

Appendix 4B. Narratives for Flood Management Evaluations

4B-37. Flood Management Evaluation ID: 1410000037

Name: FM 259 Railroad Crossing Channel Improvements

Description: Improve railroad crossing structure condition through sedimentation remediation. Establish maintenance program with minimum risk-based channel capacity. Address maintenance agreements between the U.S. and Mexico. Assess risks in El Paso County associated with varying levels of Rio Grande channel maintenance.

Affected Jurisdiction: City of Canutillo, El Paso County

Discussion on Flood Risk: The river channel to the north of Vinton Avenue running west across Doniphan Dr. and underneath a Santa Fe Railroad line into the Rio Grande has a water crossing subject to progressive deposition of sediments within the channel, resulting in limited floodwater flow and flooding on 1st Street, east of Doniphan Drive, and residential homes in the nearby vicinity. Currently, the crossing is about 75% clogged due to sedimentation. A 2021 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Rio Grande from Vado to Smelertown.

The purpose of this Flood Management Evaluation (FME) is to establish a plan by which the Texas stakeholders (El Paso Water and El Paso County) can provide proactive action to identify and promote the addressing of identified problems affecting the design hydraulic capacity of this channel through El Paso County.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County that manage flood-related infrastructure affected by Rio Grande capacity: El Paso Water, EPCWID1, and El Paso County.

The scope of work (SOW) for the FME will include these tasks.

Task 1 - Data Collection. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. H&H Modeling will be performed to estimate the hydraulic capacity throughout the Farm-to-Market Road 259 railroad crossing structure channel in existing conditions, the effect of sediment deposition, and the current available excess riverine flow volume capacity over the existing design capacity. **Exhibit Map 19.37** of *Chapter 5* depicts the local watershed.

Task 3 – Alternatives Development. H&H modeling will be performed to estimate effects of the proposed repair alternatives on the local watershed. Primarily, this task focuses on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified issues, green infrastructure alternatives, and any other potential alternatives that might remedy the identified infrastructure issue.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Canutillo, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 26,250
Task 4- Alternatives Selection	\$ 6,820
Task 5 – Document Creation	\$ 29,730
Task 6 – Project Management and Stakeholder Coordination	\$ 16,990
Total Project Labor	\$ 105,830
Total FME Cost	\$105,830

4B-38. Flood Management Evaluation ID: 1410000038

Name: Anthony Street Flooding.

Description: Assess drainage conditions at 1st Street and La Tuna Avenue in the community of Anthony.

Affected Jurisdictions: The Community of Anthony, City of Socorro, and El Paso County.

Discussion on Flood Risk: The community of Anthony experiences frequent flooding at the intersection of 1st Street and La Tuna Avenue. The existing solution to address this issue involves pumping floodwater to a channel to the south. A 2021 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Rio Grande from Vado to Smelertown.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Anthony, and possible infrastructure improvements.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County that manage flood-related infrastructure affected by Rio Grande capacity: El Paso Water, EPCWID1, and El Paso County.

Task 1 - Data Collection. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. H&H Modeling will be performed to estimate flooding and flow accumulation of the street intersection in existing conditions, and current riverine flow volume capacity over the existing design capacity at the identified location. **Exhibit Map 19.38** of *Chapter 5* depicts the local watershed.

Task 3 – Alternatives Development. H&H modeling will be performed to estimate effects of the proposed geometry alternatives on the local watershed. Primarily, this task focuses on the development of the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified grading issues, green infrastructure alternatives to regrading the identified problem area, and any other potential alternatives that might remedy the identified grading issue.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Canutillo, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 8,420
Task 2 – Engineering Analyses	\$ 15,030
Task 3 – Alternatives Development	\$ 28,565
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 35,750
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 117,825
Total FME Cost	\$117,825

4B-39. Flood Management Evaluation ID: 14100039

Name: 1st Street Channel Extension

Description: Extend 1st Street channel to help manage discharge from a northern watershed into the Rio Grande.

Affected Jurisdictions: City of Canutillo, El Paso County

Discussion on Flood Risk: Currently, there is an existing arroyo that has 1,100 feet of lining. However, beyond the Vinton Avenue and 6th Street connection, the arroyo transitions into an earthen channel filled with sediment and with low conveyance capacity. Past the crossing of Doniphan Drive, the arroyo channel is overgrown with desert shrubs and bushes, further slowing floodwater and causing flooding in the surrounding area. A 2021 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Rio Grande from Vado to Smelertown.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Canutillo, and possible infrastructure improvements.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County that manage flood-related infrastructure affected by Rio Grande capacity: El Paso Water, EPCWID1, and El Paso County.

The scope of work (SOW) for the FME will include these tasks.

The sponsors for this FME will be the public stakeholders in El Paso County that manage flood-related infrastructure affected by Rio Grande capacity: El Paso Water, EPCWID1, and El Paso County.

Task 1 - Data Collection. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. H&H Modeling will be performed to estimate flooding and flow accumulation of the 1st street channel in existing conditions, and current riverine flow volume capacity over the existing design capacity at the channel extension location. **Exhibit Map 19.39** of *Chapter 5* depicts the local watershed.

Task 3 – Alternatives Development. H&H modeling will be performed to estimate effects of the proposed geometry alternatives on the local watershed. Primarily, this task focuses on the development of the minimum flow capacities of proposed alternatives, the future impacts of

implementing no action to remedy the identified issues, green infrastructure alternatives, and any other potential alternatives that might remedy the identified infrastructure issue.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Canutillo, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 8,420
Task 2 – Engineering Analyses	\$ 17,750
Task 3 – Alternatives Development	\$ 32,005
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 36,470
Task 6 – Project Management and Stakeholder Coordination	\$ 24,270
Total Project Labor	\$ 126,305
Total FME Cost	\$126,305

4B-40. Flood Management Evaluation ID: 141000040

Name: 3rd and Talbot Drainage Basin and Channel

Description: Development of a detention basin to the east of 3rd Street.

Affected Jurisdictions: City of Canutillo, El Paso County

Discussion on Flood Risk: Flooding occurs at the intersection of 3rd Street and Talbot Avenue, connecting to Doniphan Drive. One potential solution is the development of a drainage detention basin east of 3rd Street. A 2021 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Rio Grande from Vado to Smelertown.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Canutillo, and possible infrastructure improvements.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County that manage flood-related infrastructure affected by Rio Grande capacity: El Paso Water, EPCWID1, and El Paso County.

