

Fort Bend County Hazard Mitigation Action Plan 2023

Volume II

September 2023

TETRA TECH

SECTION 8. PLANNING PARTNERSHIP

This section describes the Planning Partnership, their responsibilities throughout the planning process, and the jurisdictional annexes developed as a result of their efforts.

8.1 Plan Maintenance Procedures

The Federal Emergency Management Agency (FEMA) encourages multi-jurisdictional planning for hazard mitigation. All participating jurisdictions must meet the requirements of Chapter 44 of the Code of Federal Regulations (44 CFR):

"Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan" [Section 201.6a(4)]

Members of the Planning Partnership have the expertise to develop the plan and have their jurisdiction's authority to implement the mitigation strategy developed during the planning process. The Planning Partnership is responsible for developing and reviewing draft sections of the plan, updating their respective annex, creating the mitigation strategy for their jurisdiction, and adopting the final plan.

For the Fort Bend County HMP update, a Planning Partnership was formed to leverage resources and to meet requirements for the federal Disaster Mitigation Action of 2000 (DMA) for as many eligible governments as possible. Members of the Planning Partnership consisted of representatives from each jurisdiction. The DMA defines a local government as follows:

Any county, municipality, city, town, township, public authority, school district, special district, intrastate district, council of governments (regardless of whether the council of governments is incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; any Indian tribe or authorized tribal organization, or Alaska Native village or organization; and any rural community, unincorporated town or village, or other public entity.

Each participating Planning Partner has prepared an annex to this plan. These annexes, as well as information on the process by which they were created, are contained in this volume.

8.2 Initial Solicitation and Letters of Intent

Fort Bend County solicited the participation of all municipalities in the Planning Area at the commencement of this project. Fort Bend County and 17 of its municipalities participated in the update process and have met the minimum requirements of participation as established by the County and Steering Committee.

8.3 Planning Partner Expectations

The Planning Partners agreed to the following expectations, which were outlined in the letter sent by Fort Bend County on October 3, 2022, and confirmed at the kick-off meeting held on November 16, 2022 (see Appendix C [Meeting Documentation] for details):

- Provide representation at regular planning group meetings and workshops.
- Be responsible for providing data and information as requested.

- Review and comment on data and information compiled by the contract consultant relevant to their jurisdiction.
- Be responsible for completing plan documents specific to your municipality using provided templates with guidance and assistance from the contract consultant.
- Assist with the identification of stakeholders within your community that should be informed and potentially involved with the planning process.
- Facilitate public outreach efforts with residents and local stakeholders within your community using materials provided by the contract consultant.
- Assist with the identification of strengths, weaknesses, opportunities, and obstacles to implementing natural hazard mitigation within your community.
- Assist with the identification of past, ongoing, and appropriate future mitigation strategies and activities within your municipality.
- Review and comment on plan documents, specifically the draft and final plans prior to submission to Texas Division of Emergency Management (TDEM) and FEMA.

As described in Section 7 (Plan Maintenance), the Planning Partnership is intended to remain active beyond the regulatory update to support plan maintenance. Regarding the composition of the Steering and Planning Committees, it is recognized that individual commitments change over time, and it will be the responsibility of each jurisdiction and its representatives to inform the HMP Coordinator of any changes in representation.

8.4 Jurisdictional Annex Preparation Process

New to the 2023 HMP, jurisdictional annexes were used to provide a unique, stand-alone guide to mitigation planning for each participating jurisdiction. The 2023 HMP update is organized so that there is an annex for Fort Bend County and for every participating jurisdiction. Section 9 (Annexes) includes an annex for every jurisdiction in the Planning Area.

8.4.1 Data Collection

Each jurisdiction was paired with a contract consultant mitigation planner to work with the mitigation team to update their annex. Each jurisdiction was asked to participate in a municipal kick-off meeting, held on November 16, 2022, to review participant expectations and the updated information needed to support the annex update. It was made clear that the annexes are sections of the plan that can be enhanced if more information is available to further customize all aspects of mitigation planning.

8.4.2 Hazard Ranking Exercise

The presentation of the risk assessment and hazard ranking for each jurisdiction was conducted March 22, 2023. At this meeting, the consultant presented the overall risk assessment for the hazards of concern and distributed jurisdiction-specific handouts with risk assessment results relevant to each plan participant. In addition, each Planning Partner was asked to review the ranked hazards specific to its jurisdiction. Refer to Section 4.4 (Hazard Ranking) for the methodology of the hazard ranking process. The calculated ranking was presented to each jurisdiction, and they were asked to review the ranking and revise based on history of events, probability of occurrence, and the potential impact on people, property, and the economy. In addition, each jurisdiction was asked to rank their adaptive capacity for each hazard. Refer to Appendix B (Participation Matrix) for the input submitted by each municipality. The objectives of this exercise were to familiarize the partnership with how to use the risk assessment as a tool to support other planning and hazard mitigation

processes and to help prioritize types of mitigation actions that should be considered. Hazards that were ranked as "high" for each jurisdiction as a result of this exercise were considered to be priorities for identifying appropriate mitigation actions, although jurisdictions also identified actions to mitigate "medium" or "low" ranked hazards as appropriate.

8.4.3 Mitigation Strategy Workshop

A mitigation strategy workshop was conducted by the contracted planning consultant on March 29, 2023, for all participating jurisdictions to support the development of the updated mitigation strategy. To assist with the identification of implementable and action-oriented mitigation actions, the participating jurisdictions were provided with tools to help identify mitigation strategies: public survey responses, potential mitigation actions for each jurisdiction, and FEMA Mitigation Ideas. The purpose of this workshop was to guide the Planning Partnership in completing this portion of the planning process and discuss how projects that are well developed and documented are more quickly identifiable for selection when grants become available.

At the workshop, the Planning Partnership focused on developing problem statements based on the impacts of hazards in the Planning Area. The results of the updated risk assessment, problems and solutions identified during the capability assessment update and problem and solutions identification exercise, and information gathered from the public survey were used to develop mitigation strategies. As a result, a mitigation workbook was compiled with potential mitigation actions for Fort Bend County and participating jurisdictions. This workbook helped form a bridge between the hazard risk assessment, which quantifies impacts to each community, with the development of achievable mitigation strategies. Mitigation development worksheets were filled out by each jurisdiction to identify additional problem statements, and draft action worksheets were developed.

8.4.4 Municipal Support Conference Calls

In addition to the municipal kick-off meeting, municipal support conference calls were held throughout the planning process. During these calls, the consultant worked one-on-one with the Planning Partners to complete their jurisdictional annexes. Each section of the annex was discussed to ensure accuracy and completeness. This included but was not limited to the following:

- Reviewing the calculated hazard ranking for the jurisdiction and provide input to adjust the ranking as necessary
- Updating information regarding the jurisdiction's capabilities and past integration of hazard mitigation concepts
- Identifying mitigation initiatives that have reasonable potential to be accomplished within the lifespan of the County HMP (five years), including both FEMA-eligible projects and those projects using funds from non-FEMA sources

8.4.5 Jurisdictional Annexes

While the jurisdictional annex format is designed to document and ensure local compliance with the DMA 2000 regulations, its greater purpose and function includes:

- Providing a locally relevant synthesis of the overall mitigation plan that can be readily presented, distributed, and maintained
- Facilitating local understanding of the community's risk to natural hazards

- Facilitating local understanding of the community's capabilities to manage natural hazard risk, including opportunities to improve those capabilities
- Facilitating local understanding of the efforts the community has taken, and plans to take, to reduce their natural hazard risk
- Facilitating the implementation of mitigation strategies, including the development of grant applications
- Providing a framework by which the community can continue to capture relevant data and information for future plan updates

It is recognized that each jurisdiction's annex is a "living" document and will continue to be improved as resources permit. As such, its design is intended to promote and accommodate continued efforts to maintain the annex to be current and to improve the effectiveness of the annex as the key tool, reference, and guiding document by which the jurisdiction will implement hazard mitigation locally.

The following provides a description of the various elements of the jurisdictional annex.

Section 9.X.1: Hazard Mitigation Planning Team: Identifies the hazard mitigation planning team who provided input during the planning process. Further detail is provided in Section 2 (Planning Process) and Appendix B (Participation Matrix).

Section 9.X.2: Jurisdictional Profile: Provides an overview and profile of the jurisdiction, including identification of areas of known and anticipated future development and the vulnerability of those areas to the hazards of concern.

Section 9.X.3: Jurisdictional Capability Assessment and Integration: This subsection provides an inventory and evaluation of the jurisdiction's tools, mechanisms, and resources available to support hazard mitigation and natural hazard risk reduction. Within the municipal annexes, tables provide an inventory of the municipality's planning and regulatory, administrative, technical, and fiscal capabilities. Further, another table identifies the municipality's level of participation in state and federal programs designed to promote and incentivize local risk reduction efforts. Further information regarding federal, state, and local capabilities may be found in the Capability Assessment portion of Section 5.

Section 9.X.4: National Flood Insurance Program (NFIP) Compliance: A tabular summary of the specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Section 9.X.5: Growth/Development Trends: Identifies areas of known and anticipated future development and the vulnerability of those areas to the hazards of concern.

Section 9.X.6: Jurisdictional Risk Assessment:

- ***Hazard Extent and Location:*** Each annex includes a map (or series of maps) illustrating identified hazard zones and critical facilities. Further, these maps show areas of known or anticipated future development, as available and provided by the jurisdiction.
- ***Hazard Event History:*** Identifies hazard events that have caused significant impacts within the jurisdiction, including a summary characterization of those impacts as identified by the jurisdiction. The documentation of events and losses is critical to supporting the identification and justification of appropriate mitigation actions, including providing critical data for benefit-cost analysis. It is recognized that this "inventory" of events and losses is a work-in-progress and may continue to be improved as

resources permit. As such, the lack of data or information for a specific event does not necessarily mean that the jurisdiction did not suffer significant losses during that event.

- ***Hazard Ranking and Vulnerabilities:*** This subsection provides information regarding each plan participant's vulnerability to the identified hazards. Full data and information on the hazards of concern, the methodology used to develop the vulnerability assessments, and the results of those assessments that serve as the basis of these local risk rankings may be found in Section 4 (Risk Assessment).

Section 9.X.7: Mitigation Strategy and Prioritization: This section discusses and provides the status of past mitigation actions and status, describes proposed hazard mitigation initiatives, and addresses prioritization.

- ***Past Mitigation Initiative Status:*** Where applicable, a review of progress on the jurisdiction's prior mitigation strategy is presented, identifying the disposition of each prior action, project, or initiative in the jurisdiction's updated mitigation strategy. Other completed or ongoing mitigation activities that were not specifically part of a prior local mitigation strategy may be included in this subsection as well.
- ***Additional Mitigation Efforts:*** Other completed or ongoing mitigation activities that were not specifically part of a prior local mitigation strategy may be included in this subsection as well.
- ***Proposed Hazard Mitigation Initiatives for the Plan Update:*** Table 9.X-16 presents the jurisdiction's updated mitigation strategy. As indicated, applicable mitigation actions, projects, and initiatives are further documented on an Action Worksheet, which provides details on the project identification, evaluation, prioritization, and implementation process. Table 9.X-17 provides a summary of the local mitigation strategy prioritization process discussed in Section 6 (Mitigation Strategy).

8.4.6 Annex Review

Workshops and additional meetings (via email and/or teleconference) to complete the jurisdictional annexes were held with the Steering Committee and Planning Partnership throughout the planning process. In preparation for the draft plan public review, each jurisdiction was asked to have their mitigation team review their annex to ensure it was complete and accurate for posting to the Fort Bend County Office of Emergency Management's mitigation website. To demonstrate broad and comprehensive review and input, each jurisdiction collected signatures from these representatives. Refer to Appendix B (Participation Matrix) to review the annex signature pages.

In summary, all participating communities and the County completed the Planning Partner expectations and annex preparation process. Details regarding these meetings are described further in Section 2 (Planning Process) and Section 6 (Mitigation Strategy). Completed jurisdictional annexes are presented in Section 9 (Annexes).

8.5 Coverage Under the Plan

Fort Bend County and the participating jurisdictions met the participation requirements specified by the Steering Committee. Any non-participating local jurisdiction within Fort Bend County Planning Area can "dock" to this plan in the future following the linkage procedures defined in Appendix H (Linkage Procedures).

Table 8.5-1 lists the status of each participating jurisdiction and their ultimate status in this plan update. Refer to Appendix B (Participation Matrix) and Appendix C (Meeting Documentation) for details on participation and meeting attendance.

Table 8.5-1. Jurisdictional Status

Municipality	Attended Workshops and/or Meetings and Project Calls	Provided Update on Past Projects	Submitted Mitigation Actions for Current Plan	Seeking Approval for Adoption (meets all previous requirements)
Fort Bend County	X	X	X	X
Arcola (C)	X	X	X	X
Beasley (C)	X	X	X	X
Fairchilds (V)	X	X	X	X
Fulshear (C)	X	X	X	X
Kendleton (C)	X	X	X	X
Meadows Place (C)	X	X	X	X
Missouri City (C)	X	X	X	X
Needville (C)	X	X	X	X
Orchard (C)	X	X	X	X
Pearland (C)	X	X	X	X
Pleak (V)	X	X	X	X
Richmond (C)	X	X	X	X
Rosenberg (C)	X	X	X	X
Simonton (C)	X	X	X	X
Stafford (C)	X	X	X	X
Sugar Land (C)	X	X	X	X
Thompsons (C)	X	X	X	X
Weston Lakes (C)	X	X	X	X

SECTION 9. JURISDICTIONAL ANNEXES

9.1 Fort Bend County

This section presents the jurisdictional annex for Fort Bend County that provides resources and information to assist public and private sectors in reducing losses from future hazard events. This annex is not guidance on what to do when a disaster occurs. Instead, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented before a disaster. Information presented includes a general overview of the County, the Fort Bend County representatives who participated in the planning process, an assessment of Fort Bend County's risk and vulnerability, the different capabilities used in Fort Bend County, and an action plan that will be implemented to achieve a more resilient community.

9.1.1 Hazard Mitigation Planning Team

Fort Bend County identified primary and alternate points of contact and developed the 2023 Hazard Mitigation Plan (HMP) over the course of several months with input from many County departments, including the Fort Bend County Office of Homeland Security and Emergency Management. The Emergency Management Coordinator represented Fort Bend County on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development by reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes county officials who participated in the development of the annex and in what capacity. Additional documentation on the County's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.1-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Greg Babst/Emergency Management Coordinator	Name/Title:	Vladimir Hidrovo-Alban/Recovery Manager
Address:	307 Fort St, Richmond, TX 77469	Address:	307 Fort St, Richmond, TX 77469
Phone Number:	281-238-3428	Phone Number:	281-238-3470
Email:	Gregory.Babst@fortbendcountytx.gov	Email:	Vladimir.Hidorov-Alban@fbctx.gov
NFIP Floodplain Administrator			
Name/Title:	KP George/County Judge		
Address:	401 Jackson St., Richmond, TX 77469		
Phone Number:	281-341-8606		
Email:	FBC.Judge@fbctx.gov		
Additional Contributors:			
Name/Title: Method of Participation:	Craig W. Kalkomey/CFM Provided key input in the planning process, served on the Steering Committee throughout the planning process		
Name/Title: Method of Participation:	Rick J. Staigle, PE, PTOE/First Assistant County Engineer Provided information and helped facilitate information gathering.		

9.1.2 Municipal Profile

Refer to Section 3 (County Profile) for details.

9.1.3 Jurisdictional Capability Assessment and Integration

Fort Bend County performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The County's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for Fort Bend County to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to Fort Bend County, what is present in the jurisdiction, and code citation and date.

Table 9.1-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual/Department/Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	No	-	-	-
How does this reduce risk?				
Zoning/Land Use Code	No	-	-	-
How does this reduce risk?				
Subdivision Ordinance	Yes	Subdivision Regulations	Local	County Commissioner
How does this reduce risk? Subdivision Regulations outline the requirements for submitting plats. Any property owners outside the limits of a municipality must have a plan of subdivision prepared if the owner divides the tract into two or more parts.				
Site Plan Ordinance	Yes	Fort Bend County Civil Site Plan Submittals	Local	Fort Bend Engineering
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual/Department/Agency Responsible
Civil site plans are required for all commercial developments, roadway improvements, and public infrastructure projects in Fort Bend County. These plans are required to ensure compliance with county, state, and federal laws and regulations.				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Floodplain Management	Local	County Commissioners Court
How does this reduce risk? It is the purpose of these regulations to promote public health, safety, and general welfare and to minimize public and private losses due to the flood conditions in specific areas by provisions designed to: • Protect human life and health • Minimize expenditures of public money for costly flood control projects • Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public • Minimize prolonged business interruptions • Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, and sewer lines, streets, and bridges located in the floodplains • Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas • Ensure that potential buyers are notified that the property is in a flood area				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	No	-	-	-
How does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Planning Documents				
Comprehensive/Master Plan	No	-	-	-
How does this reduce risk?				
Capital Improvement Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual/Department/Agency Responsible
Disaster Debris Management Plan	Yes	Fort Bend County Disaster Debris Management Plan	County	Homeland Security and Emergency Mgmt
How does this reduce risk? Outlines procedures to follow to safety and efficiently clear, collect, and dispose of debris from a disaster. Has a safety component and outlines the roles of departments and other stakeholders with responsibilities under the plan.				
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk?				
Stormwater Management Plan	Yes	Stormwater Management Program	Local	Fort Bend County Stormwater Quality Coalition
How does this reduce risk? The Illicit Discharge Detection and Elimination minimum control measure consists of BMPs that focus on the detection and elimination of illicit discharges into the MS4. The detection of non-stormwater discharges and illegal dumping will be accomplished through the inspection of outfalls at a frequency of 20 percent per year such that the Coalition's entire MS4 area will be inspected by the end of the five-year permit term. Any discharges identified during outfall inspections will be analyzed using colorimetric field test kits to determine the nature of the discharge, and the flow will be traced upstream to identify the source.				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	Yes	Fort Bend County Major Thoroughfare Plan	Local	Engineering
How does this reduce risk? The Major Thoroughfare Plan is designed to address the mobility needs of Fort Bend County as it continues to become more urbanized. It establishes a hierarchical network of controlled-access highways and toll roads, principal thoroughfares, major thoroughfares, and collectors. The classification of a particular roadway is based on the function of the road relative to mobility and access.				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual/Department/Agency Responsible
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	Emergency Operations Plan	Local	Fort Bend County Division of Homeland Security and Emergency Mgmt
How does this reduce risk? The Emergency Operations Plan (EOP) is an all-hazard plan that guides Fort Bend County's efforts to prepare for, respond to, recover from, and mitigate the effects of a major emergency or disaster. Specifically, the EOP focuses on the following: • Outlines the County's emergency management organizational structure • Establishes the emergency management responsibilities of County departments, local jurisdictions, and private and community organizations and identifies how they coordinate with Fort Bend County Office of Homeland Security & Emergency Management to ensure an effective response to any emergency • Describes when the County would activate the Emergency Operations Center (EOC)				
Continuity of Operations Plan	Yes	Fort Bend County Continuity of Operations Plan	County	Homeland Security and Emergency Mgmt
How does this reduce risk? The plan outlines the processes County departments will take to ensure the mission essential functions of the County can be continued despite a disruption. Also identifies processes for succession of leadership and delegations of authority.				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	Yes	Annex J under the Emergency Operations Plan	County	Homeland Security and Emergency Mgmt
How does this reduce risk?				
Public Health Plan	Yes	Annex H under the EOP has several appendices that address public health emergency preparedness and response. Annex O under the EOP addresses human service needs including shelter and potable water.	County	Fort Bend County Health and Human Services
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual/Department/Agency Responsible
The public health emergency plans outline actions to take to prevent, prepare for, respond to, and recover from public health emergencies in the County.				
Other	-	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of Fort Bend County to oversee and track development.

Table 9.1-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	The Fort Bend County Fire Marshal is the authority having jurisdiction over the unincorporated areas of Fort Bend County.
If you do not issue development permits, what is your process for tracking new development?	N/A	
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Development Permits are issued for development within Special Flood Hazard Areas (SFHA), and another type of Development Permit is issued for development outside SFHA.
Do you have a buildable land inventory? • If yes, please describe	No	-
Describe the level of build-out in your jurisdiction.	N/A	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to Fort Bend County and their current responsibilities that contribute to hazard mitigation.

Table 9.1-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	Fort Bend County Community Planning and Development Program's goal is to develop viable urban communities by providing decent housing and a suitable living environment and expanding economic opportunities principally for low- and moderate-income persons.
Zoning Board of Adjustment	No	Fort Bend County has not adopted zoning ordinances and does not issue Certificates of Occupancy. However, Fort Bend County has adopted a County Fire Code, and the Fort Bend County Fire Marshal's Office issues Certificates of Compliance for certain multi-family and non-residential developments.
Planning Department	Yes	The Facilities Management and Planning department provides recommendations and budget estimations to the

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		Commissioner's Court for new buildings, infrastructure improvements, and renovations of existing buildings to effectively accommodate the growth of County services.
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	The mission of the Environmental Health Department is to protect the public, consumer, and environmental health of the people in Fort Bend County. In accomplishing this mission, Environmental Health employees shall be at all times impartial and diligent. In the execution of their duties, they shall be guided by those constitutional and legal principles which are the foundation of the United States of America and the State of Texas.
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	The mission of the Budget Office is to prepare the County's budget for the fiscal year as a readable, informative, and accurate forecast of the County's projected revenues and expenditures.
Public Works/Highway Department	Yes	Services provided by this department include: • Road Construction, Maintenance and Repair • County Road Drainage • Herbicide Treatment • Right-of-Way Mowing • Residential Driveway Installation, Repair, Replacement • Installation, Maintenance & Repair of Street Signs & Barricades • Road Striping
Construction/Building/Code Enforcement Department	Yes	Ensure construction complies with approved plans.
Emergency Management/Public Safety Department	Yes	It is the mission of the Fort Bend County Department of Homeland Security and Emergency Management to create an environment of readiness for the whole community through a comprehensive program of prevention, protection, mitigation, response, and disaster recovery.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	Yes	FBC Alert – Emergency alert program for residents to sign up to receive alerts related to severe weather, road closures, missing persons, and evacuations.
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Through the Road and Bridge Department – They maintain roadways, drainage, and vegetation management.
Mutual aid agreements	Yes	Neighboring counties and communities
Human Resources Manual	Yes	Developing, implementing, and evaluating activities and programs that address employee training and development, performance appraisal, talent and performance management, and the unique needs of County employees, to ensure that the knowledge, skills, abilities, and performance of our workforce meet current and future County and individual needs.
Other	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	No	Engineering Department
Engineers or professionals trained in building or infrastructure construction practices	Yes	Engineering Department

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Planners or engineers with an understanding of natural hazards	Yes	Fort Bend County Office of Homeland Security and Emergency Management
Staff with expertise or training in benefit/cost analysis	Yes	Engineering Department
Professionals trained in conducting damage assessments	Yes	Engineering Department
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Information Technology
Environmental scientists familiar with natural hazards	No	-
Surveyor(s)	Yes	
Emergency Manager	Yes	Fort Bend County Office of Homeland Security and Emergency Management
Grant writer(s)	Yes	Fort Bend County Grant Program Manager
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

Fiscal Capability

The table below summarizes the financial resources available to Fort Bend County.

Table 9.1-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvement project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	No
Incur debt through private activity bonds	Yes
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-

Education and Outreach Capability

The table below summarizes the education and outreach resources available to Fort Bend County.

Table 9.1-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public Information Officer or communications office	Yes	The Communications Manager under the County Judge's Office serves as the Public Information Officer for the County.
Personnel skilled or trained in website development	Yes	Fort Bend County Information and Technology Department
Hazard mitigation information available on your website	Yes	Fort Bend County Office of Homeland Security and Emergency Management website

Outreach Resources	Available? (Yes/No)	Comment:
Social media for hazard mitigation education and outreach	Yes	Fort Bend County Office of Homeland Security and Emergency Management
Citizen boards or commissions that address issues related to hazard mitigation	Yes	At the municipal level
Warning systems for hazard events	Yes	FBC Alert – emergency alert program for residents to sign up to receive alerts related to severe weather, road closures, missing persons, and evacuations
Natural disaster/safety programs in place for schools	Yes	Conducted through the schools
Does the jurisdiction have any public outreach mechanisms/programs in place to inform citizens about natural hazards, risks, and ways to protect themselves during such events? • If yes, please describe.	Yes	County website and social media accounts

Community Classifications

The table below summarizes classifications for community programs available to Fort Bend County.

Table 9.1-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	No	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.1-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.1.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

NFIP Summary

The following table summarizes the NFIP statistics for Fort Bend County.

Table 9.1-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Fort Bend	9,669**	4,403**	$297,594,358.10**	269*	28*

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP
Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
RL Repetitive Loss
SRL Severe Repetitive Loss

Table 9.1-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	Only within a 1% Annual Chance Flood Hazard area • No
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	Yes • Lower Brazos Watershed • San Bernard Watershed
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	• Damaged structures are inspected to determine if the cost of repairs is 50% or more of the pre-damaged value of the structure. FEMA Substantial Damage Estimating software is used to estimate repair costs, and Fort Bend Central Appraisal District data is used to confirm the pre-damaged value. • Since 2016, 91 structures have been declared substantially damaged.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction?	• 11 properties mitigated using Hazard Mitigation Grant funding. • 42 properties mitigated using Increased Cost of Compliance (ICC) claims or private funding.

NFIP Topic	Comments
• If there are mitigated properties, how were the projects funded?	
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	Yes
NFIP Compliance	
What local department is responsible for floodplain management?	Engineering
Are any certified floodplain managers on staff in your jurisdiction?	Yes
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Provide an explanation of the NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Permit review and issuance of Development Permits for new development, respond to building violations, assist constituents on flood zone determinations and determining Base Flood Elevations, provide guidance to constituents on building requirements in the SFHA, and provide community acknowledgment for Letters of Map Change.
How do you determine if the proposed development on an existing structure would qualify as a substantial improvement?	A contractor estimate is reviewed to determine if the cost of the proposed improvements to the structure is 50% or more of the pre-damaged value of the structure.
What are the barriers to running an effective NFIP program in the community, if any?	No barriers currently.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV – Concluded July 13, 2022 CAC – July 11, 2023
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	N/A 1/26/21
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceeds. The County has a freeboard requirement of 2 feet above the BFE, prohibits filling or requires compensatory storage within the SFHA, requires Development Permits for structures outside the SFHA, and enforces minimum slab elevation criteria to protect structures from local drainage flooding outside the SFHA.
Are there other local ordinances, plans, or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	N/A
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Yes, the County is interested in joining the CRS program.

9.1.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below

summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.1-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single-Family	6,362	77	6,223	173	8,139	52	7,135	45	5,747	123
Multi-Family	25	0	9	0	9	0	10	0	47	1
Other (commercial, mixed-use, etc.)	234	28	234	21	215	22	216	24	240	25
Total Permits Issued	6,621	105	6,466	194	8,363	74	7,361	69	6,034	149

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities are identified.*

Table 9.1-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
Please Refer to Individual Jurisdictional Annexes					
Known or Anticipated Major Development in the Next Five (5) Years					
Please Refer to Individual Jurisdictional Annexes					

9.1.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries of Fort Bend County's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes Fort Bend County's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community-specific identification of the primary hazard concerns based on identified problems, impacts, and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard, the potential impacts of the hazard on people, property, and the economy, and community capabilities to address the hazard and changing future

climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with the highest level of concern.

