7 ICPR Results Compared to Effective FEMA Mapping

Conceptual Alternatives

Conceptual alternatives analyzed improvements primarily to the 1% (100-year) ACE. It was determined that if a 1% ACE (100-year) level of service could not be met, more frequent storm events would be analyzed to determine the level of service that could be achieved. Both of the alternatives analyzed were able to accommodate a 100-year level of service.

Both alternatives can generally be classified as playa improvement projects. Playa improvement projects are heavily dependent on geotechnical studies concluding that enlargement of the playa would not reduce its functionality or harm other geological features. Environmental concerns also play a large part in playa improvement feasibility. If expansion of the playa would harm ecological systems associated with it, construction cannot move forward. The cost estimates for both improvements include costs for environmental and geotechnical investigations to ensure constructing either alternative would not cause adverse environmental impacts.

Alternative 1 – (Western) Playa i6546 Improvements

The primary concern for the western playa was that future drainage improvements may prove to be overwhelming to the current playa geometry and cause adverse impacts on nearby residential parcels and roadways. Plans were not yet available for the planned drainage improvements that utilized the

western playa, however, existing conditions showed that the western playa does present an imminent hazard to at least two parcels, should water surface elevations increase.

This alternative proposes to expand the playa in order to decrease the existing 100-year water surface elevation by 1' in the playa. In so doing, more storage is available for drainage improvements to utilize when they are constructed. **Table 3** shows the proposed playa elevation-storage curves modeled in ICPR.

Table 3. Proposed Playa i6546 Elevation-Storage Curves

Playa i6546	
Elevation (ft)	Storage (ac-ft)
3180	0.0
3181	7.13
3182	22.07
3183	33.66
3184	51.37
3185	77.76

The proposed improvement cost opinion is \$1,324,000 (Sept 2020 USD). This cost estimate includes estimates for engineering design fees, geotechnical investigation fees, environmental permitting fees, construction of the alternative, and erosion control. The cost estimate does assume no cultural resource impact (Section 106) permits are required.

Alternative 2 – (Northern) Playa i6658 Improvements

The playa to the north of the City of Idalou is currently able to contain the 100-year water surface elevation without negative impacts to US Highway 62, (Hwy 62) which clips the edge of the playa extents. However, the profile for East County Road 6100 dips near the low point of the playa, causing precarious conditions for drivers during less-frequent storm events.

Drainage systems in the northwestern side of the City are heavily dependent on the playa and one culvert crossing under Hwy 62. While the City currently does not have any intention to improve drainage systems on the northwestern side of town, it has been acknowledged that they are needed and would outfall to the northwestern playa. The City is interested in improving Playa i6658 prior to drainage studies occurring that would cause impacts to the playa water surface elevation.

Table 4. Proposed Playa i6658 Elevation-Storage Curves

Playa i6658	
Elevation (ft)	Storage (ac-ft)
3184	0
3185	39.60
3186	72.19
3187	119.17
3188	179.10
3189	250.94
3190	333.77
3191	427.24
3192	532.04

The proposed improvement cost opinion is \$2,720,000 (Sept 2020 USD). This cost estimate includes estimates for engineering design fees, geotechnical investigation fees, environmental permitting fees, construction of the alternative, and erosion control. The cost estimate does assume no cultural resource impact (Section 106) permits are required.



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Recommendations and Conclusions

It is the recommendation of the consultant team that these two alternatives be included in the Upper Brazos Regional Flood Plan Amendment. Both projects are necessary for further, necessary drainage improvements to be constructed within the City of Idalou. If these alternatives are not constructed, future drainage improvements within the City are likely to cause adverse impacts to the immediate area surrounding the two playas in question.

APPENDIX D – PUBLIC COMMENT

- 1 TWDB Region 07 Upper Brazos Draft Comments
- 2 TPWD Upper Brazos RFP Comment Letter
- 3 USACE RFP Comments
- 4 Draft Plan Comment Response Log

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- 5 Request for Information Comments

AMENDED JULY 14, 2023

APPENDIX D – PUBLIC COMMENT

1 TWDB REGION 07 UPPER BRAZOS DRAFT COMMENTS

October 21, 2022

Kelly Davila
Director of Regional Services/Economic Development
South Plains Association of Governments/Caprock BFC
1323 58th Street
Lubbock, Texas 79412

RE: Texas Water Development Board Comments on Region 07 Upper Brazos RFPG's Draft Regional Flood Plan Contract No. 2101792492

Dear Ms. Davila:

Texas Water Development Board (TWDB) staff has performed a review of the draft regional flood plan submitted by August 1, 2022, on behalf of the Region 07 Upper Brazos Regional Flood Planning Group (RFPG). The attached comments will follow this format:

- **LEVEL 1:** Comments and questions that must be satisfactorily addressed to meet specific statute, rule, or contract requirements; and,
- **LEVEL 2:** Comments and suggestions for consideration that may improve the readability and/or overall understanding of the regional flood plan

Please note that while Level 2 comments are provided for the planning group's consideration, Level 1 comments must be addressed prior to the submission of final Regional Flood Plans by the January 10, 2023, deadline.

It is expected that the data contained in all written report sections, tables, excel spreadsheets, and the geodatabase will be consistent throughout. In cases where there are any discrepancies in data, the geodatabase dataset will supersede other data and the TWDB will utilize the geodatabase dataset when developing the state flood plan.

TWDB review of the draft regional flood plans is comprised of many spot checks of data across several deliverables and is not an all-encompassing data review. Please note that TWDB's review does not imply accuracy of the draft regional flood plan. Each RFPG is responsible for ensuring the completeness and accuracy of all associated data.

To facilitate efficient and timely completion, and Board approval, of your final regional flood plan, please provide your TWDB Regional Flood Planner with a draft of your response to these comments (e.g., informally via email) on the draft RFP as soon as possible. This will allow TWDB staff to provide preliminary feedback on proposed RFPG responses to assist you in meeting your RFPG's timeline for approval and submission to TWDB of the final plan by the deadline. It will also help to minimize the need for subsequent follow-ups after final regional flood plan submission to TWDB.

Our Mission

Leading the state's efforts in ensuring a secure water future for Texas and its citizens

Board Members

Brooke T. Paup, Chairwoman | George B. Peyton V, Board Member
Jeff Walker, Executive Administrator

Title 31 TAC §361.50(c) requires the regional flood planning group to consider any written or oral Comment received from the public on the draft regional flood plan (RFP); and the EA's written comment on the draft RFP prior to adopting a final RFP. Section 361.50(d) requires the final adopted plan include summaries of all timely written and oral comments received, along with a response, for each, explaining any resulting revisions or why changes are not warranted. Copies of TWDB's Level 1 and 2 written comments and the RFPG's responses must be included in the final, adopted RFP. While the comments included in this letter represent TWDB's review to date, please anticipate the need to respond to additional comments or questions, as necessary, regarding data integrity related to the Board's State Flood Plan Database (that is built from the 15 regional databases), even after submission of the final plan to TWDB.

Standard to all RFPGs is the need to include certain content in the final RFPs that was not yet available at the time that drafts were prepared and submitted. In your final RFP, please be sure to incorporate in the final submitted plan, documentation, for example, that a public meeting to receive comments was held as required and that comments received on the draft RFP were considered in the development of the final plan [31 TAC §361.50(d)].

If you have any questions regarding these comments or would like to discuss your approach to addressing any of these comments, please do not hesitate to contact Ryke Moore at 512-475-1564 or via email at Ryke.Moore@twdb.texas.gov. TWDB staff are available to assist you in any way possible to ensure successful completion of your final regional flood plan.

Lastly, on behalf of TWDB, I would like to thank you, the sponsor, the RFPG members and the technical consultants for accomplishing this major milestone of a herculean effort and advancing the flood risk reduction mission in our state.

Sincerely,

Reem J. Zoun, PE, CFM
Director
Flood Planning

Attachment: TWDB Comments

Cc: Michael G. Keenum, RFPG Chair
Courtney McNeely, South Plains Association of Governments
Heather Keister, Freese and Nichols, Inc.
Holly Ahumada, Freese and Nichols, Inc.
Matt Nelson, TWDB
James Bronikowski, TWDB
Anita Machiavello, TWDB

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Ryke Moore, TWDB

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Jeff Walker, Executive Administrator

October 21, 2022

TWDB Comments on Region 07 Upper Brazos Regional Flood Planning Group's Draft Regional Flood Plan

Level 1: Comments and questions must be satisfactorily addressed to meet statutory, agency rule, and/or contract requirements.

General Comments

1. Please ensure that all "Submittal requirements" identified in each of the Exhibit C Guidance document sections are submitted in the final flood plan.
2. Please ensure that all the prior TWDB comments on the region's Technical Memorandum are addressed in the final plan submission. It appears that many of the same issues remain unaddressed in the draft plan submission. An example of this includes Unique ID errors throughout Feature Classes and Tables within the draft submission.

SOW Task 1

3. Planning Area Description, Text: Table 1-9 (page 64) lists "0" emergency service facilities at risk. However, Figure 1-15 (page 64) indicates multiple red dots depicting emergency services that appear to be at risk. Please reconcile.
4. Existing Flood Infrastructure GIS Feature Class, *ExFldInfraPt*: Please include all low water crossings (LWCs) identified during the flood planning process in this feature class. The *ExFldExpAll* feature class contains 532 LWCs, and the *ExFldInfraPt* feature class contains 317 LWCs. Note: This is required in contrast to the optional *LWC* feature class [31 TAC §361.31].
5. Existing Flood Infrastructure GIS Feature Class, *ExFldInfraPol*: It appears that some fields contain invalid 'NULL' entries, including 'NAT_BUILT'. Please complete all required fields with valid entries per Exhibit D Table 5 [31 TAC §361.31 & Exhibit D 3.3].
6. Existing Flood Infrastructure GIS Feature Class, *ExFldInfraLn*: It appears that some fields contain invalid 'NULL' entries, including 'NAT_BUILT' and 'DEF_DESCR'. Please complete all required fields with valid entries per Exhibit D Table 5 [31 TAC §361.31 & Exhibit D 3.3].
7. Existing Flood Projects, Text: Please include the expected year of completion for existing projects in Table 1-14, or reference where this can be found in Exhibit C Table 2 [31 TAC §361.32].
8. Existing Flood Projects GIS Feature Class, *ExFldProjs*:
 - a. It appears that some fields are missing entries, including 'HUC8'. Please complete all required fields with valid entries per Exhibit D Table 8. For 'EXHAZ_ID', 'COST', and 'COMP_YR', please leave NULL if there is not data or unknown. Please review and reconcile where appropriate [31 TAC §361.32].
 - b. Please ensure that all ID fields are entered correctly. For example, it appears that 'EXPROJ_ID' uses incorrect unique ID formatting and is missing a leading zero. Unique IDs must be accurate for the database to connect and work properly. Please refer to Exhibit D Table 2 or more recent updates for Unique ID guidance. Please reconcile [31 TAC §361.32].

SOW Task 2A

9. Existing Condition Flood Hazard Analysis, Text: Please include total land areas (square miles) of each flood risk by flood risk type, county, region, and frequency as per guidance document (Exhibit C page 24): Submittal requirement number 2.
10. Existing Condition Flood Risk Analyses, Text: Please include a reference to Exhibit C Table 3 in the text as per guidance document (Exhibit C page 27): Once Task 2A Existing Condition Flood Risk Analyses is complete, RFPs must include a summary table with findings summarizing flood risk by county (Exhibit C Table 3).
11. Existing Condition Flood Exposure Table (Exhibit C, Table 3): The Structure and Residential Structure counts in Table 3 do not appear to match the *ExFldExpAll* feature class counts. Please review and reconcile [31 TAC §361.33 & Exhibit C 2.2.A.3].
12. Existing Condition Flood Exposure GIS Feature Class, *ExFldExpPol*: It appears that some fields are missing entries, including 'EXP_LWC'. Please complete all required fields with valid entries per Exhibit D Table 11. [31 TAC §361.33(c) & Exhibit C 2.2.A.2].
13. Existing Condition Flood Exposure GIS Feature Class, *ExFldExpPt*: Please ensure that the following critical facility types are included in the polygon feature class (*ExFldExpPol*) instead of the point feature class (*ExFldExpPt*): Schools, hospitals, and fire stations. Critical Infrastructure buildings should not be in the *ExFldExpPt* feature class. Please review and reconcile [31 TAC §361.33(c) & Exhibit C 2.2.A.2].
14. Existing Condition Flood Vulnerability GIS Feature Class, *ExFldExpAll*:
 - a. It appears that this feature class may not equal the sum of point, line, and polygon feature classes. Please ensure that total count of *ExFldExpAll* is the sum of *ExFldExpPt*, *ExFldExpLn*, and *ExFldExpPol* feature class counts [31 TAC §361.33(c), (d) & Exhibit C 2.2.A.2].
 - b. The Structure and Residential Structure counts in Table 3 do not appear to match the *ExFldExpAll* feature class counts. Please review and reconcile [31 TAC §361.33(c), (d) & Exhibit C 2.2.A.2].

SOW Task 2B

15. Future Condition Flood Hazard Analysis, Text: Please include total land areas (square miles) of each flood risk by flood risk type, county, region, and frequency as per guidance document (Exhibit C page 33): Submittal requirement number 3.
16. Future Condition Flood Risk Analyses, Text: Please include a reference to Exhibit C Table 5 in the text. As per guidance document (page 35): Once Task 2B Future Condition Flood Risk Analyses is complete, RFPs must include a summary table with findings summarizing flood risk by county (Exhibit C Table 5).
17. Future Condition Flood Exposure GIS Feature Class, *FutFldExpPol*: It appears that some fields are missing entries, including 'EXP_LWC'. Please complete all required fields with valid entries per Exhibit D Table 16 [31 TAC §361.34(c); Exhibit D 3.6.2].
18. Future Condition Flood Exposure GIS Feature Class, *FutFldExpPt*: It appears that some fields are missing entries, including 'EXP_LWC'. Please complete all required fields with valid entries per Exhibit D Table 18 [31 TAC §361.34(c); Exhibit D 3.6.2].
19. Future Condition Flood Vulnerability GIS Feature Class, *FutFldExpAll*: It appears that this feature class may not equal the sum of point, line, and polygon feature classes. Please ensure that count of *FutFldExpAll* is the sum of *FutFldExpPt*, *FutFldExpLn*, and *FutFldExpPol* feature class counts [31 TAC §361.34(c); Exhibit D 3.6.2].

SOW Task 3A

20. Existing Floodplain Management Practices GIS Feature Class, *ExFpMp*: ENTITY_ID 07002741 appears to have an invalid entry of "no" in the MIN_CODE field. Please revise to "No" as entries are case sensitive [31 TAC §361.35 & Exhibit C 2.3.A].

SOW Task 4B

21. Streams GIS Feature Class, *Streams*: Please ensure that all ID fields are entered correctly. For example, it appears that 'STREAM_ID' uses an incorrect unique ID formatting and is missing a leading zero. Unique IDs must be accurate for the database to be utilized properly. Please refer to Exhibit D Table 2 or more recent updates for Unique ID guidance. Please reconcile [Exhibit D 3.9].
22. Flood Management Evaluations (FME) GIS Feature Class, *FME*: It appears that some fields are missing entries, including 'GOAL_ID' and 'DESCR'. Please complete all required fields with valid entries per Exhibit D Table 23 [31 TAC §361.38(i) & Exhibit D 3.10].