The scope of work (SOW) for the FME will include these tasks.

Task 1 - Data Collection. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analysis. H&H Modeling will be performed to estimate the hydraulic capacity of a pond in the proposed basin footprint area, the runoff of the surrounding area impacting the identified basin location, and the hydraulic capacity of surrounding stormwater management infrastructure. **Exhibit Map 19.40** of *Chapter 5* depicts the local watershed.

Task 3 - Alternatives Development. H&H modeling will be performed to estimate effects of the proposed geometry alternatives on the local watershed. Primarily, this task focuses on the development of the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified issues, green infrastructure alternatives, and any other potential alternatives that might remedy the identified infrastructure issue.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Canutillo, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 19,140
Task 3 – Alternatives Development	\$ 32,655
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 34,470
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 123,825
Total FME Cost	\$123,825

4B-41. Flood Management Evaluation ID: 141000041

Name: Sparks Arroyo Analysis

Description: Armoring of an arroyo stream flowing through the city of Sparks, Texas and flowing under I-10.

Affected Jurisdiction: City of Sparks, El Paso County

Description of Flood Risk: An arroyo stream flows through the community of Sparks, Texas, and has been identified as a potential source of risk for the community at the low water crossing structures near I-10. The community is concerned that if the structure were to back up due to sedimentation in existing conditions, it might cause flooding upstream, and in the surrounding communities. See **Exhibit Map 19.41** for a depiction of the flood risk and impacted areas. A 2021 study by El Paso Water developed a hydraulic model (HEC-RAS) of the area extending from Socorro into Sparks.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Sparks, and possible infrastructure improvements.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County that manage flood-related infrastructure affected by Rio Grande capacity: El Paso Water, EPCWID1, and El Paso County, as well as representatives from TxDOT who are responsible for I-10 construction.

Task 1 - Data Collection. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified channel location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the arroyo channel watershed. One dimensional and/or two dimensional hydraulic models will be developed for the contributing area to the identified channel armoring location, depending on which of the previously developed models are deemed most appropriate to use as base models. The effects of sediment deposition at the identified project area and the current available riverine flow excess volume capacity will also be studied, as this project's primary focus is sedimentation remediation.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for the flood risk affecting the location of this site in final conditions. H&H modeling will be performed to estimate effects of the proposed geometry alternatives on the

local watershed. Primarily, this task focuses on the development of the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified issues, green infrastructure alternatives, and any other potential alternatives that might remedy the identified erosion issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Sparks, El Paso County, TXDOT, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 8,860
Task 2 – Engineering Analyses	\$ 18,680
Task 3 – Alternatives Development	\$ 26,235
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 34,470
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 118,305
Total FME Cost	\$118,305

4B-42. Flood Management Evaluation ID: 141000042

Name: Ozona Low Water Crossing Analysis

Description: Several problem low-water crossings have been identified that direct flow south of the city of Ozona. These crossings have been identified due to their potential to impact the nearby floodway and floodplain extents. As such, these structures require detailed modeling.

Affected Jurisdiction: City of Ozona, Crockett County

Description of Flood Risk. The City of Ozona is an unincorporated area in Crockett County experiencing flooding at certain low-water crossing structures. Per conversations held with community officials, these structures require detailed modeling, as there is no Zone AE floodplain available for the community to reference for the design of geometry alternatives. See **Exhibit Map 19.42** for a depiction of the flood risk and impacted areas. A 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora.

The purpose of this FME is to develop a FMP for evaluating current flooding occurring at the identified low water crossing structures in the City of Ozona, and possible infrastructure improvements.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Crockett County and the City of Ozona that manage flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Ozona. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting these specified low water crossing location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the different low water crossing structure watersheds. One dimensional and two dimensional hydraulic models will be developed for the contributing areas to the identified low water crossing structures. The effects of potential sediment deposition at the identified project areas will also be studied, in addition to the current available excess riverine flow volume capacity available over the current existing design capacity.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting any of these identified project sites. H&H modeling will be performed to estimate effects of the proposed geometry alternatives on the local watershed. Primarily, this task focuses on the development of the minimum flow capacities of proposed

alternatives, the future impacts of implementing no action to remedy the identified issues, green infrastructure alternatives, and any other potential alternatives that might remedy any identified sedimentation or hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Ozona, Crockett County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 41,600
Task 3 – Alternatives Development	\$ 47,045
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 44,670
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 170,875
Total FME Cost	\$170,875

4B-43. Flood Management Evaluation ID: 14100043

Name: Maple Street Flooding Analysis

Description: I-10 passes through the community of Ozona, and the area south of the on ramp connecting to I-10 is experiencing inundation to the area south of Maple Street.

Affected Jurisdictions: City of Ozona, Crockett County

Discussion on Flood Risk: The City of Ozona is an unincorporated area in Crockett County. Per conversations held with Ozona, the source of this flooding might be the recent TxDOT work in the area and will need to be discussed with both city officials and TxDOT representatives. See **Exhibit Map 19.43** for a depiction of the flood risk and impacted areas. A 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Crockett County and the City of Ozona that manage flood-related infrastructure affecting the area as well as representatives from TxDOT who are responsible for the management of I-10. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Ozona. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified flooding location watersheds. A two dimensional hydraulic model will be developed for the contributing areas to the flooding locations identified. The current available excess riverine flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified project site. H&H modeling will be performed to estimate effects of the proposed geometry alternatives on the local watershed. Primarily, this task focuses on the development of the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Ozona, Crockett County, TxDOT, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 18,190
Task 3 – Alternatives Development	\$ 26,245
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 30,470
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 112,465
Total FME Cost	\$112,465

4B-46. Flood Management Evaluation ID: 14100044

Name: Loma Linda Floodplain Analysis

Description: Conduct a detailed floodplain analysis on the immediate area surrounding the community of Loma Linda.

Affected Jurisdictions: Community of Loma Linda, Hudspeth County

Discussion on Flood Risk: The unincorporated community of Loma Linda is located in Hudspeth County. There is currently no effective detailed floodplain study in the area surrounding the community. The community would like for such a study to be conducted so that property owners affected can apply for FEMA Flood Insurance Program (FIP) coverage, as needed. See **Exhibit Map 19.44** for a depiction of the community area proposed to be the focus of this study. A 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Hudspeth County and the Community of Loma Linda that manage flood-related infrastructure affecting the area.