As discussed in Section 4.4 (Hazard Ranking), each participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Fort Bend County as a whole. Refer to Section 4.4 (Hazard Ranking) for the countywide hazard ranking.

Critical Facilities

Critical facilities located in Fort Bend County are summarized in Section 3 (County Profile). Details on the potential hazard impacts on those facilities are found in Section 4.3 (Hazard Profiles).

Identified Issues

After a review of Fort Bend County's hazard event history, hazard rankings, jurisdiction-specific vulnerabilities, hazard area extent and location, and current capabilities, Fort Bend County identified the following vulnerabilities within their community:

- There are numerous properties and roads along and near the Brazos River that suffer from flooding and water pooling, including:*
    - Kingdom Heights (Rosenburg)
    - Valley Lodge Subdivision Area (Simonton)
    - Riveredge Drive (Richmond)
    - 800 Block of Ferry Street (Richmond)
    - North Second Street at Preston Street (Richmond)
    - Rabbs Bayou - Wheaton Street (Richmond)
    - Newer Homes around Riverstone at University Boulevard
- The County experiences flooding issues related to failing infrastructure and increasing precipitation events. Some of the repetitive flood areas include:*
    - Lower Bois D'Arc Area (Fulshear)
    - Redbird Lane (Fulshear)
    - West Airport Boulevard (Meadows Place)
    - US Highway 90 A
    - Thompson Highway (Richmond)
    - West Keegans Bayou
- There are areas along the Brazos River that are severely eroding and contributing to flooding issues.*
- There is a lack of communication and resources regarding evacuation and sheltering procedures among the County and the municipalities.*
- The County does not have yearly outreach programs to educate residents on how to respond to and mitigate the hazard of concerns.*
- The County has 269 repetitive loss and 29 severe repetitive loss properties. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage.
- There are critical facilities that are located in the special flood hazard area.
- The County does not have an up-to-date Continuity of Operations Plan and annexes that address the current hazards of concern and integrate the HMP.

- The County is unaware of critical facilities that may not be able to perform continuity of operations during power outages, which can lead to environmental degradation via sewage backup or can inhibit emergency responders from accessing and communicating with residents or municipalities in need.
- The County does not have an up-to-date Disaster Debris Management Plan that integrates the HMP and the hazards of concern.
- The County does not have locations that are designated for vaccination clinics and PPE distribution clinics across the County.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.1.7 Mitigation Strategy and Prioritization

This section discusses past mitigation actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this 2023 HMP update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.1-13. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing it.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)? Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Conduct Traffic Study	FBC HS&EM	Ongoing	No	-	-
Expansion of Big Creek Channel	FBC Drainage District	Ongoing	No	-	-
Ensure the County has Adequate Plans and Resources	FBC HS&EM, FBC Road and Bridge	Ongoing	No	-	-
Initiate a Fuel Load Reduction Campaign	Fire Marshall, FBC Public Works	Ongoing	No	-	-
Improvements to Stafford Run Creek	FBC Drainage District	Ongoing	No	-	-
Develop Feasibility Study	FBC HS&EM	Ongoing	No	-	-
Construction of a Regional Detention Facility	Missouri City FBC Drainage District	Ongoing	No	-	-
Excavation of Bull Head Slough and Upper Oyster Creek	FBC Drainage District	Ongoing	No	-	-
Create a Debris Removal Program	FBC Drainage District	Complete – the County developed a Debris Management Plan	No	-	-
Mitigate Repetitive Loss Properties	FBC Engineering FBC Drainage District	Ongoing	Yes	The County experiences flooding issues related to failing infrastructure and increasing precipitation events.	The County will work with the State and municipalities affected to conduct a flood study to determine the cause of flooding. The County will hire an engineer to determine what flood mitigation techniques need to be implemented in all areas.
Complete a Structural/Engineering Study	FBC Facilities & Planning	Ongoing	No	-	-
Initiate Upgrades to at-risk Public Structures and Higher Standards for New Public Structures	FBC Facilities & Planning	Ongoing	No	-	-
Examine the Feasibility of Developing an Extreme Temperature Program (	FBC HHS	Ongoing	No	-	-
Complete a Phase II Facility and Site Evaluation Feasibility Study	Brazos River Authority, multiple jurisdictions, and jurisdictional municipal utility districts	Ongoing	Yes	There are numerous properties and roads along and near the Brazos River that suffer from flooding and water pooling.	The County will implement a comprehensive Brazos Flood Study and will document and map areas that cause flooding issues. The County will work with affected municipalities to implement the best and most cost-effective flood prevention

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing it.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)? Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
					infrastructure to reduce flooding issues.
Participate in the Development and Construction of Allen's Creek Reservoir	Brazos River Authority	Ongoing	No	-	-
Encourage the Development of Inundation Maps	Floodplain Administrator	Ongoing	No	-	-
Bury all Electrical/Power Lines	FBC Public Works	Ongoing	No	-	-
Lead Efforts to Participate in Firewise	FCB OEM	Ongoing	No	-	-
Prevent River Bank Erosion	FBC Drainage District	Ongoing	Yes	There are areas along the Brazos River that are severely eroding and contributing to flooding issues.	The County will work with municipalities affected to conduct an erosion study along the Brazos River and will implement the most cost-effective solution to reduce and mitigate erosion.
Signage for Areas that Flood Easily	FBC Public Works	Ongoing	No	-	-
High Water Barricades	FBC Engineering/Drainage District, OEM	Ongoing	No	-	-
Gridless Core Power Supply	FBC Public Works	Ongoing	No	-	-
Countywide Radar Subscription Service and Display	FBC HS&EM	Ongoing	No	-	-
Install Lightning Rods	FBC Public Works	Ongoing	No	-	-
Purchase Additional UPS	FBC Public Works	Ongoing	No	-	-
Skywarn Training	FBC HS&EM	Ongoing	No	-	-
Develop PSA for Mitigation Techniques	FBC HS&EM	Ongoing	No	-	-
Explore the Installation of Sensors to Detect Freezing	FBC HS&EM/Road and Bridge	Ongoing	No	-	-
Participate in the NFIP Community Rating System	FBC Engineering	Ongoing	No	-	-
Develop a Drought Emergency/Contingency Plan	FBC Drainage and OEM	Ongoing	No	-	-
Examines the Feasibility of Developing an Extreme Temperature Program	FBC HHS	Ongoing	No	-	-

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, Fort Bend County identified the following mitigation efforts completed since the last HMP:

- None Identified

Since the adoption of the County's first HMP, Fort Bend County has made significant mitigation progress in the following areas:

- None Identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Table 9.1-14. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	X	-	X	-	-	X	-	X	X
Disease Outbreak	X	X	-	X	X	-	X	-	X	X
Drought	X	X	-	X	-	-	X	-	X	X
Extreme Temperature	X	X	-	X	-	-	X	-	X	X
Flood	X	X	-	X	-	-	X	-	X	X
Geologic Hazards	X	X	-	X	-	-	X	-	X	X
Hurricane/Tropical Storm	X	X	-	X	-	-	X	-	X	X
Severe Weather	X	X	-	X	-	-	X	-	X	X
Tornado	X	X	-	X	-	-	X	-	X	X
Wildfire	X	X	-	X	-	-	X	-	X	X
Winter Weather	X	X	-	X	-	-	X	-	X	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives Fort Bend County would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.1-15. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Fort Bend County-001	Brazos River Flood Study	**Problem:** There are numerous properties and roads along and near the Brazos River that suffer from flooding and water pooling, including: • Kingdom Heights (Rosenburg) • Valley Lodge Subdivision Area (Simonton) • Riveredge Drive (Richmond) • 800 Block of Ferry Street (Richmond) • North Second Street at Preston Street (Richmond) • Rabbs Bayou - Wheaton Street (Richmond) • Newer Homes around Riverstone at University Boulevard **Solution:** The County will implement a comprehensive Brazos Flood Study and will document and map areas that cause flooding issues. The County will work with affected municipalities to implement the best and most cost-effective flood prevention infrastructure to reduce flooding issues.	Flood, Severe Weather, Winter Weather	2, 3, 4	Less than 5 years	Fort Bend County Engineer, Participating municipalities	BRIC, HMGP, CDBG, FMA, County and Municipality Budget	The County and jurisdictions will experience reduced flooding from the Brazos River.	TBD after Study	High	SIP	SP
2023-Fort Bend County-002	Flood Study	**Problem:** The County experiences flooding issues related to failing infrastructure and increasing precipitation events. Some of the repetitive flood areas include: • Lower Bois D'Arc Area (Fulshear) • Redbird Lane (Fulshear) • West Airport Boulevard (Meadows Place) • US Highway 90 A • Thompson Highway (Richmond) • West Keegans Bayou **Solution:** The County will work with the State and municipalities affected to conduct a flood study to determine the cause of flooding. The County will hire an engineer to determine what flood mitigation techniques need to be implemented in all areas.	Flood, Severe Weather, Winter Weather	2, 3, 4	Less than 5 years	Fort Bend County, Participating municipalities, Engineer, State	BRIC, HMGP, CDBG, FMA, County and Municipality Budget	The County and jurisdictions will experience reduced flooding.	TBD after Study	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Fort Bend County-003	Brazos Erosion Study	**Problem:** There are areas along the Brazos River that are severely eroding and contributing to flooding issues. **Solution:** The County will work with municipalities affected to conduct an erosion study along the Brazos River and will implement the most cost-effective solution to reduce and mitigate erosion.	Geologic Hazards, Flood	2, 3, 4	Less than 5 years	Fort Bend County, Participating municipalities, Engineer	BRIC, HMGP, CDBG, FMA, County and Municipality Budget	The County and jurisdictions will experience reduced erosion along the Brazos River.	TBD after study	High	SIP	SP
2023-Fort Bend County-004	Shelter and Evacuation Communications*	**Problem:** There is a lack of communication and resources regarding evacuation and sheltering procedures among the County and the municipalities. **Solution:** The County will work with municipalities to communicate about available sheltering procedures and evacuation procedures.	Dam/ Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/ Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1, 2, 5	Less than 5 years	Fort Bend County	County and Municipality Budget	The County and its municipalities will become more knowledgeable about available shelters and evacuation procedures.	Staff Time	High	EAP	ES
2023-Fort Bend County-005	Yearly Community Outreach Program	**Problem:** The County does not have yearly outreach programs to educate residents on how to respond to and mitigate the hazard of concerns. **Solution:** The County will implement a yearly outreach program to all residents to inform them of how to respond to and mitigate hazards and will integrate shelter/evacuation information so that all County residents are aware of the options.	Dam/ Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/ Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1	Ongoing	Fort Bend County OEM	County Budget	The County residents will become more knowledgeable about hazards of concern.	Staff Time	High	EAP	PI
2023-Fort Bend County-006	Repetitive Loss Mitigation	**Problem:** The County has 269 repetitive loss and 29 severe repetitive loss properties. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage. **Solution:** The County will conduct outreach to the RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in flood-prone areas that experience frequent flooding (high-risk areas).	Flood, Hurricane/ Tropical Storm, Severe Weather, Winter Weather	2, 5	Less than 5 Years	NFIP Floodplain Administrator, supported by homeowners	HMGP and FMA, BRIC, local cost share by residents	Eliminates flood damage to homes and residents.	>$500,000	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Fort Bend County-007	Critical Facilities/ Community Lifelines Flood Protection*	**Problem**: There are critical facilities and community lifelines that are located in the special flood hazard area. **Solution:** The County will conduct a feasibility assessment to determine what additional floodproofing measures are needed at these facilities to protect each to the 500-year flood level. Options include: • Elevation of facility • Floodproofing of facility • Mobile flood-barriers Once the most cost-effective option is identified, the County will carry out the option.	Flood	2	Less than 5 years	County Engineer	HMGP and PDM, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, County Budget	Ensures that facilities can carry out continuity of operations.	TBD by feasibility assessment	High	SIP	SP
2023-Fort Bend County-008	Update the Continuity of Operations Plan	**Problem:** The County does not have an up-to-date Continuity of Operations Plan and annexes that address the current hazards of concern and integrate the HMP. **Solution:** The County will integrate the HMP into the Continuity of Operations Plan and annex update.	Dam/ Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/ Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1, 2	1 Year	County Administration	County Budget	The County will be better prepared to establish continuity of operations during hazard events.	Staff Time	High	LPR	ES
2023-Fort Bend County-009	Backup Generators*	**Problem:** The County is unaware of critical facilities that may not be able to perform continuity of operations during power outages, which can lead to environmental degradation via sewage backup, or can inhibit emergency responders from accessing and communicating with residents or municipalities in need. **Solution:** The County will develop a list of critical facilities that require backup power to be able to operate during power outages. Once identified, the County will conduct engineering studies to determine the correct sized generators that each facility would need. The County will then acquire funding to purchase and install needed generators.	Dam/ Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/ Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1, 2	4 Years	County and Municipality Administrations	BRIC, HMGP, CDBG, FMA, Generator Grant County and Municipality Budget	Critical facilities will be able to operate during power outages.	$100,000/ Generator	High	SIP	SP
2023-Fort Bend County-010	Disaster Debris Management Plan	**Problem:** The County does not have an up-to-date Disaster Debris Management Plan that integrates the HMP and the hazards of concern. **Solution:** The County will integrate the HMP into its Disaster Debris Management update.	Dam/ Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/ Tropical Storm, Severe Weather, Tornado,	1, 2	1 Year	County and Municipality Administrations	County Budget	The County will be better prepared to handle the aftermath of hazards.	Staff Time	High	LPR	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
			Wildfire, Winter Weather									
2023-Fort Bend County-011	Vaccination Locations	**Problem:** The County does not have locations that are designated for vaccination clinics and PPE distribution clinics across the County. **Solution:** The County will identify locations that can be used as vaccination clinics and distribution centers and will notify all County residents.	Disease Outbreak	2	1 year	County Health Department	County Budget	The County will be better prepared for pandemics.	Staff Time	High	EAP	PR
2023-Fort Bend County-012	Additional Internal Flood Storage	**Problem:** After Hurricane Harvey, the District discovered homes that were built lower than expected. This project is to increase the flood storage within the levee-protected area to provide 18 to 24 inches of freeboard below the lowest residential structure. **Solution:** The solution includes excavating and/or lowering portions of the existing Sweetwater Country Club or other green spaces to provide additional flood storage. The Sweetwater Country Club is an existing flood storage area with an easement over the golf course with natural storage that existed before the development of the area.	Flood, Hurricane/ Tropical Storm	2, 3	24 Months	Fort Bend County Levee Improvement District No. 2	FEMA HMGP, FMA, and BRIC Grants	Increase Flood Storage which will decrease the flood risk for residential homes and reduce potential ponding within streets.	$10 million	High	SIP, NSP	
2023-Fort Bend County-013	Levee Flood Risk Education Outreach*	**Problem:** With the growth in Fort Bend County, the Districts see many new residents who do not understand their flood risk or know they live behind a levee. **Solution:** Working with the City of Sugar Land and Fort Bend County, develop outreach tools to help residents understand their flood risk and educate themselves on what it means to live behind a levee. This includes providing information on what levels the levees protect and what happens when it rains within the levee. This tool would also assist with understanding when a levee would be excavated and what residents and businesses should do when an evaluated order is issued.	Dam and Levee Failure, Flood, Hurricane/ Tropical Storm	1, 4, 5	1 Year	Fort Bend County Levee Improvement District No. 2	FEMA HMGP	More educated residents mean less stress and fewer questions during events. This frees up resources to flood fight.	$50,000	Medium	LPR, EAP	
2023-Fort Bend County-014	Expanded Flood Warning System*	**Problem:** During flood events, a few key roadways (Commonwealth Boulevard, Elkins Road, and University Drive) can go underwater. At night, poor lighting makes it difficult for residents to see the flooded street. **Solution:** A flood warning system in the District could be published on the District's website notifying the residents and the City of Sugar Land	Flood, Hurricane/ Tropical Storm	1, 2, 4, 5	2 Years	Fort Bend County Levee Improvement District No. 14	FEMA HMGP and FMA	Safer Streets mean lower risks for residents and drivers along the major thoroughfares.	$90,000	High	SIP, EAP	

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		on the conditions of the internal flood storage and notify drivers of impassable streets. There is a City of Sugar Land Fire Station that is impacted when Commonwealth is unpassable.										
2023-Fort Bend County-015	Ditch H Erosion Protection*	**Problem:** Similar to other streams in Fort Bend County, Ditch H has a high erosion potential during flood events. This erosion could cause issues for existing water and sewer utilities, pipelines, and levees. **Solution:** Develop a long-range erosion protection plan to monitor erosion conditions and standards for repairing the erosion promptly. The plan would also review permanent erosion control measures that could be implemented to reduce the risk of erosion.	Flood, Hurricane/ Tropical Storm, Geologic	2, 3, 4	5 Years	City of Sugar Land Engineering Department	FEMA HMGP and BRIC	Reducing the risk of erosion will reduce the risk of negatively impacting the existing levees and the homes protected.	Plan ~ $100,000 Possible Construction ~ $10 million	High	SIP, NSP	
2023-Fort Bend County-016	Master Drainage Plan Update*	**Problem:** With the adoption of Atlas 14 and possible operation changes of the Barker Dam, the District's channel network could be negatively impacted or have reduced flood storage. **Solution:** Using the latest modeling techniques and methodologies, the District will update its master drainage plan for all channels within the District. This plan will identify areas with increased flood risk and provide detailed mitigation options to improve the drainage system and reduce the flood risk.	Flood, Hurricane/Tropical Storm	1, 2, 4, 5	2 Years	Fort Bend County Drainage District	NRCS Watershed Protection	Better Local data to understand the flood risks for the area and how to reduce those risks.	$300,0000	High	LPR, NSP, EAP	
2023-Fort Bend County-017	Erosion and Sediment Reduction	**Problem:** Due to the silty, sandy conditions within the Barker Watershed, several thousand cubic feet of silt and sand wash into the Willow Fork Drainage District system and the Barker Reservoir. This takes up necessary flood storage and requires millions of dollars annually to remove. **Solution:** Perform an erosion and sediment study to evaluate the main sources of the sediment transport and identify mitigation actions to reduce the amount of silt and sand from depositing within critical flood control facilities.	Flood, Geologic, Hurricane/ Tropical Storm	2, 3, 4, 5	3 Years	Fort Bend County Levee Improvement District No. 14	USACE PL84-99	The silt/sands reduce the amount of available storage and capacities within the channel and Barker Reservoirs, which can increase the flood risk from reoccurring events. This will help reduce that risk.	$300,000	High	LPR, NSP, SIP	

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Fort Bend County-018	Barker Reservoir Flood Risk Outreach*	**Problem:** With the growth in Fort Bend County, the District sees many new residents who do not understand the flood risk from the Barker Reservoir. **Solution:** Working with Fort Bend County, develop outreach tools to help residents understand their flood risk and educate themselves on what it means to live within the Barker Reservoir Flood Pool. This includes providing information on how the levels of the reservoir negatively affect roadways and residential property. This tool would also assist with understanding when they would be excavated and what residents and businesses should do when an evaluated order is issued.	Flood, Hurricane/ Tropical Storm	1, 4, 5	2 Years	Fort Bend County Levee Improvement District No. 2	FEMA HMGP	Educating residents so they can prepare and respond quicker and more efficiently. Could reduce the number of water rescues.	$100,000	Medium	LPR, EAP	

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS	*Community Rating System*
FEMA	*Federal Emergency Management Agency*
HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*
NFIP	*National Flood Insurance Program*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
BRIC	*Building Resilient Infrastructure and Communities Program*

Timeline:
The time required for completion of the project upon implementation.

Cost:
The estimated cost for implementation.

Benefits:
A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.1-16. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Fort Bend County-001	Brazos River Flood Study	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-Fort Bend County-002	Flood Study	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-Fort Bend County-003	Brazos Erosion Study	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-Fort Bend County-004	Shelter and Evacuation Communications	1	0	1	1	1	1	1	0	1	1	1	1	1	1	12	High
2023-Fort Bend County-005	Yearly Community Outreach Program	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-Fort Bend County-006	Repetitive Loss Mitigation	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2023-Fort Bend County-007	Critical Facilities Flood Protection	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2023-Fort Bend County-008	Update the Continuity of Operations Plan	1	1	1	1	1	1	1	0	1	1	1	1	1	1	13	High
2023-Fort Bend County-009	Backup Generators	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2023-Fort Bend County-010	Disaster Debris Management Plan	1	1	1	1	1	1	1	0	1	1	1	1	1	1	13	High
2023-Fort Bend County-011	Vaccination Locations	1	0	1	1	1	1	1	1	1	1	0	1	1	1	12	High
2023-Fort Bend County-012	Additional Internal Flood Storage	1	1	0	1	1	1	0	0	0	1	1	1	1	1	10	High
2023-Fort Bend County-013	Levee Flood Risk Education Outreach	1	0	0	1	1	1	1	0	0	1	-1	1	1	1	8	Medium
2023-Fort Bend County-014	Expanded Flood Warning System	1	0	1	1	0	1	1	0	0	1	1	1	1	1	10	High
2023-Fort Bend County-015	Ditch H Erosion Protection	1	1	0	1	0	1	0	1	0	1	1	1	1	1	10	High
2023-Fort Bend County-016	Master Drainage Plan Update	0	0	1	1	0	1	1	0	0	1	1	1	1	1	9	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Fort Bend County-017	Erosion and Sediment Reduction	0	0	0	1	0	1	1	1	0	1	1	1	1	1	9	High
2023-Fort Bend County-018	Barker Reservoir Flood Risk Outreach	0	0	0	1	0	1	1	0	-1	1	1	1	1	1	7	Medium

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.2 City of Arcola

This section presents the jurisdictional annex for the City of Arcola that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Arcola representatives who participated in the planning process, an assessment of the City of Arcola's risk and vulnerability, the different capabilities used in the City of Arcola, and an action plan that will be implemented to achieve a more resilient community.

9.1.1 Hazard Mitigation Planning Team

The City of Arcola identified the primary and alternate points of contact and developed this 2023 Hazard Mitigation Plan (HMP) over the course of several months with input from many City of Arcola departments, including the City Administrator. The City Administrator represented the community on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.2-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Dr. Annette Guajardo/City Administrator	Name/Title:	
Address:	13222 Highway 6, Arcola, TX 77583	Address:	
Phone Number:	281-431-0606	Phone Number:	
Email:	aguajardo@arcolatexas.org	Email:	
NFIP Floodplain Administrator			
Name/Title:	Llarance Turner/FPA and City Engineer*		
Address:	13222 Highway 6 Arcola Texas 77583		
Phone Number:	(281) 341-0808		
Email:	lturner@kaluzainc.com		
Additional Contributors:			
Name/Title: Method of Participation:	Dr. Annette Guajardo/City Administrator Provided critical information in the planning process		
Name/Title: Method of Participation:	Sally Cantu/City Secretary Provided critical information in the planning process		
Name/Title: Method of Participation:	Lyneshia Garrette/Permit Administrator Provided critical information in the planning process		

*Data obtained from https://www.texasflood.org/flood-basics/fpa.html

9.1.2 Municipal Profile

The City of Arcola is in the eastern corner of Fort Bend County and borders Fresno. Located 21 miles southeast of Sugar Land and in the far suburbs of Houston, the City of Arcola is known for its proximity to some of Texas' largest cities. The City of Arcola has a total area of 1.9 square miles, of which 0.02 square miles of water.

According to the American Community Survey, the 2021 population for the City of Arcola was 2,593. Data from the 2021 American Community Survey indicates that 6.8 percent of the population is 5 years of age or younger and 5.5 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.1.3 Jurisdictional Capability Assessment and Integration

The City of Arcola performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Arcola to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Arcola. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.2-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual /Department /Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code 2015	Local	Code Enforcement Officer
How does this reduce risk? The City of Arcola adopted the International Building Code in 2015. As a result, the building code does not integrate the current HMP. Upon adoption of the next building code, the City will review the HMP and integrate into the building code where appropriate.				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual /Department /Agency Responsible
Zoning/Land Use Code	Yes	Chapter 22 – Zoning Regulation; adopted May 17, 2022	Local	Code Enforcement Officer
How does this reduce risk? The Zoning Regulation Ordinance identifies rules and regulations for building fences with the floodway of the City.				
Subdivision Ordinance	Yes	Chapter 20 – Subdivision, Development and Platting; amended April 26, 2005	Local	City Council
How does this reduce risk? This ordinance was developed to provide minimum standards that assure adequate water supply and wastewater services to subdivisions within the City and its extraterritorial jurisdiction. The ordinance was last amended in April 2005; therefore, it does not integrate the current HMP. When the ordinance is need of amending, the City will review the HMP and integrate into the ordinance where appropriate.				
Site Plan Ordinance	Yes	Chapter 16 – Buildings and Development in General – Section 16.04.050 – Site Plan for Installing, Constructing or Enlarging ETC.	Local	Mayor
How does this reduce risk? Site Plans Ordinance identifies regulations such as setbacks, in which no building or trailer is located within 25 feet from any state highway or major thoroughfare right of way and cannot be located 10 feet from any other road or street right of way and 5 feet from any property line. There must be direct vehicular access to the site from an adjacent public road or street where there is at least 20 feet of frontage. Easements must be sufficient to extend all utilities and drainage to and across the site and to adjacent sites, allowing services from each direction. The site must consist of one or more whole lots. All manufactured homes must be HUD-code manufactured, not a mobile home. There must be compliance with the drainage criteria manual adopted.				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Flood Damage Prevention Ordinance (60.3[b])	Local	Principal Engineer
How does this reduce risk? The City requires all residential and non-residential construction/substantial improvements in the floodplain to be elevated to or above the base flood elevation. The purpose of the ordinance is to protect the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: • Protect human life and health • Minimize expenditure of public money for costly flood control projects • Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public • Minimize prolonged business interruptions • Minimize damage to public facilities and utilities such as gas and water mains, electric, communications, and sewer lines, streets, and bridges located in the floodplains				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual /Department /Agency Responsible
• Help maintain stable tax base by providing for sound use and development of flood-prone areas in such manner to minimize future flood blight areas • Ensure that potential buyer are notified that property is in the flood area				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	No	-	-	-
How does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Planning Documents				
Comprehensive/Master Plan	No	-	-	-
How does this reduce risk?				
Capital Improvement Plan	No	-	-	-
How does this reduce risk?				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How does this reduce risk?				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual /Department /Agency Responsible
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	No	-	-	-
How does this reduce risk?				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the City of Arcola. FBCHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk?				
Other	-	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Arcola to oversee and track development.

Table 9.2-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits?	Yes	Planning and Zoning Board

Indicate if your jurisdiction implements the following	Yes/No	Comment:
• If yes, what department is responsible?		
If you do not issue development permits, what is your process for tracking new development?	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	N/A	-
Do you have a buildable land inventory? • If yes, please describe	N/A	-
Describe the level of build-out in your jurisdiction.	N/A	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Arcola and their current responsibilities that contribute to hazard mitigation.