SOW Task 5

23. Flood Management Evaluation (FME) Recommendations GIS Feature Class, *FME*: It appears that some fields are missing entries, including 'SOURCE' and 'DESCR'. Please complete all required fields with valid entries per Exhibit D Table 23 [31 TAC §361.38(i) & Exhibit D 3.10].
24. Flood Mitigation Project (FMP) Recommendations, Text: Each recommended FMP must be accompanied with an associated model or supporting documentation to show no negative impact. Please confirm that this was done and provide reference to supporting materials. As per the draft report (pages 175 and 176), each FMP description states, "The project was determined to have no negative impacts." For each recommended FMP, please identify in the plan how no negative impact was determined as required by the Exhibit C Section 3.6.A (page 108), either via a model or a study, and submit the associated model or include the study name.
25. Flood Mitigation Project (FMP) Recommendations Table (Exhibit C, Table 16): FMP_ID 073000006 does not appear to include a BCR in Table 13, Table 16, FMP_Details table, and the *FMP* feature class. Please populate the BCR field in Table 13, Table 16, and FMP Details table, and populate the 'BC_RATIO' field in the *FMP* feature class as required [31 TAC §361.38(h)(8) & Exhibit D 3.11].
26. Flood Mitigation Project (FMP) Recommendations GIS Feature Class, *FMP*: FMP_ID 073000006 does not appear to include a BCR in Table 13, Table 16, FMP_Details table, and the *FMP* feature class. Please populate the BCR field Table 13, Table 16, and FMP Details table, and populate the 'BC_RATIO' field in the *FMP* feature class as required [31 TAC §361.38(h)(8) & Exhibit D 3.11].
27. Flood Management Strategy (FMS) Recommendations GIS Feature Class, *FMS*: It appears that some fields are missing entries, including 'GOAL_ID'. Please complete all required fields with valid entries per Exhibit D Table 26 [31 TAC §361.39 & Exhibit D 3.10].

SOW Task 7

28. Flood Response Information and Activities, Text: Please include a general, written summary of actions taken or planned for to support recovery from past flood disasters in the region [31 TAC §361.42 & Exhibit C 2.7].

SOW Task 9

29. Flood Infrastructure Financing Analysis Table (Exhibit C, Table 19): Several entries for the Estimated Construction Cost field appear to be blank, however, it also does not appear that these are associated with FMEs, FMSs, or FMPs that include capital construction costs. Please review and populate these fields with "0" as appropriate [§361.44 & Exhibit C 2.9].

Level 2: Comments and suggestions for consideration that may improve the readability and overall understanding of the regional flood plan.

General Comments

30. Please consider adding 'bookmarks' within the PDF regional flood plan report.
31. Please consider adding a layer to relevant GIS maps throughout the plan that delineate the two smaller "regions" of the RFPG - i.e., the Llano Estacado vs Rolling Plains Region (On the caprock vs off the caprock). Some maps may benefit from a layer similar to this to show the differences between these two specific areas that are referenced within the plan.
32. Please consider reviewing maps, as necessary, to ensure that all relevant layers being shown are included as part of the legend. Some maps appear to show layers that may not be also referenced on the legend making it difficult to know what is being shown.
33. Please consider reviewing maps, as appropriate, that rely on a single color or single-color gradient for legibility and clarity. An example is FIGURE 4-4. It is unclear as to what the shading signifies across the region and whether darker shading means a higher density or lower. Please consider adding ranks to the legend for clarity.
34. To better align with our agency's preferred nomenclature, please consider using the name, "Cursory Floodplain Data" instead of "Fathom" or "Cursory Fathom Data" throughout the regional flood plan.

Executive Summary

35. Please consider reviewing, as appropriate, certain key dates included throughout the plan for accuracy. For example, the date of the establishment of the RFPG by TWDB on page 25: "Region 7 RFPG was established by the TWDB on October 29, 2020, to manage the flood planning efforts for the basin." While this date may have been the first meeting of the RFPG, October 1, 2020, was technically the date the RFPG was established by Board action along with the other 14 RFPGs.

SOW Task 1

36. Watersheds GIS Feature Class, *Watersheds*:
- a. When creating the *FME*, *FMP*, and *FMS* feature classes be sure to include watersheds identified in the strategies as part of the *Watersheds* feature class.
 - b. Please ensure 'WS_NAME' is populated with the correct name of the watershed. There are some cases (e.g., WD_IDs 07000450, 07000467) where the HU12 number is provided instead of the watershed name as stated in Exhibit D Section 3.2 Table 4.
37. Existing Flood Infrastructure Text (Exhibit C, Section 2.1): Please provide a description of how Low Water Crossings were identified within the text of Chapter 1.

38. Existing Flood Infrastructure GIS Feature Class, *ExFldInfraPol*:
- Please consider updating entry names within the GIS feature class from "TX ####" to "Unnamed [infra type]".
 - Please review the GIS feature class submission for coded value domain errors and reconcile as necessary.
39. Existing Flood Projects, Text:
- Please consider adding a section title/header to the existing projects section of Chapter 1.
 - For clarity, please consider referencing, within the text of the plan document, the location of Map 2 in Appendix A as well as all other maps associated with existing projects that are discussed in the plan.

SOW Task 2A

40. Existing Condition Flood Hazards Map (Exhibit C, Map 4): Please consider adding distinct map names for the two Map 4 PDFs included in the submission (e.g., Ex. Flood Risk Type or Flood Frequency).
41. Existing Condition Flood Hazard Exposure Table (Exhibit C, Table 3): Please consider reviewing the data included in Table 3 as it appears the totals may be cumulative (effectively double counting) between existing and future conditions.
42. Existing Condition Flood Hazard Exposure GIS Feature Class, *ExFldExpPt*: There are some locations where road segments intersect with streams within the hazard extent (e.g., STREAM_ID 70081658 at TXDOT_Road_Inventory ObjectID 333682) which may indicate a Low Water Crossing. Please consider reviewing and adding those points as appropriate.
43. Existing Condition Flood Exposure GIS Feature Class, *ExFldExpPol*: The agricultural coverage layers appear to have irregular triangle and rectangular features that may be a result of the conversion of a raster to polygon. Please consider reviewing and revising.
44. Existing Condition Flood Vulnerability, Text: Please consider providing further descriptions on how vulnerability was assessed. Consider providing more details about if proximity to a floodplain, proximity to other bodies of water, past flooding issues, emergency management plans, and location of critical systems like primary and back-up power were assessed.
45. Existing Condition Flood Vulnerability GIS Feature Class, *ExFldExpAll*: Please consider reclassifying features with entries of "Other" for the 'EXP_TYPE' field. For example, some features with 'CRIT_TYPE' as "Fire" or "School" may be better categorized as "Public Bldg" for the 'EXP_TYPE' field.
46. Existing Condition Flood Vulnerability Map (Exhibit C, Map 7):
- Please consider changing label from "High SVI Area" to "High SVI Structure" or add description of what the point feature class contains in the footnote below the legend.
 - Please consider adding a separate point symbology class for LWCs.

SOW Task 2B

47. Future Condition Flood Vulnerability, Text: Please consider providing further descriptions on how vulnerability was assessed. Consider providing more details about if proximity to a floodplain, proximity to other bodies of water, past flooding issues, emergency management plans, and location of critical systems like primary and back-up power were assessed.

48. Future Condition Flood Hazard Map (Exhibit C, Map 8): Please consider adding distinct map titles for the two Map 8 PDFs included in the submission (e.g., Flood Risk Type or Flood Frequency).
49. Future Condition Flood Exposure, Text: Please consider providing more detail about how the future conditions summary of buildings, roadways crossings, length of roadway segments, agricultural land and other identified items that are located within the flood hazard area identified in the future condition flood hazard analysis.
50. Existing Flood Exposure GIS Feature Class, *FutFldExpPol*: The agricultural coverage layers appear to have missing rectangular features that may be a result of the conversion of a raster to polygon. Please consider reviewing and revising, as appropriate to meet the requirements as stated in §361.33(c).

SOW Task 3A

51. Existing Floodplain Management Practices, Text: Please consider expanding upon the information provided in the Table 6 as part of Chapter 3.
52. Existing Floodplain Management Practices Table (Exhibit C, Table 6 and GIS Table *ExFpMp*): It is not clear that all entities included in Table 6 have floodplain management authority. Please review to confirm list. [31 TAC §361.35 & Exhibit C 2.3.A].

SOW Task 3B

53. Goals, Text: Please consider expanding upon Chapter 3B text related to the goals selected by the Regional Flood Planning Group.

SOW Task 4A

54. Greatest Gaps Map (Exhibit C, Map 14): Please provide further description in the legend to describe what is the highest gap and the lowest. Consider making a "note" or description on the map.
55. Greatest Risk Map (Exhibit C, Map 15): Please provide further description in the legend to describe what is the highest gap and the lowest. Consider making a "note" or description on the map.

SOW Task 4B

56. Streams GIS Feature Class, *Streams*: It appears that some streams included in identified FMEs are not included in the *Streams* feature class. For example, FME_IDs 07100029, 07100023, and 07100094. Please review and consider including relevant streams.
57. Flood Management Evaluations (FME), Text: Please verify that identified FMEs do not duplicate effort of TWDB-funded FIF Category 1 studies and state how the FME will expand on and/or utilize the existing study. For example, FIF ID 40065 (Lubbock - Flood Protection Planning for Watersheds) appear to overlap with listed several FMEs including FME_IDs 07100022 and 07100065.
58. Flood Management Evaluations (FME) Table (Exhibit C, Table 12): Please verify that identified FMEs do not duplicate effort of TWDB-funded, FIF Category 1 studies and state how the FME will expand on and/or utilize the existing study. For example, FIF ID 40065 (Lubbock - Flood Protection Planning for Watersheds) appear to overlap with listed several FMEs including FME_IDs 07100022 and 07100065.

59. Flood Management Evaluations (FME) GIS Feature Class, *FME*: For county-wide FMEs where a majority of the county falls outside of the RFPG boundary, please include justification how the FME benefits the region and please coordinate with other RFPGs to make sure the efforts are not duplicated.
60. Flood Management Strategies (FMS), Text: Please ensure FMSs are categorized correctly to only include non-recurring, non-capital cost. Please consider reviewing certain; FMSs that include Flood Measurement and Warning Systems and Infrastructure Projects to ensure they should not be categorized as FMPs or FMEs.
61. Flood Management Strategies (FMS) Map (Exhibit C, Map 18): Please consider revising map to show FMS extents more clearly.

SOW Task 5

62. Flood Management Evaluation (FME) Recommendations, Text: Please verify that identified FMEs do not duplicate effort of TWDB-funded, FIF Category 1 studies and state how the FME will expand on and/or utilize the existing study. For example, FIF ID 40065 (Lubbock - Flood Protection Planning for Watersheds) appear to overlap with listed several FMEs including FME_IDs 07100022 and 07100065.
63. Flood Management Evaluation (FME) Recommendations Table (Exhibit C, Table 15): Please verify that identified FMEs do not duplicate effort of TWDB-funded, FIF Category 1 studies and state how the FME will expand on and/or utilize the existing study. For example, FIF ID 40065 (Lubbock - Flood Protection Planning for Watersheds) appear to overlap with listed several FMEs including FME_IDs 07100022 and 07100065.
64. Flood Management Evaluation (FME) Recommendations Table (Exhibit C Table 15): Several recommended FMEs which are at the regional scale appear to be better classified as Flood Management Strategies (FMS). For example, FME_IDs 131000173-131000179. Please review to determine if reclassification is warranted. Please ensure any changes made are reflected across all related deliverables.
65. Flood Management Evaluation (FME) Recommendations Map (Exhibit C, Map 19): It appears difficult to determine the specific extents of the FMEs in Map 19. Please consider, for example, modifying the color scheme for this map or providing outlines for each FME.
66. Flood Mitigation Project (FMP) Recommendations Map (Exhibit C, Map 20): It appears difficult to determine the location of the recommended FMPs in Map 20. Please consider, for example, modifying the color scheme for this map or specifying FMP locations more clearly.
67. Flood Mitigation Project (FMP) Details Geodatabase, *FMP_Details*: Please review and consider populating as many fields as possible.
68. Flood Management Strategy (FMS) Recommendations, Text: Please ensure FMSs are categorized correctly to only include non-recurring, non-capital cost. Please consider reviewing certain FMSs that include Flood Measurement and Warning Systems and Infrastructure Projects to ensure they should not be a categorized as FMPs or FMEs.
69. Flood Management Strategy (FMS) Recommendations Map (Exhibit C, Map 21): It appears difficult to determine the extents of the specific FMSs in Map 21. Please consider, for example, modifying the color scheme for this map or providing outlines for each FMS.

AMENDED JULY 14, 2023

APPENDIX D – PUBLIC COMMENT

2 TPWD UPPER BRAZOS RFP COMMENT LETTER

October 27, 2022



Life's better outside.®

Michael Keenum, Chair
Upper Brazos Regional Flood Planning Region
c/o South Plains Association of Governments
1323 58th Street
Lubbock, Texas 79412

Re: 2023 Draft Upper Brazos Regional Flood Plan

Commissioners

Arch "Beaver" Aplin, III
Chairman
Lake Jackson

Dick Scott
Vice-Chairman
Wimberley

James E. Abell
Kilgore

Oliver J. Bell
Cleveland

Paul L. Foster
El Paso

Anna B. Gaio
Laredo

Jeffery D. Hildebrand
Houston

Robert L. "Bobby" Patton, Jr.
Fort Worth

Travis B. "Blake" Rowling
Dallas

Lee M. Bass
Chairman-Emeritus
Fort Worth

T. Dan Friedkin
Chairman-Emeritus
Houston

Carter P. Smith
Executive Director

Chair Keenum:

In 2019 Senate Bills 7 and 8 established a regional and state flood planning process for Texas, aimed at better managing flood risk to reduce loss of life and property. As part of the process, Texas Parks and Wildlife Department (TPWD) was identified as a member of the regional flood planning groups (Texas Water Code Sec. 16.062). The mission of TPWD is to manage and conserve the natural and cultural resources of Texas and its ability to provide opportunities of hunting, fishing, and outdoor recreation for the use and enjoyment of present and future generations. TPWD values this opportunity to contribute to the flood planning process with the goal of enhancing flood risk management and achieving beneficial flood mitigation outcomes. Toward this effort TPWD members serve a dual role of supporting the voting membership in development of the plans and representing the natural resource interests of the state.

TPWD applauds the Upper Brazos Regional Flood Planning Group for their efforts in completing the inaugural regional flood plan (RFP) especially considering the abbreviated timeline. Through the exceptional efforts of the RFPG, this plan will be a meaningful tool for reducing flood impacts to society, especially in those disastrous events that cause loss of life and injury. Because this represents the initial region-wide plan, it has the potential to be precedent setting for subsequent iterations. As such, it is important this plan recognizes the role nature and nature-based solutions can play in flood risk management and promotes opportunities to protect, enhance and restore the flood mitigation benefits provided by natural landforms.