Task 1 - Data Collection. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events. Spatial rainfall data will be collected to facilitate model replication of selected extreme event(s). Data will be collected from local residents and/or entities with drainage oversight. Field survey data will be collected at selected locations (e.g., hydraulically significant culverts/ bridges) needed to refine hydraulic modeling. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Engineering Analysis of Existing Conditions. A hydrologic model will be developed for the Loma Linda Community watershed. A hydraulic model for Loma Linda Colonia will be developed, including and providing insight on the impacts of flooding on critical local routes and significant hydrologic features in the nearby area.

Task 3 - Alternatives Development. Following completion of this modeling, potential FMP locations will be identified, and potential alternatives that might be implemented to remediate flooding will be designed. In addition, proposed alternatives will prioritize improved performance of local critical route(s) during floods, reduction of risk to occupied structures, and addressing of other identified flood-related community concerns (e.g., planning for improved communication, improved emergency response, etc.). Concept design(s) and cost estimate(s) will be developed for structural alternatives. Costs will also be developed for additional non-structural alternatives. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 - Alternatives Selection. An FMP for inclusion in a future RFP will be selected using criteria developed in a workshop with local stakeholders. These criteria will be consistent with TWDB criteria for FMPs. Full RFP-required data for the selected FMP will be developed.

Task 5 - Report. A report will be generated for presentation to the RFBG and TWDB providing documentation of the proposed FMP. Maps will be generated to aid in the communication of study findings and proposed alternative impacts.

Task 6 - Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the Community of Loma Linda Colonia, Hudspeth County, and USIBWC since the study and remediation alternatives will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 26,680
Task 3 – Alternatives Development	\$ 35,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 38,310
Task 6 – Project Management and Stakeholder Coordination	\$ 23,470
Total Project Labor	\$ 138,955
Total FME Cost	\$ 138,955

4B-47. Flood Management Evaluation ID: 141000045

Name: Standard Avenue Basin.

Description: Development of a drainage basin to mitigate flooding affecting the nearby neighborhood area.

Affected Jurisdictions: Kermit City, Winkler County

Discussion on Flood Risk: Currently, the field area to the east of Standard Avenue in Kermit City experiences consistent flooding during storms. This flooding has been reported to extend onto Standard Avenue, impacting the surrounding community. Local flooding extents, and local floodplains are shown in **Exhibit Map 19.45** of *Chapter 5*. A 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora, however, no detailed modelling has been recently conducted in the community, so while there may be some background information available for reference, a detailed study of the area would be very valuable in the development of possible solutions to the issues identified by the community of Kermit City.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Winkler County and the City of Kermit that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Kermit. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified flooding location watershed. A two dimensional hydraulic model will be developed for the contributing areas to the flooding location identified. While not initially identified as a point of concern for the community, the extent and potential risks of sediment deposition will be analyzed at the chosen basin location. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified project site. H&H modeling will be performed to estimate effects of the proposed pond geometry alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of

implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Kermit, Winkler County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 10,140
Task 2 – Engineering Analyses	\$ 25,600
Task 3 – Alternatives Development	\$ 33,685
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 35,050
Task 6 – Project Management and Stakeholder Coordination	\$ 23,470
Total Project Labor	\$ 135,335
Total FME Cost	\$ 135,335

4B-48. Flood Management Evaluation ID: 141000046

Name Name: Jefee Drive and Jim Sharp Boulevard Flooding

Description: Study of an identified flooding location at the intersection of Jeffee Drive and Jim Sharp Boulevard.

Affected Jurisdictions: Kermit City, Winkler County

Discussion on Flood Risk: Currently, the intersection of Jeffee Drive and Jim Sharp Boulevard in Kermit City has been reported to experience consistent flooding during storms. Local flooding extents, and local floodplains are shown in **Exhibit Map 19.46** of *Chapter 5*. A 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora, however, no detailed modelling has been recently conducted in the community, so while there may be some background information available for reference, a detailed study of the area would be very valuable in the development of possible solutions to the issues identified at this street intersection by the community of Kermit City.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Winkler County and the City of Kermit that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Kermit. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified flooding location watershed. A two dimensional hydraulic model will be developed for the contributing areas to the flooding location identified. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified project site. H&H modeling will be performed to estimate effects of proposed inlet geometry or grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be

developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Kermit, Winkler County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 10,220
Task 2 – Engineering Analyses	\$ 28,870
Task 3 – Alternatives Development	\$ 6,530
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 21,550
Task 6 – Project Management and Stakeholder Coordination	\$ 23,470
Total Project Labor	\$ 98,030
Total FME Cost	\$ 98,030

4B-49. Flood Management Evaluation ID: 141000047

Name: East Austin Street Flooding

Description: Study of an identified flooding area along Austin Street.

Affected Jurisdictions: Kermit City, Winkler County

Discussion on Flood Risk: Currently, Austin Street in Kermit City has been reported to experience consistent flooding during storms due to the current roadway pitch of this road. Local flooding extents, and local floodplains are shown in **Exhibit Map 19.47** of *Chapter 5*. A 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora, however, no detailed modelling has been recently conducted in the community, so while there may be some background information available for reference, a detailed study of the area would be very valuable in the development of possible solutions to the issues identified at this street intersection by the community of Kermit City.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Winkler County and the City of Kermit that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Kermit. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified flooding location watershed. A two dimensional hydraulic model will be developed for the contributing areas to the flooding location identified. While not initially identified as a point of concern for the community, the extent and potential risks of sediment deposition will be analyzed at the chosen study location. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified project site. H&H modeling will be performed to estimate effects of proposed inlet geometry or grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might

remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Kermit, Winkler County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 19,540
Task 3 – Alternatives Development	\$ 38,535
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 36,950
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 132,585
Total FME Cost	\$ 132,585

4B-50. Flood Management Evaluation ID: 141000048

Name: Presidio NE Ponding Analysis.

Description: Perform H&H modeling to develop a FMP for drainage ponds that are being built within the city of Presidio.