Table 9.2-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	The City Council is responsible for reviewing overall development, including subdivisions and platting.
Zoning Board of Adjustment	Yes	Planning and Zoning Commission is responsible for reviewing and approving subdivision plat applications, permitting applications, infrastructure permits, and all site plans.
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Economic Development services oversees tourism.
Public Works/Highway Department	Yes	Public Works oversees water utilities.
Construction/Building/Code Enforcement Department	Yes	Environmental and Neighborhood services includes animal services, code enforcement, food inspections, rental licensing and solid waste services.
Emergency Management/Public Safety Department	Yes	The Emergency Management Coordinator is an elected official.
Warning Systems /Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	No	-
Human Resources Manual	No	-
Other	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	No	-
Planners or engineers with an understanding of natural hazards	No	-

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	See Emergency Management Coordinator.
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

Fiscal Capability

The table below summarizes financial resources available to the City of Arcola.

Table 9.2-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	No
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Arcola.

Table 9.2-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-

Outreach Resources	Available? (Yes/No)	Comment:
Does the jurisdiction have any public outreach mechanisms /programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the City of Arcola.

Table 9.2-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	No	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.2-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.1.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Arcola.

Table 9.2-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Arcola (C)	47	14	$626,007.05	0	0

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP
Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
****From the Sugar Land Plan 2021*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Arcola.

Table 9.2-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	Special Flood Hazard Area The City does not maintain a list.
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	Unknown The City is going to be developing Substantial Damage Procedures as a part of their actions.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	Unknown
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	No
NFIP Compliance	
What local department is responsible for floodplain management?	City Engineer
Are any certified floodplain managers on staff in your jurisdiction?	No

NFIP Topic	Comments
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Staff need additional training.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	N/A
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	City Engineer makes determinations.
What are the barriers to running an effective NFIP program in the community, if any?	Staffing and Funding
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	Unknown
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	Flood Damage Prevention Ordinance
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	The City does have a planning and zoning commission.
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	No

9.1.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.2-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single Family	33	N/A	18	N/A	3	N/A	13	N/A	6	N/A
Multi-Family		N/A		N/A		N/A		N/A		N/A
Other (commercial, mixed-use, etc.)	5	N/A	7	N/A	2	N/A	5	N/A	1	N/A
Total Permits Issued	**38**	**N/A**	**25**	**N/A**	**5**	**N/A**	**27**	**N/A**	**7**	N/A

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*
Note: Information for building permits in the SFHA were unavailable for this planning process.

Table 9.2-12. Recent and Expected Future Development

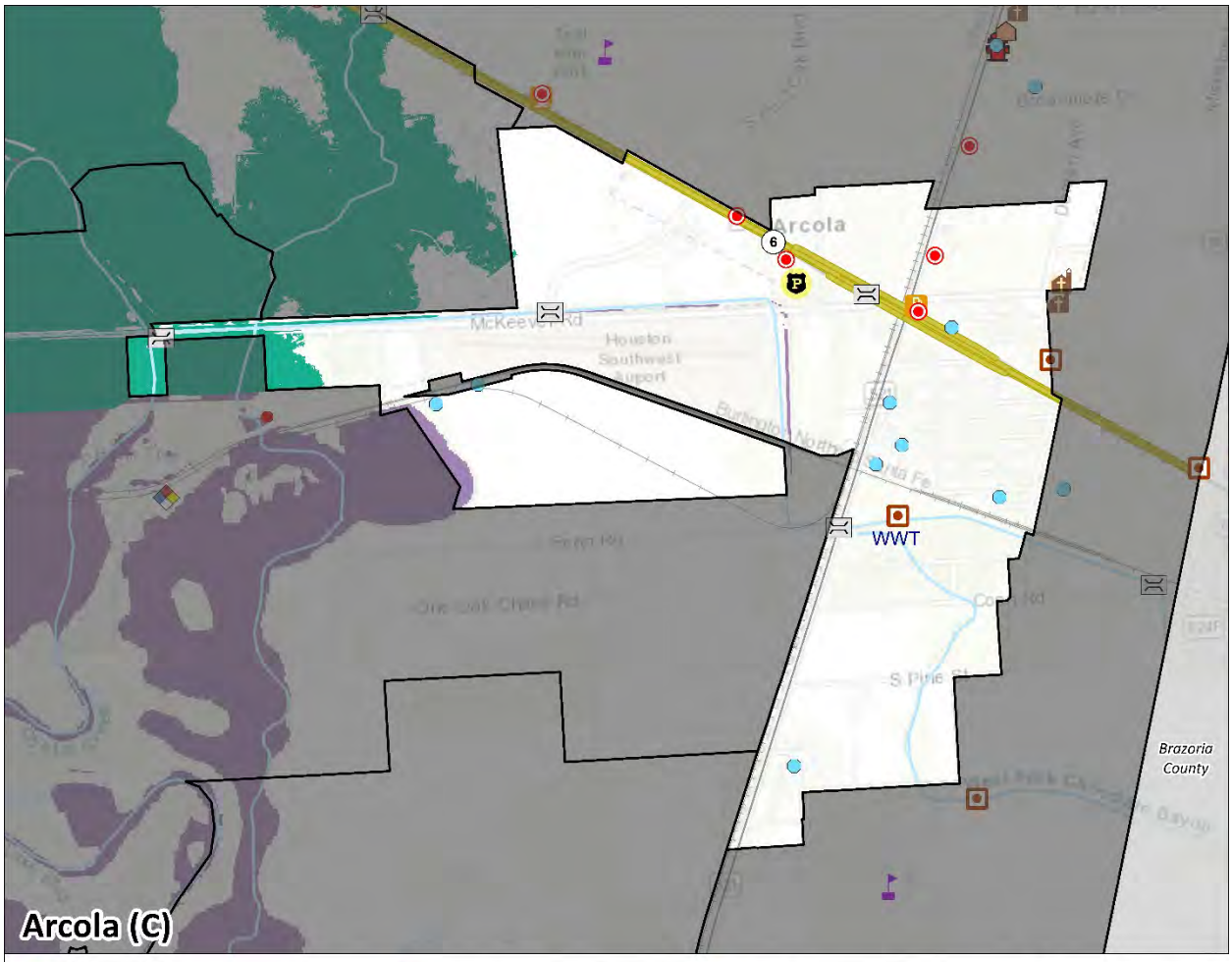
Property or Development Name	Type (e.g. Res., Comm.)	# of Units /Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
None Identified					
Known or Anticipated Major Development in the Next Five (5) Years					
None Identified					

9.1.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Arcola's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Arcola has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.2-1. City of Arcola Hazard Area Extent and Location Map – Dam Inundation



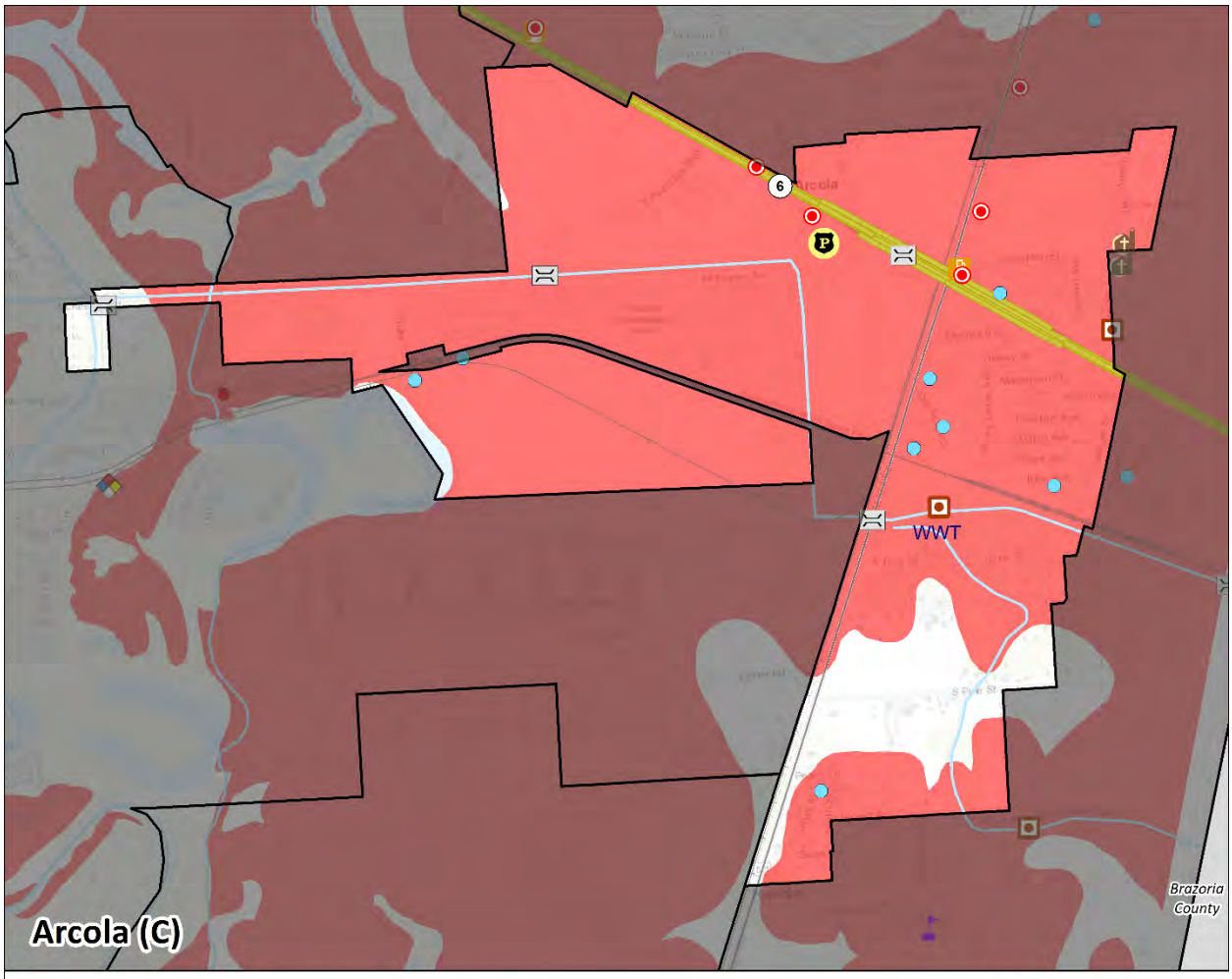
- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody
- Barker Reservoir
- Kitty Hollow Dam
- Lake Sommerville

Miles
0 0.25 0.5

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Army Corp of Engineers 2023

Notes: City (C), Township (T), Village (V)

Figure 9.2-2. City of Arcola Hazard Area Extent and Location Map – Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 0.25 0.5

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.2-3. City of Arcola Hazard Area Extent and Location Map – Flood

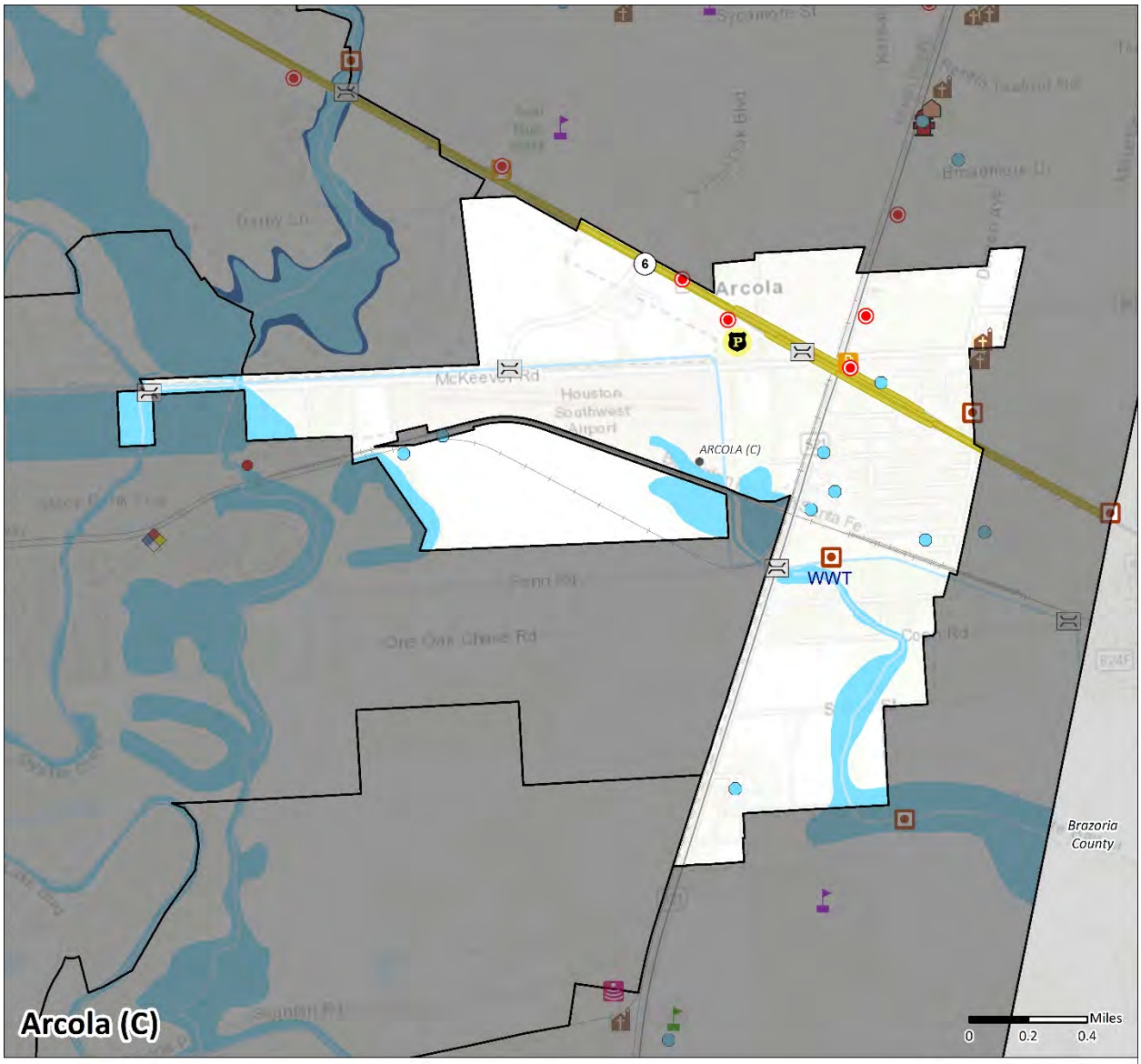
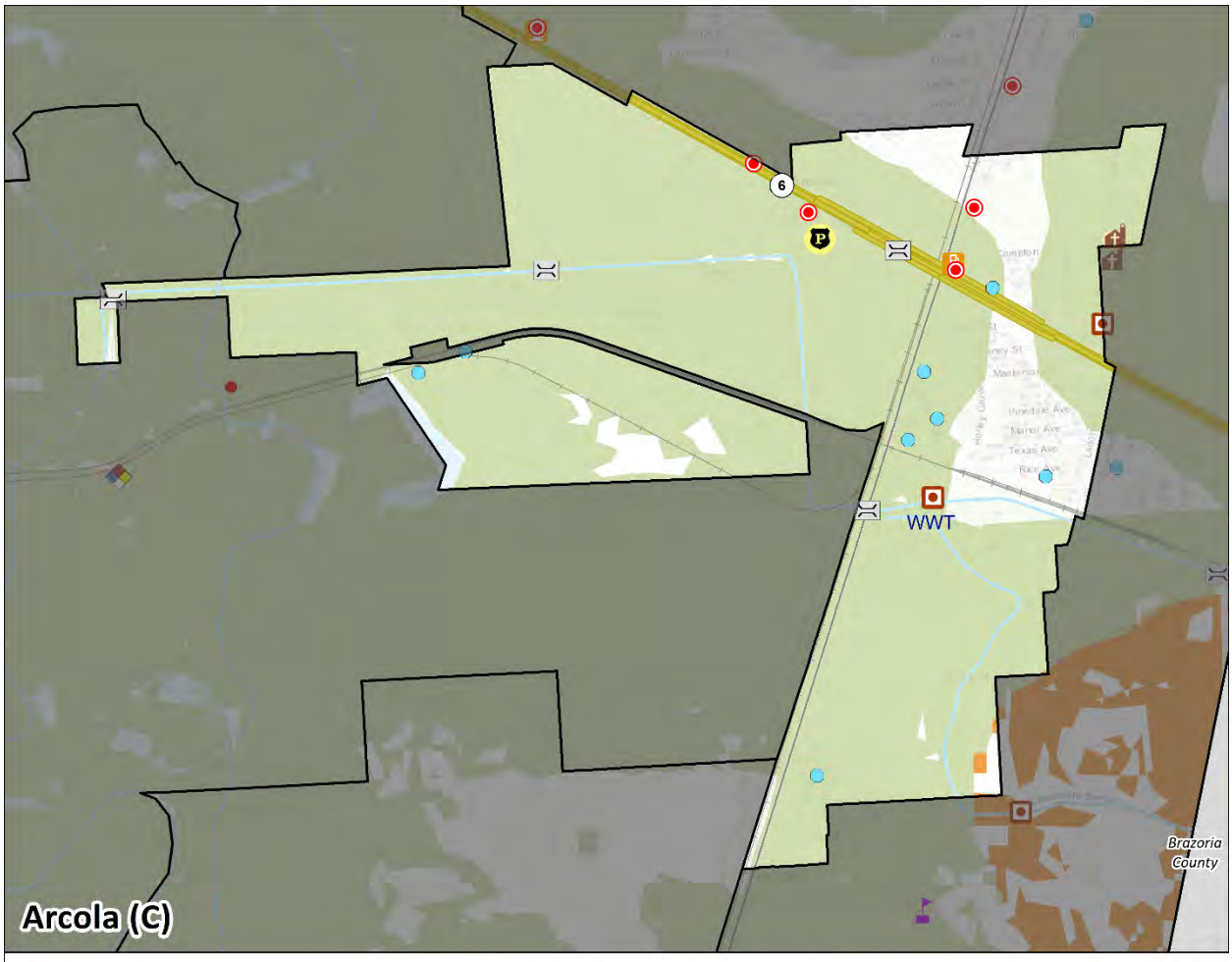


Figure 9.2-4. City of Arcola Hazard Area Extent and Location Map – Inland Erosion



Figure 9.2-5. City of Arcola Hazard Area Extent and Location Map – Wildfire



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Wildfire Hazard Area

- Low Threat
- Moderate Threat

Miles
0 0.2 0.4

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022

Notes: City (C), Township (T), Village (V)

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Arcola's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Arcola experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.2-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	COVID-19 pandemic	The City was subject to closures and masking/social distancing requirements.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in significant number of downed trees and utility lines.	Minor damage, tree limbs.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County	The City experienced damages equivalent to the County level.
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	Minor wind damage, down fences and trees and limbs and minor power outages.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Moderate infrastructure damage, moderate damage to citizen's homes. Main damage was damage to pipes. Estimated damage over $500k.

Source: FEMA 2023; NOAA 2023

Notes:

EM Emergency Declaration (FEMA)
FEMA Federal Emergency Management Agency
DR Major Disaster Declaration (FEMA)
N/A Not applicable

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Arcola's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The

ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Arcola. The City of Arcola reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

Table 9.2-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	Low
Disease Outbreak	Low
Drought	Low
Extreme Temperature	Low
Flood	Low
Geologic Hazards	High
Hurricane/Tropical Storm	Medium
Severe Weather	High
Tornado	Medium
Wildfire	Low
Winter Weather	Low

Critical Facilities

The table below identifies critical facilities in the community located in the 1 percent and 0.2 percent floodplain and presents Hazus-MH estimates of the damage and loss of use to critical facilities as a result of a 1 percent annual chance flood event.

Table 9.2-15. Potential Flood Losses to Critical Facilities

Name	Type	Exposure	
		1% Event	0.2% Event
City of Arcola WWTP	Wastewater Treatment Plant	X	X
Irrigation Canal	Bridge	X	X
Oyster Creek	Bridge	X	X

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the City of Arcola's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Arcola identified the following vulnerabilities within their community:

- The City did not identify any additional issues as a result of natural hazards.

9.1.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this 2023 HMP update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.2-16. Status of Previous Mitigation Actions

Project #	Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
1	Minimize repetitive loss flooding in Arcola by implementing the following regional drainage improvements (a) Installation of 2 or more detention ponds; (b) installation of 2 or more pump stations; and (c) road grade elevation improvements. This is a multi-jurisdictional project involving Arcola (Fort Bend County), Manvel (Brazoria County) and Pearland (Brazoria County), along with input from Fort Bend and Brazoria Counties.	FBC Engineering, FBC Drainage District, Brazoria Floodplain Administrator, City of Pearland (Public Works – Streets and Drainage)	No Progress – There are no RL or SRL properties in the City	No	-	-
2	Replace existing culverts with larger culverts for better drainage in the North Pine Subdivision and Ladonia at Post Street.	FBC Engineering, FBC Drainage District, City of Arcola	No Progress	No	-	-
3	Reinforcement of critical facilities to withstand high winds from severe weather.	Arcola City Administrator's Office	No Progress	No	-	-
4	Promote flood insurance.	Arcola Mayors Office	No Progress	No	-	-
5	Increase public education of mitigation techniques.	Arcola City's Secretary's Office	No Progress	No	-	-
6	Ensure that the City has adequate evacuation plans and notification procedures in place.	Arcola City Administrator's Office	No Progress	No	-	-
7	Conduct study to determine and map potential wildfire hazard areas.	Fresno Fire Dept.	No Progress	No	-	-
8	Develop and implement drought contingency plan.	Municipal Operations	No Progress	No	-	-
9	Public information campaigns.	Arcola City Secretary's Office		No	-	-
10	Evaluate the risks presented by excessive heat and humidity,	Fresno Fire Dept.	No Progress	No	-	-

Project #	Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)? Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
	especially in terms of high-risk populations such as the elderly/low income.					
11	In cooperation with County and State officials, ensure that high-risk populations are adequately addressed in response plans that are related to excessive heat risks.	Fresno Fire Dept.	No Progress	No	-	-
12	Review plans and resources to address risk posed by snow and ice hazards during winter storms.	Arcola City Administrator's Officer	No Progress	No	-	-
13	Various mitigation actions to reduce wildfire risk.	Fresno Fire Dept.	No Progress	No	-	-
14	Structural/engineering study of Arcola public facilities.	Arcola City Administrators Office	No Progress	No	-	-
15	Purchase and installation of grounding systems to mitigate lightning hazards in the City of Arcola.	Arcola Contractors (under advisement of City Administrator's Office)	No Progress	No	-	-
16	Restrict and/or prohibit the development in areas of Arcola to mitigate the expansive soils hazard.	Arcola Elected Officials	No Progress	No	-	-
17	Emergency communications - weather radio installation at public buildings and phone tree development.	Arcola Contractors (under advisement of City Administrator's Office)	No Progress	No	-	-

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Arcola identified the following mitigation efforts completed since the last HMP:

- None identified.

Since the adoption of the County's first HMP, the City of Arcola has made significant mitigation progress in the following areas:

- None identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

Table 9.2-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	-	-	X	X	-	X	-	-	X
Disease Outbreak	X	-	-	X	X	-	X	-	-	X
Drought	X	-	-	X	X	-	X	-	-	X
Extreme Temperature	X	-	-	X	X	-	X	-	-	X
Flood	X	X	-	X	X	-	X	-	X	X
Geologic Hazards	X	-	-	X	X	-	X	-	-	X
Hurricane/Tropical Storm	X	-	-	X	X	-	X	-	-	X
Severe Weather	X	-	-	X	X	-	X	-	-	X
Tornado	X	-	-	X	X	-	X	-	-	X
Wildfire	X	-	-	X	X	-	X	-	-	X
Winter Weather	X	-	-	X	X	-	X	-	-	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Arcola would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.2-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Arcola-001	Install a Warning systems for hazard events	**Problem:** The City does not have a hazard warning system in place that helps protect and warn residents against incoming hazard events. **Solution:** The City will work to acquire necessary funding to install a hazard warning system that operates using outdoor sirens and notifications on cell phones to protect their residents.	New	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,2	Less than 5 years	City Administration	BRIC, HMGP, FMA	Residents will have increased warning time before a hazard event affects the City.	$50,000	High	EAP	ES
2023-City of Arcola-002	Develop a Comprehensive Emergency Management Plan	**Problem:** The City does not have a Comprehensive Emergency Management Plan to reduce impact of hazard events. **Solution:** The City will develop a	New	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,2	1 Year	City Administration	City Budget	The City will have a Plan to reference when met with emergency situations.	$5,000	High	LPR	ES, PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Comprehensive Emergency Management Plan that will focus on the natural and manmade hazards that impact the City. This plan will integrate the Hazard Mitigation Plan into it.											
2023-City of Arcola-003	Future Conditions Resources	**Problem:** The City does not have resources developed to evaluate future conditions of hazards from the effects of climate change, including storm and hazard frequency and intensity. **Solution:** The City will work with FEMA and the County to develop future condition maps and resources so that the City may keep plans and regulations up to code with projected conditions of population and building stock exposed to increasing hazard events.	New	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,2	3 Years	City, County and FEMA	FEMA, BRIC, HMGP, FMA, County, City	The City will be better equipped to handle hazards that have been intensified due to Climate Change.	$25,000	High	LPR	PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Arcola-004	Critical Facilities Flood Protection	**Problem**: The following critical facilities are located in the special flood hazard area: • City of Arcola WWTP • Irrigation Canal • Oyster Creek **Solution:** The City will work with critical facility owners to determine what additional floodproofing measures are needed at these facilities. Options include: • Elevation of facility • Floodproofing of facility • Mobile flood barriers Once the most cost effective option is identified, the City will help the critical facility owners carry out the option.	Existing	Flood	2,3	Less than 5 years	City Engineer	FEMA HMGP and PDM, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, City Budget	Ensures that facilities can carry out continuity of operations.	TBD by feasibility assessment	High	SIP	SP

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS	*Community Rating System*
FEMA	*Federal Emergency Management Agency*
HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*
NFIP	*National Flood Insurance Program*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
BRIC	*Building Resilient Infrastructure and Communities Program*

Timeline:
The time required for completion of the project upon implementation.

Cost:
The estimated cost for implementation.

Benefits:
A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.2-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High /Medium /Low
2023-City of Arcola-001	Install Warning Systems for Hazard Events	1	1	1	1	1	1	1	0	1	1	1	1	1	0	12	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High /Medium /Low
2023-City of Arcola-002	Develop a Comprehensive Emergency Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Arcola-003	Future Conditions Resources	1	1	1	1	0	1	1	1	1	1	1	1	1	0	12	High
2023-City of Arcola-004	Critical Facilities Flood Protection	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.3 City of Beasley

This section presents the jurisdictional annex for the City of Beasley that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Beasley representatives who participated in the planning process, an assessment of the City of Beasley's risk and vulnerability, the different capabilities used in the City of Beasley, and an action plan that will be implemented to achieve a more resilient community.