TPWD is supportive of the planning process outlined by the Texas Water Development Board (TWDB) because it aims to achieve an integrative flood risk management (FRM) approach that prioritizes risk reduction through implementation of floodplain management, land use regulations, policy, and a balanced use of grey and natural and nature-based (NNBS) flood mitigation measures that are formed by inclusive participation at all levels of society. TPWD believes this integrative approach when implemented holistically will achieve the maximum benefits for society and natural ecosystems while minimizing environmental impacts. Recent published works on FRM and NNBS (Bridges et al 2021, Glick et al 2020, World Wildlife Fund 2016, Sayers et al 2013) support TWDB integrative flood management approach and provide extensive resources for flood planners.

In the interest of achieving the state's flood risk management goals while protecting the state's fish and wildlife resources, TPWD reviewed regional flood plans based on the TWDB guidance principals as described in 31 Texas Administrative Code Chapters 361 and 362. Special focus was provided on the following subset of guidance principals due to its relevance to fish and wildlife management.

- Does the draft flood plan use the best available science, data, models, and flood risk mapping?
- Does the draft flood plan consider the potential upstream and downstream effects, including environmental, of potential flood management strategies (and associated projects) of neighboring areas?
- Does the draft flood plan include strategies and projects that provide for a balance of structural and non-structural flood mitigation measures, including projects that use nature-based features that lead to long-term mitigation of flood risk?
- Does the draft flood plan consider natural systems and beneficial functions of floodplains, including flood peak attenuation and ecosystem services?
- Does the draft flood plan encourage flood mitigation design approaches that work with, rather than against, natural patterns and conditions of floodplains?
- Does the draft flood plan seek to not cause long-term impairment to the designated water quality as shown in the state water quality management plan as a result of a recommended flood management strategy or project?
- Does the draft flood plan consider benefits of flood management strategies to water quality, fish and wildlife, ecosystem function, and recreation, as appropriate?
- Does the draft flood plan minimize adverse environmental impacts and be in accordance with adopted environmental flow standards?
- Does the draft flood plan consider multi-use opportunities such as green space, parks, water quality, or recreation, portions of which could be funded, constructed, and or maintained by additional, third-party project participants?

Additionally, TPWD emphasizes that the following FRM concepts identified in the forementioned literature be incorporated into the RFP.

- Flood is a natural process that has many benefits to human and natural systems.
- Promoting some flooding as desirable and making room for water promotes native species, maintains vital ecosystem services, and reduces the chance of flooding elsewhere.
- Natural landscapes and watersheds provide flood mitigation functions that should be promoted, protected, enhanced, and restored.
- Prioritize risk reduction over flood control by focusing first on reducing loss of life and injury.
- Utilize limited resources fairly.
- Address flood risk using a portfolio approach to first implement non-structural (policy, land management, emergency management) followed by structural (grey and natural and nature-based) strategies.
- Criteria for assessing projects strategies should include a comprehensive suite of measures spanning economical, operational, societal, and environmental

- advantages and disadvantages. Assessments focusing on economics alone (number of buildings, acres) should be avoided.

Upper Brazos Regional Flood Plan Comments

TPWD supports prioritizing data collection for areas in Region 7 that currently do not have data or have old data regarding flood risk. Reviewing existing data, updating current data, and collecting new data about flood risk and flood prone areas in Region 7 enhances the ability to reduce loss of life and damage to infrastructure by floods in future planning cycles (Task 1).

TPWD is the state agency with the primary responsibility for protection of the state's fish and wildlife resources and providing information and recommendations to local, state, and federal agencies and other organizations (Parks and Wildlife Code (PWC) §12.0011). The Upper Brazos Flood Planning Region incorporates the critical habitat (79 Federal Register (FR) 45241) for the endangered (79 FR 45273) Smalleye Shiner *Notropis buccula* and Sharpnose Shiner *Notropis oxyrhynchus* (FWS-R2-ES-2013-008). Both fish are broadcast spawners and require unobstructed, wide, flowing river segments lengths of greater than 275 km to support development of their early life stages (Fish and Wildlife Service, 2020). The critical habitat designation in the region provides information about the species and what is required for them to survive. Freshwater mussels are another species that are impacted from stream bed modifications. TPWD works with agencies and consultants across the state on construction projects impacting bed and banks to reduce impacts to Texas' unique freshwater mussel species. The Brazos Basin includes two species that are currently under review for federal listing, and one is located within the regional flood planning group's boundaries, the Texas Fawnsfoot *Truncilla macrodon*. TPWD looks forward to working with project sponsors within the critical habitat from project concept to finish. Working together from the start of a project allows for discussions and shorter timeline for project completion.

The Texas Conservation Action Plan Handbook (TCAP; Texas Parks and Wildlife Department, 2012) provides guidance for conservation in the state of Texas, with the goals of realizing conservation benefits, preventing species listings, and preserving our natural heritage for future generations. The TCAP focuses on Species of Greatest Conservation Need (SGCN) that include numerous aquatic species such as fish, freshwater mussels, and salamanders. The TCAP handbook includes six types of priority habitats, three of which are aquatic: water resources; riparian and floodplains; and caves and karst. Issues affecting these environments include environmental flows, impoundments and dam operations, and water quality issues (including stormwater runoff).

In Task 1, Natural Features (Page 65) are described as, "...rivers, tributaries, reservoirs/lakes, wetlands, and playas[.]" TPWD would like to request the RFPG add springs to the list of natural features for the Upper Brazos Regional Flood Planning area as springs are located throughout Region 7. Springs provide base flow for our rivers and tributaries, have historical use, provide recreational opportunities, and contain species unique to Texas.

TPWD believes that wetlands play an important role in flood mitigation, water quality, and recharge to aquifers (Task 1, Natural Features, page 67). As mentioned in the draft

plan, wetlands make up the largest amount of area for flood infrastructure in the region. The draft plan states, "...the wetlands have a minor role in mitigating flood risk and providing flood protection in Region 7." The Environmental Protection Agency states that the holding capacity of wetlands helps control flood and prevents water logging of crops and that preservation of wetlands provides water retention that can reduce or replace costly dredge operations and levees (EPA 2022). TPWD recommends that the draft plan state that wetlands provide a major role in mitigating flood risk and providing flood protection for the region (Task 1, Natural Features - Wetlands, page 67).

TPWD supports and agrees that playas are one of the most significant ecological features in the Texas High Plains (Task 1, Natural Features, Playas, pages 66-67). TPWD supports the restoration of deficient playas and the collaborative work with the Texas Playa Conservation Initiative (Task 1, pages 72-73), landowners, and state and local agencies. Continued restoration and preservation of playas provides flood mitigation as well as wildlife habitat and supports aquifer recharge. The Playa Lakes Wildlife Management Area (WMA) Dimmit Unit is in Castro County and includes 345 acres of farmland that has been planted with native grass and a 77-acre playa basin. The WMA was purchased in 1990 for the purpose of developing an area where soil, water, and wildlife conservation practices are implemented.

The RFP identified 3 Flood Management Projects (FMPs), 266 potentially feasible Flood Management Evaluations (FMEs), and 63 potentially feasible Flood Management Strategies (FMSs). TPWD understands that the goal of the RFP is to mitigate floods to reduce risk to life and property and encourages the use of nature-based solutions, such as the Bovia Buyout Program and the use of playas to assist with flood mitigation. The Draft RFP states that none of the projects or strategies are anticipated to have negative effects.

TPWD would like to encourage all the proposed Flood Management Evaluations, Plans, and Strategies proponents to consider stream crossing designs that allow for sediment transport and passage of aquatic organisms and do not impound water. Basically, designs that are invisible to the creek. This includes bridges that span the creek where possible or culverted crossings designed with the culvert(s) in the active channel area lower than those in the floodplain benches so that the flow in the channel is not overly spread out. The central/low-flow culvert(s) should be large enough to handle a 1.5 year flow without backing up water. The bottoms of these lower culverts should be set at least a foot below grade (i.e. recessed) to allow natural substrate to cover the culvert bottom and to allow for aquatic organism passage. These lower, recessed culverts should be installed in the thalweg or deepest part of the channel and be aligned with the low flow channel (Clarkin et al., 2006).

Dams are one of the most abundant constructed flood infrastructure features in Region 7, and have many uses including water storage for municipal utilities, industrial use, agricultural use (including irrigation), recreational use, and flood risk mitigation (Task 1, Dams, page 68). Task 1 also discusses dam safety assessments and that the dams in Texas overall scored a D+ by the American Society of Professional Engineers in the 2021 Infrastructure Report Card (ASCE 2021). The Draft Region 7 plan recommends more information be gathered about the known functionality of the 230 dams within the region, including 23 flood control dams classified as high hazard (Task 1, Reason for

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Functionality and Deficiency, page 72). TPWD supports this recommendation as it relates to dam functionality and safety, and supports the flood risk reduction projects focused on dam functionality and safety (E.g. FMS 07200145 and 072000160). In 2015, the Texas Commission on Environmental Quality (TCEQ) performed a dam inspection of Abilene Dam at Lake Abilene. The TCEQ inspection report recommends repairs and maintenance of the dam which could be added to flood risk reduction projects ensuring the protection of human life and infrastructure as well as providing potential funding assistance for repairs and maintenance from flood planning funds. TPWD operates Abilene State Park immediately below the Abilene Dam making park visitor safety and infrastructure impacts from floods a top priority for TPWD operations. TPWD looks forward to working with the City of Abilene to ensure maintenance and dam safety of Abilene Dam continues to progress.

TPWD would like to add data about Abilene State Park and impacts that occur during high flow events to the RFP. The state park experiences consistent historical road closures during times of flooding. For example, in 2016, Park Road 32 near the entrance of Abilene State Park was washed out when water from the emergency spillway flowed down the tributary and across the road. In 2018, FM 89 and Park Road 32 were closed after heavy rain and releases from the spillway overtopped the roads. The emergency exit for the park is near the spillway and has almost flooded during past events. We look forward to working with Region 7 to provide more detailed information regarding flood infrastructure and human safety needs for Abilene State Park.

We reviewed the Flood Management Evaluation (Appendix C, page 146 of 277) for the "City of Abilene Operations of Lake Abilene" (FMP ID 073000003) that is described in Appendix C as, "Increase available flood storage in the reservoir." TPWD would like to learn more about this project and looks forward to working collaboratively with the City of Abilene on this project.

TPWD supports FMS 072000004, the City of Abilene Gauge Program to install automated creek rain gauges. Stream gauge systems provide vital information about stream flows and water level increases earlier improving response time for evacuations for the county, city, and the state park.

In Region 7, three counties lead as oil and gas producers (Task 1, page 59) and seven other counties have significant production totaling ~37.2M bbl (billion barrels of petroleum oil) and 52.8 M mcf (thousand cubic feet of gas) in 2020 (Table 1-4). The draft plan mentions oil and gas concerns include the type of pipes used to transport oil and gas products, and the unknown base flood elevations in much of the region that may impact electrical components (Task 2, page 96). TPWD would like the RFPG to include compliance with required maintenance and safety regulations for oil and gas operations and storage facilities in the RFP. The safety and maintenance regulations are important preventative measures that reduce the likelihood of a spill or release event. For example, berms around storage facilities and the maintenance of the buried pipelines (along with other long-term maintenance for all oil and gas structures) are put in place so spills are quickly contained. The Lake Alan Henry contamination occurred after a flooding event in an area where the oil pipeline crossed an ephemeral portion of the river and was left uncovered and unprotected (Task 2, Page 96;

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<https://www.lubbockonline.com/story/news/local/2010/07/07/oil-spill-river-closes-lake-alan-henry/15269671007/>).

TPWD has two properties in Region 7, Abilene State Park in Taylor County and Playa Lakes Wildlife Management Area – Dimmit Unit in Castro County. TPWD will be adding flood related information for these properties to the Region 7 GIS quilt. TPWD has a GIS data layer containing all the TPWD properties which is available to the Regions .

In addition to the comments above, TPWD would also like to offer the following edits on the draft plan:

- Executive Summary, page 27 – Reword the last sentence for clarity.
- Task 8, Administrative Recommendations, 1)a) – remove “has” after “city” and before “may”

Thank you for your consideration of these comments. TPWD looks forward to continuing to work with the planning group to develop flood plans that protect life and property but are also beneficial to the environment. Please contact Marty Kelly at (512) 389 – 8214 or at Marty.Kelly@TPWD.Texas.gov or Jennifer Bronson Warren at (254) 867 – 7986 or at jennifer.bronson-warren@TPWD.Texas.gov if you have any questions or comments.

Sincerely,



Marty Kelly

MK:jbw

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AMENDED JULY 14, 2023

APPENDIX D – PUBLIC COMMENT

3 USACE RFP COMMENTS

RFPG Comments Regarding Legislative Recommendations, Regulatory and Administrative Recommendations and State Flood Planning Recommendations

Name	Flood Plan Recommendations	Comments
Jerry Cotter	Table 8.1 Legislative	
	<p>Non regulatory regional flood control or drainage districts should be established and funded for rapidly growing urban areas such as DFW, Houston, San Antonio, etc. Responsibility would be to provide consistency, technical resources, funding and reviews in support of FME's, FMS's. These organizations would also implement or support implementation of FMP's. These organizations would augment communities and counties that just don't have the resources and expertise to manage flooding.</p>	<p>Rapidly developing areas surrounding larger urban centers are at greater risk of having runoff patterns increasing because of development. These urban areas are comprised of many communities and unincorporated county areas. Many of the smaller communities are not funded or resourced to deal with the complexities of floodplain management and therefore there is a lack of or inconsistencies in floodplain management practices.</p>
	<p>Clarify the early 2000's state legislation that provide counties the authority to regulate floodplains to explicitly allow and encourage activities associated with floodplain management such as development of land use plans, regulatory authorities, e.g. permitting.</p>	<p>Although state legislation was passed in the early 2000's which gave counties the ability to regulate floodplains, interpretation of these regulations varies widely from county to county. The legislative bill lacks implementation guidance in the form of administrative rules. If development is occurring in unincorporated areas, this development can dynamically impact flood risk.</p>

RFPG Comments Regarding Legislative Recommendations, Regulatory and Administrative Recommendations and State Flood Planning Recommendations