Affected Jurisdictions: City of Presidio, Presidio County

Discussion on Flood Risk: Currently, several arroyos run north to south throughout the city of Presidio. Through the identification of available areas suitable for the development of infrastructure to mitigate flooding caused by these arroyos, several locations for future stormwater detention ponds have been chosen, and have been requested to be studied. The watersheds for these arroyos are shown in **Exhibit Map 19.48** of *Chapter 5*. A 2023 study by Presidio developed a hydraulic model (HEC-RAS) of the city of Presidio, and conducted detailed modeling of specific arroyo crossing points in the areas surrounding the identified pond locations.

The purpose of this FME is to develop a FMP for evaluating the effectiveness of detention ponds proposed by the city in order to mitigate flooding experienced throughout the community of Presidio.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Presidio County and the City of Presidio that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Presidio. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting these specified pond locations. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted at the location of nearby arroyo crossings will be referenced to aid in the creation of models and the design of mitigation options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the proposed pond location watersheds. A two dimensional hydraulic model will be developed for the contributing areas to the proposed pond locations being studied in detail in both existing and future conditions. The extent and potential risks of sediment deposition will be analyzed for the arroyos contributing to the detention ponds being designed. This is a topic of particular focus, as unarmored arroyo channels can deposit unwanted amounts of sediment, resulting in potentially dangerous conditions if left unaddressed for enough time. The current available

excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Pond geometry alternatives will be developed for the detention ponds proposed at each proposed pond site. H&H modeling will be performed to estimate effects of proposed pond geometries on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Presidio, Presidio County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 18,210
Task 3 – Alternatives Development	\$ 28,885
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 37,230
Task 6 – Project Management and Stakeholder Coordination	\$ 23,070
Total Project Labor	\$ 122,285
Total FME Cost	\$ 122,285

4B-51. Flood Management Evaluation ID: 141000049

Name: Ojinaga Avenue and Longhorn Avenue Flooding Analysis.

Description: Perform H&H modeling to develop a FMP for two roads experiencing inundation within the city of Presidio.

Affected Jurisdictions: City of Presidio, Presidio County

Discussion on Flood Risk: Currently, several arroyos run north to south throughout the city of Presidio. According to representatives from the city government, inundation has been repeatedly experienced flowing down Longhorn Avenue and Ojinaga Avenue. The watersheds for these roads and the surrounding areas are shown in **Exhibit Map 19.49** of *Chapter 5*. A 2023 study by Presidio developed a hydraulic model (HEC-RAS) of the city of Presidio, and conducted detailed modeling of specific arroyo crossing points in the areas surrounding the two roads experiencing regular inundation.

The purpose of this FME is to develop a FMP for evaluating the cause of regular inundation along these two roads reported by the city in order to mitigate flooding experienced throughout this portion the community of Presidio.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Presidio County and the City of Presidio that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Presidio. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting these specified locations. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted at the location of nearby arroyo crossings will be referenced to aid in the creation of models and the design of mitigation options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the inundated road watersheds. A two dimensional hydraulic model will be developed for the contributing areas to the roads being studied in detail in both existing and future conditions. The extent and potential risks of sediment deposition will be analyzed for the arroyos affecting the roads being studied. This is a topic of particular focus, as unarmored arroyo channels can deposit unwanted amounts of sediment, resulting in potentially dangerous conditions if left unaddressed for enough time. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Road inlet and grading geometry alternatives will be developed for the two roads being studied. H&H modeling will be performed to estimate effects of proposed mitigation alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Presidio, Presidio County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,960
Task 2 – Engineering Analyses	\$ 18,740
Task 3 – Alternatives Development	\$ 35,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 38,310
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 130,675
Total FME Cost	\$ 130,675

4B-52. Flood Management Evaluation ID: 141000050

Name: Presidio SE Arroyo Analysis.

Description: Perform H&H modeling to develop a FMP for the arroyos affecting the roads running east to west throughout the city of Presidio.

Affected Jurisdictions: City of Presidio, Presidio County

Discussion on Flood Risk: Currently, several arroyos run north to south throughout the city of Presidio, impacting several roads running east to west. The community of Presidio identified these arroyos as a point of concern for the future, and would like a detailed study of these arroyos completed. The watersheds for these arroyos are shown in **Exhibit Map 19.50** of *Chapter 5*. A 2023 study by Presidio developed a hydraulic model (HEC-RAS) of the city of Presidio, and conducted detailed modeling of specific arroyo crossing points.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Presidio, and possible infrastructure improvements to aid in the hydraulic conductivity of these identified arroyos.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Presidio County and the City of Presidio that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Presidio. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted at the location of nearby arroyo crossings will be referenced to aid in the creation of models and the design of mitigation options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified arroyo watersheds. A two dimensional hydraulic model will be developed for the contributing areas to the arroyos being studied in detail in both existing and future conditions. The extent and potential risks of sediment deposition will be analyzed for the arroyos being studied. This is a topic of particular focus, as unarmored arroyo channels can deposit unwanted amounts of sediment, resulting in potentially dangerous conditions if unaddressed for enough time. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified study sites. H&H modeling will be performed to estimate effects of proposed crossing geometry or grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Presidio, Presidio County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 8,680
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 39,445
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 32,470
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 129,195
Total FME Cost	\$ 129,195

4B-53. Flood Management Evaluation ID: 141000051

Name: Presidio Arroyo Low Water Crossing Analysis.

Description: Perform H&H modeling to develop a FMP for the low water crossing structures channeling arroyos within the city of Presidio.

Affected Jurisdictions: City of Presidio, Presidio County

Discussion on Flood Risk: Currently, several arroyos run north to south throughout the city of Presidio, impacting several roads running east to west. The community of Presidio identified these arroyos as a point of concern for the future, and would like a detailed study of the overland flow characteristics of the areas surrounding San Gabriel Ave, 3rd Street, 4th Street, 5th Street, and 6th Street, and the low water crossing structure responsible for channeling flow from an arroyo upstream under these streets completed. The watersheds for these arroyo areas are shown in **Exhibit Map 19.51** of *Chapter 5*. A 2023 study by Presidio developed a hydraulic model (HEC-RAS) of the city of Presidio, and conducted detailed modeling of specific arroyo crossing points.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Presidio, and possible infrastructure improvements to aid in the hydraulic conductivity of these identified arroyos.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Presidio County and the City of Presidio that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Presidio. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified low water crossing structure area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted at the location of nearby arroyo crossings will be referenced to aid in the creation of models and the design of mitigation options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the study area watershed. A two dimensional hydraulic model will be developed for the contributing area to low water crossing structure in detail in both existing and future conditions. The extent and potential risks of sediment deposition will be analyzed for the arroyo being studied. This is a topic of particular focus, as unarmored arroyo channels can deposit unwanted amounts of sediment, resulting in potentially dangerous conditions if unaddressed for enough

time. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified study location. H&H modeling will be performed to estimate effects of proposed structure geometry or grading alternatives on the local watershed. This task will focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Presidio, Presidio County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 31,445
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 33,030
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 120,575
Total FME Cost	\$ 120,575

4B-54. Flood Management Evaluation ID: 141000052

Name: Park Green Infrastructure and Basin.