9.3.1 Hazard Mitigation Planning Team

The City of Beasley identified the primary and alternate points of contact and developed this 2023 Hazard Mitigation Plan (HMP) over the course of several months with input from many City of Beasley departments, including the Mayor. The Mayor represented the community on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.3-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Kenneth Reid/Mayor*	Name/Title:	
Address:	319 S 3rd Street, Beasley, TX 77417	Address:	
Phone Number:	979-387-2775	Phone Number:	
Email:	kennethreid14@yahoo.com	Email:	
NFIP Floodplain Administrator			
Name/Title:	Kenneth Reid/Mayor*		
Address:	319 S 3rd Street, Beasley, TX 77417		
Phone Number:	979-387-2775		
Email:	kennethreid14@yahoo.com		
Additional Contributors:			
Name/Title: Method of Participation:	Misty Tiemann, City of Secretary Provided critical information in the planning process		
Name/Title: Method of Participation:			
Name/Title: Method of Participation:			
Name/Title: Method of Participation:			

*Information from https://www.texasflood.org/flood-basics/fpa.html

9.3.2 Municipal Profile

The City of Beasley is located on the western side of Fort Bend County. Located 59 miles southwest of downtown Richmond, the City of Beasley is known for the Southern Pacific Railroad on which it is located. The City of Beasley has a total area of 1 square mile, where 0.004 square miles is made up of water.

According to the American Community Survey, the 2021 population for the City of Beasley was 957. Data from the 2021 American Community Survey indicates that 7 percent of the population is 5 years of age or younger and 8.4 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.3.3 Jurisdictional Capability Assessment and Integration

The City of Beasley performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Beasley to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Beasley. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.3-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code	Local	Building Inspector
How does this reduce risk? The City of Beasley adopted the International Building Code and updates the Code annually.				
Zoning/Land Use Code	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Subdivision Ordinance	Yes	Land Subdivision – Ordinance No. 2003-6	Local	City Council
How does this reduce risk? The purpose of this ordinance is to provide for the orderly, safe, and healthful development of the area within the City and its exterritorial jurisdictions and to promote health, safety, morals, and welfare of the community.				
Site Plan Ordinance	No	-	-	-
How does this reduce risk?				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Flood Damage Prevention Ordinance	Local	FPA
How does this reduce risk? Dictates the minimum flood standards adopted by the City to meet the federal standards of the National Flood Insurance Program (NFIP) that could be enhanced through higher standards adoption (e.g., adopting standards for non-regulatory flood areas).				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	Yes	Emergency Management – Ordinance No. 91	Local	City Council
How does this reduce risk? The ordinance identifies potential hazards and the prevention or mitigation of the impacts associated. With the identification of hazards, the ordinance helped to establish a Comprehensive Emergency Management Plan and an Emergency Management Director.				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Planning Documents				
Comprehensive/Master Plan	No	-	-	-
How does this reduce risk?				
Capital Improvement Plan	No	-	-	-
How does this reduce risk?				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How does this reduce risk?				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	Comprehensive Emergency Management Plan	Local	Emergency Management Director
How does this reduce risk? The plan will set forth the form of the organization, tasks, duties, and powers and designate officers and employees to carry out the provisions of the plan. The plan will follow the standards and criteria established by the State Division of Emergency				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Management of the State of Texas. The form of organization, titles, and terminology conform to the recommendations of the State Division of Emergency Management. The emergency management plan is considered supplementary to the Emergency Management Ordinance.				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the City. FBCHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk?				
Other	No	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Beasley to oversee and track development.

Table 9.3-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	Requests and applications for building, moving, and demolishing permits can be found on the City of Beasley website along with lists of requirements. This is done through City Hall.
If you do not issue development permits, what is your process for tracking new development?	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	The City does not have flood hazard areas.
Do you have a buildable land inventory? • If yes, please describe	N/A	-

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Describe the level of build-out in your jurisdiction.	N/A	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Beasley and their current responsibilities that contribute to hazard mitigation.

Table 9.3-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	The Planning Commission was established in 2003; their duties include: • Identify the needs and to advise the City Council of their short-range and long-range implications for City development • Recommend achievable community goals as a basis for long-range planning and development programs • Recommend plans, programs, policies, that will benefit the entire community • Interpret and adopt plans and programs to concerned citizens so that private activities and desires are accomplished in harmony with public needs and policies
Zoning Board of Adjustment	No	-
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	
Construction/Building/Code Enforcement Department	Yes	
Emergency Management/Public Safety Department	Yes	Emergency Management Director is responsible for: • Conduct an ongoing survey of actual or potential hazards which threaten life and property within the City • Supervision of the development and approval of an emergency management plan for the City • Authority to declare a local state of disaster. The declaration may not be continued or renewed for a period in excess of 7 days except by or with the consent of the Town Council • Carry out necessary regulations • Direction and control of Emergency Management • Maintenance of liaison with other municipal, county, district, state, regional

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		or federal, Emergency Management organizations • Marshaling of all necessary personnel, equipment or supplies from any department
Warning systems/services (mass notification system, outdoor warning signals, etc.)	Yes	
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	No	-
Human Resources Manual	No	-
Other	-	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	No	-
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	See Emergency Management above
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

Fiscal Capability

The table below summarizes financial resources available to the City of Beasley.

Table 9.3-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	No
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	No
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Beasley.

Table 9.3-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	Yes	City posts news on the main page of their website.
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	Yes	
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the City of Beasley.

Table 9.3-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	-	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.3-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Weak
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Weak
Geologic Hazards	Weak
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.3.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Beasley.

Table 9.3-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Beasley (C)	9	0	None Documented	0	0

Sources: *a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)*
b 2018 Fort Bend County HMP

Notes: *Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.*

**Number of RL and SRL properties provided by the State of Texas*

***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*

RL Repetitive Loss

SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Beasley.

Table 9.3-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	The City has no homes that have flooded.
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	City does not maintain a list.
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	N/A
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	N/A
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	N/A
NFIP Compliance	
What local department is responsible for floodplain management?	Emergency Management Director
Are any certified floodplain managers on staff in your jurisdiction?	N/A
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	N/A
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	N/A
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	N/A
What are the barriers to running an effective NFIP program in the community, if any?	Funding and Staffing
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	N/A
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	N/A
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	Ordinance Amendment – 2014-3, Last amended March 18th, 2014
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets the minimum requirements

NFIP Topic	Comments
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	N/A
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	No

9.3.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.3-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single-Family	1	0	0	0	3	0	11	0	30	0
Multi-Family	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	3	0	2	0	6	0	1	0	5	0
Total Permits Issued	4	0	2	0	9	0	12	0	35	0

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.3-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
None Identified					
Known or Anticipated Major Development in the Next Five (5) Years					
None Identified					

9.3.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Beasley's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping

techniques and technologies and for which the City of Beasley has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.3-1. City of Beasley Hazard Area Extent and Location Map-Dam Inundation



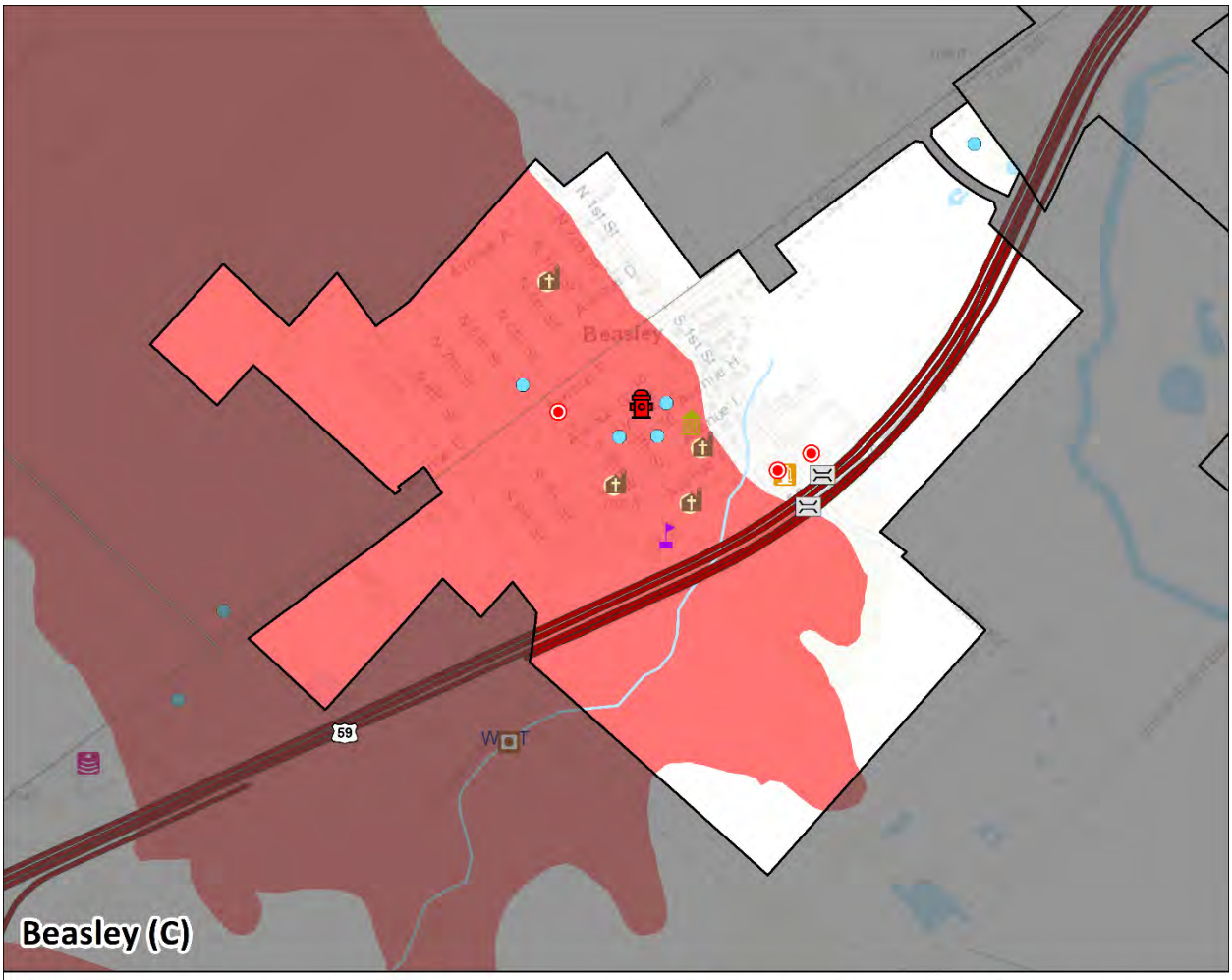
- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody
- Barker Reservoir
- Kitty Hollow Dam
- Lake Sommerville

Miles
0 0.125 0.25

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Army Corp of Engineers 2023

Notes: City (C), Township (T), Village (V)

Figure 9.3-2. City of Beasley Hazard Area Extent and Location Map-Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 0.15 0.3

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.3-3. City of Beasley Hazard Area Extent and Location Map-Flood

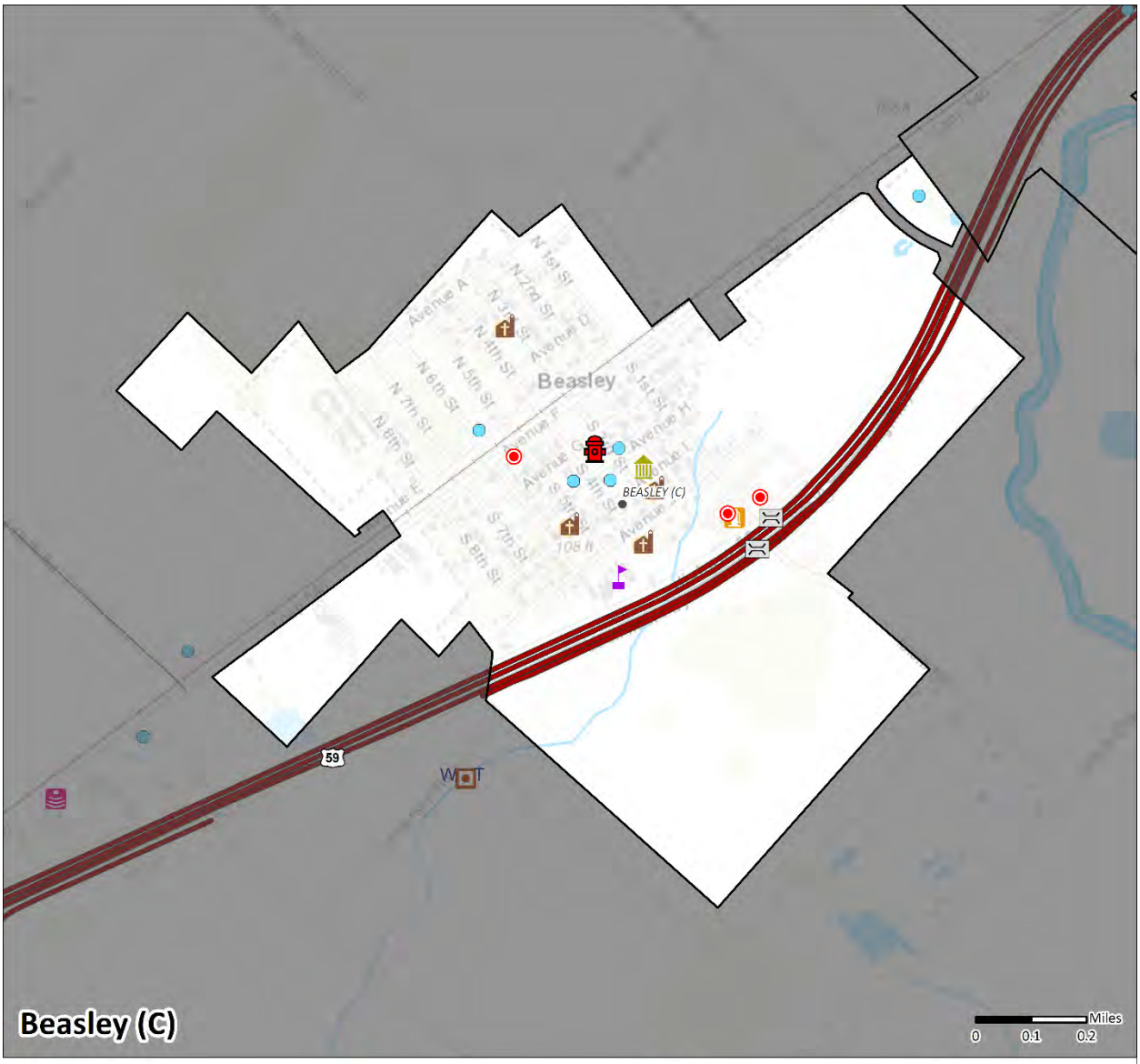
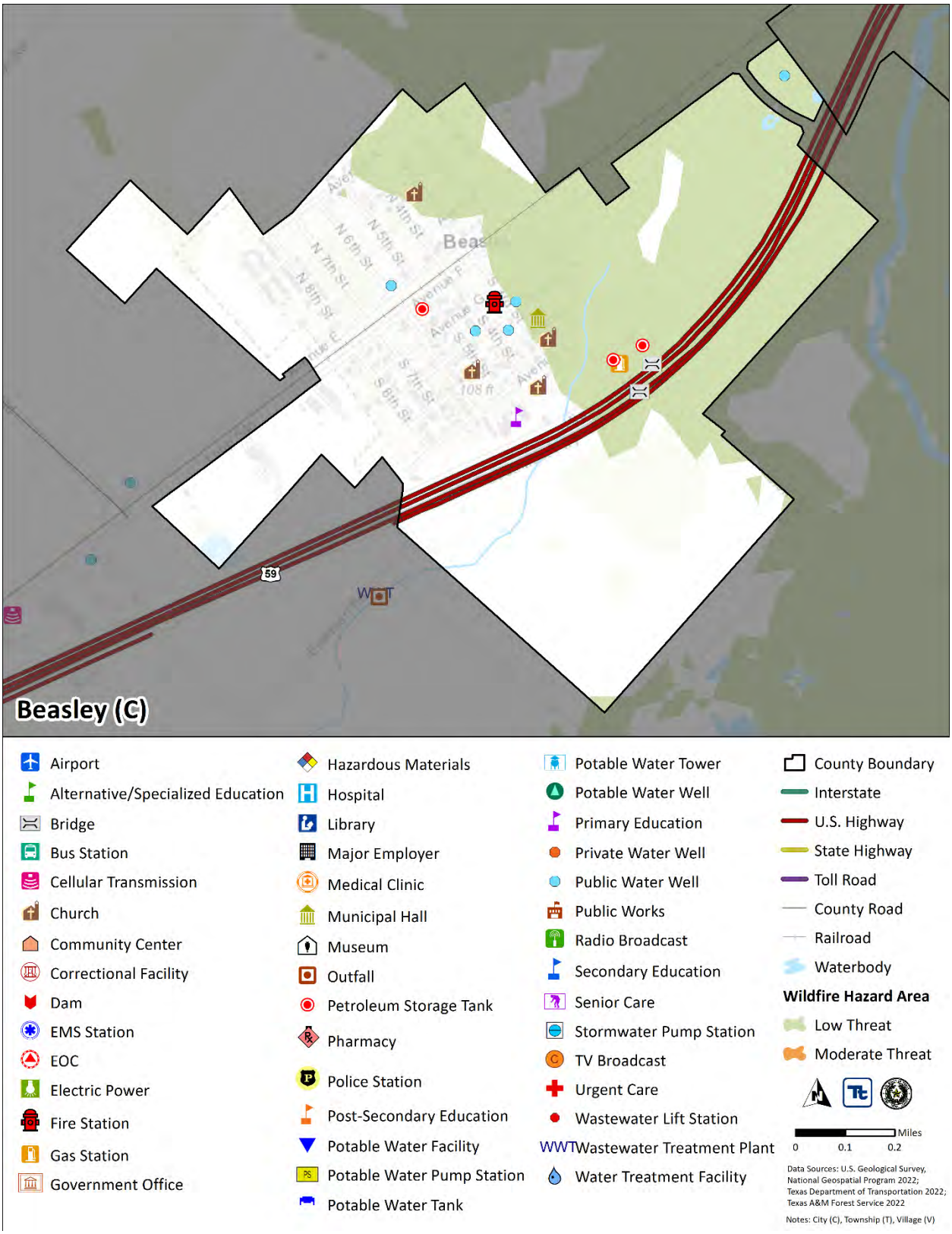


Figure 9.3-4. City of Beasley Hazard Area Extent and Location Map-Inland Erosion



Figure 9.3-5. City of Beasley Hazard Area Extent and Location Map-Wildfire



Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Beasley's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Beasley experienced during hazard events since the last HMP update. Information provided in the table below is based on reference material or local sources.

Table 9.3-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
01/20/2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	COVID-19	The City experienced damages equivalent to the County level.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in significant number of downed trees and utility lines.	The City experienced damages equivalent to the County level.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County.	The City experienced damages equivalent to the County level.
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	Minor wind damage, down fences and trees and limbs, and minor power outages.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Loss of power for 2 days, loss of water for 2 days, multiple residents as well as City Hall had property damage to structures due to busted pipes.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Beasley's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Beasley. The City of Beasley reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City of Beasley indicated the following:

- The City changed the wildfire hazard ranking from low to high due to lots of farmland that the fire department has to respond to yearly.
- The City changed the winter weather hazard ranking from low to medium due to more frequent outages from freezing.

Table 9.3-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	**Low**
Disease Outbreak	**Low**
Drought	**Medium**
Extreme Temperature	**Medium**
Flood	**Low**
Geologic Hazards	**High**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**High**
Winter Weather	**Medium**

Critical Facilities

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.3-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		**Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area**	
	Critical Facilities	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**
Beasley (C)	0	0	0	0	5	5	12	8	0	0	0	0	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the City of Beasley's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Beasley identified the following vulnerabilities within their community:

- City residents are unaware of certain hazard-related issues that may affect them, their properties, or a neighboring property.*
- The City does not currently have a Continuity of Operations Plan to implement in the event a hazard disrupts the City's function.
- The City does not have resources developed to evaluate future conditions of hazards from the effects of climate change, including storm and hazard frequency and intensity.
- The City of Beasley does not have a Debris Management Plan.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.3.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this 2023 HMP update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.3-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Install an emergency generator to provide back-up electrical power to City Hall to ensure continuity of government operations and to also provide temporary sheltering for vulnerable populations in the City.	City of Beasley Mayor's Office	In Progress			
Obtain grant to purchase and install generator to provide emergency power during emergency situations.	Beasley Volunteer Fire Department	Completed by the City of Beasley Mayor's Office	No	-	-
Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of Flood insurance through the National Flood Insurance Program (NFIP).	Beasley City Secretary	Ongoing	No	-	-
Increase public education of mitigation techniques.	Beasley City Secretary	Ongoing	No	-	-
Ensure that the City has adequate evacuation plans and notification procedures in place.	Beasley Volunteer Fire Department	Ongoing	No	-	-
Conduct study to determine and map potential wildfire hazard areas.	Beasley Volunteer Fire Department	N/A			
Develop drought contingency plan through contact with State agencies.	Beasley Mayor's office with the support of Fort Bend County Fire Marshall's Office and Emergency Management	Ongoing	No	-	-
Public information campaigns.	Beasley City Secretary	Ongoing	No	-	-
Evaluate the risks presented by excessive heat and humidity, especially in terms of high-risk populations such as the elderly/low-income.	Beasley City Secretary	Ongoing	No	-	-
In cooperation with County and State officials, ensure that high-risk populations are adequately addressed in response plans that are related to excessive heat risks.	Beasley City Secretary	Ongoing	No	-	-

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Review plans and resources to address risk posed by snow and ice hazards during winter storms.	Beasley Volunteer Fire Department	Ongoing	No	-	-
Various mitigation actions to reduce wildfire risk.	Beasley Volunteer Fire Department	Ongoing	No	-	-
Based on the results of the study above, initiate upgrades to at-risk structures and/ or infrastructure. Mitigates specific risks to structures, people and operations.	Beasley Mayor's Office with Support of Contracted Engineers	Ongoing	No	-	-
Complete a detailed structural/engineering survey of Beasley public facilities to ensure their soundness with respect to resisting the effects of high winds, extreme roof loading from snow or ice, and hail. Forms basis of decisions about any additional actions to mitigate risk.	Beasley Mayor's Office with Support of Contracted Engineers	Ongoing	No	-	-
Require road construction to use techniques to include a higher level of soil compaction to help mitigate against expansive soils.	Beasley Mayor's Office	Ongoing	No	-	-
Class for homeowners that provide them with do-it-yourself options for performing mitigation in their own homes.	Beasley City Secretary	No Progress	Yes		

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Beasley identified the following mitigation efforts completed since the last HMP:

- None were identified.

Since the adoption of the County's first HMP, the City of Beasley has made significant mitigation progress in the following areas:

- None were identified.

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

Table 9.3-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	-	-	X	X	X	X	-	-	X
Disease Outbreak	X	-	-	X	X	X	X	-	-	X
Drought	X	-	-	X	X	X	X	-	-	X
Extreme Temperature	X	-	-	X	X	X	X	-	-	X
Flood	X	-	-	X	X	X	X	-	-	X
Geologic Hazards	X	-	-	X	X	X	X	-	-	X
Hurricane/Tropical Storm	X	-	-	X	X	X	X	-	-	X
Severe Weather	X	-	-	X	X	X	X	-	-	X
Tornado	X	-	-	X	X	X	X	-	-	X
Wildfire	X	-	-	X	X	X	X	-	-	X
Winter Weather	X	-	-	X	X	X	X	-	-	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Beasley would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.3-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Beasley-001	Mitigation Education	**Problem:** City residents are unaware of certain hazard-related issues that may affect them, their properties, or a neighboring property. **Solution:** The City will provide classes for home/business owners that provides them with do-it-yourself options for performing mitigation measures for the hazards of concern in their own homes and properties. The City will schedule these classes on their website and will record and post the classes online.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1	1 Year	City	City Budget	City residents will be more knowledgeable about hazards that affect their properties.	Low	High	EAP	PI, PP, PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Beasley-002	Develop a Continuity of Operations Plan	**Problem**: The City does not currently have a Continuity of Operations Plan to implement in the event a hazard disrupts the City's function. **Solution**: The City will develop a Continuity of Operations Plan and integrate the current HMP p Plan covers all the City's hazards of concern. The plan will assist the City in being able to continue critical and essential functions during and after a disaster.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	1 Year	City Planning Department	City Budget	Ensures the City can perform essential functions during and after a hazard event.	$5,000	High	LPR	ES
2023-City of Beasley-003	Future Conditions Resources	**Problem:** The City does not have resources developed to evaluate future conditions of hazards from the effects of climate change, including storm and hazard frequency and intensity.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,2	3 Years	City, County, and FEMA	BRIC, HMGP, FMA, County, City	The City will be better equipped to handle hazards that have been intensified due to Climate Change.	$25,000	High	LPR	PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Solution: The City will work with FEMA and the County to develop future condition maps and resources so that the City may keep plans and regulations up to code with projected conditions of population and building stock exposed to increasing hazard events.										
2023-City of Beasley-004	Debris Management Plan	**Problem:** The City of Beasley does not have a Debris Management Plan. **Solution:** The City will develop a Debris Management Plan.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1, 2	1 Year	Public Works	City Budget	Increased disaster response capabilities	$3,000	High	LPR	ES

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS Community Rating System
FEMA Federal Emergency Management Agency
HMA Hazard Mitigation Assistance
N/A Not applicable
NFIP National Flood Insurance Program

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program
BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*

- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.3-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Beasley-001	Mitigation Education	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Beasley-002	Develop a Continuity of Operations Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Beasley-003	Future Conditions Resources	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Beasley-004	Debris Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.4 Village of Fairchilds

This section presents the jurisdictional annex for the Village of Fairchilds that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the Village of Fairchilds representatives who participated in the planning process, an assessment of the Village of Fairchild's risk and vulnerability, the different capabilities used in the Village of Fairchilds, and an action plan that will be implemented to achieve a more resilient community.

9.4.1 Hazard Mitigation Planning Team

The Village of Fairchilds identified the primary and alternate points of contact and developed the 2023 Hazard Mitigation Plan (HMP) over the course of several months with input from many Village of Fairchilds departments, including the assistant County Engineer. The Fire Chief represented the community on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.5-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Lance Bertolino	Name/Title:	Matt Chastain
Address:	8713 Fairchild Rd, Richmond Tx 77469	Address:	8713 Fairchild Rd, Richmond Tx 77469
Phone Number:	713-805-7145	Phone Number:	214-686-6344
Email:	Lance.bertolino@fairchildstx.us	Email:	matt.chastain@fairchildstx.us
NFIP Floodplain Administrator			
Name/Title:	Sean Eglinton/Assistant County Engineer *		
Address:	8715 Fairchild Rd., Richmond, TX 77469		
Phone Number:	281-633-7513		
Email:	sean.eglinton@fortbendcountytx.gov		
Additional Contributors:			
Name/Title: Method of Participation:	Jan Vacek/Secretary Provided critical information in the planning process		

**Information received from https://www.texasflood.org/flood-basics/fpa.html*

9.4.2 Municipal Profile

The Village of Fairchilds is in the south of Fort Bend County. Located 20 miles southwest of Sugar Land, the Village of Fairchilds is known for its historical park and numerous restaurants. A tributary of the Brazos River flows through the Village of Fairchilds. The Village of Fairchilds has a total area of 2.2 square miles with 0.01 square miles of water.