Name	Flood Plan Recommendations	Comments
Jerry Cotter	Table 8.2 Regulatory	
	<p>Require the use of n-values and channel conditions which would likely result if the channel or project were not maintained. Exceptions would be golf courses or other areas where an organization exists which would maintain the channel in perpetuity. Disallow maintenance by marginal organizations such as home owners associations to justify acceptance of lower n-values as this is an unrealistic expectation.</p>	<p>When channels are constructed, most often channel bed, banks and overbanks are cleared; however; with many miles of these channels, it is often difficult for communities to maintain those beds, banks and overbanks at their design conditions. Generally, there is a lack of channel maintenance to ensure flood conveyance areas, established as part of a development or improvement projects, to retain their design level n-values. This results in unexpected changes in channel conveyance and increased flooding. Channel maintenance is very expensive activity that can trigger environmental permitting requirements.</p>
	<p>No loss of valley storage to the 500-year level. Communities could allow redistribution of valley storage to allow interactions with natural areas but no loss of storage.</p>	<p>Land development in upstream areas increases runoff in downstream areas. This happens because of increased impervious cover and decreased tree cover, and therefore less ability to absorb rainfall. Additionally, development, in most communities, encroaches into riparian areas and decreases the amount of storage available to accommodate flood waters. Just the main thread of the Trinity River though DFW stores more flood waters during of flood than any three of the USACE reservoirs that provide flood protection for DFW. The many other stream provide even more storage than the main stem. There is limited capacity in rivers and streams to convey floodwaters. This means that all areas above any given conveyance point have to store flood water until sufficient time has lapsed to pass the water away from the impacted area. The streams are where this water is stored and depleting these storage areas will impact DS areas.</p>
	<p>Establish future land use plans for unincorporated areas associated with rapidly growing urban areas.</p>	<p>"</p>
	<p>Use of ultimate development land use conditions in the development of future flows. Require use of future flows for regulation of floodplains and development of FMP's.</p>	<p>"</p>

RFPG Comments Regarding Legislative Recommendations, Regulatory and Administrative Recommendations and State Flood Planning Recommendations		
Name	Flood Plan Recommendations	Comments
Jerry Cotter	Table 8.3 State Flood Planning Recommendations	
	None	
	Potential FMS	
	Encourage storm shifting to validate 100-yr estimates and to provide a broader understanding of communities actual flood risk Storms identified and cataloged as part of the GLO funded USACE led Texas Storm Study could be the primary source of storms to be shifted.	Notes: Great deal of uncertainty in 100-yr estimates. Use of observed storms that approximately match depth duration data from NOAA Atlas 14 or other precipitation frequency sources validates 100-yr estimates. Additionally wet, dry and average conditions as well as conditions at the time the storm occurred can be presented. Additionally, communities have and can experience storms that exceed the 100-yr. While not regulatory, this information will provide additional hazard mitigation data so communities can address critical infrastructure impacts and be better prepared.
	Add detail to Watershed Hydrology Assessments (WHA) for communities within basins with completed WHA's. The WHA for the Trinity has been completed.	The WHA's, funded by FEMA, are considered the best available flood flow frequency estimates, e.g. 100-yr. These estimates consider the latest precipitation frequencies, the variations in watershed response and determine critical flood drivers by employing a wide range of sensitivity analysis for each computation point.
	Update WHA's when future precipitation frequency estimates become available. Efforts to develop future precipitation frequency estimates for Texas are starting.	
	Establish regional efforts, for large urban centers to develop future land use data for all developing areas, not just incorporated areas, for use in developing future flood flow frequency estimates and future 100-yr (and other recurrence interval) hazard boundaries.	

AMENDED JULY 14, 2023

APPENDIX D – PUBLIC COMMENT

4 DRAFT PLAN COMMENT RESPONSE LOG

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
General	TWDB	1	Please ensure that all "Submittal requirements" identified in each of the Exhibit C Guidance document sections are submitted in the final flood plan.	Yes	Final Plan has received a QC against the Exhibit C Submittal Guidance.
General	TWDB	2	Please ensure that all the prior TWDB comments on the region's Technical Memorandum are addressed in the final plan submission. It appears that many of the same issues remain unaddressed in the draft plan submission. An example of this includes Unique ID errors throughout Feature Classes and Tables within the draft submission.	Yes	Tech Memo comments included in this log.
T01	TWDB	3	Planning Area Description, Text: Table 1-9 (page 64) lists "0" emergency service facilities at risk. However, Figure 1-15 (page 64) indicates multiple red dots depicting emergency services that appear to be at risk. Please reconcile.	Yes	Tables have been reconciled with latest GIS updates.
T01	TWDB	4	Existing Flood Infrastructure GIS Feature Class, <i>ExFldInfraPt</i> : Please inc	Yes	GIS datasets were reviewed and reconciled.
T01	TWDB	5	Existing Flood Infrastructure GIS Feature Class, <i>ExFldInfraPol</i> : It appears that some fields contain invalid 'NULL' entries, including 'NAT_BUILT'. Please complete all required fields with valid entries per Exhibit D Table 5 [31 TAC §361.31 & Exhibit D 3.3].	Yes	GIS datasets were reviewed and reconciled.
T01	TWDB	6	Existing Flood Infrastructure GIS Feature Class, <i>ExFldInfraLn</i> : It appears that some fields contain invalid 'NULL' entries, including 'NAT_BUILT' and 'DEF_DESCR'. Please complete all required fields with valid entries per Exhibit D Table 5 [31 TAC §361.31 & Exhibit D 3.3].	Yes	GIS datasets were reviewed and reconciled.
T01	TWDB	7	Existing Flood Projects, Text: Please include the expected year of completion for existing projects in Table 1-14, or reference where this can be found in Exhibit C Table 2 [31 TAC§361.32].	Yes	Added additional information to report tables.
T02A	TWDB	9	Existing Condition Flood Hazard Analysis, Text: Please include total land areas (square miles) of each flood risk by flood risk type, county, region, and frequency as per guidance document (Exhibit C page 24): Submittal requirement number 2.	Yes	Added additional information to report tables.
T02A	TWDB	10	Existing Condition Flood Risk Analyses, Text: Please include a reference to Exhibit C Table 3 in the text as per guidance document (Exhibit C page 27): Once Task 2A Existing Condition Flood Risk Analyses is complete, RFPs must include a summary table with findings summarizing flood risk by county (Exhibit C Table 3).	Yes	Reference added to report
T02A	TWDB	11	Existing Condition Flood Exposure Table (Exhibit C, Table 3): The Structure and Residential Structure counts in Table 3 do not appear to match the <i>ExFldExpAll</i> feature class counts. Please review and reconcile [31 TAC §361.33 & Exhibit C 2.2.A.3].	Yes	Datasets were reviewed and reconciled.
T02A	TWDB	12	Existing Condition Flood Exposure GIS Feature Class, <i>ExFldExpPol</i> : It appears that some fields are missing entries, including 'EXP_LWC'. Please complete all required fields with valid entries per Exhibit D Table 11. [31 TAC §361.33(c) & Exhibit C 2.2.A.2].	Yes	Datasets were reviewed and reconciled.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T02A	TWDB	13	Existing Condition Flood Exposure GIS Feature Class, <i>ExFldExpPt</i> : Please ensure that the following critical facility types are included in the polygon feature class (<i>ExFldExpPol</i>) instead of the point feature class (<i>ExFldExpPt</i>): Schools, hospitals, and fire stations. Critical Infrastructure buildings should not be in the <i>ExFldExpPt</i> feature class. Please review and reconcile [31 TAC §361.33(c) & Exhibit C 2.2.A.21]	Yes	Datasets were reviewed and reconciled.
T02B	TWDB	15	Future Condition Flood Hazard Analysis, Text: Please include total land areas (square miles) of each flood risk by flood risk type, county, region, and frequency as per guidance document (Exhibit C page 33): Submittal requirement number 3.	Yes	Added additional information to report tables.
T02B	TWDB	16	Future Condition Flood Risk Analyses, Text: Please include a reference to Exhibit C Table 5 in the text. As per guidance document (page 35): Once Task 2B Future Condition Flood Risk Analyses is complete, RFPs must include a summary table with findings summarizing flood risk by county (Exhibit C Table 5).	Yes	Reference added to report
T02B	TWDB	17	Future Condition Flood Exposure GIS Feature Class, <i>FutFldExpPol</i> : It appears that some fields are missing entries, including 'EXP_LWC'. Please complete all required fields with valid entries per Exhibit D Table 16 [31 TAC §361.34(c); Exhibit D 3.6.2].	Yes	Datasets were reviewed and reconciled.
T02B	TWDB	18	Future Condition Flood Exposure GIS Feature Class, <i>FutFldExpPt</i> : It appears that some fields are missing entries, including 'EXP_LWC'. Please complete all required fields with valid entries per Exhibit D Table 18 [31 TAC §361.34(c); Exhibit D 3.6.2].	Yes	Datasets were reviewed and reconciled.
T02B	TWDB	19	Future Condition Flood Vulnerability GIS Feature Class, <i>FutFldExpAll</i> : It appears that this feature class may not equal the sum of point, line, and polygon feature classes. Please ensure that count of <i>FutFldExpAll</i> is the sum of <i>FutFldExpPt</i> , <i>FutFldExpLn</i> , and <i>FutFldExpPol</i> feature class counts [31 TAC §361.34(c); Exhibit D 3.6.2].	Yes	Datasets were reviewed and reconciled.
T03A	TWDB	20	Existing Floodplain Management Practices GIS Feature Class, <i>ExFpMp</i> : ENTITY_ID 07002741 appears to have an invalid entry of "no" in the MIN_CODE field. Please revise to "No" as entries are case sensitive [31 TAC §361.35 & Exhibit C 2.3.A].	Yes	Datasets were reviewed and reconciled.
T04B	TWDB	21	Streams GIS Feature Class, <i>Streams</i> : Please ensure that all ID fields are entered correctly. For example, it appears that 'STREAM_ID' uses an incorrect unique ID formatting and is missing a leading zero. Unique IDs must be accurate for the database to be utilized properly. Please refer to Exhibit D Table 2 or more recent updates for Unique ID guidance. Please reconcile [Exhibit D 3.9].	Yes	Datasets were reviewed and reconciled.
T04B	TWDB	22	Flood Management Evaluations (FME) GIS Feature Class, <i>FME</i> : It appears that some fields are missing entries, including 'GOAL_ID' and 'DESCR'. Please complete all required fields with valid entries per Exhibit D Table 23 [31 TAC §361.38(i) & Exhibit D 3.10].	Yes	Datasets were reviewed and reconciled.
T05	TWDB	23	Flood Management Evaluation (FME) Recommendations GIS Feature Class, <i>FME</i> : It appears that some fields are missing entries, including 'SOURCE' and 'DESCR'. Please complete all required fields with valid entries per Exhibit D Table 23 [31 TAC §361.38(i) & Exhibit D 3.10].	Yes	Datasets were reviewed and reconciled.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T05	TWDB	24	Flood Mitigation Project (FMP) Recommendations, Text: Each recommended FMP must be accompanied with an associated model or supporting documentation to show no negative impact. Please confirm that this was done and provide reference to supporting materials. As per the draft report (pages 175 and 176), each FMP description states, "The project was determined to have no negative impacts." For each recommended FMP, please identify in the plan how no negative impact was determined as required by the Exhibit C Section 3.6.A (page 108), either via a model or a study, and submit the associated model or include the study name.	Yes	Added additional information to report.
T05	TWDB	25	Flood Mitigation Project (FMP) Recommendations Table (Exhibit C, Table 16): FMP_ID 073000006 does not appear to include a BCR in Table 13, Table 16, FMP_Details table, and the <i>FMP</i> feature class. Please populate the BCR field in Table 13, Table 16, and FMP Details table, and populate the 'BC_RATIO' field in the <i>FMP</i> feature class as required [31 TAC§361.38(h)(8) & Exhibit D 3.11].	Yes	This project is a non-structural FMP that consists of adding flood warning features to a low lying region. There are no benefits from a traditional BCR perspective but significant benefits to public safety. Following the direction of TWDB the BCR has been updated to 0.
T05	TWDB	26	Flood Mitigation Project (FMP) Recommendations GIS Feature Class, <i>FMP</i> : FMP_ID 073000006 does not appear to include a BCR in Table 13, Table 16, FMP_Details table, and the <i>FMP</i> feature class. Please populate the BCR field Table 13, Table 16, and FMP Details table, and populate the 'BC_RATIO' field in the <i>FMP</i> feature class as required [31 TAC§361.38(h)(8) & Exhibit D 3.11].	Yes	This project is a non-structural FMP that consists of adding flood warning features to a low lying region. There are no benefits from a traditional BCR perspective but significant benefits to public safety. Following the direction of TWDB the BCR has been updated to 0.
T05	TWDB	27	Flood Management Strategy (FMS) Recommendations GIS Feature Class, <i>FMS</i> : It appears that some fields are missing entries, including 'GOAL_ID'. Please complete all required fields with valid entries per Exhibit D Table 26 [31 TAC §361.39 & Exhibit D 3.10].	Yes	GIS datasets have been reviewed and reconciled.
T07	TWDB	28	Flood Response Information and Activities, Text: Please include a general, written summary of actions taken or planned for to support recovery from past flood disasters in the region [31 TAC §361.42 & Exhibit C 2.71].	Yes	Addition discussion added to the Task 7 narrative.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T09	TWDB	29	Flood Infrastructure Financing Analysis Table (Exhibit C, Table 19): Several entries for the Estimated Construction Cost field appear to be blank, however, it also does not appear that these are associated with FMEs, FMSs, or FMPs that include capital construction costs. Please review and populate these fields with "0" as appropriate [§361.44 & Exhibit C 2.9].	Yes	All values completed
T02A	TWDB	14A	Existing Condition Flood Vulnerability GIS Feature Class, ExFldExpAll: It appears that this feature class may not equal the sum of point, line, and polygon feature classes. Please ensure that total count of <i>ExFldExpAll</i> is the sum of <i>ExFldExpPt</i> , <i>ExFldExpLn</i> , and <i>ExFldExpPol</i> feature class counts [31 TAC §361.33(c), (d) & Exhibit C 2.2.A.2].	Yes	Datasets were reviewed and reconciled.
T02A	TWDB	14B	Existing Condition Flood Vulnerability GIS Feature Class, ExFldExpAll: The Structure and Residential Structure counts in Table 3 do not appear to match the <i>ExFldExpAll</i> feature class counts. Please review and reconcile [31 TAC §361.33(c), (d) & Exhibit C 2.2.A.2].	Yes	Datasets were reviewed and reconciled.
T01	TWDB	38B	Existing Flood Infrastructure GIS Feature Class, ExFldInfraPol: Please review the GIS feature class submission for coded value domain errors and reconcile as necessary.	Yes	GIS datasets were reviewed and reconciled.
T01	TWDB	8A	Existing Flood Projects GIS Feature Class, ExFldProjs: It appears that some fields are missing entries, including 'HUC8'. Please complete all required fields with valid entries per Exhibit D Table 8. For 'EXHAZ_ID', 'COST', and 'COMP_YR', please leave NULL if there is not data or unknown. Please review and reconcile where appropriate [31 TAC §361.33].	Yes	GIS datasets were reviewed and reconciled.
T01	TWDB	8B	Existing Flood Projects GIS Feature Class, ExFldProjs: Please ensure that all ID fields are entered correctly. For example, it appears that 'EXPROJ_ID' uses incorrect unique ID formatting and is missing a leading zero. Unique IDs must be accurate for the database to connect and work properly. Please refer to Exhibit D Table 2 or more recent updates for Unique ID guidance. Please reconcile [31 TAC §361.33].	Yes	GIS datasets were reviewed and reconciled.
General	TWDB	30	Please consider adding 'bookmarks' within the PDF regional flood plan report.	Yes	Bookmarks added
General	TWDB	31	Please consider adding a layer to relevant GIS maps throughout the plan that delineate the two smaller "regions" of the RFPG - i.e., the Llano Estacado vs Rolling Plains Region (On the caprock vs off the caprock). Some maps may benefit from a layer similar to this to show the differences between these two specific areas that are referenced within the plan.	Yes	Labels added to select figures.
General	TWDB	32	Please consider reviewing maps, as necessary, to ensure that all relevant layers being shown are included as part of the legend. Some maps appear to show layers that may not be also referenced on the legend making it difficult to know what is being shown.	Yes	Legends updated.
General	TWDB	33	Please consider reviewing maps, as appropriate, that rely on a single color or single-color gradient for legibility and clarity. An example is FIGURE 4-4. It is unclear as to what the shading signifies across the region and whether darker shading means a higher density or lower. Please consider adding ranks to the legend for clarity.	Yes	Maps revised.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
General	TWDB	34	To better align with our agency's preferred nomenclature, please consider using the name, "Cursory Floodplain Data" instead of "Fathom" or Cursory Fathom Data" throughout the regional flood plan.	Yes	Updated narrative.
Executive Summary	TWDB	35	Please consider reviewing, as appropriate, certain key dates included throughout the plan for accuracy. For example, the date of the establishment of the RFPG by TWDB on page 25: "Region 7 RFPG was established by the TWDB on October 29, 2020, to manage the flood planning efforts for the basin." While this date may have been the first meeting of the RFPG, October 1, 2020, was technically the date the RFPG was established by Board action along with the other 14 RFPGs.	Yes	Reviewed & updated dates
T01	TWDB	37	Existing Flood Infrastructure Text (Exhibit C, Section 2.1): Please provide a description of how Low Water Crossings were identified within the text of Chapter 1.	Yes	Additional description added to Task 1 narrative.
T02A	TWDB	40	Existing Condition Flood Hazards Map (Exhibit C, Map 4): Please consider adding distinct map names for the two Map 4 PDFs included in the submission (e.g., Ex. Flood Risk Type or Flood Frequency).	Yes	Maps revised.
T02A	TWDB	41	Existing Condition Flood Hazard Exposure Table (Exhibit C, Table 3): Please consider reviewing the data included in Table 3 as it appears the totals may be cumulative (effectively double counting) between existing and future conditions.	Yes	Updated Table.
T02A	TWDB	42	Existing Condition Flood Hazard Exposure GIS Feature Class, <i>ExFldExpPt</i> : There are some locations where road segments intersect with streams within the hazard extent (e.g., STREAM_ID 70081658 at TXDOT_Road_Inventory ObjectID 333682) which may indicate a Low Water Crossing. Please consider reviewing and adding those points as appropriate.	Yes	GIS datasets were reviewed and reconciled.
T02A	TWDB	43	Existing Condition Flood Exposure GIS Feature Class, <i>ExFldExpPol</i> : The agricultural coverage layers appear to have irregular triangle and rectangular features that may be a result of the conversion of a raster to polygon. Please consider reviewing and revising.	Yes	GIS datasets were reviewed and reconciled.
T02A	TWDB	44	Existing Condition Flood Vulnerability, Text: Please consider providing further descriptions on how vulnerability was assessed. Consider providing more details about if proximity to a floodplain, proximity to other bodies of water, past flooding issues, emergency management plans, and location of critical systems like primary and back-up power were assessed.	Yes	Report updated
T02A	TWDB	45	Existing Condition Flood Vulnerability GIS Feature Class, <i>ExFldExpAll</i> : Please consider reclassifying features with entries of "Other" for the 'EXP_TYPE' field. For example, some features with 'CRIT_TYPE' as "Fire" or "School" may be better categorized as "Public Bldg" for the 'EXP_TYPE' field.	Yes	GIS datasets were reviewed and reconciled.
T02B	TWDB	47	Future Condition Flood Vulnerability, Text: Please consider providing further descriptions on how vulnerability was assessed. Consider providing more details about if proximity to a floodplain, proximity to other bodies of water, past flooding issues, emergency management plans, and location of critical systems like primary and back-up power were assessed.	Yes	Additional discussion was included in Task 2B narrative.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T02B	TWDB	48	Future Condition Flood Hazard Map (Exhibit C, Map 8): Please consider adding distinct map titles for the two Map 8 PDFs included in the submission (e.g., Flood Risk Type or Flood Frequency).	Yes	Maps revised.
T02B	TWDB	49	Future Condition Flood Exposure, Text: Please consider providing more detail about how the future conditions summary of buildings, roadways crossings, length of roadway segments, agricultural land and other identified items that are located within the flood hazard area identified in the future condition flood hazard analysis.	Yes	Additional discussion was included in Task 2B narrative.
T02B	TWDB	50	Existing Flood Exposure GIS Feature Class, <i>FutFldExpPol</i> : The agricultural coverage layers appear to have missing rectangular features that may be a result of the conversion of a raster to polygon. Please consider reviewing and revising, as appropriate to meet the requirements as stated in §361.33(c).	Yes	GIS datasets were reviewed and reconciled.
T03A	TWDB	51	Existing Floodplain Management Practices, Text: Please consider expanding upon the information provided in the Table 6 as part of Chapter 3.	Yes	Additional description added to Task 3 narrative.
T03A	TWDB	52	Existing Floodplain Management Practices Table (Exhibit C, Table 6 and GIS Table <i>ExFpMp</i>): It is not clear that all entities included in Table 6 have floodplain management authority. Please review to confirm list. [31 TAC §361.35 & Exhibit C 2.3.A].	Yes	Updated GIS & tables
T03B	TWDB	53	Goals, Text: Please consider expanding upon Chapter 3B text related to the goals selected by the Regional Flood Planning Group.	Yes	Additional description added to Task 3 narrative.
T04A	TWDB	54	Greatest Gaps Map (Exhibit C, Map 14): Please provide further description in the legend to describe what is the highest gap and the lowest. Consider making a "note" or description on the map.	Yes	Maps revised.
T04A	TWDB	55	Greatest Risk Map (Exhibit C, Map 15): Please provide further description in the legend to describe what is the highest gap and the lowest. Consider making a "note" or description on the map.	Yes	Maps revised.
T04B	TWDB	56	Streams GIS Feature Class, <i>Streams</i> : It appears that some streams included in identified FMEs are not included in the <i>Streams</i> feature class. For example, FME_IDs 071000029, 071000023, and 071000094. Please review and consider including relevant streams.	Yes	Datasets were reviewed and reconciled.
T04B	TWDB	57	Flood Management Evaluations (FME), Text: Please verify that identified FMEs do not duplicate effort of TWDB-funded FIF Category 1 studies and state how the FME will expand on and/or utilize the existing study. For example, FIF ID 40065 (Lubbock - Flood Protection Planning for Watersheds) appear to overlap with listed several FMEs including FME_IDs 07100022 and 07100065.	Yes	Consultant team reviewed FMEs overlapping with FIF studies. This resulted in one FME being removed. Other overlapping FMEs include differing scope items to the FIF study.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T04B	TWDB	58	Flood Management Evaluations (FME) Table (Exhibit C, Table 12): Please verify that identified FMEs do not duplicate effort of TWDB-funded, FIF Category 1 studies and state how the FME will expand on and/or utilize the existing study. For example, FIF ID 40065 (Lubbock - Flood Protection Planning for Watersheds) appear to overlap with listed several FMEs including FME_IDs 07100022 and 07100065.	Yes	Consultant team reviewed FMEs overlapping with FIF studies. This resulted in one FME being removed. Other overlapping FMEs include differing scope items to the FIF study.
T04B	TWDB	59	Flood Management Evaluations (FME) GIS Feature Class, <i>FME</i> : For county-wide FMEs where a majority of the county falls outside of the RFPG boundary, please include justification how the FME benefits the region and please coordinate with other RFPGs to make sure the efforts are not duplicated.	Yes	FME boundaries clipped to region boundary
T04B	TWDB	60	Flood Management Strategies (FMS), Text: Please ensure FMSs are categorized correctly to only include non-recurring, non-capital cost. Please consider reviewing certain; FMSs that include Flood Measurement and Warning Systems and Infrastructure Projects to ensure they should not be categorized as FMPs or FMEs.	Yes	Descriptions were updated. Generally if specific locations were identified actions were classified as FMPs. If no specific locations were available but a general program was desired than these actions were categorized as FMS.
T04B	TWDB	61	Flood Management Strategies (FMS) Map (Exhibit C, Map 18): Please consider revising map to show FMS extents more clearly.	Yes	Maps revised
T05	TWDB	62	Flood Management Evaluation (FME) Recommendations, Text: Please verify that identified FMEs do not duplicate effort of TWDB-funded, FIF Category 1 studies and state how the FME will expand on and/or utilize the existing study. For example, FIF ID 40065 (Lubbock - Flood Protection Planning for Watersheds) appear to overlap with listed several FMEs including FME_IDs 07100022 and 07100065.	Yes	Verified
T05	TWDB	63	Flood Management Evaluation (FME) Recommendations Table (Exhibit C, Table 15): Please verify that identified FMEs do not duplicate effort of TWDB-funded, FIF Category 1 studies and state how the FME will expand on and/or utilize the existing study. For example, FIF ID 40065 (Lubbock - Flood Protection Planning for Watersheds) appear to overlap with listed several FMEs including FME_IDs 07100022 and 07100065.	Yes	Verified