Description: The community of San Elizario is interested in exploring upgrades to current green infrastructure existing at a park located between Coldwell and Alarcon Road.

Affected Jurisdictions. City of San Elizario, El Paso County

Description of Flood Risk. The City of San Elizario is an incorporated area in El Paso County. The community is in need of upgrades to currently existing stormwater infrastructure, as current floodplains extending from the Rio Grande throughout the area show inundation experienced by numerous structures and roads. The watersheds for these areas are shown in **Exhibit Map 19.52** of *Chapter 5*. A 2022 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Upper Rio Grande region, and conducted detailed modeling of the area, extending from Quail Mesa Colonia south to Fabens.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of San Elizario, and possible green infrastructure improvements to aid in the hydraulic performance of the pond proposed to be upgraded.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County and the City of San Elizario that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of San Elizario. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified green infrastructure area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted in the surrounding areas will be referenced to aid in the creation of models and the design of flood mitigation upgrade options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the proposed green infrastructure study area watershed. A two dimensional hydraulic model will be developed for the contributing area to the identified green infrastructure upgrade area in detail in both existing and future conditions. The extent of potential sediment deposition for the contributing watershed will be analyzed as apart of this study. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied, as this study is seeking to prove the necessity for implementing upgrades to currently existing green infrastructure.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed infrastructure upgrades to mitigate flood risk affecting the area surrounding the identified study location. H&H modeling will be performed to estimate effects of proposed green infrastructure structure geometry alternatives on the local watershed. This task will focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of San Elizario, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 10,680
Task 2 – Engineering Analyses	\$ 46,360
Task 3 – Alternatives Development	\$ 46,645
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 51,590
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 185,335
Total FME Cost	\$ 185,335

4B-55. Flood Management Evaluation ID: 141000053

Name: Alarcon Road and Bugambilia Drive Flooding

Description: Study of an identified flooding location at the intersection of Alarcon Road and Bugambilia Drive.

Affected Jurisdictions: City of San Elizario, El Paso County

Discussion on Flood Risk: Currently, the intersection of Alarcon Road and Bugambilia Drive in San Elizario has been reported to experience consistent flooding during storms. Local flooding extents, and local floodplains are shown in **Exhibit Map 19.53** of *Chapter 5*. A 2022 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Upper Rio Grande region, and conducted detailed modeling of the area, extending from Quail Mesa Colonia south to Fabens.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of San Elizario, and possible infrastructure upgrades to help mitigate reported hydraulic issues impacting this intersection.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County and the City of San Elizario that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of San Elizario. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified flooding location watershed. A two dimensional hydraulic model will be developed for the contributing areas to the flooding location identified. The extent of potential sediment deposition for the contributing watershed will be analyzed as a part of this study. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified project site. H&H modeling will be performed to estimate effects of proposed inlet geometry or grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green

infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of San Elizario, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 29,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 34,470
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 120,175
Total FME Cost	\$ 120,175

4B-56. Flood Management Evaluation ID: 141000054

Name: Glorietta Road and San Antonio Street Flooding Analysis.

Description: Study of an identified flooding location at the intersection of Glorietta Road and San Antonio Street.

Affected Jurisdictions: City of San Elizario, El Paso County

Discussion on Flood Risk: Currently, the intersection of Glorietta Road and San Antonio Street in San Elizario has been reported to experience consistent flooding during storms. Local flooding extents, and local floodplains are shown in **Exhibit Map 19.54** of *Chapter 5*. A 2022 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Upper Rio Grande region, and conducted detailed modeling of the area, extending from Quail Mesa Colonia south to Fabens.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of San Elizario, and possible infrastructure upgrades to help mitigate reported hydraulic issues impacting this intersection.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County and the City of San Elizario that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of San Elizario. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified flooding location watershed. A two dimensional hydraulic model will be developed for the contributing areas to the flooding location identified. The extent of potential sediment deposition for the contributing watershed will be analyzed as a part of this study. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified project site. H&H modeling will be performed to estimate effects of proposed inlet geometry or grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green

infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of San Elizario, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 31,125
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 34,470
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 121,695
Total FME Cost	\$ 121,695

4B-57. Flood Management Evaluation ID: 141000055

Name: Socorro Road and San Antonio Street Flooding Analysis.

Description: Study of an identified flooding location at the intersection of Socorro Road and San Antonio Street.

Affected Jurisdictions: City of San Elizario, El Paso County

Discussion on Flood Risk: Currently, the intersection of Socorro Road and San Antonio Street in San Elizario has been reported to experience consistent flooding during storms. Local flooding extents, and local floodplains are shown in **Exhibit Map 19.55** of *Chapter 5*. A 2022 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Upper Rio Grande region, and conducted detailed modeling of the area, extending from Quail Mesa Colonia south to Fabens.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of San Elizario, and possible infrastructure upgrades to help mitigate reported hydraulic issues impacting this intersection.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County and the City of San Elizario that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of San Elizario. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified flooding location watershed. A two dimensional hydraulic model will be developed for the contributing areas to the flooding location identified. The extent of potential sediment deposition for the contributing watershed will be analyzed as a part of this study. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified project site. H&H modeling will be performed to estimate effects of proposed inlet geometry or grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green

infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of San Elizario, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 5,960
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 30,955
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 34,470
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 119,995
Total FME Cost	\$ 119,995

4B-58. Flood Management Evaluation ID: 141000056

Name: San Elizario Historic District Drainage Analysis

Description: The community of San Elizario is interested in exploring upgrades to current infrastructure existing within the historic district in downtown San Elizario.