According to the American Community Survey, the 2021 population for the Village of Fairchilds was 755. Data from the 2021 American Community Survey indicates that 3.4 percent of the population is 5 years of age or younger and 21.7 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.4.3 Jurisdictional Capability Assessment and Integration

The Village of Fairchilds performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Village of Fairchilds to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Village of Fairchilds. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.5-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	No	-	-	-
How does this reduce risk?				
Zoning/Land Use Code	No	-	-	-
How does this reduce risk?				
Subdivision Ordinance	Yes	Subdivision Ordinance	Local	Board of Alderman
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The purpose of this Ordinance is to provide for orderly, safe, and healthful development of the area within the Village and its exterritorial jurisdiction and to promote health, safety, morals and welfare of the community.				
Site Plan Ordinance	No	-	-	-
How does this reduce risk?				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Flood Damage Prevention Ordinance	Local	Floodplain Administrator
How does this reduce risk? It is the purpose of this ordinance to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: • Protect human life and health • Minimize expenditure of public money for costly flood control projects • Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public • Minimize prolonged business interruptions • Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains • Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas • Ensure that potential buyers are notified that property is in a flood area.				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	No	-	-	-
How does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Planning Documents				
Comprehensive/Master Plan	No	-	-	-
How does this reduce risk?				
Capital Improvement Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How does this reduce risk?				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	No	-	-	-
How does this reduce risk?				
Continuity of Operations Plan	No	-	-	-

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk?				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the Village. FBCHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk?				
Other	No	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the Village of Fairchilds to oversee and track development.

Table 9.5-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	No	Done at County level
If you do not issue development permits, what is your process for tracking new development?	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	Done at County level
Do you have a buildable land inventory? • If yes, please describe	Yes	Farmland for sale in Village
Describe the level of build-out in your jurisdiction.	N/A	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Fairchilds and their current responsibilities that contribute to hazard mitigation.

Table 9.5-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	No	-
Zoning Board of Adjustment	No	-
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	Public works director is responsible for compliance with flood damage prevention ordinance. Participate in MPC.
Construction/Building/Code Enforcement Department	No	-
Emergency Management/Public Safety Department	Yes	Management of Village-level HMP updates. Could attend mitigation information session to learn about community risks and mitigation strategy.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	No	-
Human Resources Manual	No	-
Other	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	No	-
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency manager	No	-
Grant writer(s)	No	-
Resilience officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	-	-

Fiscal Capability

The table below summarizes financial resources available to the Village of Fairchilds.

Table 9.5-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Village of Fairchilds.

Table 9.5-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the Village of Fairchilds.

Table 9.5-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Other	No	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.5-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.4.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the Village of Fairchilds.

Table 9.5-9. NFIP Summary

Municipality	Policies in Force	Number of Paid Claims*	Amount of Paid Claims*	Number of NFIP RL Properties	Number of NFIP SRL Properties
Fairchilds (V)	N/A	0	0	0	0

Source: NFIP 2017

Notes:

**Due to a contractual agreement with FEMA, information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here for the municipalities is best available data from the last HMP.*

RL Repetitive Loss

SRL Severe Repetitive Loss

RL FMA Definition Any insurable building that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 percent of the market value of the structure at the time of each such flood event.

RL NFIP Definition *Any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling ten-year period, since 1978.*

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Village of Fairchilds.

Table 9.5-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	Village does not maintain a list of properties.
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	County
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	Unknown
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	Yes
NFIP Compliance	
What local department is responsible for floodplain management?	Fort Bend County Engineering
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No staff, handled by County
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	None
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Fort Bend County Engineering
What are the barriers to running an effective NFIP program in the community, if any?	No broadband internet service in parts of our limits/ETJ
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	Flood Damage Prevention Ordinance

NFIP Topic	Comments
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Provided by Fort Bend County Engineering
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Unknown

9.4.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.5-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single-Family	0	0	0	0	0	0	0	0	0	0
Multi-Family	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	0	0	0	0
Total Permits Issued	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.5-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
None Identified					
Known or Anticipated Major Development in the Next Five (5) Years					
None Identified					

9.4.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the Village of Fairchilds's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the Village of Fairchilds has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.5-1. Village of Fairchilds Hazard Area Extent and Location Map-Dam Inundation

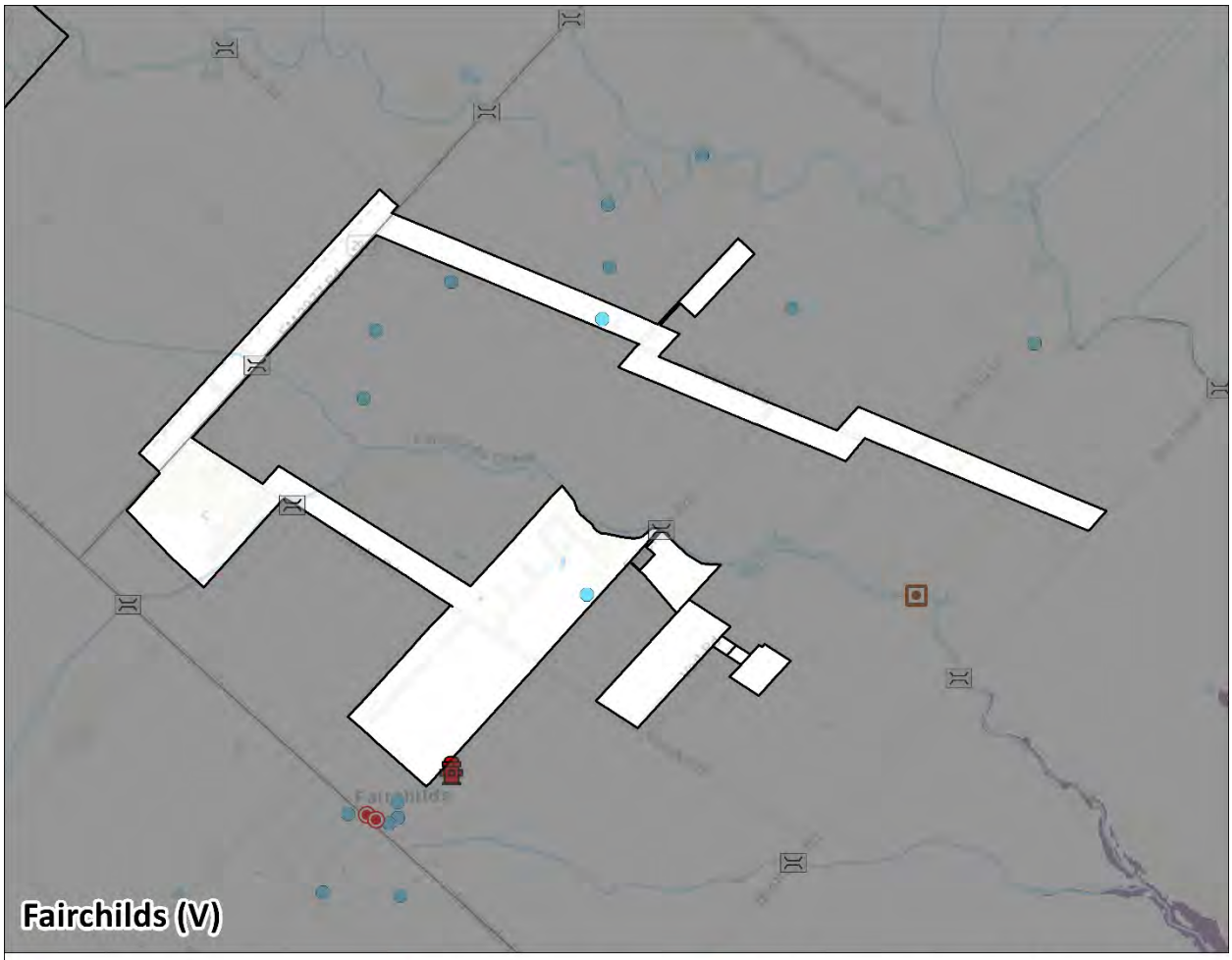
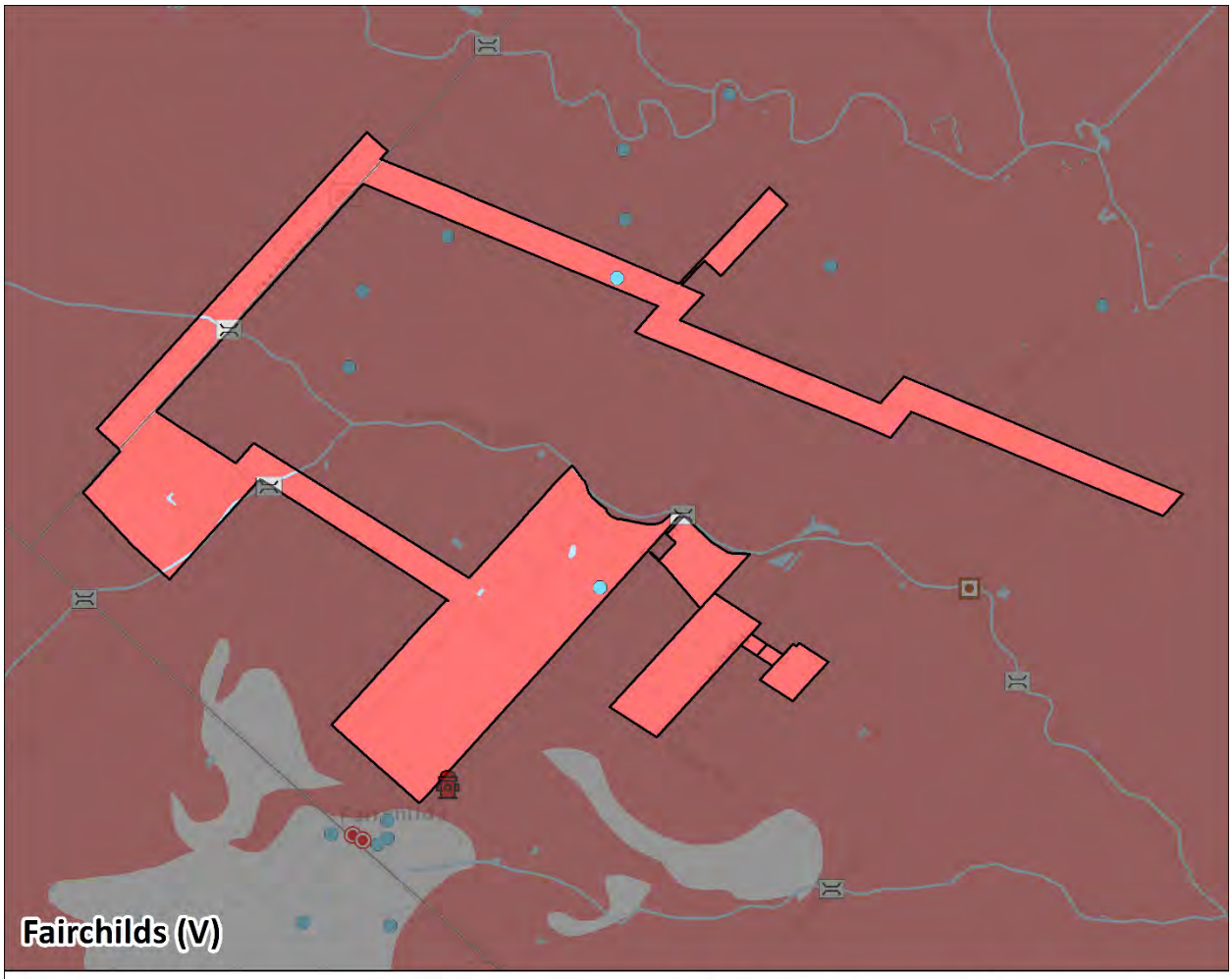


Figure 9.5-2. Village of Fairchilds Hazard Area Extent and Location Map-Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 0.3 0.6

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.5-3. Village of Fairchilds Hazard Area Extent and Location Map-Flood

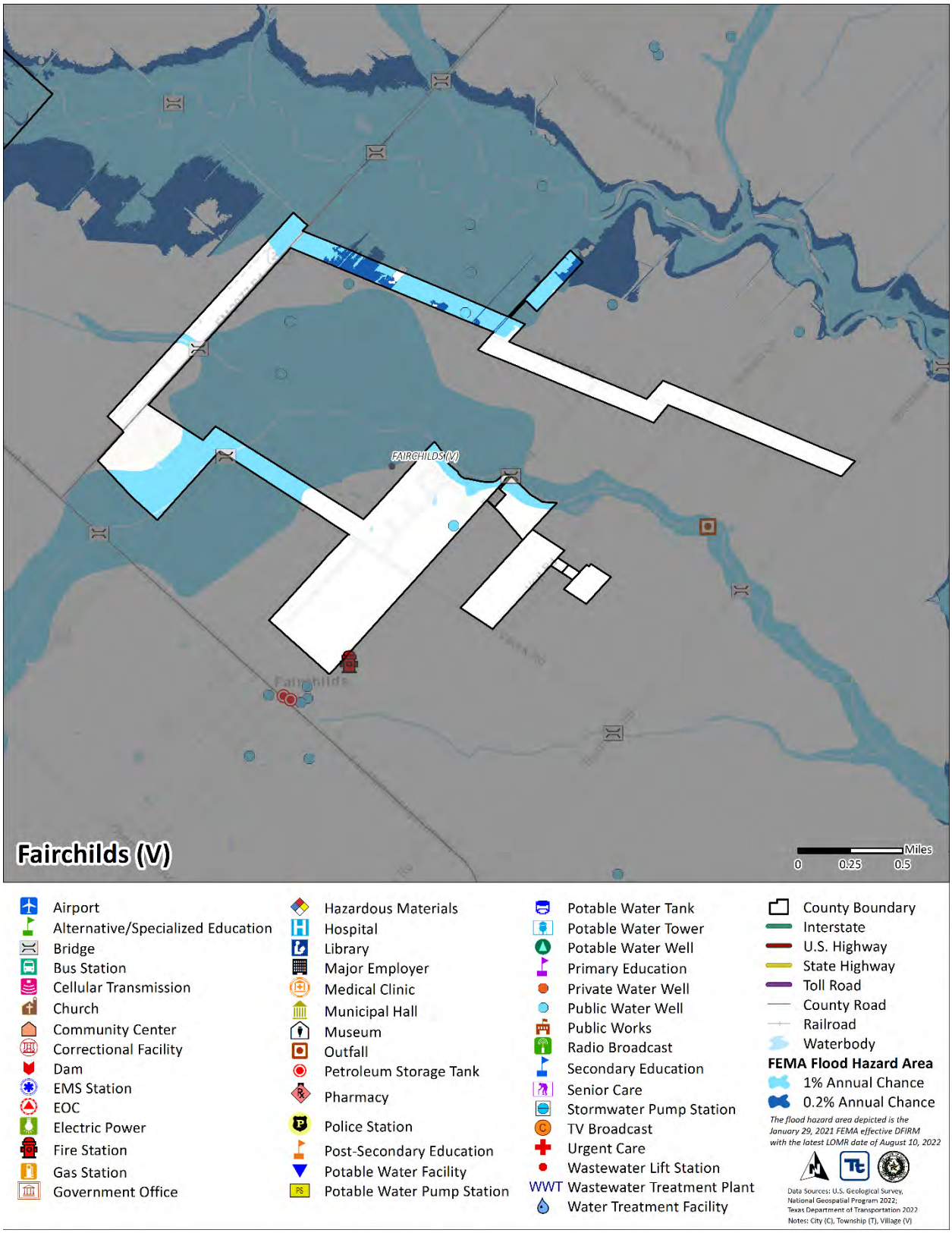


Figure 9.5-4. Village of Fairchilds Hazard Area Extent and Location Map-Inland Erosion

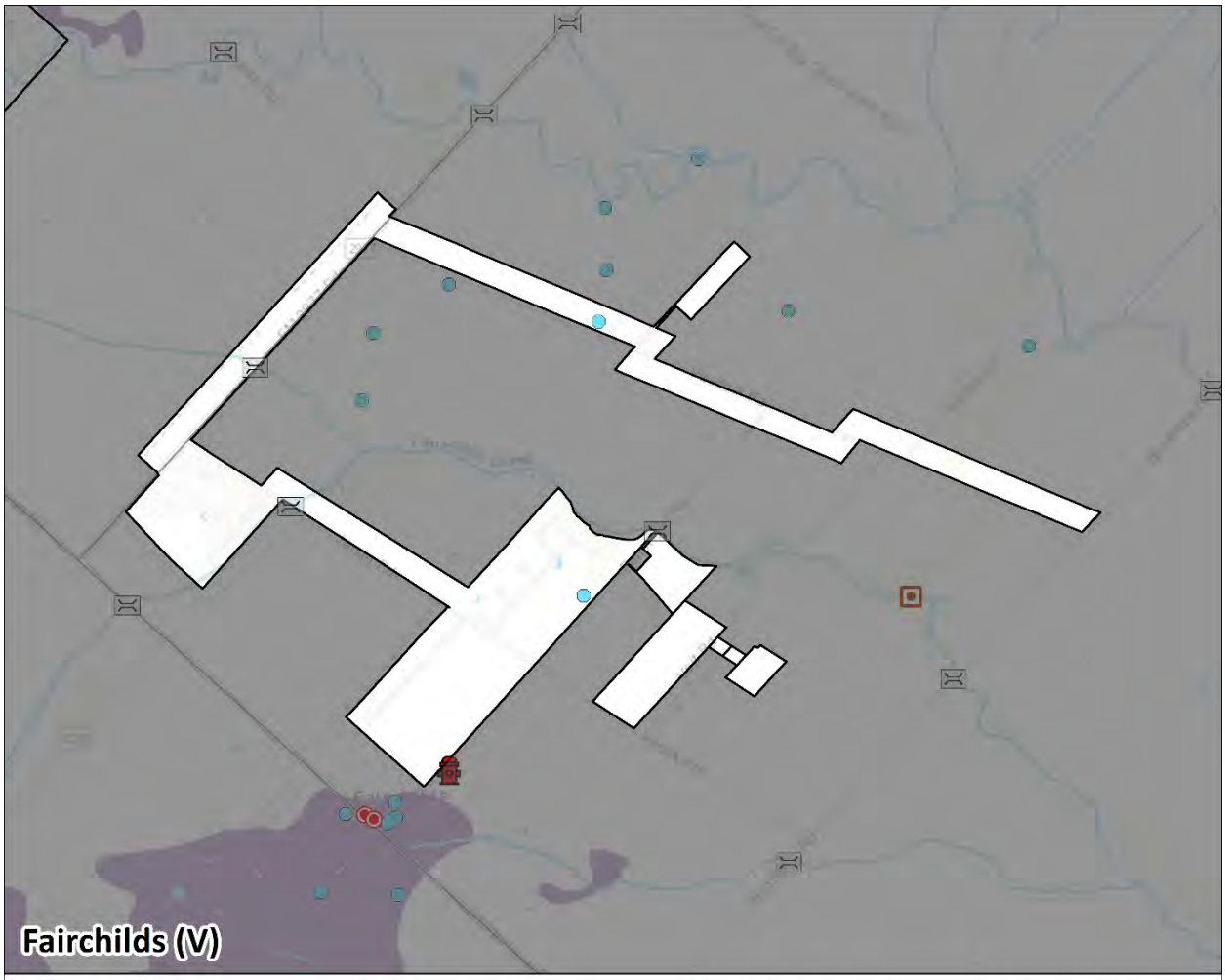


Figure 9.5-5. Village of Fairchilds Hazard Area Extent and Location Map-Wildfire



Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Village of Fairchilds' history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the Village of Fairchilds experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.5-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	COVID-19 pandemic	The Village had to implement building and office closures to adhere to COVID guidelines.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane force winds resulted in significant number of downed trees and utility lines.	The Village experienced damages equivalent to the County level.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County.	The Village experienced damages equivalent to the County level.
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	The Village experienced damages equivalent to the County level.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	The Village experienced damages equivalent to the County level.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Village of Fairchilds's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Village of Fairchilds. The Village of Fairchilds reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Village of Fairchilds indicated the following:

- The Village agrees with all rankings.

Table 9.5-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	**Medium**
Disease Outbreak	**Low**
Drought	**Medium**
Extreme Temperature	**Medium**
Flood	**High**
Geologic Hazards	**High**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**Low**
Winter Weather	**Low**

Critical Facilities

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.5-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		**Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area**	
	Critical Facilities	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**
Fairchilds (V)	2	2	0	0	0	0	3	3	0	0	0	0	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the Village of Fairchilds' hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Village of Fairchilds identified the following vulnerabilities within their community:

- The Village does not currently have public signage (e.g. LED billboard) or the ability to utilize an emergency call system. Currently, social media is the primary communication tool, but many residents do not have reliable internet connection.
- The Village experiences extensive flooding due to creeks and waterbodies lined with ditches instead of a proper drainage system. The flooded streets prevent emergency vehicles from reaching residents that may need assistance.
- The Village does not have a designated shelter to operate as a heating/cooling center, American Red Cross Shelter, or a tornado/hurricane safety shelter.
- Village residents lack broadband internet access, which makes it difficult for residents to receive weather/hazard related alerts.
- The following critical facilities are in the special flood hazard area:
    - Drainage Ditch
    - Public Water Well

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.4.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this 2023 HMP update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.5-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Install culverts and improve drainage on the side of the roadways at Caroline and Janda Streets, Cotton Drive at Janda street, and Phyllis Drive at Janda Street.	Fort Bend County (FBC) Engineering FBC Road and Bridge	FBC Engineering has no record of project.	No	-	-
Reinforcement of critical facilities to withstand high winds from severe weather – specifically the fire station.	Village of Fairchilds Engineering Consultant, Village Aldermen	No	No	-	-
Promote flood insurance.	Village of Fairchilds Secretary	No	No	-	-
Increasing public awareness of natural hazards and hazardous areas; distributing public awareness information regarding hazards and potential mitigation measures.	Village of Fairchilds Secretary	None	No	-	-
Ensure that the Village has adequate evacuation plans and notification procedures in place.	Village of Fairchilds Volunteer Fire Department	Fire Dept. follows Fort Bend County evacuation procedures..	No	-	-
Wildfire hazard areas study.	Village of Fairchilds Volunteer Fire Department	Texas Wildfire Forrest Service	No	-	-
Monitor drought conditions.	Village of Fairchilds Secretary	No	No	-	-
Public information campaigns.	Village of Fairchilds Secretary	NO	No	-	-
Evaluate the risks presented by excessive heat and humidity, especially in terms of high-risk populations such as the elderly/ low income.	Village of Fairchilds Volunteer Fire Department	Fire Dept. follows Fort Bend County evacuation procedures.	No	-	-
In cooperation with County and State officials, ensure that high-risk populations are adequately addressed in response plans that are related to excessive heat risks.	Village of Fairchilds Volunteer Fire Department	Fire Dept. follows Fort Bend County evacuation procedures.	No	-	-
Review plans and resources to address risk posed by snow and ice hazards during winter storm.	Village of Fairchilds Volunteer Fire Department	Fire Dept. follows Fort Bend County evacuation procedures.	No	-	-

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Upgrades to at-risk structures and higher standards for new structures.	Village of Fairchilds Engineering Consultant	None	No	-	-
Complete a detailed structural/engineering survey of the Fairchilds Fire Department to ensure their soundness with respect to resisting the effects of high winds, extreme roof loading from snow or ice, and hail. Forms basis of decisions about any additional actions to mitigate risk.	Village of Fairchilds Engineering Consultant	Village of Fairchilds does not own the fire station. It is a stand-alone entity.	No	-	-
Require road construction to use specific techniques.	Village of Fairchilds Aldermen	No	No	-	-
Emergency generator purchase and installation for Village Hall.	Village of Fairchilds Aldermen	Do not have a City Hall.	No	-	-

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Village of Fairchilds identified the following mitigation efforts completed since the last HMP:

- None identified.

Since the adoption of the County's first HMP, the Village of Fairchilds has made significant mitigation progress in the following areas:

- None identified.

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

Table 9.5-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	X	-	X	-	-	X	-	-	X
Disease Outbreak	X	X	-	X	-	-	X	-	-	X
Drought	X	X	-	X	-	-	X	-	-	X
Extreme Temperature	X	X	-	X	-	-	X	-	-	X
Flood	X	X	-	X	-	X	X	-	X	X
Geologic Hazards	X	X	-	X	-	-	X	-	-	X
Hurricane/Tropical Storm	X	X	-	X	-	-	X	-	-	X
Severe Weather	X	X	-	X	-	X	X	-	X	X
Tornado	X	X	-	X	-	-	X	-	-	X
Wildfire	X	X	-	X	-	-	X	-	-	X
Winter Weather	X	X	-	X	-	X	X	-	X	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the Village of Fairchilds would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.5-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Village of Fairchilds-001	Public Alert Communication System	**Problem:** The Village does not currently have public signage (e.g. LED Billboard) or the ability to utilize an emergency call system. Currently, social media is the primary communication tool, but many residents do not have reliable internet connection. **Solution:** Install an illuminated and editable sign (e.g., LED billboard) at the Fairchild Volunteer Fire Department, which is the current location of public notices and implement a call system to notify residents of hazard emergencies.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,2	5 Years	Village of Fairchilds, Mayor, Emergency Management Coordinator	Village Budget, HMGP, FEMA Assistance to Firefighters Grants	The Village residents will have more avenues for alert systems and can better prepare themselves for incoming hazard events.	>$100,000	High	EAP	ES, PI
2023-Village of Fairchilds-002	Conduct Flood Study	**Problem:** The Village experiences extensive flooding due to creeks and waterbodies lined with ditches instead of a proper drainage system. These floods streets making some impassible and prevents emergency vehicles from reaching	Flood, Severe Weather, Winter Weather	2, 5	5 Years	Fairchilds Mayor, EMC	FMA, BRIC, and HMGP; Village Budget	The Village will experience less flooding and will allow emergency vehicles access throughout the Village without	>$100,000	High	SIP	SP, PP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		residents that may need assistance. **Solution:** The Village will conduct a flood study with an engineer and work with neighboring jurisdictions to create regional detention to provide additional capacity to hold floodwaters. Once the study is complete, and solutions are identified, the City will begin implementing the solutions.						needing detours.				
2023-Village of Fairchilds-003	Inclement Weather Shelter	**Problem:** The Village does not have a designated shelter to operate as a heating/cooling center, American Red Cross Shelter, and a tornado/hurricane safety shelter. **Solution**: The Village will designate a shelter and ensure that it has backup power to operate as a heating/cooling shelter and ensure that it meets all the requirements needed to be classified as an American Red Cross Shelter.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	3 Years	Village Emergency Management	Village Budget, Emergency Solutions Grants (HUD), HMGP and BRIC	The Village residents will be more protected from hazard events, especially the homeless population.	>$50,000	High	LPR	ES
2023-Village of Fairchilds-004	Seek expansion of underground broadband into all areas of Fairchilds	**Problem:** Village residents lack broadband internet access which makes it difficult for residents to	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood,	4,5	5 Years	Village Utility Companies, Village Mayor	TDEM,, NTIA, ARPA, Village	Village residents will have quicker and better access to	Engineer Study: $1,000	High	SIP	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		receive weather/hazard related alerts. **Solution:** The Village will work with an engineer to determine how to expand broadband access underground so that all residents may have access. Once identified, the Village will begin implementing the project.	Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather					hazard emergency notifications.				
2023-Village of Fairchilds-005	Critical Facilities Flood Protection	**Problem**: The following critical facilities are located in the special flood hazard area: • Drainage Ditch • Public Water Well **Solution:** The Village will work with critical facility owners to determine what additional floodproofing measures are needed at these facilities. Options include: • Elevation of facility • Floodproofing of facility • Mobile flood barriers Once the most cost effective option is identified, the Village will help the critical facility owners carry out the option.	Flood	1,2	Less than 5 years	Village Engineer	FEMA HMGP and PDM, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, Village Budget	Ensures that facilities can carry out continuity of operations.	TBD by feasibility assessment	High	SIP	SP

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS	*Community Rating System*
FEMA	*Federal Emergency Management Agency*
HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*
NFIP	*National Flood Insurance Program*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
BRIC	*Building Resilient Infrastructure and Communities Program*

Timeline:
The time required for completion of the project upon implementation.