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T05	TWDB	64	Flood Management Evaluation (FME) Recommendations Table (Exhibit C Table 15): Several recommended FMEs which are at the regional scale appear to be better classified as Flood Management Strategies (FMS). For example, FME_IDs 131000173-131000179. Please review to determine if reclassification is warranted. Please ensure any changes made are reflected across all related deliverables.	Yes	Clarified report language.
T05	TWDB	65	Flood Management Evaluation (FME) Recommendations Map (Exhibit C, Map 19): It appears difficult to determine the specific extents of the FMEs in Map 19. Please consider, for example, modifying the color scheme for this map or providing outlines for each FME.	Yes	Maps revised.
T05	TWDB	66	Flood Mitigation Project (FMP) Recommendations Map (Exhibit C, Map 20): It appears difficult to determine the location of the recommended FMPs in Map 20. Please consider, for example, modifying the color scheme for this map or specifying FMP locations more clearly.	Yes	Maps revised.
T05	TWDB	67	Flood Mitigation Project (FMP) Details Geodatabase, <i>FMP_Details</i> : Please review and consider populating as many fields as possible.	Yes	Updated GIS & tables
T05	TWDB	68	Flood Management Strategy (FMS) Recommendations, Text: Please ensure FMSs are categorized correctly to only include non-recurring, non-capital cost. Please consider reviewing certain FMSs that include Flood Measurement and Warning Systems and Infrastructure Projects to ensure they should not be a categorized as FMPs or FMEs.	Yes	Descriptions were updated. Generally if specific locations were identified actions were classified as FMPs. If no specific locations were available but a general program was desired than these actions were categorized as FMS.
T05	TWDB	69	Flood Management Strategy (FMS) Recommendations Map (Exhibit C, Map 21): It appears difficult to determine the extents of the specific FMSs in Map 21. Please consider, for example, modifying the color scheme for this map or providing outlines for each FMS.	Yes	Maps revised.
T01	TWDB	36A	Watersheds GIS Feature Class, Watersheds: When creating the <i>FME</i> , <i>FMP</i> , and <i>FMS</i> feature classes be sure to include watersheds identified in the strategies as part of the <i>Watersheds</i> feature class.	Yes	GIS datasets were reviewed and reconciled.
T01	TWDB	36B	Watersheds GIS Feature Class, Watersheds: Please ensure 'WS_NAME' is populated with the correct name of the watershed. There are some cases (e.g., WD_IDs 07000450, 07000467) where the HU12 number is provided instead of the watershed name as stated in Exhibit D Section 3.2 Table 4.	Yes	GIS datasets were reviewed and reconciled.
T01	TWDB	38A	Existing Flood Infrastructure GIS Feature Class, ExFldInfraPol: Please consider updating entry names within the GIS feature class from "TX ####" to "Unnamed [infra type]".	Yes	GIS datasets were reviewed and reconciled.
T01	TWDB	39A	Existing Flood Projects, Text: Please consider adding a section title/header to the existing projects section of Chapter 1.	Yes	Additional Header added

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T01	TWDB	39B	Existing Flood Projects, Text: For clarity, please consider referencing, within the text of the plan document, the location of Map 2 in Appendix A as well as all other maps associated with existing projects that are discussed in the plan.	Yes	Additional references added to report
T02A	TWDB	46A	Existing Condition Flood Vulnerability Map (Exhibit C, Map 7): Please consider changing label from "High SVI Area" to "High SVI Structure" or add description of what the point feature class contains in the footnote below the legend.	Yes	Maps revised.
T02A	TWDB	46B	Existing Condition Flood Vulnerability Map (Exhibit C, Map 7): Please consider adding a separate point symbology class for LWCs.	Yes	Maps revised.
T01	TPWD		In Task 1, Natural Features (Page 65) are described as, "...rivers, tributaries, reservoirs/lakes, wetlands, and playas[.]" TPWD would like to request the RFPG add springs to the list of natural features for the Upper Brazos Regional Flood Planning area as springs are located throughout Region 7. Springs provide base flow for our rivers and tributaries, have historical use, provide recreational opportunities, and contain species unique to Texas.	Yes	Springs added to discussion of natural features.
T01	TPWD		Dams are one of the most abundant constructed flood infrastructure features in Region 7, and have many uses including water storage for municipal utilities, industrial use, agricultural use (including irrigation), recreational use, and flood risk mitigation (Task 1, Dams, page 68). Task 1 also discusses dam safety assessments and that the dams in Texas overall scored a D+ by the American Society of Professional Engineers in the 2021 Infrastructure Report Card (ASCE 2021). The Draft Region 7 plan recommends more information be gathered about the known functionality of the 230 dams within the region, including 23 flood control dams classified as high hazard (Task 1, Reason for Functionality and Deficiency, page 72). TPWD supports this recommendation as it relates to dam functionality and safety, and supports the flood risk reduction projects focused on dam functionality and safety (E.g. FMS 07200145 and 072000160). In 2015, the Texas Commission on Environmental Quality (TCEQ) performed a dam inspection of Abilene Dam at Lake Abilene. The TCEQ inspection report recommends repairs and maintenance of the dam which could be added to flood risk reduction projects ensuring the protection of human life and infrastructure as well as providing potential funding assistance for repairs and maintenance from flood planning funds. TPWD operates Abilene State Park immediately below the Abilene Dam making park visitor safety and infrastructure impacts from floods a top priority for TPWD operations. TPWD looks forward to working with the City of Abilene to ensure maintenance and dam safety of Abilene Dam continues to progress.	Yes	Discussion added to Task 1 narrative