Affected Jurisdictions. City of San Elizario, El Paso County

Description of Flood Risk. The City of San Elizario is an incorporated area in El Paso County. The community is in need of upgrades to currently existing stormwater infrastructure, as current floodplains extending from the Rio Grande throughout the area show inundation experienced by numerous structures and roads. Currently, the only infrastructure installed in this historic district plaza are a series of floor drains that have been reported to be clogged by the community of San Elizario. The watersheds for this study area are shown in **Exhibit Map 19.56** of *Chapter 5*. A 2022 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Upper Rio Grande region, and conducted detailed modeling of the area, extending from Quail Mesa Colonia south to Fabens.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of San Elizario, and possible infrastructure improvements to aid in stormwater management in the historic area of the city.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County and the City of San Elizario that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of San Elizario. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified historic area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted in the surrounding areas will be referenced to aid in the creation of models and the design of flood mitigation upgrade options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the historic district study area watershed. A two dimensional hydraulic model will be developed for the contributing area to the identified infrastructure upgrade area in detail in both existing and future conditions. The extent of potential sediment deposition for the contributing watershed will be analyzed as part of this study. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also

be studied, as this study is seeking to investigate the possibility of connecting a proposed system upgrade into existing drainage infrastructure in the surrounding areas.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed infrastructure upgrades to mitigate flood risk affecting the area surrounding the identified study location. H&H modeling will be performed to estimate effects of proposed infrastructure structure geometry alternatives on the local watershed. This task will focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of San Elizario, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 5,960
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 29,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 31,750
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 115,915
Total FME Cost	\$ 115,915

4B-59. Flood Management Evaluation ID: 141000057

Name: San Elizario Basin Development

Description: The community of San Elizario is interested in exploring upgrades to current infrastructure existing within the historic district in downtown San Elizario.

Affected Jurisdictions. City of San Elizario, El Paso County

Description of Flood Risk. The City of San Elizario is an incorporated area in El Paso County. The community is in need of upgrades to currently existing stormwater infrastructure, as current floodplains extending from the Rio Grande throughout the area show inundation experienced by numerous structures and roads. Currently, the only infrastructure installed in this historic district plaza are a series of floor drains that have been reported to be clogged by the community of San Elizario. The watersheds for this study area are shown in **Exhibit Map 19.57** of *Chapter 5*. A 2022 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Upper Rio Grande region, and conducted detailed modeling of the area, extending from Quail Mesa Colonia south to Fabens.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of San Elizario, beginning the development of a Stormwater Master Plan for the community and possible infrastructure improvements to aid in stormwater management in the historic area of the city.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in El Paso County and the City of San Elizario that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of San Elizario. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified historic area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted in the surrounding areas will be referenced to aid in the creation of models and the design of flood mitigation upgrade options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the historic district study area watershed. A two dimensional hydraulic model will be developed for the contributing area to the identified infrastructure upgrade area in detail in both existing and future conditions. The extent of potential sediment deposition for the contributing watershed will be analyzed as part of this study. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also

be studied, as this study is seeking to investigate the possibility of connecting a proposed system upgrade into existing drainage infrastructure in the surrounding areas.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed infrastructure upgrades to mitigate flood risk affecting the area surrounding the identified study location. H&H modeling will be performed to estimate effects of proposed infrastructure structure geometry alternatives on the local watershed. This task will focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of San Elizario, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 5,600
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 29,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 31,750
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 115,555
Total FME Cost	\$ 115,555

4B-60. Flood Management Evaluation ID: 141000058

Name: Nancy Drive Low Water Crossing.

Description: Several low water crossing structures have been identified as experiencing flooding and sedimentation issues. These low water crossings help convey flow from arroyo channels upstream.

Affected Jurisdictions: City of Socorro, El Paso County

Description of Flood Risk: The City of Socorro is an incorporated area in El Paso County. Several low water crossings were identified to be experiencing flooding and sedimentation issues. With a watershed of 0.012 square miles graded to flow to the crossing structure found at Nancy Drive, there is a need to implement maintenance and possible replacement procedures. The watersheds for this study area are shown in **Exhibit Map 19.58** of *Chapter 5*. A 2022 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Upper Rio Grande region, and conducted detailed modeling of the area, with modeling extents extending from Las Placitas del Rey south to Clint.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Socorro, and possible infrastructure improvements to aid in the hydraulic conductivity of this identified low water crossing.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Socorro County and the City of Socorro that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Socorro. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted in the nearby community will be referenced to aid in the creation of models and the design of mitigation options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified low water crossing watershed. A two dimensional hydraulic model will be developed for the contributing area to the identified structure being studied in detail in both existing and future conditions. The extent and potential risks of sediment deposition will be analyzed for the arroyos being studied. This is a topic of particular focus, as unarmored arroyo channels can deposit unwanted amounts of sediment, resulting in potentially dangerous conditions if

unaddressed for enough time. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified study sites. H&H modeling will be performed to estimate effects of proposed crossing geometry or grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Socorro, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 10,220
Task 2 – Engineering Analyses	\$ 15,490
Task 3 – Alternatives Development	\$ 35,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 34,470
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 125,845
Total FME Cost	\$ 125,845

4B-61. Flood Management Evaluation ID: 141000059

Name: Quail Mesa Colonia Low Water Crossings.

Description: Several low water crossing structures have been identified as experiencing flooding and sedimentation issues. These low water crossings help convey flow from arroyo channels upstream, with these specific crossing structures impacting a number of residential and agricultural structures.

Affected Jurisdictions: City of Socorro, El Paso County

Description of Flood Risk: The City of Socorro is an incorporated area in El Paso County. Several low water crossings were identified to be experiencing flooding and sedimentation issues. With a watershed of 0.6 square miles graded to flow to the crossing structures currently experiencing issues in the northeastern edge of Quail Mesa Colonia, there is a need to implement maintenance and possible replacement procedures. The watersheds for this study area are shown in **Exhibit Map 19.59** of *Chapter 5*. A 2022 study by El Paso Water developed a hydraulic model (HEC-RAS) of the Upper Rio Grande region, and conducted detailed modeling of the area, with modeling extents extending from Las Placitas del Rey south to Clint.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Socorro, and possible infrastructure improvements to aid in the hydraulic conductivity of each identified low water crossing structure.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Socorro County and the City of Socorro that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Socorro. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted in the nearby community will be referenced to aid in the creation of models and the design of mitigation options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified low water crossing watersheds. A two dimensional hydraulic model will be developed for the contributing areas to the identified structure being studied in detail in both existing and future conditions. The extent and potential risks of sediment deposition will be analyzed for the arroyos being studied. This is a topic of particular focus, as unarmored arroyo channels can deposit unwanted amounts of sediment, resulting in potentially dangerous conditions if

unaddressed for enough time. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified study sites. H&H modeling will be performed to estimate effects of proposed crossing geometries and grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Socorro, El Paso County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 29,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 35,190
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 120,895
Total FME Cost	\$ 120,895

4B-62. Flood Management Evaluation ID: 141000060

Name: Dry Devils Low Water Crossing Analysis.