Cost:
The estimated cost for implementation.

Benefits:
A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.5-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Village of Fairchilds-001	Public Alert Communication System	1	1	1	1	1	1	0	1	1	1	1	1	1	0	13	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Village of Fairchilds-002	Conduct Flood Study	1	1	1	1	1	1	0	1	1	1	1	1	1	0	13	High
2023-Village of Fairchilds-003	Inclement Weather Shelter	1	0	1	1	1	1	1	0	1	1	1	1	1	1	12	High
2023-Village of Fairchilds-004	Seek Expansion of Underground Broadband into all Areas of Fairchilds	1	0	1	1	1	1	0	1	1	1	1	1	1	1	12	High
2023-Village of Fairchilds-005	Critical Facilities Flood Protection	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.5 City of Fulshear

This section presents the jurisdictional annex for the City of Fulshear that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Fulshear representatives who participated in the planning process, an assessment of the City of Fulshear's risk and vulnerability, the different capabilities used in the City of Fulshear, and an action plan that will be implemented to achieve a more resilient community.

9.5.1 Hazard Mitigation Planning Team

The City of Fulshear identified primary and alternate points of contact and developed this 2023 Hazard Mitigation Plan (HMP) over the course of several months with input from many City of Fulshear departments, including the Public Works Director. The Fulshear Police Department represented the community on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.5-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Felix Vargas/Sergeant	Name/Title:	Kenny Seymour/Chief
Address:	6639 W. Cross Creek Bend Ln Fulshear, TX 77441	Address:	6639 W. Cross Creek Bend Ln Fulshear, TX 77441
Phone Number:	281-346-8822	Phone Number:	281-346-8888
Email:	fvargas@fulsheartexas.gov	Email:	kseymour@fulsheartexas.gov
NFIP Floodplain Administrator			
Name/Title:	Sharon Valiante/Public Works Director		
Address:	30603 Rm 1093, Simonton, TX 77476		
Phone Number:	281-346-8814		
Email:	svaliante@fulsheartexas.gov		
Additional Contributors:			
Name/Title: Method of Participation:	Sgt. Felix Vargas, Emergency Management Coordinator Answered worksheets and provided input		
Name/Title: Method of Participation:	Sharon Valiante, Public Works Director Answered worksheets and provided input		
Name/Title: Method of Participation:	Zach Goodlander, Assistant City Manager Answered worksheets and provided input		

**Information received from https://www.texasflood.org/flood-basics/fpa.html*

9.5.2 Municipal Profile

The City of Fulshear is in northwest Fort Bend County and borders the Weston Lakes and Brazos River. Located 38.1 miles west of Houston, the City of Fulshear is known for its high per capita income and educational attainment. The City of Fulshear has a total area of 8.2 square miles and is a beautiful landscape that ranges from rolling terrain to grassy prairie land and lowlands.

According to the American Community Survey, the 2021 population for the City of Fulshear was 17,259. Data from the 2021 ACS indicates that 4.5 percent of the population is 5 years of age or younger and 7.6 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.5.3 Jurisdictional Capability Assessment and Integration

The City of Fulshear performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Fulshear to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Fulshear. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.5-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Residential Building Code	Local	Code Enforcement
How does this reduce risk? The City of Fulshear adopted the International 2003 Residential Building Code, the International 2003 Fire Code.				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Zoning/Land Use Code	Yes	Zoning Ordinance	Local	Planning and Zoning Commission
How does this reduce risk?				
Subdivision Ordinance	Yes	Article IV – Subdivision Regulations	Local	Planning and Zoning Commission
How does this reduce risk? The purpose of this ordinance is to establish adequate and accurate records of land subdivision, provide flexible design alternative to those who want to develop within the City, ensuring that all subdivisions have functional and attractive environments, minimize adverse effects, and become assets to the City's urban and natural environment. The development of functional and safe traffic circulation patterns, while encouraging effective economic movement of vehicles, bicycles, and pedestrians. Provide access for public safety vehicles, relate the development of various tracts of land to the existing community and facilitate future development. Ensure all subdivisions developed in the City and its jurisdictions are adequately furnished with necessary public services.				
Site Plan Ordinance	Yes	Division VII-3. – Administrative Applications – Section 28-7-19. Site Plan	Local	Planning and Zoning Commission
How does this reduce risk? The purpose of a site plan is to ensure that applicable developments comply with all development and design standards of this CDO and, if applicable, with the approved master development plan or conditional use permit for the subject property.				
Stormwater Management Ordinance	Yes	Chapter 32 – Streets, Sidewalks, and Other Public Places - Sec. 32-51. – Erosion and stormwater measures	Local	City Council
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	Yes	City Comprehensive Plan	Local	Comprehensive Plan Advisory Committee
How does this reduce risk? The City of Fulshear Comprehensive Plan addresses the growth capacity of the City. The growth capacity focuses on the long-term financial implications for municipal government of ongoing growth trends and emerging development patterns, especially with regard to tax base balance and expansion. The City will continue its partnering approach to coordinated public/private investment in essential mobility and utility infrastructure and in recreational and other community amenities for the benefit of all Fulshear residents. The City will continue to monitor opportunities to weave green spaces and elements into the community's growing and redeveloping areas to meet the need for more parks, trails, and preserved open spaces desired by residents. The City will ensure that land development steers clear of floodplain areas unless there is compliance with stringent floodplain management and low-impact development practices. The City will maintain strong relationships with area school district leadership, recognizing that quality public schools and safe and attractive campuses are essential to community confidence and pride and for continuing to draw new families to the City.				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Flood Damage Prevention Ordinance	Yes	Chapter 22 – Floods – Article II. – Flood Damage Prevention	Local	Floodplain Manager
How does this reduce risk? It is the purpose of this ordinance to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: • Protect human life and health • Minimize expenditure of public money for costly flood control projects • Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public • Minimize prolonged business interruptions • Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone, and sewer lines; and streets and bridges located in floodplains • Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas • Ensure that potential buyers are notified that property is in a flood area				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	Yes	Chapter 12 – Civil Emergencies	Local	Emergency Management Director
How does this reduce risk? This plan keeps City staff and emergency operations staff prepared to act in an efficient and effective manner when addressing hazardous situations, thus reducing the impact from the risk.				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Planning Documents				
Comprehensive/Master Plan	Yes	Fulshear Texas Comprehensive Plan	Local	Planning Department
How does this reduce risk? The Fulshear Comprehensive Plan is intended to guide future development, redevelopment, and community enhancement efforts over the next 20 years. It serves as a framework for thoughtful community discussion on the real and perceived challenges currently facing Fulshear and the opportunities that will shape its future. Through long-range planning efforts, the community can accommodate its projected growth and revitalization in a manner that preserves its history, culture, and overall quality of life for current and future residents.				
Capital Improvement Plan	Yes	Fulshear Capital Improvement Plan	Local	Public Works
How does this reduce risk? The Fulshear Capital Improvement Plan is intended to provide for a comprehensive outlook for capital projects that would qualify and help mitigate drainage hazards in areas of the City that are vulnerable to high levels of inundation. It serves as a foundational tool that is revisited each year to incorporate the recommendations of the City's Master Drainage Plan and to program those improvements that are needed.				
Disaster Debris Management Plan	Yes	Fort Bend County	County	Public Works
How does this reduce risk? The City of Fulshear is one of the participants in the Fort Bend County Debris Management Plan. In addition, the City of Fulshear has obtained a contract for emergency debris removal when necessary. In the event Fort Bend County cannot provide debris management, the City is able to provide for debris management in the event of an emergency situation.				
Floodplain Management or Watershed Plan	Yes	Fulshear Management	Local	Public Works

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk? The City of Fulshear's Director of Public Works and City Engineer administer Floodplain Management for the City of Fulshear. Each is consistently involved in reviewing and providing feedback to Fort Bend County and FEMA for development and improvement of flood maps and floodplain management criteria.				
Stormwater Management Plan	Yes	Fulshear Inspection	Local	Public Works
How does this reduce risk? The City of Fulshear regularly provides and performs onsite inspections for stormwater management in order to prevent illicit discharges into waterways and streams. In addition, each development must provide a stormwater management plan that is approved by the City Engineer prior to permitting and must implement prior to construction activity. This ensures the stormwater run-off is contained during and post-construction activity.				
Open Space Plan	Yes	Consolidated Development Ordinance 2020-1331	Local	Director of Development Services
How does this reduce risk? This plan/Ordinance provides for an increase in the amount of open space as the size of residential lots decrease, thus reducing the risk of flooding or inundation from extreme events.				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	Yes	Fulshear Livable Centers Study Plan	Local	Development Services, Economic Development Services, Public Works

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk? The Livable Centers Study Plan is a comprehensive planning tool that provides for a business/downtown development concept. This tool is used in the City's master drainage planning for the downtown district. The City of Fulshear is currently working on three regional drainage projects to assist in the mitigation of detention requirements in the downtown district.				
Other	No	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	Comprehensive Emergency Management Plan	Local	Emergency Management Director
How does this reduce risk? A comprehensive emergency management plan was developed and maintained. The plan set forth the form of the organization, establish and designate division and functions, assign responsibilities, tasks, duties, and powers, and designate officers and employees to carry out the provisions of this order. The plan follows the standards and criteria established by the governor's division of emergency management of the state. The form of organization, titles, and terminology conforms to the recommendations of the governor's division of emergency management. It is the duty of all departments and agencies to perform the functions assigned by the plan and to maintain their portion of the plan in a current state of readiness at all times. The emergency management plan is supplementary to the emergency management ordinance and has the effect of law during the time of a disaster.				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBCHHS) provides public health services for the City. FBCHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk? FBHHS has plans in place to prevent public health issues through regular inspections of regulated facilities as well as prepare for and respond to public health emergencies.				
Other	No	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Fulshear to oversee and track development.

Table 9.5-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	Development Services/Public Works
If you do not issue development permits, what is your process for tracking new development?	N/A	
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	The City requires floodplain development permitting.
Do you have a buildable land inventory? • If yes, please describe	No	
Describe the level of build-out in your jurisdiction.	N/A	

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Fulshear and their current responsibilities that contribute to hazard mitigation.

Table 9.5-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	The Planning Commission provides the City Council with recommendations regarding City ordinances, commercial building projects, and the development of parks and land planning projects. The Planning Commission is responsible for: • Making studies and project plans for the improvement of the City with a view to its future development and possible extension so as to ensure orderly growth of the City with equitable interest to both the private and public sectors. • Act with and assist the City Council in formulating and executing proper plans of municipal development. • Investigate, consider, and recommend to the City Council prior to approval of same all of the preliminary and final plats of new subdivisions within the City or its extraterritorial jurisdiction and to perform all duties imposed upon City planning and zoning commissions by state statutes. • Recommend plans to the City Council for improving, developing, expanding, and beautifying the parks, parkways, and waterways in or adjoining the City, and to cooperate with the City Council in developing, establishing, locating, improving, selecting, expanding, and maintaining public parks, parkways, playgrounds and places for public recreation. • Investigate and consider the issues stemming from possible annexation and disannexation as may be required by City Council.

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		• Make recommendations to City Council concerning traffic regulation and control. • Generally, investigate, consider, and recommend to the City Council all matters for the development and advancement of the City's physical layout and appearance. • Perform such other duties as may from time to time be delegated to the planning and zoning commission by the City Council. The planning commission also act as the City's zoning commission.
Zoning Board of Adjustment	Yes	See Planning Commission
Planning Department	Yes	The Planning Department is responsible for the following: • Plan and Plat reviews; recommendations to Planning and Zoning, Zoning Board of Adjustments, and Council related to hazard risks and reducing those risks. • Setting policy and standards • Damage assessments • Building inspections for code compliance • Code Enforcement • Environmental Health
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	• Two boards (13 members) – Economic Development Strategic Plan • Business/Commercial development • Participates in CIP improvement projects related to drainage mitigation • Seeks/encourages development with reduced risk hazards
Public Works/Highway Department	Yes	The City of Fulshear's Public Works Department is responsible for the water distribution, wastewater/sanitary sewer collection and treatment, drainage, streets, public right-of-way, City Traffic Signals, City facilities and parks, Engineering and Capital Improvements, stormwater management, solid waste and metering operations. Over 100 miles of paved streets are continuously maintained, repaired, cleaned, and improved.
Construction/Building/Code Enforcement Department	Yes	The Code Compliance Department maintains Fulshear's status as a clean, livable City by ensuring property complies with rules set by City Council. Code Compliance is responsible for enforcing the City ordinances related to Housing, Signs, Litter, Illegal Dumping, Weeds and Commercial Property.
Emergency Management/Public Safety Department	Yes	Emergency Management is the public coordination of resources in response to a disaster or crisis with the aim of addressing threats to life-safety stemming from natural or human events. The City of Fulshear understands the value of emergency preparedness and coordinates closely with local, state, and federal agencies.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	The Public Works Department staff provide a tree trimming and stormwater management and maintenance program each year . The Department staff mow and maintain roadside ditches, trim right-of-way trees, perform stormwater inspections and routinely monitor creeks and waterways for water levels and debris buildup.
Mutual aid agreements	Yes	The City maintains Interlocal Agreements with Fort Bend County Road and Bridge and maintains mutual aid for hazardous/emergency situations with surrounding communities.
Human Resources Manual	Yes	
Other	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	The City of Fulshear has a Panning Director, a Public Works Director and a City Engineer routinely review and identify any land development concerns related to hazard mitigation and/or efforts to reduce natural hazard risks.
Engineers or professionals trained in building or infrastructure construction practices	Yes	The City of Fulshear has a City Engineer, a Chief Building Official, and a Director of Public Works that routinely review building and/or infrastructure plans.
Planners or engineers with an understanding of natural hazards	Yes	Expertise in structural mitigation projects and compliance with flood damage prevention ordinance. Attend advanced floodplain management training.
Staff with expertise or training in benefit/cost analysis	Yes	City Engineer – when necessary, performs cost-benefit analysis for hazard mitigation requirements.
Professionals trained in conducting damage assessments	Yes	Chief Building Official
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	GIS Specialist
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency manager	Yes	Assists with flood-related traffic control and evacuation planning. Management of City-level HMP updates. Attend advanced floodplain management training.
Grant writer(s)	No	Consider the following: Are data and maps from the HMP used to support documentation in grant applications?
Resilience officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
How do your administrative/technical capabilities contribute to risk reduction in your community? The City of Fulshear has dedicated a large number of resources towards projects that will reduce risk in the event of a disaster. This includes a significant investment in drones, ordinances to influence development, major infrastructure projects, acquiring vehicle assets, and much more. The City is committed to a goal of being proactive and preventative with regard to disaster. Should something unfortunate occur, the City, with its resources, desires to be as well placed as it can to respond effectively. As an organization, the City also requires all staff to take four FEMA classes, with supervisory staff required to take additional classes.		

Fiscal Capability

The table below summarizes financial resources available to the City of Fulshear.

Table 9.5-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	Yes
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Fulshear.

Table 9.5-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	Yes	IT & Police Department provide a communications officer
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	Yes	Municode and Ordinances
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	Yes	Everbridge
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms/programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	Yes	Facebook, Twitter, City Website, Everbridge, Doorknockers,

Community ClassificationsThe table below summarizes classifications for community programs available to the City of Fulshear.Table 9.5-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities Classification	No	-	-
Other	No	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.5-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.5.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Fulshear.

Table 9.5-9. NFIP Summary

Municipality	Policies in Force [a]	Number of Paid Claims [a]	Amount of Paid Claims [a]	Number of NFIP RL Properties [b]	Number of NFIP SRL Properties [b]
Fulshear (C)	1316	39	$1,306,218.55	4	N/A

Sources: *a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)*
b 2018 Fort Bend County HMP
Notes: *Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.*
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Fulshear.

Table 9.5-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	The City of Fulshear has an area in the southern boundary of the City limits referred to as the Lower Bois D'Arc area. The area is characterized as a large acreage estate development with two distinct areas, however. The Penn and Lea Ln areas are 2-5 acre lots with shallow roadside ditches that outfall east to a drainage channel that makes its way to Flewellen and Jones Creeks. The other acreage estate areas border Bois D'Arc Road Redbird Lane and are impacted by their roadside ditch capacities that outfall into a shallow creek/slough that makes its way to Bessie's Creek. The City's Public Works and Building Inspections maintain the listing of properties damaged by flooding.
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	The list of property owners interested in flood mitigation have received assistance from the City to gain mitigation funding.
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	N/A
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	Elevated = 2; Funded thru FEMA
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	Yes
NFIP Compliance	

NFIP Topic	Comments
What local department is responsible for floodplain management?	Public Works
Are any certified floodplain managers on staff in your jurisdiction?	Not currently
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes, City Engineer and Director of Public Works would like to gain certifications as Floodplain Managers.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	Permit review, GIS, education/outreach, inspections
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	N/A
What are the barriers to running an effective NFIP program in the community, if any?	Currently we do not have any.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	N/A
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Yes, the City Engineer performs site plan review. The City's Development Services Department Consolidated Development Ordinance includes height restrictions. The City has a Zoning Board of Adjustments that considers variances.
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Yes, sometime in the future

9.5.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.5-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**

Type of Development	2018		2019		2020		2021		2022	
Single-Family	1201	N/A	1148	N/A	1853	N/A	2378	N/A	2163	N/A
Multi-Family	0	N/A	2	N/A	2	N/A	2	N/A	1	N/A
Other (commercial, mixed-use, etc.)	55	N/A	60	N/A	47	N/A	49	N/A	86	N/A
Total Permits Issued	1256	N/A	1210	N/A	1902	N/A	2429	N/A	2250	N/A

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Note: Information for building permits in the SFHA were unavailable for this planning process.

Table 9.5-12. Recent and Expected Future Development

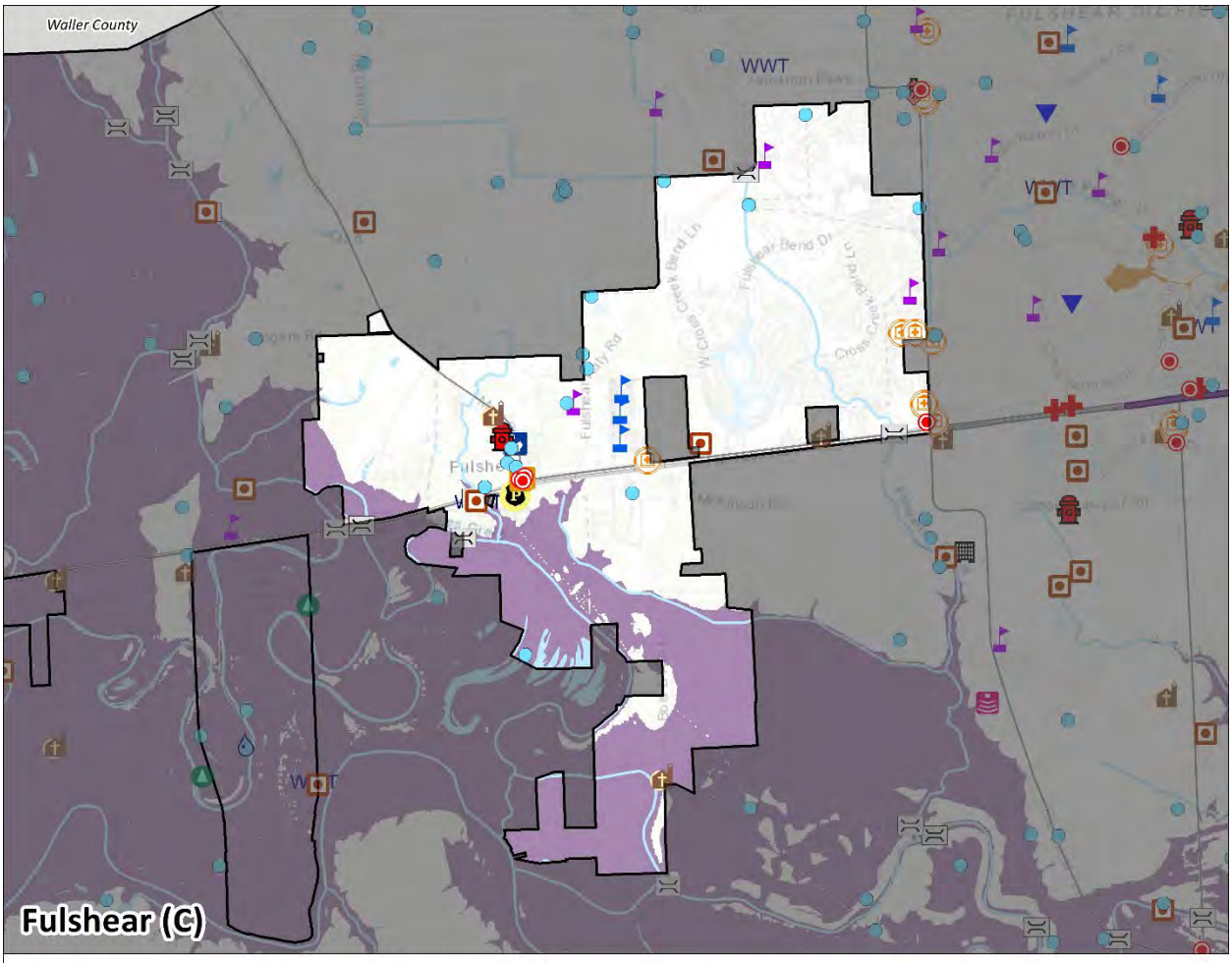
Property or Development Name	Type (e.g., Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
None Identified					
Known or Anticipated Major Development in the Next Five (5) Years					
None Identified					

9.5.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Fulshear's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Fulshear has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.5-1. City of Fulshear Hazard Area Extent and Location Map-Dam Inundation



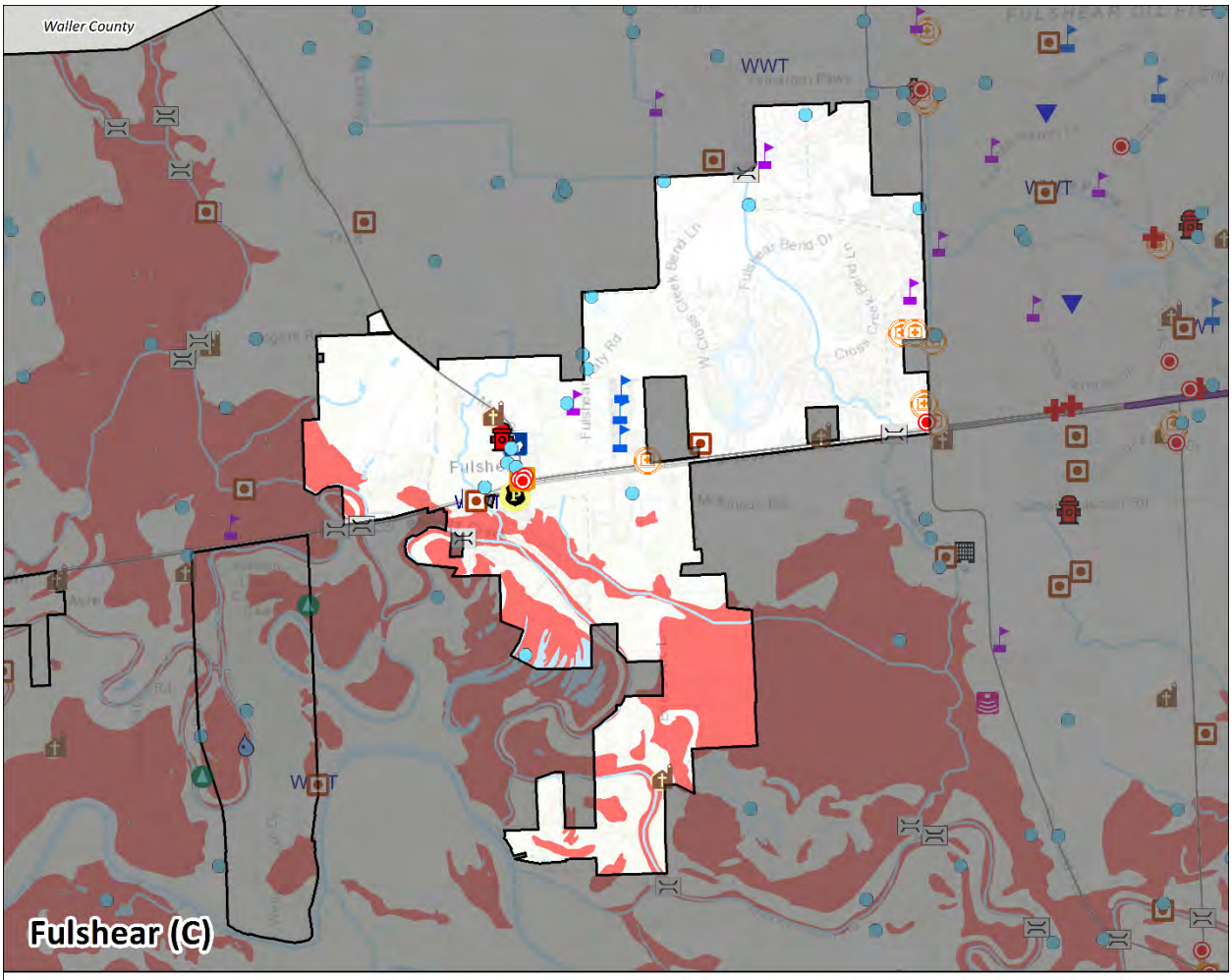
- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody
- Barker Reservoir
- Kitty Hollow Dam
- Lake Sommerville

Miles
0 0.5 1

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Army Corp of Engineers 2023

Notes: City (C), Township (T), Village (V)

Figure 9.5-2. City of Fulshear Hazard Area Extent and Location Map-Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 0.75 1.5

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.5-3. City of Fulshear Hazard Area Extent and Location Map- Flood