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	TPWD		TPWD would like to add data about Abilene State Park and impacts that occur during high flow events to the RFP. The state park experiences consistent historical road closures during times of flooding. For example, in 2016, Park Road 32 near the entrance of Abilene State Park was washed out when water from the emergency spillway flowed down the tributary and across the road. In 2018, FM 89 and Park Road 32 were closed after heavy rain and releases from the spillway overtopped the roads. The emergency exit for the park is near the spillway and has almost flooded during past events. We look forward to working with Region 7 to provide more detailed information regarding flood infrastructure and human safety needs for Abilene State Park.	Yes	Additional information has been added to report narrative. Consultant will continue to coordinate with TPWD and include any additional information with the Amended plan.
	TPWD		TPWD has two <i>properties</i> in Region 7, Abilene State Park in Taylor County and Playa Lakes Wildlife Management Area — Dimmit Unit in Castro County. TPWD will be adding flood related information for these properties to the Region 7 GIS quilt. TPWD has a GIS data layer containing all the TPWD properties which is available to the Regions .	Yes	Additional information has been added to report narrative. Consultant will continue to coordinate with TPWD and include any additional information with the
T01	TPWD		TPWD supports prioritizing data collection for areas in Region 7 that currently do not have data or have old data regarding flood risk. Reviewing existing data, updating current data, and collecting new data about flood risk and flood prone areas in Region 7 enhances the ability to reduce loss of life and damage to infrastructure by floods in future planning cycles (Task 1).	-	

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T01	TPWD		TPWD is the state agency with the primary responsibility for protection of the state's fish and wildlife resources and providing information and recommendations to local, state, and federal agencies and other organizations (Parks and Wildlife Code (PWC) §12.0011). The Upper Brazos Flood Planning Region incorporates the critical habitat (79 Federal Register (FR) 45241) for the endangered (79 FR 45273) Smalleye Shiner <i>Notropis bucculo</i> and Sharpnose Shiner <i>Notropis oxyrhynchus</i> (FWS-R2-ES-2013-008). Both fish are broadcast spawners and require unobstructed, wide, flowing river segments lengths of greater than 275 km to support development of their early life stages (Fish and Wildlife Service, 2020). The critical habitat designation in the region provides information about the species and what is required for them to survive. Freshwater mussels are another species that are impacted from stream bed modifications. TPWD works with agencies and consultants across the state on construction projects impacting bed and banks to reduce impacts to Texas' unique freshwater mussel species. The Brazos Basin includes two species that are currently under review for federal listing, and one is located within the regional flood planning group's boundaries, the Texas Fawnsfoot <i>Truncilla macrodon</i> . TPWD looks forward to working with project sponsors within the critical habitat from project concept to finish. Working together from the start of a project allows for discussions and shorter timeline for project completion.	Yes	Added to natural features narrative.
T01	TPWD		The Texas Conservation Action Plan Handbook (TCAP; Texas Parks and Wildlife Department, 2012) provides guidance for conservation in the state of Texas, with the goals of realizing conservation benefits, preventing species listings, and preserving our natural heritage for future generations. The TCAP focuses on Species of Greatest Conservation Need (SGCN) that include numerous aquatic species such as fish, freshwater mussels, and salamanders. The TCAP handbook includes six types of priority habitats, three of which are aquatic: water resources; riparian and floodplains; and caves and karst. Issues affecting these environments include environmental flows, impoundments and dam operations, and water quality issues (including stormwater runoff).	Yes	Task 1 narrative revised to include discussion of natural features contribution to habitat.
T01	TPWD		TPWD believes that wetlands play an important role in flood mitigation, water quality, and recharge to aquifers (Task 1, Natural Features, page 67). As mentioned in the draft plan, wetlands make up the largest amount of area for flood infrastructure in the region. The draft plan states, "...the wetlands have a minor role in mitigating flood risk and providing flood protection in Region 7." The Environmental Protection Agency states that the holding capacity of wetlands helps control flood and prevents water logging of crops and that preservation of wetlands provides water retention that can reduce or replace costly dredge operations and levees (EPA 2022). TPWD recommends that the draft plan state that wetlands provide a major role in mitigating flood risk and providing flood protection for the region (Task 1, Natural Features - Wetlands, page 67).	Yes	Clarified report language.

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T01	TPWD		TPWD supports and agrees that playas are one of the most significant ecological features in the Texas High Plains (Task 1, Natural Features, Playas, pages 66-67). TPWD supports the restoration of deficient playas and the collaborative work with the Texas Playa Conservation Initiative (Task 1, pages 72-73), landowners, and state and local agencies. Continued restoration and preservation of playas provides flood mitigation as well as wildlife habitat and supports aquifer recharge. The Playa Lakes Wildlife Management Area (WMA) Dimmit Unit is in Castro County and includes 345 acres of farmland that has been planted with native grass and a 77-acre playa basin. The WMA was purchased in 1990 for the purpose of developing an area where soil, water, and wildlife conservation practices are implemented.	Yes	Added support to Task 1 narrative
T03	TPWD		TPWD would like to encourage all the proposed Flood Management Evaluations, Plans, and Strategies proponents to consider stream crossing designs that allow for sediment transport and passage of aquatic organisms and do not impound water. Basically, designs that are invisible to the creek. This includes bridges that span the creek where possible or culverted crossings designed with the culvert(s) in the active channel area lower than those in the floodplain benches so that the flow in the channel is not overly spread out. The central/low-flow culvert(s) should be large enough to handle a 1.5 year flow without backing up water. The bottoms of these lower culverts should be set at least a foot below grade (i.e. recessed) to allow natural substrate to cover the culvert bottom and to allow for aquatic organism passage. These lower, recessed culverts should be installed in the thalweg or deepest part of the channel and be aligned with the low flow channel (Clarkin et al., 2006).	Yes	Added discussion to Task 3 narrative
T03/06	TPWD		In Region 7, three counties lead as oil and gas producers (Task 1, page 59) and seven other counties have significant production totaling 37.2M bbl (billion barrels of petroleum oil) and 52.8 M mcf(thousand cubic feet of gas) in 2020 (Table 1-4). The draft plan mentions oil and gas concerns include the type of pipes used to transport oil and gas products, and the unknown base flood elevations in much of the region that may impact electrical components (Task 2, page 96). TPWD would like the RFP to include compliance with required maintenance and safety regulations for oil and gas operations and storage facilities in the RFP. The safety and maintenance regulations are important preventative measures that reduce the likelihood of a spill or release event. For example, berms around storage facilities and the maintenance of the buried pipelines (along with other long-term maintenance for all oil and gas structures) are put in place so spills are quickly contained. The Lake Alan Henry contamination occurred after a flooding event in an area where the oil pipeline crossed an ephemeral portion of the river and was left uncovered and unprotected (Task 2, Page 96;	Yes	Added to discussion of Lake Alan Henry.

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T05	TPWD		The RFP identified 3 Flood Management Projects (FMPs), 266 potentially feasible Flood Management Evaluations (FMEs), and 63 potentially feasible Flood Management Strategies (FMSs). TPWD understands that the goal of the RFP is to mitigate floods to reduce risk to life and property and encourages the use of nature-based solutions, such as the Bovia Buyout Program and the use the use of playas to assist with flood mitigation. The Draft RFP states that none of the projects or strategies are anticipated to have negative effects.	Yes	Added support to narrative
T05	TPWD		We reviewed the Flood Management Evaluation (Appendix C, page 146 of 277) for the “City of Abilene Operations of Lake Abilene” (FMP ID 073000003) that is described in Appendix C as, “increase available flood storage in the reservoir.” TPWD would like to learn more about this project and looks forward to working collaboratively with the City of Abilene on this project.	No	Noted.
T05	TPWD		TPWD supports FMS 072000004, the City of Abilene Gauge Program to install automated creek rain gauges. Stream gauge systems provide vital information about stream flows and water level increases earlier improving response time for evacuations for the county, city, and the state park.	No	Noted.
T08	TPWD		<ul style="list-style-type: none"> Task 8, Administrative Recommendations, 1)a) — remove “has” after “city” and before “may” 	Yes	Addressed
Executive Summary	TPWD		<ul style="list-style-type: none"> Executive Summary, page 27 — Reword the last sentence for clarity. 	Yes	Addressed
T08	USACE		Non regulatory regional flood control or drainage districts should be established and funded for rapidly growing urban areas such as DFW, Houston, San Antonio, etc.	Yes	RFPG considered and added an additional recommendation.
T08	USACE		Rapidly developing areas surrounding larger urban centers are at greater risk of having runoff patterns increasing because of development. These urban areas are comprised of many communities and unincorporated county areas. Many of the smaller communities are not funded or resourced to deal with the complexities of floodplain management and therefore there is a lack of or inconsistencies in floodplain management practices.	Yes	RFPG considered and added an additional recommendation.
T08	USACE		Table 8.2 Establish future land use plans for unincorporated areas associated with rapidly growing urban areas.	No	These items could be considered as higher standard at a region level rather than state as each RFPG deems appropriate. This is inconsistent with floodplain management practices identified in Task 3 for Region 7.

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T08	USACE		Table 8.2 No loss of valley storage to the 500-year level. Communities could allow redistribution of valley storage to allow interactions with natural areas but no loss of storage.	No	These items could be considered as higher standard at a region level rather than state as each RFPG deems appropriate. This is inconsistent with floodplain management practices identified in Task 3 for Region 7.
T08	USACE		Table 8.2 Require the use of n-values and channel conditions which would likely result if the channel or project were not maintained. Exceptions would be golf courses or other areas where an organization exists which would maintain the channel in perpetuity. Disallow maintenance by marginal organizations such as home owners associations to justify acceptance of lower n-values as this is an unrealistic expectation.	No	These items could be considered as higher standard at a region level rather than state as each RFPG deems appropriate. This is inconsistent with floodplain management practices identified in Task 3 for Region 7.
T08	USACE		Table 8.2 Use of ultimate development land use conditions in the development of future flows. Require use of future flows for regulation of floodplains and development of FMP's.	No	These items could be considered as higher standard at a region level rather than state as each RFPG deems appropriate. This is inconsistent with floodplain management practices identified in Task 3 for Region 7.
T08	USACE		Table 8.3 Add detail to Watersshed Hydrology Assessments (WHA) for communities within basins with completed WHA's. The WHA for the Trinity has been completed.	No	These recommendations are applicable to communities with extensive existing models to include as additional flood risk products. N/A to Region 7

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T08	USACE		Table 8.3 Encourage storm shifting to validate 100-yr estimates and to provide a broader understanding of communities actual flood risk. Storms identified and cataloged as part of the GLO funded USACE led Texas Storm Study could be the primary source of storms to be shifted.	No	These recommendations are applicable to communities with extensive existing models to include as additional flood risk products. N/A to Region 7
T08	USACE		Table 8.3 Establish regional efforts, for large urban centers to develop future land use data for all developing areas, not just incorporated areas, for use in developing future flood flow frequency estimates and future 100-yr (and other recurrence interval) hazard boundaries.	No	These recommendations are applicable to communities with extensive existing models to include as additional flood risk products. N/A to Region 7
T08	USACE		Table 8.3 Update WHA's when future precipitation frequency estimates become available. Efforts to develop future precipitation frequency estimates for Texas are starting.	No	These recommendations are applicable to communities with extensive existing models to include as additional flood risk products. N/A to Region 7
General	TWDB - Tech Memo		<ul style="list-style-type: none"> Please note that while only some of the table templates provided in Exhibit C – Technical Guidelines for Regional Flood Planning were required in the Tech Memo submission, complete versions of all TWDB-provided tables and geodatabases will be required in the region's Draft Regional Flood Plan. You can find these tables throughout Exhibit C and Exhibit D – Data Submittal Guidelines for Regional Flood Planning, and in a more condensed format in Exhibit C Tables and Flood Planning Geodatabase Templates available at http://www.twdb.texas.gov/flood/planning/planningdocu/2023/inde 	Yes	Tech Memo data was an interim work product and has been revised.
General	TWDB - Tech Memo		<ul style="list-style-type: none"> For fields with distance/area units, consider reducing the number of decimal places and/or significant figures as appropriate. This does not apply to latitude, longitude, or other data fields needing increased precision. 	Yes	Tech Memo data was an interim work product and has been revised.
General	TWDB - Tech Memo		<ol style="list-style-type: none"> Please ensure that all important features on maps are included and labeled accordingly. It appears that major cities, urban areas, and major rivers were not labeled. 	Yes	Tech Memo data was an interim work product and has been revised.
General	TWDB - Tech Memo		<ol style="list-style-type: none"> Please ensure that all maps included in the regional flood plan are an appropriate file size that can be easily viewed and downloaded by the public. 	Yes	Tech Memo data was an interim work product and has been revised.

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General	TWDB - Tech Memo	3.	Throughout the Regional Flood Plan, please consider using 1% and 0.2% annual chance storm events as the primary terminology. If desired for greater public understanding, use 100-year and 500-year in parentheses or another similar secondary format.	Yes	Tech Memo data was an interim work product and has been revised.
General	TWDB - Tech Memo	4.	For maps that display large amounts of data (e.g., Maps 4, 6, 8, and 10), please consider including a region-wide map displaying the data, and a map index. For greater public understanding, inset maps and additional maps shown at more zoomed in scales are encouraged. Zoomed in scale maps should be appropriately sized for your region and include a map index.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	1.	Tech Memo Text: Exhibit C Item 4C.1.a, List of Entities:a. See comments on Task 1 Item 2: GIS Feature Class: Exhibit D Table 3, Entities.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	2.	GIS Feature Class: Exhibit D Table 3, Entities: a. The field POLSUB_FLG contains invalid entries, such as "Yes" instead of "Y". Please ensure only valid entries are used.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	2.	GIS Feature Class: Exhibit D Table 3, Entities:b. For entities that cross flood planning regional boundaries, please fill in your own region's name and number (RFPG_NAME, RFPG_NUM).	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	2.	GIS Feature Class: Exhibit D Table 3, Entities:c. Please refer to the NFIP Participation Table included as an attachment with the informal comments letter and reconcile any missing data.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 5, ExFldInfraPol:	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 5, ExFldInfraPol: a. Please ensure that all entries under the NAME field are correct and valid. Some entries are listed in the following format: "TX_10XXX". Consider providing clarification as to the meaning of this numbering system.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 5, ExFldInfraPol: b. Please ensure that all entries under the DESCR field are correct and valid. TWDB staff noticed some entries included 9-digit numbers instead of descriptions. Consider including additional detail for such entries.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 5, ExFldInfraPol: c. "Unknown" is an acceptable entry for CONDITION and COND_DESCR. However, the "<Null>" values included in these entries need to be addressed as this is not a valid entry described in Exhibit D guidance. Please reconcile	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 5, ExFldInfraPol: d. RFPG_NUM: Exhibit D, Table 5: List of Fields for 'ExFldInfraPol', 'ExFldInfraLn', and 'ExFldInfraPt' requires RFPG_NUM to include a two-digit code for each region. It appears that all entries within this column for this feature class indicate "7" where "07" is required. Please reconcile	Yes	Tech Memo data was an interim work product and has been revised.