Description: Detailed study of the Dry Devils River, and the behavior of the low water crossing structures found throughout the community during a storm event.

Affected Jurisdictions: City of Sonora, Sutton County

Description of Flood Risk: The City of Sonora is an incorporated area in Sutton County. This evaluation focuses on the study of low water crossing structures found in the community of Sonora. In a 2018 storm event, around three hundred homes experienced inundation. As the community lies at the intersection of two large streams, Dry Devils River, and Lowrey Draw, the community requested a detailed study be completed. This FME will focus on the study of Dry Devils River, and the low water crossings found upstream and throughout the community. The watersheds for this study area are shown in **Exhibit Map 19.60** of *Chapter 5 A* 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Sonora, and possible infrastructure improvements to aid in the hydraulic conductivity of each identified low water crossing structure.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Sutton County and the City of Sonora that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Sonora. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted in the nearby community will be referenced to aid in the creation of models and the design of mitigation options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified low water crossing watersheds. A two dimensional hydraulic model will be developed for the contributing areas to the identified structure being studied in detail in both existing and future conditions. The extent and potential risks of sediment deposition will be analyzed for the river channels being studied. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified study sites. H&H modeling will be performed to estimate effects of proposed crossing geometries and grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Sonora, Sutton County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 29,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 35,190
Task 6 – Project Management and Stakeholder Coordination	\$ 23,470
Total Project Labor	\$ 121,695
Total FME Cost	\$ 121,695

4B-63. Flood Management Evaluation ID: 141000061

Name: Lowrey Draw Low Water Crossing Analysis.

Description: Detailed study of Lowrey Draw, and the behavior of the low water crossing structures found throughout the community along this reach during a storm event.

Affected Jurisdictions: City of Sonora, Sutton County

Description of Flood Risk: The City of Sonora is an incorporated area in Sutton County. This evaluation focuses on the study of low water crossing structures found in the community of Sonora. In a 2018 storm event, around three hundred homes experienced inundation. As the community lies at the intersection of two large streams, Dry Devils River, and Lowrey Draw, the community requested a detailed study be completed. This FME will focus on the study of Lowrey Draw, and the low water crossings found upstream and throughout the community. The watersheds for this study area are shown in **Exhibit Map 19.61** of *Chapter 5 A 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora.*

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Sonora, and possible infrastructure improvements to aid in the hydraulic conductivity of each identified low water crossing structure.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Sutton County and the City of Sonora that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Sonora. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted in the nearby community will be referenced to aid in the creation of models and the design of mitigation options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified low water crossing watersheds. A two dimensional hydraulic model will be developed for the contributing areas to the identified structure being studied in detail in both existing and future conditions. The extent and potential risks of sediment deposition will be analyzed for the river channels being studied. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified study sites. H&H modeling will be performed to estimate effects of proposed crossing geometries and grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Sonora, Sutton County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 7,500
Task 2 – Engineering Analyses	\$ 20,540
Task 3 – Alternatives Development	\$ 27,445
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 34,470
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 120,015
Total FME Cost	\$ 120,015

4B-64. Flood Management Evaluation ID: 141000062

Name: Sonora HWY 277 Low Water Crossing Analysis.

Description: Detailed study of the Low Water Crossing found at the intersection of Highway 277 and the Dry Devils River, and the development of different geometry alternatives for this crossing structure.

Affected Jurisdictions: City of Sonora, Sutton County

Description of Flood Risk: The City of Sonora is an incorporated area in Sutton County. This evaluation focuses on the study of a low water crossing structure found in the community of Sonora. In a 2018 storm event, around three hundred homes experienced inundation. As the community lies at the intersection of two large streams, Dry Devils River, and Lowrey Draw, the community requested a detailed study be completed. This FME will focus on the study of an identified vulnerable structure located along Dry Devils River. The watershed for this study area is shown in **Exhibit Map 19.62** of *Chapter 5 A* 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Sonora, and possible infrastructure improvements to aid in the hydraulic conductivity of this identified low water crossing structure.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Sutton County and the City of Sonora that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Sonora. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted in the nearby community will be referenced to aid in the creation of models and the design of mitigation options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified low water crossing watershed. A two dimensional hydraulic model will be developed for the contributing area to the identified structure being studied in detail in both existing and future conditions. The extent and potential risks of sediment deposition will be analyzed for the river channel being studied. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified structure. H&H modeling will be performed to estimate effects of proposed crossing geometries and grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Sonora, Sutton County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 11,500
Task 2 – Engineering Analyses	\$ 37,840
Task 3 – Alternatives Development	\$ 35,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 37,390
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 152,395
Total FME Cost	\$ 152,395

4B-65. Flood Management Evaluation ID: 141000063

Name: Sonora Wastewater Treatment Plant Low Water Crossing Analysis.

Description: Detailed study of the Low Water Crossing found at the intersection of a newly built access road servicing the wastewater treatment plant, and the development of different geometry alternatives for this crossing structure found over the Dry Devils River.

Affected Jurisdictions: City of Sonora, Sutton County

Description of Flood Risk: The City of Sonora is an incorporated area in Sutton County. This evaluation focuses on the study of a low water crossing structure found in the community of Sonora. In a 2018 storm event, around three hundred homes experienced inundation. As the community lies at the intersection of two large streams, Dry Devils River, and Lowrey Draw, the community requested a detailed study be completed. This FME will focus on the study of an identified vulnerable structure located along Dry Devils River. The watershed for this study area is shown in **Exhibit Map 19.63** of *Chapter 5 A* 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Sonora, and possible infrastructure improvements to aid in the hydraulic conductivity of this identified low water crossing structure.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Sutton County and the City of Sonora that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. This project was originally identified by the City of Sonora. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified area. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected. Previous detailed modeling conducted in the nearby community will be referenced to aid in the creation of models and the design of mitigation options.