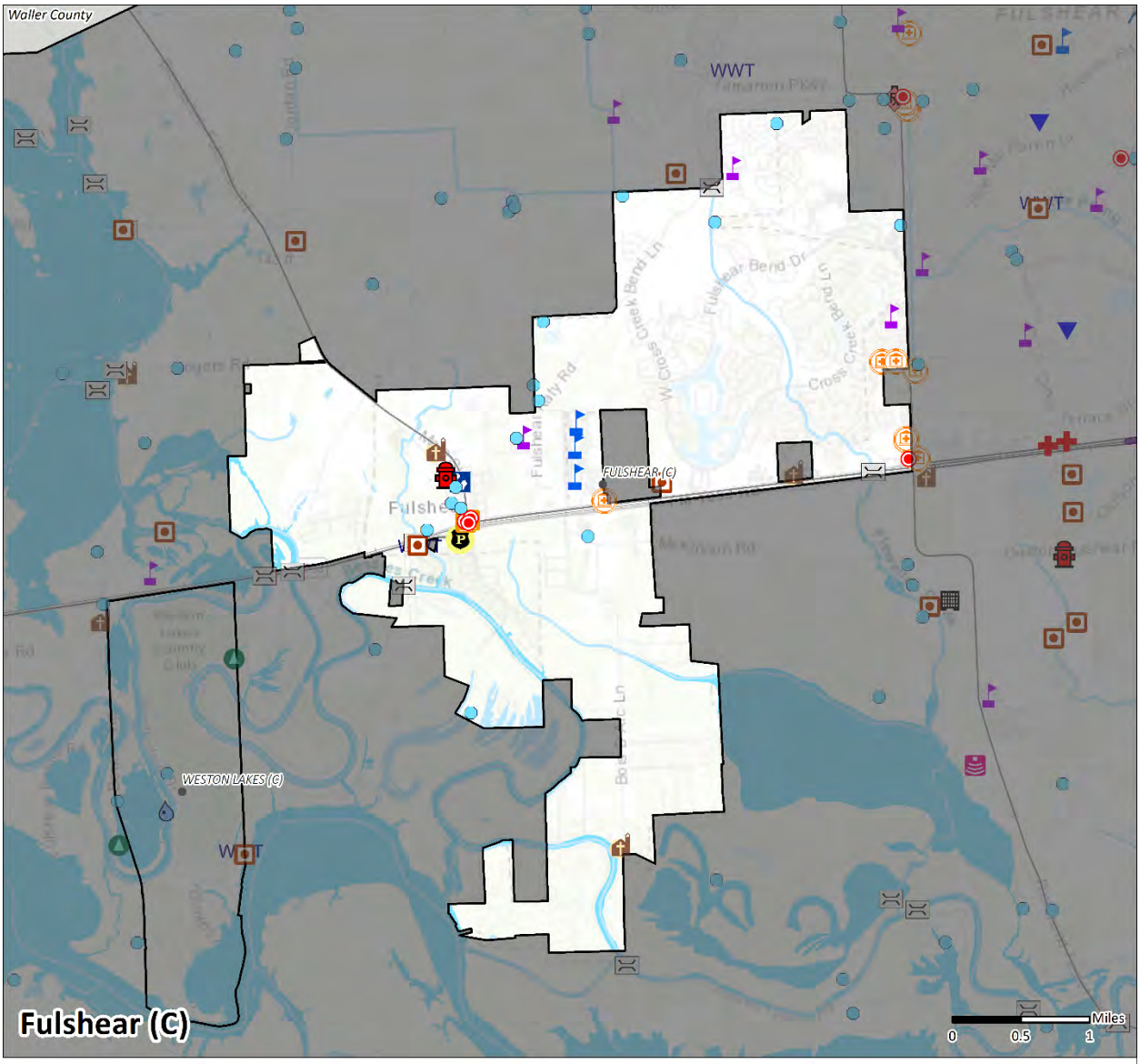
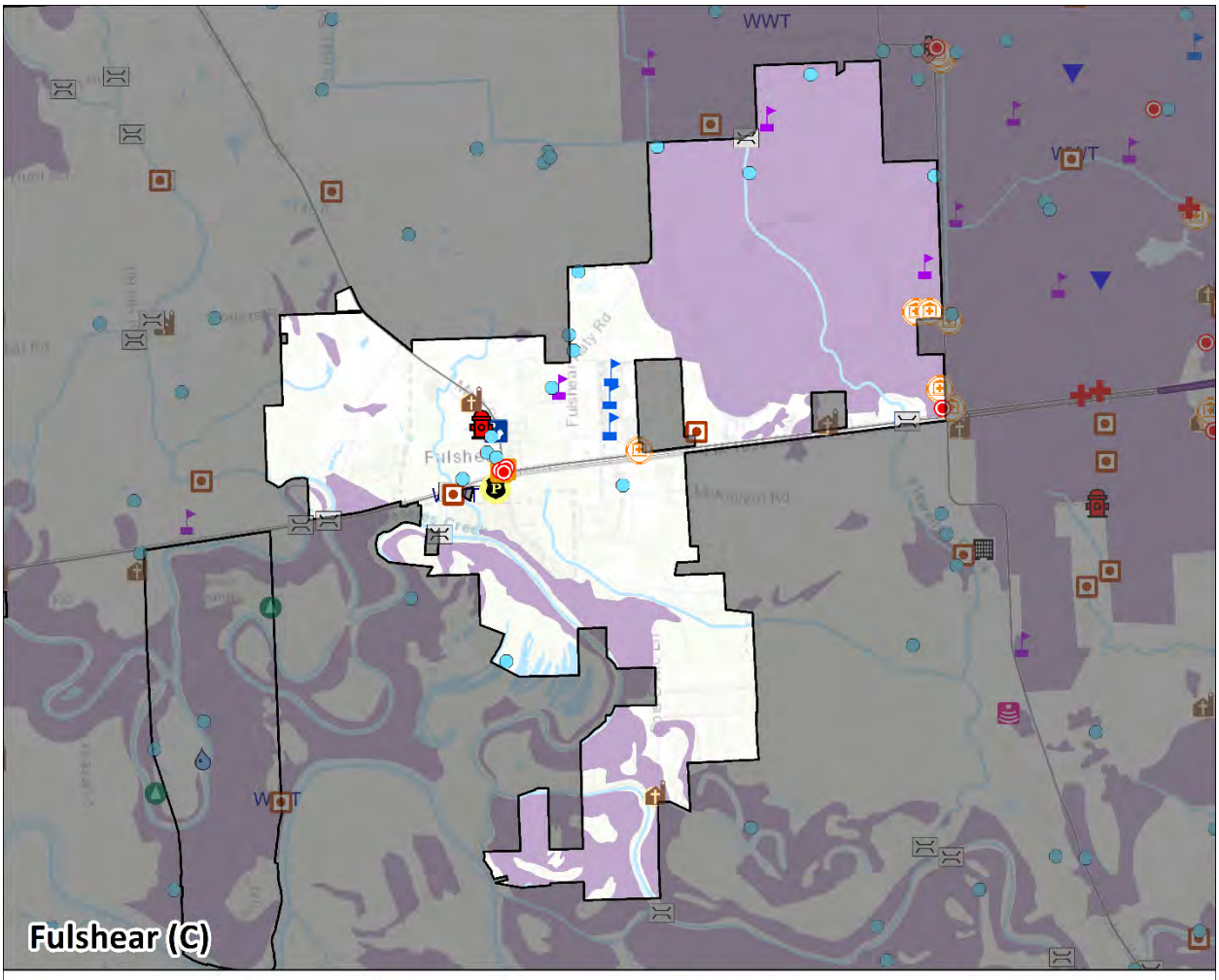


Figure 9.5-4. City of Fulshear Hazard Area Extent and Location Map- Inland Erosion



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWTWastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Inland Erosion Hazard Area

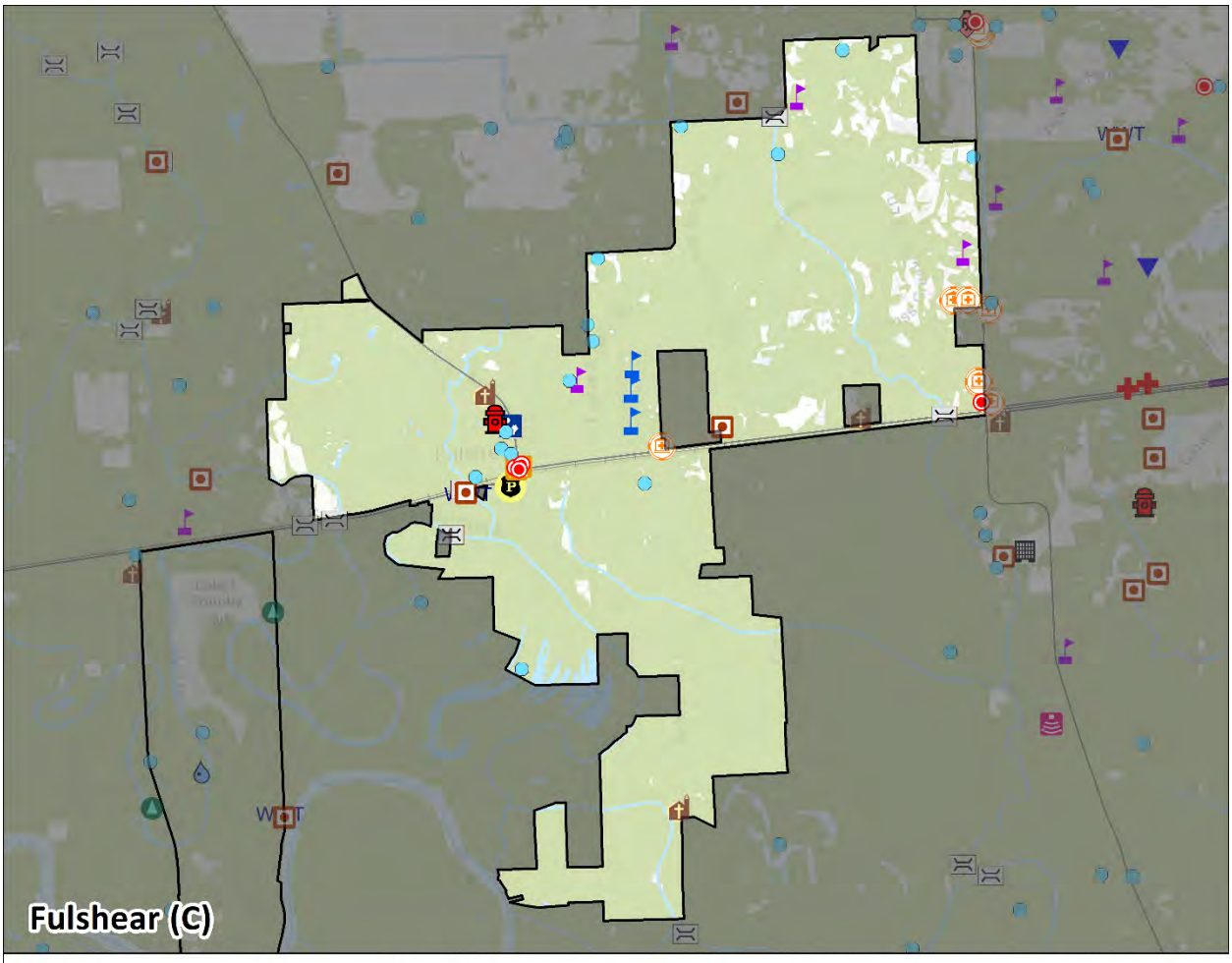
- K-Factor: >=0.49

Miles
0 0.5 1

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.5-5. City of Fulshear Hazard Area Extent and Location Map-Wildfire



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Wildfire Hazard Area

- Low Threat
- Moderate Threat

Miles
0 0.5 1

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022

Notes: City (C), Township (T), Village (V)

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Fulshear's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Fulshear experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.5-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – COVID-19; DR-4485 – COVID-19 Pandemic	Yes	COVID-19 pandemic	Employee manpower shortage and Disinfecting requirements
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in significant number of downed trees and utility lines.	None to report
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County	
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	None to report
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Electrical power loss, Water system boil water and City offices forced to close, temporary

Source: NOAA 2023; FEMA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Fulshear's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community-specific identification of the primary hazard concerns based on identified problems, impacts, and results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard

and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Fulshear. The City of Fulshear reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

Table 9.5-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	**Low**
Disease Outbreak	**Low**
Drought	**Low**
Extreme Temperature	**Low**
Flood	**Low**
Geologic Hazards	**Low**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**Low**
Winter Weather	**Low**

Critical Facilities and Community Lifelines

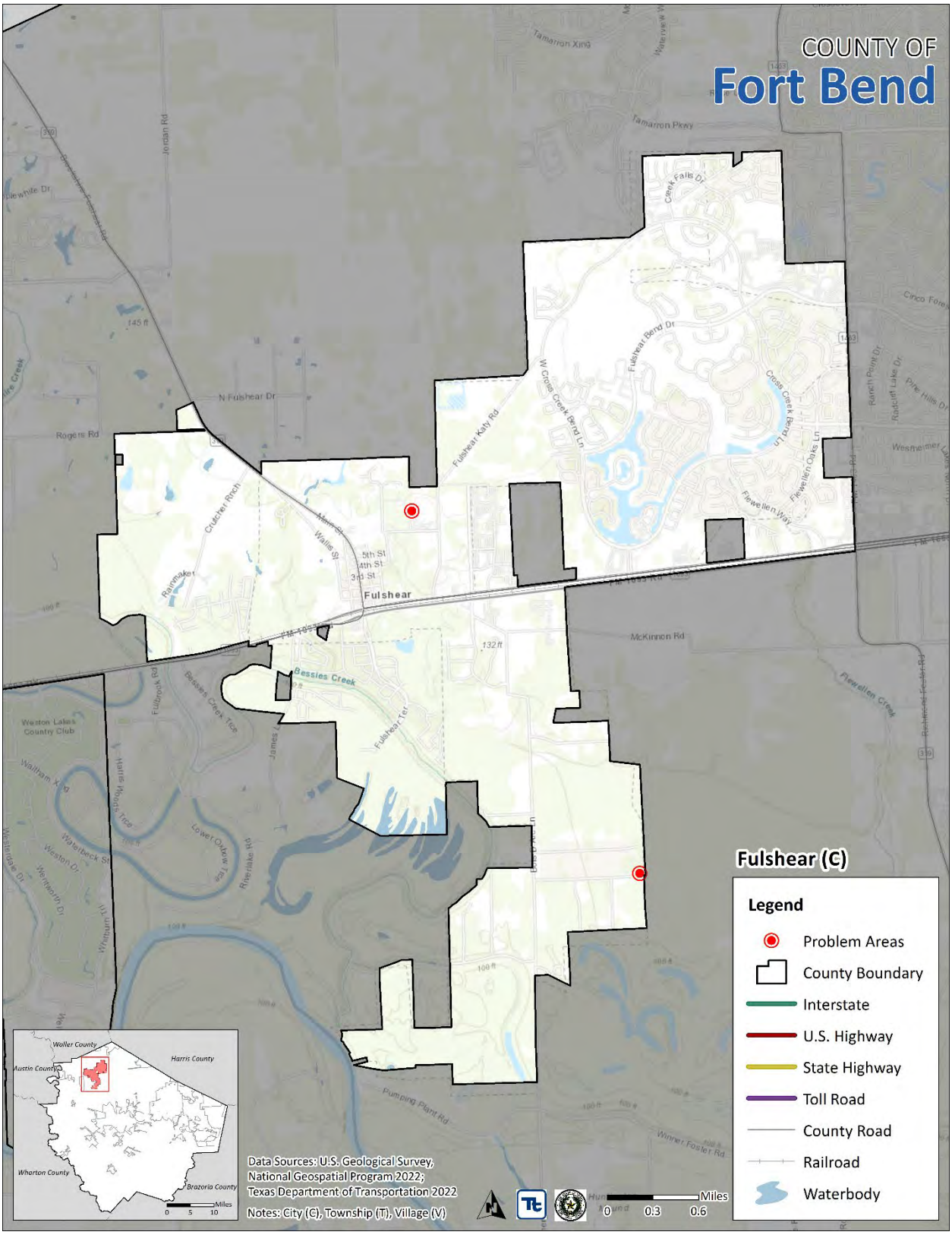
The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.5-15. Number of Critical Facilities and Community Lifelines in Hazard Areas

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Moderate Wildfire Hazard Area		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Barker Reservoir Dam Inundation Area		Lake Sommerville Dam Inundation Area		Kitty Hollow Dam Inundation Area	
	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines
Fulshear (C)	1	1	0	0	13	12	3	3	0	0	5	4	0	0

Source: Source: Fort Bend County 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022; U.S. Army Corp of Engineers 2023

Figure 9.5-6. City of Fulshear Extent and Location Map-Problem Areas



Identified Issues

After review of the City of Fulshear's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Fulshear identified the following vulnerabilities within their community:

- The City struggles to quickly and safely clear roads during the event of a severe winter storm.*
- The City lacks a comprehensive hazard emergency communication system in public buildings.*
- City residents are unaware of certain hazard-related issues that may affect their properties or a neighboring property.*
- The City Water Plant No. 1 (5 Leyendecker Road) experiences issues caused by extreme weather, which causes pipe structures to crack and break, exposing chlorine/chemical feeds. This is a critical facility which affects water supply.*
- The City experiences severe flooding and drainage issues among Lea/Penn Lane/Redbird Rd., which also affects houses and emergency access areas located nearby.*
- The City has four repetitive loss and severe repetitive loss properties. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.5.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this 2023 HMP update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.1-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Feasibility study to minimize increased flooding problems	City of Fulshear City Engineer; performed by Engineering Consultant	Complete, City-funded from CIP, $217,000	No		
Public awareness campaign on mitigation techniques	City of Fulshear EMC	Done on social media and flyers	No		
Evacuation plans	City of Fulshear EMC	Fort Bend County model used	???		
Wildfire hazard areas study	City of Fulshear/Simonton Fire Department	Outside agency, non-City department	???		
Develop drought contingency plan	City of Fulshear Public Works, developed by Engineering Consultant	Complete, funded by Utility Fund; Adopted 2019	No		
Public information plan	City of Fulshear IT/Communications Coordinator	Social Media platform for City website and Police Department website.	No		
Cooling plan	City of Fulshear EMC	No progress	No		
In cooperation with County and State officials, ensure that high-risk populations are adequately addressed in response plans that are related to excessive heat risks. Develop maintenance plan for Enable Fort Bend.	City of Fulshear EMC	Fort Bend County plan used on cooling stations and locations	No		
Pursue a contracted rate to a third party to supplement the City with ice removal services during ice events.	City of Fulshear City Hall	No progress	Yes		
Upgrades for public facilities	City of Fulshear City Hall	New City Hall building and New Police Department building	No	-	-
Structural/engineering study of Fulshear public facilities	City of Fulshear Engineering Consultant	Complete; funded by City of Fulshear General Fund	No	-	-
Emergency communications - weather radio installation at public buildings	City of Fulshear EMC	No progress	Yes		
Homeowner maintenance workshops, including expansive soil mitigation	City of Fulshear EMC	No progress	Yes		

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Fulshear identified the following mitigation efforts completed since the last HMP:

- Lea/Penn Lane Drainage Improvements – Local roadside ditches regraded, and driveway culverts reset; funded by GLO - $415,000; project provided for improved drainage run-off flows; project implemented by the Public Works Department under the oversight of the City Engineer.
- North/South Drainage Channel Maintenance – Lower Bois D'Arc area receiving channel improvements from Penn and Lea Lane Channel flow line reset, cleaned out and rip rap reinforced banks installed in a 90-degree bend in channel. Funded by CIP = $127,000.
- East Side Drainage Project – The portion of the Fulshear Lake tributary from Huggins Road south to FM 1093 will be improved by widening and straightening the tributary, creating a maintenance berm. The tributary will be improved to the 100-year storm capacity. In conjunction with the Downtown East Side Storm Sewer Project (see #4). This project will add capacity to the City's downtown area east of FM 359. Funded by CIP = $1,300,000 (design and construction).
- Downtown East Side Storm Sewer Project – This project will establish a new storm sewer system east of FM 359 in Downtown Fulshear. A large drainage trunkline will be created and will flow to Fulshear Lakes Tributary (project #3). This trunkline will replace an existing line that is located under private property and will have increased capacity to assist in draining the east portion of Downtown Fulshear. Funded by CIP = $1,900,000.
- Downtown West Side Storm Sewer Project – This project will create a new drainage outfall on the west side of Downtown Fulshear, allowing current drainage to be redirected to Tributary #2 on the west side of Downtown. This project will ease drainage and detention issues for Downtown Fulshear west of FM 359. Funded by CIP = $820,000 (design and construction).

Since the adoption of the County's first HMP, the City of Fulshear has made significant mitigation progress in the following areas:

- None identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Table 9.5-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	-	-	-	X	-	-	X	-	-	X
Disease Outbreak	-	-	-	X	-	-	X	-	-	X
Drought	-	-	-	X	-	-	X	-	-	X
Extreme Temperature	-	X	-	X	-	X	X	-	X	X

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Flood	-	X	-	X	-	X	X	-	X	X
Geologic Hazards	-	-	-	X	-	-	X	-	-	X
Hurricane/Tropical Storm	-	X	-	X	-	-	X	-	X	X
Severe Weather	-	X	-	X	-	X	X	-	X	X
Tornado	-	-	-	X	-	-	X	-	-	X
Wildfire	-	-	-	X	-	-	X	-	-	X
Winter Weather	X	X	-	X	X	X	X	-	X	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Fulshear would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.5-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Fulshear-001	Ice Removal Services	**Problem:** The City struggles to quickly and safely clear roads during the event of a severe winter storm. **Solution:** The City will pursue a contracted rate to a third party to supplement the City with ice removal services during ice events.	New and Existing	Winter Weather	2,5	2 Years	City Administration	City	The City will have roads cleared in a timely fashion, which will prevent some car accidents from occurring.	Medium	High	LPR	PR
2023-City of Fulshear-002	Weather Radio Installation	**Problem:** The City lacks a comprehensive hazard emergency communication system in public buildings. **Solution:** The City will implement a weather radio installation at public buildings to be able to notify people of potential hazards.	New and Existing	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1, 2	3 Years	City Administration	FEMA, BRIC, HMGP, FMA, City	The City will have a more extensive emergency communication system to protect the residents.		High	EAP	ES
High2023-City of Fulshear-003	Mitigation Education	**Problem:** City residents are unaware of certain hazard-related issues that may affect their properties or a neighboring property. **Solution:** The City will provide a class/seminar for home/business owners that provides them with Do-It-Yourself options for performing mitigation for the identified hazards of concern in their own homes and properties.	New and Existing	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1	1 Year	City	City	City residents will be more knowledgeable about hazards that affect their properties.	Low	High	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Fulshear-004	Water Plant No. 1 Pipe Study	**Problem:** The City Water Plant No. 1 (5 Leyendecker Road) experiences issues caused by extreme weather t causes pipe structures to crack and break exposing chlorine/chemical feeds. This is a critical facility which affects water supply. **Solution:** The City will facilitate a study on the pipe structures and replace them with pipes and infrastructure that is able to withstand the extreme weather temperatures experienced by the Water Plant.	Existing	Extreme Temperatures, Winter Weather	2	1 Year	City Engineer	BRIC, FMA, HMGP, City	The Water Plant will no longer experience cracked pipe structures that expose chemical feeds.	Medium	High	SIP	SP, PP
2023-City of Fulshear-005	Flood Study	**Problem:** The City experiences severe flooding and drainage issues among Lea/Penn Lane/Redbird Rd which also affects houses and emergency access areas located nearby. **Solution:** The City will conduct a flood study and implement a stormwater system that limits flooding in the area.	New and Existing	Flood, Severe Weather, Winter Weather	2	2 Years	City Engineer	BRIC, FMA, HMGP, City	The City will have less flooding incidents along Lea, Penn Lane and Redbird road which will help limit flooding to the houses and emergency access areas located nearby.		High	SIP	PP
2023-City of Fulshear-006	Repetitive Loss Mitigation	**Problem:** The City has four repetitive loss and severe repetitive loss properties. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage. **Solution:** The City will conduct outreach to the RL/SRL property	Existing	Flood, Hurricane/Tropical Storm, Severe Weather, Winter Weather	2	Less than 5 Years	NFIP Floodplain Administrator, supported by homeowners	HMGP, FMA, BRIC, local cost share by residents	Eliminates flood damage to homes and residents.	>$500,000	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the flood-prone areas that experience frequent flooding (high-risk areas).											

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS	*Community Rating System*
FEMA	*Federal Emergency Management Agency*
HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*
NFIP	*National Flood Insurance Program*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
BRIC	*Building Resilient Infrastructure and Communities Program*

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.5-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Fulshear-001	Ice Removal Services	1	0	1	1	1	1	1	1	1	1	0	1	1	0	11	High
2023-City of Fulshear-002	Weather Radio Installation	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-City of Fulshear-003	Mitigation Education	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Fulshear-004	Water Plant No. 1 Pipe Study	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-City of Fulshear-005	Flood Study	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Fulshear-006	Repetitive Loss Mitigation	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.6 City of Kendleton

This section presents the jurisdictional annex for the City of Kendleton that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Kendleton representatives who participated in the planning process, an assessment of the City of Kendleton's risk and vulnerability, the different capabilities used in the City of Kendleton, and an action plan that will be implemented to achieve a more resilient community.

9.6.1 Hazard Mitigation Planning Team

The City of Kendleton identified the primary and alternate points of contact and developed the 2023 Hazard Mitigation Plan (HMP) over the course of several months with input from many City of Kendleton departments. The city secretary represented the community on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials who participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.1-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Christina Flores/City Secretary	Name/Title:	N/A
Address:	430 FM2919, Kendleton, TX 77451	Address:	N/A
Phone Number:	713-476-1526	Phone Number:	N/A
Email:	Christina.flores@kendletontx.net	Email:	N/A
NFIP Floodplain Administrator			
Name/Title:	Sean Eglinton/Assistant County Engineer		
Address:	430 FM2919, Kendleton, TX 77451		
Phone Number:	281-633-7513		
Email:	sean.eglinton@fortbendcountytx.gov		
Additional Contributors:			
Name/Title: Method of Participation:	Christina Flores/City Secretary Provided key input in the planning process		

**Information collected from https://www.texasflood.org/flood-basics/fpa.html*

9.6.2 Municipal Profile

The City of Kendleton is in western Fort Bend County, and its western boundary is the San Bernard River. Located 51 miles southwest of Houston, the City of Kendleton is known for its beautiful parks, farmland, museums, and the San Bernard River. The City also has a total area of 1.10 square miles, of which 0.004 square miles is water.