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T01	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 5, ExFldInfraPol: e. NATBUILT: Exhibit D, Table 5: List of Fields for 'ExFldInfraPol' requires the column NATBUILT to include the following valid entries: "Natural", "Constructed", or "Combination". It appears that the submission of entries within this feature class include "<Null>" which is not a valid entry for this field. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 5, ExFldInfraPol: f. LOS: Exhibit D, Table 5 includes the following valid entries: "50", "10", "4", "2", "1", "0.2", and "Unknown". "<Null>" is not a valid entry for this column. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 5, ExFldInfraPol: g. DEF_TYPE: Exhibit D, Table 5 includes the following valid entries: "Deficient", "non-deficient", "Unknown". "<Null>" is not a valid entry for this column. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 5, ExFldInfraPol: h. Please ensure that the fields OWN_ENT and OPER_ENT are valid entries in accordance with the guidance provided in Exhibit D. Guidance provided in Exhibit D states that these two fields should include "ENTITY_ID from Entity feature class, comma-separated".	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 5, ExFldInfraPol: i. Please ensure that the AREA field is filled in correctly and/or named properly. TWDB staff noticed this field missing and/or misnamed.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	5.	GIS Feature Class: Exhibit D Table 6, ExFldInfraLn: a. Please ensure that the fields OWN_ENT and OPER_ENT contain valid entries in accordance with the guidance provided in Exhibit D. Guidance provided in Exhibit D states that these two fields should include "ENTITY_ID from Entity feature class, comma-separated".	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	5.	GIS Feature Class: Exhibit D Table 6, ExFldInfraLn: b. "Unknown" is an acceptable entry for CONDITION, COND_DESCR, and DEF_DESC. However, the "<Null>" values included in these entries need to be addressed as this is not a valid entry. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	5.	GIS Feature Class: Exhibit D Table 6, ExFldInfraLn: c. RFPG_NUM: Exhibit D, Table 6: List of Fields for 'ExFldInfraPol', 'ExFldInfraLn', and 'ExFldInfraPt' requires the column RFPG_NUM to include a two-digit code for each region. It appears that all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 7, ExFldInfraPt: a. Please ensure that all entries under the NAME field are correct and valid. It appears that some entries are locations (e.g., .05 Mi West of Tilley ST). Consider including additional description to better identify these existing infrastructure components.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 7, ExFldInfraPt: b. RFPG_NUM: Exhibit D, Table 7: List of Fields for 'ExFldInfraPol', 'ExFldInfraLn', and 'ExFldInfraPt' requires the column RFPG_NUM to include a two-digit code for each region. It appears that all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.

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T01	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 7, ExFldInfraPt: c. DEF_DESCR: Exhibit D, Table 7, requires a description of the structural issue causing deficiency. The 18 entries marked as "Deficient" require a valid entry for the field. <Null> is not a valid entry. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 7, ExFldInfraPt: d. Please ensure that the fields OWN_ENT and OPER_ENT are valid entries in accordance with the guidance provided in Exhibit D. Guidance provided in Exhibit D requires that these two fields include "ENTITY_ID from Entity feature class, comma-separated". It appears that some entries are region specific entities "07000202" while others don't appear to be tied to Region 7 - "00000165".	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 7, ExFldInfraPt: a. Please consider including gaging stations/stream gages from USGS National Hydrography Dataset (NHD):	Yes	Tech Memo data was an interim work product and has been revised.
T01	TWDB - Tech Memo	8.	GIS Feature Class: Exhibit D Table 8, ExFldProjs: a. As stated in the technical memorandum submission, "Region 7 data collection efforts did not result in any projects with dedicated funding as of December 22, 2021". When identifying FMPs, please consider GLO funded and other funded flood projects throughout the region for applicable existing flood projects that could be incorporated for this portion of the regional flood plan.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	1.	Tech Memo Text: Exhibit C 4C.1.b, List of Previous Studies: a. Please determine whether H&H studies, neighborhood/watershed masterplan studies, or studies conducted in conjunction with LOMR/LOMAs are available in the region and if applicable, consider utilizing those studies in the regional flood plan development. Smaller local studies may assist in identifying flood mitigation solutions.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	2.	Text Memo Text: Exhibit C 4C.1.f, List of Available Models: a. Please provide the source links for the model if publicly available.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	2.	Text Memo Text: Exhibit C 4C.1.f, List of Available Models: b. Please consider utilizing the Available Models table template included as an attachment with the informal comments letter.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	1.	Tech Memo Text: Exhibit C 2.2.A.1, Hydrologic and Hydraulic models needed (narrative): Please ensure that all relevant models collected and listed in the Technical Memorandum are included in the ModelCoverage feature class.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	2.	GIS Feature Class: ModelCoverage: The ModelCoverage feature class does not appear to be included. Please add the ModelCoverage feature class and populate all fields. Refer to the Flood Planning Data Update email from January 31, 2022, included as an email attachment for more information on adding this feature class.	Yes	Tech Memo data was an interim work product and has been revised.

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T02A	TWDB - Tech Memo	2.	GIS Feature Class: ModelCoverage: b. Please ensure that each model includes a unique Model ID. Each 12-digit model ID (MODEL_ID) shall start with two-digit region number, example 01, 02, 03 etc. (Region No. + 10 Digits). Unique IDs must be accurate for the database to connect and work properly. Please refer to Exhibit D Table 2 or more recent updates for Unique ID guidance.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	3.	Map Deliverable: Exhibit C 3.10, Model Coverage: Please ensure that the data provided in the ModelCoverage feature class matches the information displayed on this map.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	5.	GIS Feature Class: Exhibit D Table 9, ExFldHazard: It appears that there are some small gaps where the TWDB provided Floodplain Quilt is wider than the ExFldHazard layer. Please review these layers for accuracy and reconcile, as needed.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 10, Fld_Map_Gaps:a. Please address <Null> entry for the WS_ID field. Note: This field may be left blank if the character string is too long for field length.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 10, Fld_Map_Gaps:b. Please address <Null> entries for required fields, including 'ENTITY_ID' (from Entity feature class). Refer to Table 10 of Exhibit D for a list of valid entries.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 10, Fld_Map_Gaps:c. For all feature classes with the FLOOD_FREQ field, please choose the highest probability that applies, such as "10" from this list of valid entries: "10", "4", "1", "0", "Unknown"	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 10, Fld_Map_Gaps:d. The map does not appear to clearly identify the types of hazard gaps. Please refer to the Flood Planning Data Update email from October 18, 2021, included as an email attachment for information on adding the REASON field to the Fld_Map_Gaps feature class. Please populate this new field with valid entries that could include: clearly outdated modeling and/or mapping, absence of modeling and/or mapping, or areas with modeling and/or mapping that requires update.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	7.	GIS Feature Class: Exhibit D Table 11, ExFldExpPol:a. There appears to be triangular features throughout this ExFldExpPol spatial extent which may be a result of the conversion of a raster to polygon. Please review the agricultural coverage layers and reconcile, as appropriate.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	7.	GIS Feature Class: Exhibit D Table 11, ExFldExpPol:b. RFPG_NUM is required to include a two-digit code for each region. For example, all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	7.	GIS Feature Class: Exhibit D Table 11, ExFldExpPol:c. Please address <Null> entry for the 'WS_ID' field. Note: This field may be left blank if the character string is too long for field length.	Yes	Tech Memo data was an interim work product and has been revised.

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T02A	TWDB - Tech Memo	7.	GIS Feature Class: Exhibit D Table 11, ExFldExpPol:d. Both the required fields POP_DAY and POP_NIGHT appear to have "0" values for some building entries. Please review and confirm or populate, as appropriate.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	8.	GIS Feature Class: Exhibit D Table 12, ExFldExpLn:a. RFPG_NUM is required to include a two-digit code for each region. For example, all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	8.	GIS Feature Class: Exhibit D Table 12, ExFldExpLn:b. It appears that some fields contain <NULL>, or invalid entries. For example, fields such as POP_DAY, POP_NIGHT. Please review all required fields and populate with valid entries as referenced in Exhibit D Table 12.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	9.	GIS Feature Class: Exhibit D Table 13, ExFldExpPt:a. It appears that there are some locations where road intersects with streams that are not included in this ExFldExpPt feature class. For example, STREAM_ID 70081658 at TXDOT_Road_Inventory ObjectID 333682. Please consider reviewing and adding points, as appropriate.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	9.	GIS Feature Class: Exhibit D Table 13, ExFldExpPt:b. RFPG_NUM is required to include a two-digit code for each region. For example, all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	10.	GIS Feature Class: Exhibit D Table 14, ExFldExpAll:a. RFPG_NUM is required to include a two-digit code for each region. For example, all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	10.	GIS Feature Class: Exhibit D Table 14, ExFldExpAll:b. It appears that some fields contain <NULL>, or invalid entries. For example, fields such as POP_DAY, POP_NIGHT. Please review all required fields and populate with valid entries as referenced in Exhibit D Table 14.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	10.	GIS Feature Class: Exhibit D Table 14, ExFldExpAll:c. Two entries contain an SVI value of <Null>. Please review these entries and verify that a correct SVI value is populated for each feature.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo	10.	GIS Feature Class: Exhibit D Table 14, ExFldExpAll:d. There appears to be two points EXEXPALLIDs 070000072 and 070275234 corresponding to the same school building in this feature class. This same building appears to be represented by a single polygon in the ExFldExpPol feature class (EXEXPPY_ID 070033788). Please review for duplication and reconcile as needed.	Yes	Tech Memo data was an interim work product and has been revised.