Task 2 - Existing Condition Engineering Analyses. A hydrologic model will be developed for the identified low water crossing watershed. A two dimensional hydraulic model will be developed for the contributing area to the identified structure being studied in detail in both existing and future conditions. The extent and potential risks of sediment deposition will be analyzed for the river channel being studied. The current available excess flow volume capacity available over the current existing design capacity at nearby stormwater infrastructure will also be studied.

Task 3 - Alternatives Development. Alternatives will be developed for the extent of needed remediation for flood risk affecting the area surrounding the identified structure. H&H modeling will be performed to estimate effects of proposed crossing geometries and grading alternatives on the local watershed. This task will also focus on the development of alternatives for new instrumentation, the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified flooding issues, green infrastructure alternatives, and development of any other potential alternatives that might remedy identified hydraulic issues. Concept design(s) and cost estimate(s) will be developed/refined for mitigation alternatives as part of this FME. Revised flood damages and locally defined evaluation criteria will be estimated for each alternative.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Sonora, Sutton County, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 11,500
Task 2 – Engineering Analyses	\$ 37,840
Task 3 – Alternatives Development	\$ 37,045
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 37,390
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 153,835
Total FME Cost	\$ 153,835

4B-66. Flood Management Evaluation ID: 141000064

Name: Oak Street and Pecan Lane Flooding Analysis.

Description: Assess drainage conditions along Oak Street and Pecan Lane near coliche yards in Ward County.

Affected Jurisdictions: City of Monahans, Southwest Sandhill CDP, Ward County.

Discussion on Flood Risk: Caliche yards throughout Ward County on the outskirts of Southwest Sandhill experience flooding along Oak Street and Pecan Lane. A large rainfall event in July 2021 resulted in significant flooding, and was described to be the result of the presence of clay and flat grading at the identified flooding locations. A 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Southwest Sandhill, and possible infrastructure improvements.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Ward County, the City of Monahans, and the Southwest Sandhill SDP that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. H&H Modeling will be performed to estimate flooding and flow accumulation of the identified streets in existing conditions, and current flow volume capacity in the existing conditions design at the identified study location. **Exhibit Map 19.64** of *Chapter 5* depicts the local area watershed.

Task 3 – Alternatives Development. H&H modeling will be performed to estimate effects of the proposed geometry alternatives on the local watershed. Primarily, this task focuses on the development of the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified grading issues, green infrastructure alternatives to regrading the identified problem area, and any other potential alternatives that might remedy the identified grading issue.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted

community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Monahans, Ward County, Southwest Sandhill CDP, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 8,780
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 29,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 35,190
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 122,175
Total FME Cost	\$ 122,175

4B-67. Flood Management Evaluation ID: 141000065

Name: 36th Street Drainage Analysis.

Description: Assess drainage conditions along 36th Street near coliche yards in Ward County.

Affected Jurisdictions: City of Monahans, Southwest Sandhill CDP, Ward County.

Discussion on Flood Risk: Caliche yards throughout Ward County on the outskirts of Southwest Sandhill experience flooding from pond overflows along 36th Street. A large rainfall event in July 2021 resulted in significant flooding, and was described to be the result of the presence of flat grading along 36th Street. A 2021 study by El Paso Water developed a hydraulic model (Fathom 2D) of the area extending from El Paso into Sonora.

The purpose of this FME is to develop a FMP for evaluating current flooding in the community of Southwest Sandhill, and possible infrastructure improvements.

Flood Management Evaluation Scope of Work:

The sponsors for this FME will be the public stakeholders in Ward County, the City of Monahans, and the Southwest Sandhill SDP that manages flood-related infrastructure affecting the area. The Scope of Work (SOW) for this FME includes six tasks.

Task 1 - Data Collection. Historic data will be collected from previous reports available through public data sources to identify and characterize historic extreme events impacting this specified flooding location. Spatial rainfall data will be collected to facilitate model creation of selected extreme event(s). Data will be collected from local residents or entities with drainage oversight in the surrounding areas. Existing topographic data will be refined and processed as needed. Local property and infrastructure valuations and vulnerability data will be collected.

Task 2 - Existing Condition Engineering Analyses. H&H Modeling will be performed to estimate flooding and flow accumulation of the overflowing pond in existing conditions, and current flow volume capacity of the existing designed pond at the identified location. **Exhibit Map 19.65** of *Chapter 5* depicts the local area watershed.

Task 3 – Alternatives Development. H&H modeling will be performed to estimate effects of the proposed geometry alternatives on the local watershed. Primarily, this task focuses on the development of the minimum flow capacities of proposed alternatives, the future impacts of implementing no action to remedy the identified grading issues, green infrastructure alternatives to regrading the identified problem area, and any other potential alternatives that might remedy the identified grading issue.

Task 4 – Alternatives Selection. Following development of different geometry alternative models and estimating their performance, the studied options will be presented to the impacted community within a workshop presentation, where they will be able to choose their preferred approach.

Task 5 – Document Creation. This task includes the task of document creation required to complete environmental and compliance work necessary to adhere to federal, state, and local laws, regulations, and codes, as applicable. The task also includes defining the FMP per TWDB guidance to facilitate inclusion in the URGRFP. Additionally, this task focuses on the creation of cost estimates, running cost benefit analyses, completing a preliminary engineering feasibility report, generating maps and exhibits, and completing a final summary report of studied alternatives, final community decisions, and the project summary.

Task 6 – Project Management and Stakeholder Coordination. Following completion of the previous tasks, it is assumed that monthly meetings will take place with affected stakeholders such as the City of Monahans, Ward County, Southwest Sandhill CDP, and USIBWC since the selected alternative will potentially affect flood infrastructure owned, designed, maintained, and/or operated by different entities.

Estimated Cost for FME:

Labor Cost	
Task 1 – Data Collection	\$ 5,680
Task 2 – Engineering Analyses	\$ 18,540
Task 3 – Alternatives Development	\$ 33,605
Task 4- Alternatives Selection	\$ 7,390
Task 5 – Document Creation	\$ 37,390
Task 6 – Project Management and Stakeholder Coordination	\$ 22,670
Total Project Labor	\$ 125,275
Total FME Cost	\$ 125,275