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T02A	TWDB - Tech Memo		10. GIS Feature Class: Exhibit D Table 14, ExFldExpAll:e. There appears to be two points EXEXPALLIDs 070000071 and 070273667 corresponding to a single school building in this feature class. This same building appears to be represented by a single polygon in the ExFldExpPol feature class (EXEXPPY_ID 070032221). Please review for duplication and reconcile as needed.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo		10. GIS Feature Class: Exhibit D Table 14, ExFldExpAll:f. There appears to be two points EXEXPALLIDs 070000021 and 070276639 corresponding to as single hospital building in this feature class. This same building appears to be represented by a single polygon in the ExFldExpPol feature class (EXEXPPY_ID 070035193). Please review for duplication and reconcile as needed.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo		11. Map Deliverable: Exhibit C 2.2.A.1 Map 4, Existing Condition Flood Hazard:a. This GIS coverage map does not appear to depict any additional flood prone areas. Please display additional, identified flood prone areas in addition to the 1% and 0.2% floodplains, as appropriate.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo		11. Map Deliverable: Exhibit C 2.2.A.1 Map 4, Existing Condition Flood Hazard:b. When available and as applicable, please display the types of flooding (riverine, coastal, local, etc.).	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo		11. Map Deliverable: Exhibit C 2.2.A.1 Map 4, Existing Condition Flood Hazard:c. For maps that display large amounts of data (e.g., Maps 4, 6, 8, and 10), please consider including a region-wide map displaying the data, and a map index. For greater public understanding, inset maps and additional maps shown at more zoomed in scales are encouraged. Zoomed in scale maps should be appropriately sized for your region and include a map index.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo		12. Map Deliverable: Exhibit C 2.2.A.1 Map 5, Existing Condition Flood Hazard – Gaps in Inundation Boundary Mapping and Identify Flood Prone Areas:a. Please ensure that any required data for submitted maps are included as part of the submission package. It appears that the REASON field of the Fld_Map_Gaps feature class does not match the information displayed on Map 5.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo		13. Map Deliverable: Exhibit C 2.2.A.1 Map 6, Existing Condition Flood Exposure:a. Please ensure that all maps include enough detail for the reader to understand what is being shown. It appears that Map 6B includes 'Other' exposure type. Please specify what 'Other' includes.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo		13. Map Deliverable: Exhibit C 2.2.A.1 Map 6, Existing Condition Flood Exposure:b. Map 6 does not appear to depict all required features, such as buildings, roadway crossings, road segments, and agricultural land. Please reconcile. In addition to the exposure heat map provided, please consider including additional maps with separate exposed features depicted as appropriate. Please consider further specification by differentiating between points, lines, and polygons on this map.	Yes	Tech Memo data was an interim work product and has been revised.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T02A	TWDB - Tech Memo		14. Map Deliverable: Exhibit C 2.2.A.1 Map 7, Existing Condition Vulnerability and Critical Infrastructure:a. There does not appear to be any indication of SVI values included in the map's legend. Please include documentation regarding SVI values, for example "density of vulnerability index values above 0.75".	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo		14. Map Deliverable: Exhibit C 2.2.A.1 Map 7, Existing Condition Vulnerability and Critical Infrastructure:b. Please consider modifying the map colors to more clearly and separately depict the 1% and 0.2% existing condition hazard floodplains.	Yes	Tech Memo data was an interim work product and has been revised.
T02A	TWDB - Tech Memo		14. Map Deliverable: Exhibit C 2.2.A.1 Map 7, Existing Condition Vulnerability and Critical Infrastructure:It appears difficult to distinguish low water crossings on the current map. Please consider modifying the symbology for low water crossings on these GIS coverage maps to better distinguish them.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo		2. GIS Feature Class: Exhibit D Table 15, FutFldHazard: a. RFPG_NUM is required to include a two-digit code for each region. For example, all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo		2. GIS Feature Class: Exhibit D Table 15, FutFldHazard:b. Please address <Null> entry for the 'WS_ID' field. Note: This field may be left blank if the character string is too long for field length.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo		3. GIS Feature Class: Exhibit D Table 16, FutFldExpPol: a. RFPG_NUM is required to include a two-digit code for each region. For example, all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo		3. GIS Feature Class: Exhibit D Table 16, FutFldExpPol: b. Please address <Null> entry for the 'WS_ID' field. Note: This field may be left blank if the character string is too long for field length.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo		3. GIS Feature Class: Exhibit D Table 16, FutFldExpPol: c. Both the required fields POP_DAY and POP_NIGHT appear to have "0" values for some building entries. Please review, confirm or populate, as appropriate.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo		4. GIS Feature Class: Exhibit D Table 17, FutFldExpLn: a. RFPG_NUM is required to include a two-digit code for each region. For example, all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo		4. GIS Feature Class: Exhibit D Table 17, FutFldExpLn: b. Please address <Null> entry for the 'WS_ID' field. Note: This field may be left blank if the character string is too long for field length.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo		5. GIS Feature Class: Exhibit D Table 18, FutFldExpPt: a. RFPG_NUM is required to include a two-digit code for each region. For example, all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T02B	TWDB - Tech Memo	5.	GIS Feature Class: Exhibit D Table 18, FutFldExpPt: b. Please address <Null> entry for the 'WS_ID' field. Note: This field may be left blank if the character string is too long for field length.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 19, FutFldExpAll: a. RFPG_NUM is required to include a two-digit code for each region. For example, all entries within this column for this feature class show "7" where "07" is required. Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 19, FutFldExpAll: b. Please address <Null> entry for the 'WS_ID' field. Note: This field may be left blank if the character string is too long for field length.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 19, FutFldExpAll: c. Both the required fields POP_DAY and POP_NIGHT appear to have "0" values for some building entries. Please review, confirm or populate as appropriate.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo	8.	Map Deliverable: Exhibit C 2.2.B.1 Map 9, Future Condition Flood Hazard - Gaps in Inundation Boundary Mapping and Identify known Flood Prone Areas: a. Refer to the Flood Planning Data Update email from March 10, 2022 included as an email attachment for information on adding Fut_Map_Gaps as a feature class. Please populate this new Fut_Map_Gaps feature class and consider displaying the REASON field in some way for Map 9. Entries for the REASON field could include: clearly outdated modeling and/or mapping, absence of modeling and/or mapping, or areas with modeling and/or mapping that requires update.	Yes	Tech Memo data was an interim work product and has been revised.
T02B	TWDB - Tech Memo	10.	Map Deliverable: Exhibit C 2.2.B.1 Map 11, Future Condition Flood Exposure: a. Please ensure that all maps include enough detail for the reader to understand what is being shown. It appears that Map 11-A/B includes 'Other' exposure type. Please consider specifying what "Other" includes.	Yes	Tech Memo data was an interim work product and has been revised.
T03A	TWDB - Tech Memo	1.	GIS Feature Class: Exhibit D Table 20, ExFpMP: a. The field RFPG_NUM contains invalid entries. Valid entries for this field include: 01-15. Please correct entries for this field using the appropriate region number. "07". Please reconcile.	Yes	Tech Memo data was an interim work product and has been revised.
T03A	TWDB - Tech Memo	1.	GIS Feature Class: Exhibit D Table 20, ExFpMP: b. Please ensure that all entries for RFPG_NAME are populated. All entries should include "Upper Brazos" as RFPG_NAME as described in Exhibit D.	Yes	Tech Memo data was an interim work product and has been revised.
T03A	TWDB - Tech Memo	1.	GIS Feature Class: Exhibit D Table 20, ExFpMP: c. Please ensure that all applicable and required fields are filled in for entries that have available information. It appears that data for REG_URL was not provided for any entity. If this information is available, please include it for each entry.	Yes	Tech Memo data was an interim work product and has been revised.
T03A	TWDB - Tech Memo	1.	GIS Feature Class: Exhibit D Table 20, ExFpMP: d. Please ensure all required fields are filled in for Exhibit D Table 20, ExFpMP with the correct, valid entry. Please reference Exhibit D for guidance on the valid entries unique to each field. The following fields were identified as require correction:	Yes	Tech Memo data was an interim work product and has been revised.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T03A	TWDB - Tech Memo		1. GIS Feature Class: Exhibit D Table 20, ExFpMP: e. The entries appear to have issues with their length. Unique IDs must be accurate for the database to connect and work properly. Please refer to Exhibit D Table 2 or more recent updates for Unique ID guidance.	Yes	Tech Memo data was an interim work product and has been revised.
T03B	TWDB - Tech Memo		1. Tech Memo Text: Exhibit C 4C.1.g, Goals: a. The overarching goal of all regional flood plans must be "to protect against the loss of life and property", as set forth in the Guidance Principles in 31 TAC §362.3. RFPGs must identify specific and achievable flood mitigation and floodplain management goals that, when implemented, will demonstrate progress towards this overarching goal. Please ensure that all goals are consistent with this guidance.	Yes	Tech Memo data was an interim work product and has been revised.
T03B	TWDB - Tech Memo		1. Tech Memo Text: Exhibit C 4C.1.g, Goals: b. Please utilize guidance provided in Exhibit D Table 2 (page 17) for GOAL_ID. Please use fully numeric GOAL_IDs rather than alphanumeric.	Yes	Tech Memo data was an interim work product and has been revised.
T03B	TWDB - Tech Memo		1. Tech Memo Text: Exhibit C 4C.1.g, Goals: c. Where appropriate, please consider including baseline data or information to add greater context related to the achievability of goals. For example: a goal such as "Increase NFIP participation from 90 percent to 95 percent of communities in the region" facilitates measurement towards goal achievement.	Yes	Tech Memo data was an interim work product and has been revised.
T03B	TWDB - Tech Memo		2. GIS Feature Class: Exhibit D Table 21, Goals: a. The overarching goal of all regional flood plans must be "to protect against the loss of life and property", as set forth in the Guidance Principles in 31 TAC §362.3. RFPGs must identify specific and achievable flood mitigation and floodplain management goals that, when implemented, will demonstrate progress towards this overarching goal. Please ensure that all goals are consistent with this guidance.	Yes	Tech Memo data was an interim work product and has been revised.
T03B	TWDB - Tech Memo		2. GIS Feature Class: Exhibit D Table 21, Goals: b. Please utilize guidance provided in Exhibit D Table 2 (page 17) for GOAL_ID. Please use fully numeric GOAL_IDs rather than alphanumeric.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo		1. Tech Memo Text: Exhibit C 4C.1.h, Process to Identify FMSs and FMPs: a. SOW Task 4A 1.c: Item 3. "Inadequate inundation mapping". Please consider whether the impact of new Atlas 14 rainfall should be added to the "Factors to Consider" when determining if the FEMA inundation mapping is inadequate.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo		1. Tech Memo Text: Exhibit C 4C.1.h, Process to Identify FMSs and FMPs: b. SOW Task 4A 1.e: Item 5. "Emergency need". Please consider defining the emergency conditions and how infrastructure will be classified as damaged or failing.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo		1. Tech Memo Text: Exhibit C 4C.1.h, Process to Identify FMSs and FMPs: c. Exhibit C Item 4.B.12: Implementation issues did not appear to be included in the evaluation. Please reference potential implementation issues as a part of the process to identify FMSs and FMPs.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo		2. Tech Memo Text: Exhibit C 4C.1.i, Potential FMEs, FMSs, FMPs: a. See comments for FME, FMP, and FMS GIS Feature Classes.	Yes	Tech Memo data was an interim work product and has been revised.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T04B	TWDB - Tech Memo	3.	Tech Memo Text: Exhibit C 4C.1.j, Infeasible FMEs, FMSs, FMPs: a. See comments for FME, FMP, and FMS GIS Feature Classes.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 23, FME: a. For county-wide watershed strategies where the majority of the county falls outside of the RFPG boundary, please confirm that the strategy benefits the RFPG and please coordinate with other RFPGs to make sure that efforts are not duplicated. For example, FME: Terry and Dawson Counties	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 23, FME: b. Please make sure the GIS layer is consistent with the table in the tech memo. There are 118 feature class in GIS layer compared to 120 in the Tech memo. For example, FME_IDs 071000039 and 071000074 appear to be missing in the GIS layer.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 23, FME: c. Please make sure the sponsor field is correct in the GIS layer, currently Sponsor Field is filled with Entity ID instead of actual sponsor.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	4.	GIS Feature Class: Exhibit D Table 23, FME: d. Please ensure all required fields are populated with appropriate values and include the addition of the LWC and MODEL_ID fields.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	5.	GIS Feature Class: Exhibit D Table 24, FMP: a. Please make sure GIS layer is consistent with the table in the tech memo. There are 27 feature class in GIS layer compared to 30 in Tech memo. For example, FMP_IDs 073000023, 073000024, 073000026 are missing in GIS layer. Please make sure sponsor field is correct in the GIS layer, currently Sponsor Field is filled with ENTITY_ID instead of actual sponsor.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 26, FMS: a. Exhibit C Item 2.4.B Number 3 p. 54: Please review FMSs to ensure they are correctly categorized. For example, FMS IDs: 072000106-072000138 property acquisition and structural elevation could be an FMP-Non-Structural. Based on examples in Exhibit C (pg. 53-54) these may be considered as FMPs. Please consider clarifying the descriptions regarding whether there are capital costs associated with the solution and/or recategorizing to an FMP. If sufficient details are not available to list as FMP, it may be included as an FMS.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 26, FMS: b. FMSs can only include non-recurring non-capital cost. Ensure that the "Infrastructure Projects" don't have a capital cost. If Preliminary Engineering is needed, consider re- classifying as an FME. If sufficient details are not available to list as FME, it may be included as an FMS.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 26, FMS: c. Please make sure GIS layer is consistent with the table in the tech memo. There are 163 feature class in GIS layer compared to 165 in Tech memo. For example, FMS_IDs 073000023, 073000024, 07200026, 07200066 appear to be missing in the GIS layer.	Yes	Tech Memo data was an interim work product and has been revised.

Task	Comment By	TWDB #	Comment	Revision	Response or Revision
T04B	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 26, FMS: d. Please make sure sponsor field is correct in the GIS layer, currently Sponsor Field is filled with ENTITY_ID instead of actual sponsor. Please ensure other required fields are populated with appropriate values as listed in Exhibit D Table 26	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 26, FMS: e. Please use the exact term from the Valid Entries list, such as "Yes" instead of "Y" (WATER_SUP)	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 26, FMS: b. Please add the NRNC_COST and MODEL_ID fields. Refer to the Flood Planning Data Update email from January 31, 2022 included as an email attachment for more information on adding this field.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	6.	GIS Feature Class: Exhibit D Table 26, FMS: c. Please include the estimated non-recurring, non-capital cost, and the estimated total strategy cost separately. Refer to "New Field for FMS Feature Class and Spreadsheet" FloodPlanning email from December 14, 2021, for more detail on how to properly include this data.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	7.	GIS Feature Class: Exhibit D Table 22, Streams: a. Please review FMP_ID 073000019 feature to check if there are streams inside the project boundary.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	7.	GIS Feature Class: Exhibit D Table 22, Streams: b. Please review FME_ID 071000029, 071000023, 071000094 to check for streams.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	7.	GIS Feature Class: Exhibit D Table 22, Streams: c. Unique ID Guidance: STREAM_IDs are missing the leading 0. Please reconcile. Unique IDs must be accurate for the database to connect and work properly. Refer to Exhibit D Table 2 or more recent updates for Unique ID guidance.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	7.	GIS Feature Class: Exhibit D Table 22, Streams: d. Please populate the required STR_NAME field.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	8.	GIS Feature Class: Exhibit D Table 4, Watersheds: a. Please make sure WS_NAME is filled with actual name of the watershed. There are some cases (E.g., WD_IDs 07000450, 07000467) where HUC-12 # is provided instead of the watershed name.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	8.	GIS Feature Class: Exhibit D Table 4, Watersheds: b. When creating the FMEs, FMPs, FMSs feature classes, please be sure to include those watersheds identified as part of the Watersheds feature class.	Yes	Tech Memo data was an interim work product and has been revised.
T04B	TWDB - Tech Memo	8.	GIS Feature Class: Exhibit D Table 4, Watersheds: c. Please add and populate the FME_ID, FMS_ID, FMP_ID, and EXPROJ_ID fields.	Yes	Tech Memo data was an interim work product and has been revised.

AMENDED JULY 14, 2023

APPENDIX D – PUBLIC COMMENT

5 REQUEST FOR INFORMATION COMMENTS

Upper Brazos Regional Flood Plan

Task Name	Item Type	Ex C Item	Ex D Table No.	Ex D feature class	Level 1	Level 2	RFPG Response
Existing Exposure + Vulnerability	GIS feature class		14	ExFldExpAll		Expected critical facilities such as 'EMS' appear to be missing. Please confirm this is correct.	During data collection no EMS data available. Will consider continue to investigate for Amended Plan submittal.
Future Exposure + Vulnerability	GIS feature class		19	FutFldExpAll		Expected critical facilities such as 'EMS' appear to be missing. Please confirm this is correct.	During data collection no EMS data available. Will consider continue to investigate for Amended Plan submittal.
FME Recs	Table	Table 15			Cumulative Estimated Study Cost is 90,533,366 in the geodatabase as opposed to 83,594,000 in the Exhibit C Table 15. Please reconcile.		FME geodatabase cost reconciled to Exhibit C Table 15.
FME Recs	GIS feature class		23	FME	Cumulative Estimated Study Cost is 90,533,366 in the geodatabase as opposed to 83,594,000 in the Exhibit C Table 15. Please reconcile.		FME geodatabase cost reconciled to Exhibit C Table 15.
FMP Recs	Table				Please include a table or a reference to it in the body of the report, listing each recommended FMP, how no negative impact was determined, either via a model, a study or engineering judgement, listing of the model's name and unique model ID, study name, or engineering judgement description and submit the associated model. Please utilize attached template for table.		Task 5 No Negative Impact Determination Table added to Appendix C. Reference to Appendix C table added to Summary of Recommended FMPs report section.
FMS Recs	Table	Table 17			Cumulative Estimated Project Cost is \$10,233,000 in the geodatabase as opposed to \$13,183,000 in the Exhibit C Table 17. Please reconcile.		FMS geodatabase cost reconciled to Exhibit C Table 17.
FMS Recs	Table	Table 17			Cumulative Estimated number of road closures is 0 in the geodatabase as opposed to 32,923 in the Exhibit C Table 17. Please reconcile.		Exhibit C Table 17 road closure data reconciled to geodatabase.
FMS Recs	Table	Table 17			Cumulative Estimated length of roads at 100-year flood risk is 32,923 miles in the geodatabase as opposed to 0 miles in the Exhibit C Table 17. Please reconcile.		Exhibit C Table 17 length of roads data reconciled to geodatabase
FMS Recs	Table	Table 17				Cumulative Strategy Project Area is 110,298 square miles in the geodatabase as opposed to 115,369 square miles in the Exhibit C Table 17. Please reconcile.	Exhibit C Table 17 project areas reconciled to geodatabase.
FMS Recs	GIS feature class		26	FMS	Cumulative Estimated Project Cost is \$10,233,000 in the geodatabase as opposed to \$13,183,000 in the Exhibit C Table 17. Please reconcile.		FMS geodatabase cost reconciled to Exhibit C Table 17.
FMS Recs	GIS feature class		26	FMS	Cumulative Estimated number of road closures is 0 in the geodatabase as opposed to 32,923 in the Exhibit C Table 17. Please reconcile.		Exhibit C Table 17 road closure data reconciled to geodatabase.
FMS Recs	GIS feature class		26	FMS	Cumulative Estimated length of roads at 100-year flood risk is 32,923 miles in the geodatabase as opposed to 0 miles in the Exhibit C Table 17. Please reconcile.		Exhibit C Table 17 length of roads data reconciled to geodatabase
FMS Recs	GIS feature class		26	FMS		Cumulative Strategy Project Area is 110,298 square miles in the geodatabase as opposed to 115,369 square miles in the Exhibit C Table 17. Please reconcile.	Exhibit C Table 17 project areas reconciled to geodatabase.
Policy Recs	Text	Section 2.8				Regulatory Recommendation 5 in Chapter 8 does not appear to have been included in the Region 07 Draft Regional Flood Plan. Please confirm that this recommendation was added as a result of public comments received.	Regulatory recommendation 5 in Chapter 8 was added as a result of public comment from USACE. Comments and revised recommendations were discussed and approved at the 12/15/22 planning group meeting.
Accessibility			Section 2.2			Figures alternative text and other elements alternative text failed in accessibility check. Please consider adding alternative text as appropriate.	Alternative text for appendix files will be considered in amended plan submittal.

Upper Brazos Regional Flood Plan

Task Name	Item Type	Ex C Item	Ex D Table No.	Ex D feature class	Level 1	Level 2	RFPG Response
Accessibility			Section 2.2		We noted 15 failures when reviewing the PDF submittal with the Adobe Acrobat accessibility full check. At a minimum, please ensure that the following document properties are satisfied. PDF documents must have a very good document title, the primary language must be set to English, and the primary view must be set to document title. PDFs must also be tagged documents.		Document properties were reviewed and corrected including title, primary language, primary view set to document title, and document tags. Table formatting was revised to eliminate accessibility warnings.