According to the American Community Survey, the 2021 population for the City of Kendleton was 341. Data from the 2020 U.S. Census indicate that 1.8 percent of the population is 5 years of age or younger, and 25.2 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.6.3 Jurisdictional Capability Assessment and Integration

The City of Kendleton performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Kendleton to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Kendleton. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.1-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code	Local	Code Enforcement
How does this reduce risk? The City of Kendleton adopted the International Building Code and Fire Code, which have a set of standards and regulations that enforce hazard mitigation.				
Zoning/Land Use Code	Yes	Zoning	Local	Planning and Zoning Commission
How does this reduce risk? State-level code authorizes the City to regulate zoning through review of the HMP to ensure consistent and compatible land use prior to zoning changes. The ordinance requires developers to take additional actions to mitigate natural hazard risks.				
Subdivision Ordinance	Yes	Bernard River Park Subdivision Association No. 205151, adopted 3/6/1972	Local	City of Kendleton

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk? It is poorly written, and no board has been elected in over 10 years *Consider the following:* • Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? No • Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? No • Do the regulations allow density transfers where hazard areas exist? No				
Site Plan Ordinance	No	-	-	-
How does this reduce risk?				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Flood Damage Prevention Ordinance	Local	Floodplain Administrator
How does this reduce risk? Dictates the minimum flood standards adopted by the City to meet the federal standards of the NFIP.				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	No	-	-	-
How does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Planning Documents				
Comprehensive/Master Plan	Yes	Comprehensive Plan	Local	Planning Commission
How does this reduce risk? State-level code that authorizes the City to adopt a comprehensive plan for the long-range development of the City.				
Capital Improvement Plan	No	-	-	-
How does this reduce risk?				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	No	-	-	-

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How does this reduce risk?				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	Yes	20-Year Growth Plan	Local	Kendleton City Council
How does this reduce risk? The 20-Year Growth Plan includes the City Transportation Plan. The Transportation Plan focuses on assessing the City's existing transportation systems and provides recommendations for future improvements.				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	Yes	20-Year Growth Plan	Local	Kendleton City Council
Response/Recovery Planning				
Comprehensive Emergency Management Plan	No	-	-	-
How does this reduce risk?				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the City. FBHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk? FBHHS has plans in place to prevent public health issues through regular inspections of regulated facilities as well as prepare for and respond to public health emergencies.				
Other	-	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Kendleton to oversee and track development.

Table 9.1-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	After completing any of the residential & commercial permit application(s), they must be submitted either in person at City Hall (430 FM 2919) or via email to info@kendletontx.net.
If you do not issue development permits, what is your process for tracking new development?	N/A	
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Floodplain permits are tracked.
Do you have a buildable land inventory? • If yes, please describe	N/A	
Describe the level of build-out in your jurisdiction.	N/A	

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Kendleton and their current responsibilities that contribute to hazard mitigation.

Table 9.1-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	Mayor & council
Zoning Board of Adjustment	Yes	Mayor & Council
Planning Department	Yes	Mayor & City Hall Staff
Mitigation Planning Committee	Yes	Mayor & City Hall Staff
Environmental Board/Commission	No	Fort Bend County
Open Space Board/Committee	Yes	Mayor & Council
Economic Development Commission/Committee	Yes	An elected board to help with decision making regarding the City's growth and development.
Public Works/Highway Department	Yes	The Public Works Department is responsible for residential water and sewer services, commercial water and sewer services, and trash services.
Construction/Building/Code Enforcement Department	Yes	City Hall staff processes permits to contracted City Inspector.
Emergency Management/Public Safety Department	Yes	The Emergency Management Coordinator is an elected official and is responsible for City-level HMP updates.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	No	-
Human Resources Manual		
Other	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	No	-
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency manager	Yes	See Emergency Management/Public Safety above
Grant writer(s)	No	-
Resilience officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	-	-

Fiscal Capability

The table below summarizes financial resources available to the City of Kendleton.

Table 9.1-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	No
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Kendleton.

Table 9.1-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the City of Kendleton.

Table 9.1-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-

Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other			

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.1-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Weak
Disease Outbreak	Strong
Drought	Weak
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Weak
Severe Weather	Weak
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Weak

9.6.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Kendleton.

Table 9.1-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Kendleton (C)	12	4	$61,312.99	0	0

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP

Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.
**Number of RL and SRL properties provided by the State of Texas*

***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Kendleton.

Table 9.1-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	San Bernard River Park Subdivision (Willie Melton Blvd.), 1st Street, 2nd Street, 3rd Street, Lawson Street, Crawford Street, Lum Road flood quickly.
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	A list is not maintained but can be easily created. There are some homes that have suffered flood damage that have not been repaired, and the homeowners still reside in them.
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	One home to our knowledge has substantial damage; we are unsure of how many homes were declared in our jurisdiction.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	Unsure
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	No. Flood hazard maps only show the creek and the river areas that may or may not be a threat in 50-100 years. They do not reflect the smaller road floods that happen with heavy rainfall.
NFIP Compliance	
What local department is responsible for floodplain management?	Floodplain Administrator
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	Unsure, County may have access.
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes, we would need full support in establishing, educating, and initiating the program.
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Permit Reviews, Inspections (Builders, elevation, electrical, plumbing, HVAC, culvert), we provide educational material through social media, website, and inserts in the utility bills.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	It would be brought to the Mayor and City Inspector's attention, then placed on the workshop agenda for City Council to discuss and determine qualifications.

NFIP Topic	Comments
What are the barriers to running an effective NFIP program in the community, if any?	Not sufficient staff or knowledge
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Shortly after Hurricane Harvey
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	The City does not have one
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans, or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	N/A
Does your community plan to join the CRS program, or is your community interested in improving your CRS classification?	No interest has been expressed, but educating the community is a high interest.

9.6.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.1-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single-Family	N/A	N/A	N/A	N/A	11	0	9	0	13	0
Multi-Family	N/A	N/A	N/A	N/A	0	0	2	0	1	0
Other (commercial, mixed-use, etc.)	N/A	N/A	N/A	N/A	0	0	2	0	0	0
Total Permits Issued	N/A	N/A	N/A	N/A	11	0	13	0	14	0

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Note: Information for building permits from 2018 and 2019 were unavailable for this planning process.

Table 9.1-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
None Identified					
Known or Anticipated Major Development in the Next Five (5) Years					
None Identified					

9.6.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Kendleton's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Kendleton has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.1-1. City of Kendleton Hazard Area Extent and Location Map-Dam Inundation



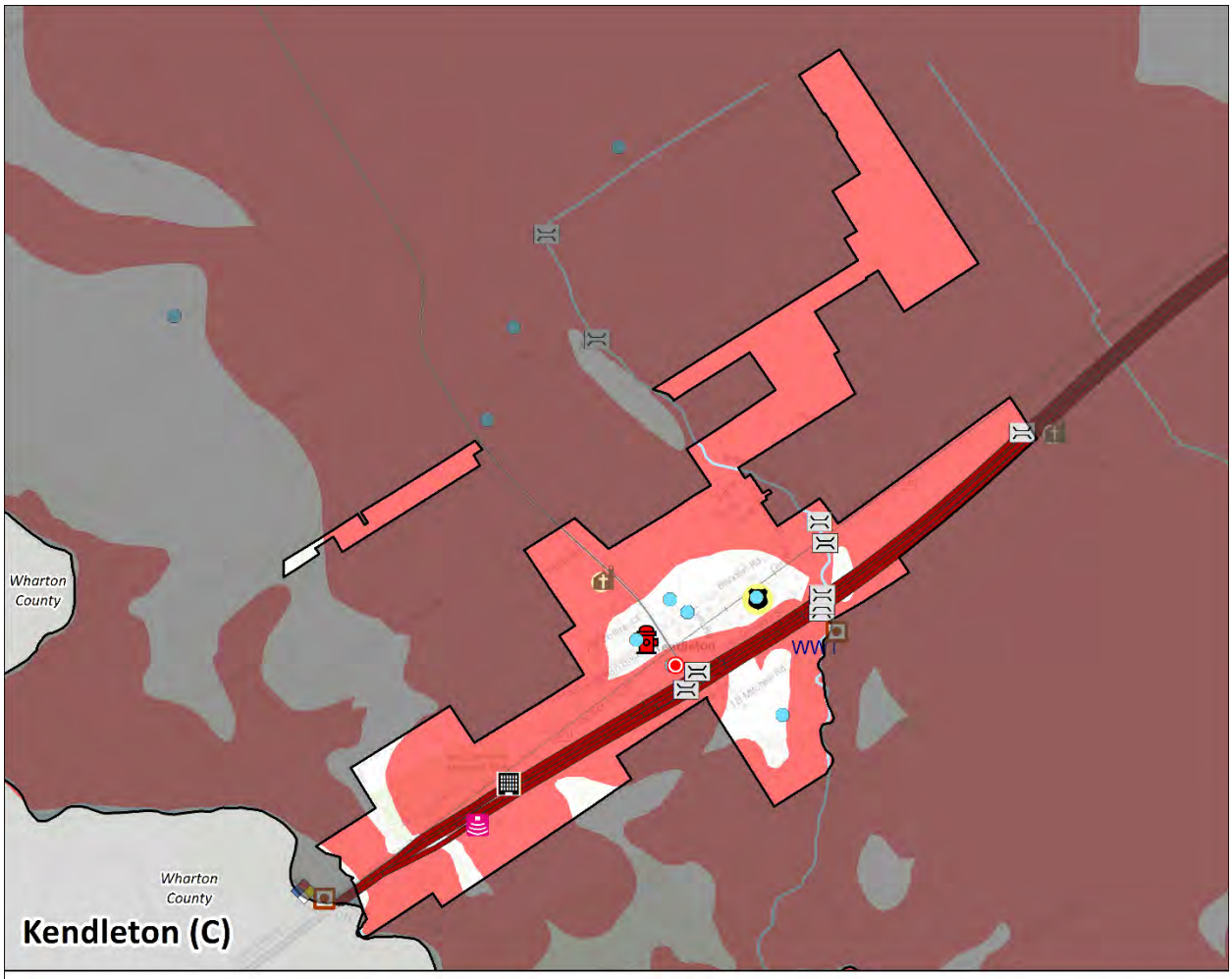
- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody
- Barker Reservoir
- Kitty Hollow Dam
- Lake Sommerville

Miles
0 0.275 0.55

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Army Corp of Engineers 2023

Notes: City (C), Township (T), Village (V)

Figure 9.1-2. City of Kendleton Hazard Area Extent and Location Map - Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 0.25 0.5

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.1-3. City of Kendleton Hazard Area Extent and Location Map-Flood

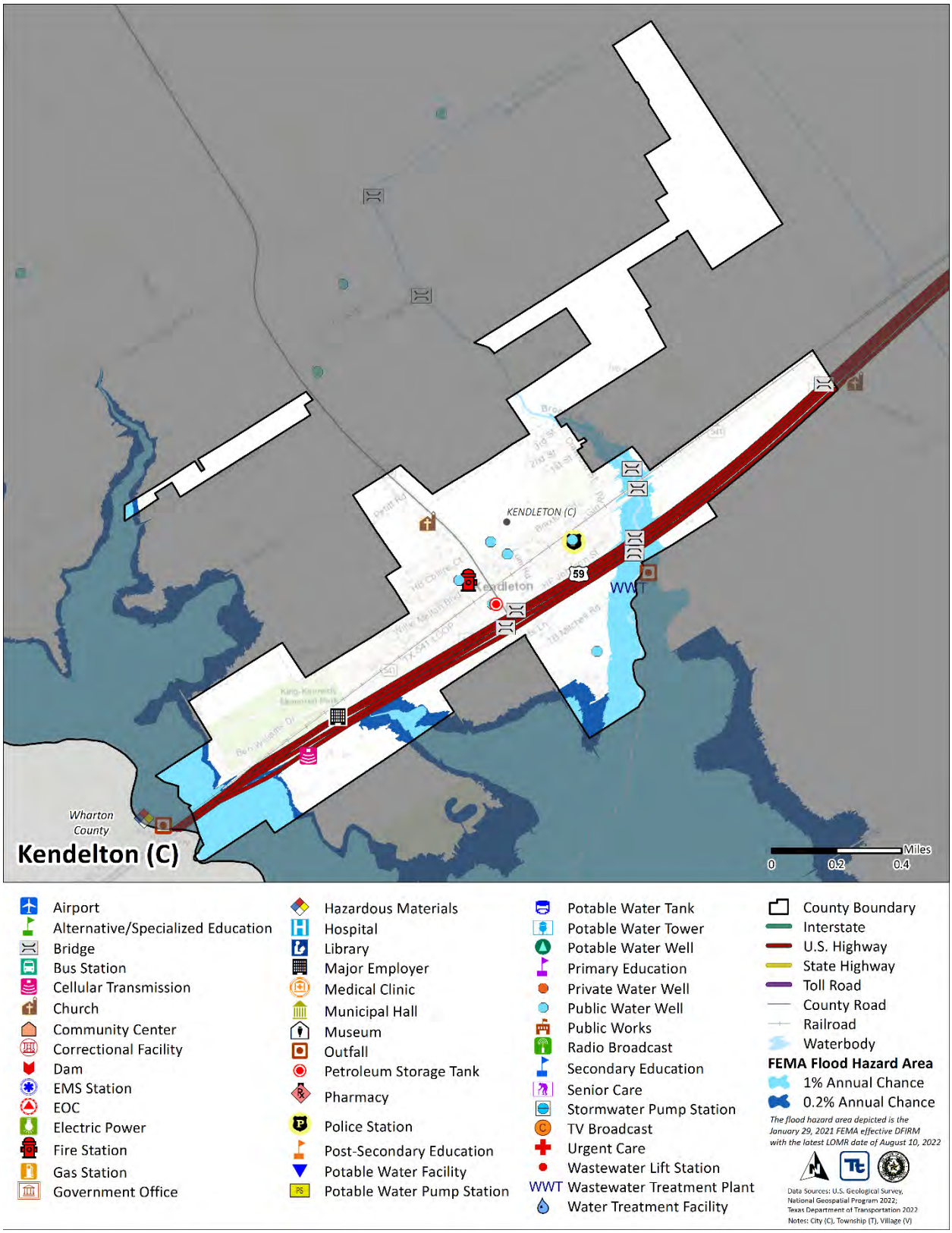


Figure 9.1-4. City of Kendleton Hazard Area Extent and Location Map-Inland Erosion

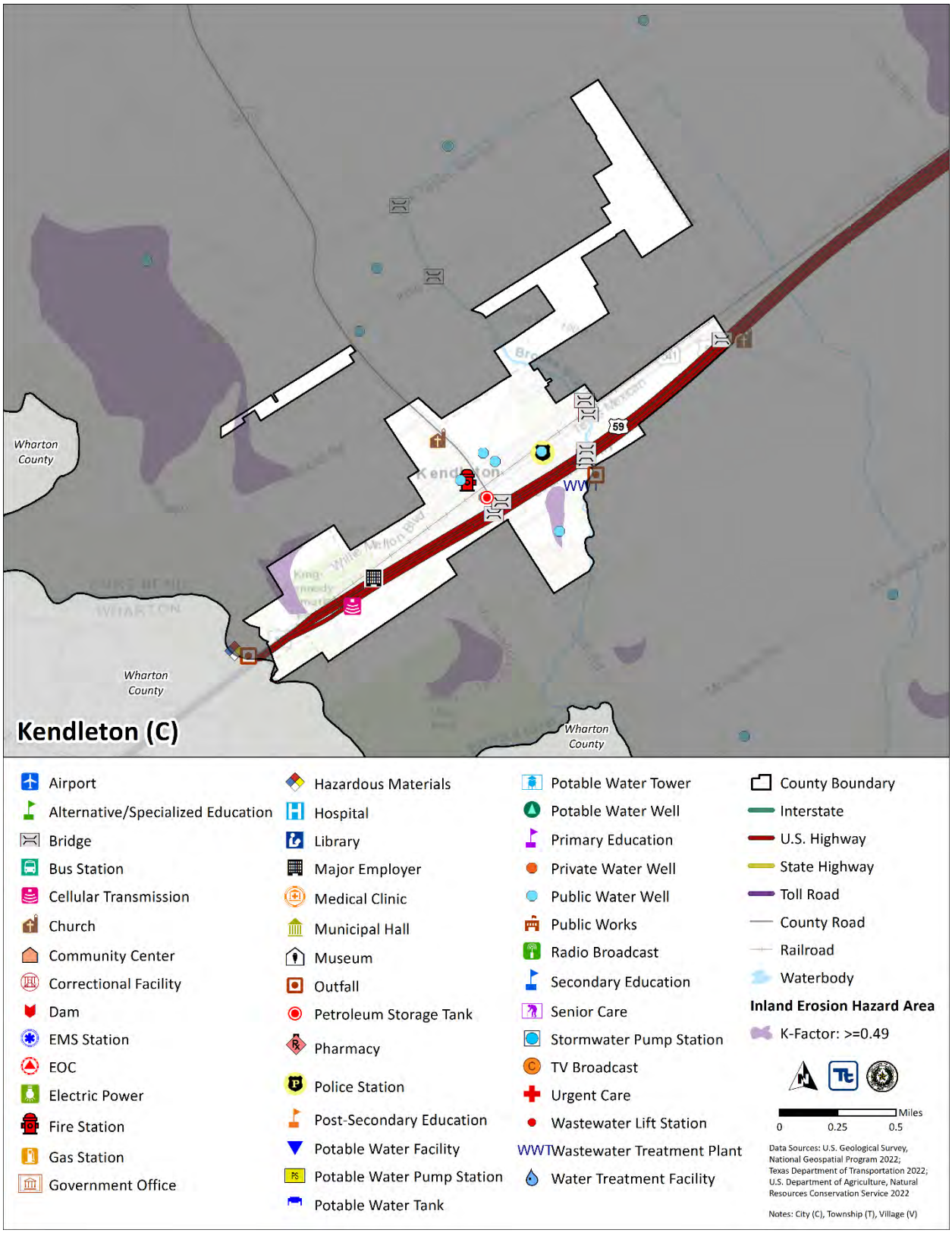


Figure 9.1-5. City of Kendleton Hazard Area Extent and Location Map-Wildfire



Airport
Alternative/Specialized Education
Bridge
Bus Station
Cellular Transmission
Church
Community Center
Correctional Facility
Dam
EMS Station
EOC
Electric Power
Fire Station
Gas Station
Government Office
Hazardous Materials
Hospital
Library
Major Employer
Medical Clinic
Municipal Hall
Museum
Outfall
Petroleum Storage Tank
Pharmacy
Police Station
Post-Secondary Education
Potable Water Facility
Potable Water Pump Station
Potable Water Tank
Potable Water Tower
Potable Water Well
Primary Education
Private Water Well
Public Water Well
Public Works
Radio Broadcast
Secondary Education
Senior Care
Stormwater Pump Station
TV Broadcast
Urgent Care
Wastewater Lift Station
WWTWastewater Treatment Plant
Water Treatment Facility
County Boundary
Interstate
U.S. Highway
State Highway
Toll Road
County Road
Railroad
Waterbody
Wildfire Hazard Area
Low Threat
Moderate Threat
Miles
0 0.25 0.5
Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022
Notes: City (C), Township (T), Village (V)

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Kendleton's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Kendleton experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.1-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – COVID-19; DR-4485 – COVID-19 Pandemic	Yes	COVID-19 pandemic	Loss of City staff, loss of income for most staff, multiple City Hall shut-downs due to illness.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in significant number of downed trees and utility lines.	No damages reported at the City level.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County.	No damages reported at the City level.
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	No damages reported at the City level.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Water Plant, Water Tower, main water lines damaged, loss of water and electricity for more than 4 days.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Kendleton's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community-specific identification of the primary hazard concerns based on identified problems, impacts, and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Kendleton. The City of Kendleton reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

The City of Kendleton agreed with all calculated risk rankings.

Table 9.1-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	Medium
Disease Outbreak	Low
Drought	Medium
Extreme Temperature	Medium
Flood	Low
Geologic Hazards	High
Hurricane/Tropical Storm	Medium
Severe Weather	High
Tornado	Medium
Wildfire	Low
Winter Weather	Low

Critical Facilities

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.1-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area	
	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines
Kendleton (C)	6	6	0	0	1	1	14	12	0	0	0	0	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the City of Kendleton's hazard event history, hazard rankings, jurisdiction-specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Kendleton identified the following vulnerabilities within their community:

- There are issues with flooding near parts of the Brazos River that are affecting nearby properties and roads.*
- Harlem/90 area. Most of that area appears to be floodplain, and development seems to be happening without regard to surrounding areas. This seems like it will put stress on existing upstream drainage that is not designed for such a significant change.
- The City's Subdivision Ordinance is outdated and does not provide any input on hazard mitigation information. No board has been elected in ten years in order to update the ordinance.
- The City does not have a hazard warning system in place that helps protect and warn residents against incoming hazard events.
- The City does not maintain a list of property owners that are interested in flood mitigation.
- The following critical facilities are located in the special flood hazard area:
    - City of Kendleton WWTP
    - Brooks Branch

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.6.7 Mitigation Strategy and Prioritization

This section discusses past mitigation actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this 2023 HMP update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.1-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Feasibility Study	City of Kendleton FBC Road and Bridge FBC Engineering	Choose an item.	Choose an item.	-	-
Crawford Outlet Right-of-Way	City of Kendleton FBC Road and Bridge FBC Engineering	Choose an item.	Choose an item.	-	-
Culvert Installation	City of Kendleton FBC Road and Bridge FBC Engineering	Choose an item.	Choose an item.	-	-
Reinforcement of Critical Facilities	City of Kendleton City Hall	Choose an item.	Choose an item.	-	-
Promote Flood Insurance	City of Kendleton City Hall	Choose an item.	Choose an item.	-	-
Increase Public Awareness of Hazard Mitigation	City of Kendleton City Hall	Choose an item.	Choose an item.	-	-
Evacuation	City of Kendleton Fire Dept.	Choose an item.	Choose an item.	-	-
Wildfire Hazard Areas	City of Kendleton Fire Dept.	Choose an item.	Choose an item.	-	-
Develop a Drought Contingency Plan	City of Kendleton City Hall	Choose an item.	Choose an item.	-	-
Public Information Campaigns	City of Kendleton City Hall	Choose an item.	Choose an item.	-	-
Evaluate Excess Heat Risks	City of Kendleton Fire Dept	Choose an item.	Choose an item.	-	-

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)? Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Address High Risk Populations (Excessive Heat)	City of Kendleton Fire Dept	Choose an item.	Choose an item.	-	-
Review Plans and Resources to Address Risk Posed by Snow and Ice Hazards During Winter Storms	City of Kendleton Fire Dept	Choose an item.	Choose an item.	-	-
Various Mitigation Actions to Reduce Wildfire Risk	City of Kendleton Fire Dept.	Choose an item.	Choose an item.	-	-
Upgrades to At-Risk Structures	City of Kendleton City Hall	Choose an item.	Choose an item.	-	-
Structural/Engineering Study	City of Kendleton City Hall	Choose an item.	Choose an item.	-	-
Household Mitigation Class for Homeowners	City of Kendleton City Hall	Choose an item.	Choose an item.	-	-

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Kendleton identified the following mitigation efforts completed since the last HMP:

- None identified

Since the adoption of the County's first HMP, the City of Kendleton has made significant mitigation progress in the following areas:

- None identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Table 9.1-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	-	-	X	X	-	-	-	-	X
Disease Outbreak	X	-	-	X	X	-	-	-	-	X
Drought	X	-	-	X	X	-	-	-	-	X
Extreme Temperature	X	-	-	X	X	-	-	-	-	X
Flood	X	X	-	X	X	X	-	-	X	X
Geologic Hazards	X	-	-	X	X	-	-	-	-	X
Hurricane/Tropical Storm	X	-	-	X	X	-	-	-	-	X
Severe Weather	X	-	-	X	X	X	-	-	-	X
Tornado	X	-	-	X	X	-	-	-	-	X
Wildfire	X	-	-	X	X	-	-	-	-	X
Winter Weather	X	-	-	X	X	X	-	-	-	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Kendleton would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.1-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Kendleton-001	Brazos River Levees	**Problem:** There are issues with flooding near parts of the Brazos River that are affecting nearby properties and roads. **Solution:** The levees near the Brazos River need to be maintained and evaluated by an engineer to see what mitigation initiative would be the most effective and cost-efficient to limit flooding.	Flood	2, 3	3 Years	City Engineer	BRIC, HMGP, FMA, City	The Brazos River will not flood as much, and the properties nearby will not be flooded as often.	Engineer Study: $2,000	High	SIP	SP
2023-City of Kendleton-002		**Problem:** Harlem/90 area. Most of that area appears to be floodplain and development seems to be happening without regard to surrounding areas. This seems like it will put stress on existing upstream drainage that is not designed for such a significant change. **Solution:**		2								
2023-City of Kendleton-003	Update Subdivision Ordinance	**Problem:** The City's Subdivision Ordinance is outdated and does not provide any input on	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature,	4	1 Year	City Administration	City Budget	The City will operate under an	$2,000	High	LPR	PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		hazard mitigation information. No board has been elected in ten years in order to update the ordinance. **Solution:** The City will create a board to update the Subdivision Ordinance and will integrate the hazard mitigation plan.	Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather					updated subdivision ordinance.				
2023-City of Kendleton-004	Warning systems for hazard events	**Problem:** The City does not have a hazard warning system in place that helps protect and warn residents against incoming hazard events. **Solution:** The City will work to acquire necessary funding to install a hazard warning system that operates using outdoor sirens and notifications on cell phones to protect their residents.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	Less than 5 years	City Administration	BRIC, HMGP, FMA	Residents will have increased warning time before a hazard event affects the City.	$50,000	High	EAP	ES
2023-City of Kendleton-005	Create a list of property owners interested in flood mitigation	**Problem:** The City does not maintain a list of property owners that are interested in flood mitigation. **Solution:** The City will conduct outreach to property owners that have properties located in the floodplain and create a list of	Flood, Severe Weather, Winter Weather	1, 2	1 Year	City Administration	City Budget	The City will be able to help property owners mitigate the risk of flood.	$500	High	EAP	PP, PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		individuals interested in flood mitigation.										
2023-City of Kendleton-006	Critical Facilities Flood Protection	**Problem**: The following critical facilities are located in the special flood hazard area: • City of Kendleton WWTP • Brooks Branch **Solution:** The City will work with critical facility owners to determine what additional floodproofing measures are needed at these facilities. Options include: • Elevation of facility • Floodproofing of facility • Mobile flood barriers Once the most cost-effective option is identified, the City will help the critical facility owners carry out the option.	Flood	2	Less than 5 years	City Engineer	HMGP and PDM, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, City Budget	Ensures that facilities can carry out continuity of operations.	TBD by feasibility assessment	High	SIP	SP

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS Community Rating System
FEMA Federal Emergency Management Agency

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

HMA Hazard Mitigation Assistance
N/A Not applicable
NFIP National Flood Insurance Program
BRIC Building Resilient Infrastructure and Communities Program

Benefits:
A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies, or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.1-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Kendleton-001	Brazos River Levees	1	1	1	1	1	1	0	1	1	1	0	1	1	0	11	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Kendleton-002																	
2023-City of Kendleton-003	Update Subdivision Ordinance	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Kendleton-004	Warning systems for Hazard Events	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Kendleton-005	Create a list of property owners interested in flood mitigation	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Kendleton-006	Critical Facilities Flood Protection	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.7 City of Meadows Place

This section presents the jurisdictional annex for the City of Meadows Place that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Meadows Place representatives who participated in the planning process, an assessment of the City of Meadows Place's risk and vulnerability, the different capabilities used in the City of Meadows Place, and an action plan that will be implemented to achieve a more resilient community.

9.7.1 Hazard Mitigation Planning Team

The City of Meadows Place identified primary and alternate points of contact and developed this 2023 Hazard Mitigation Plan (HMP) over the course of several months with input from many City of Meadows Place departments, including the Assistant Chief of Police. The Chief of Police represented the community on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials who participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.7-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Gary Stewart Chief of Police	Name/Title:	Jack Ashton Assistant Chief of Police
Address:	1 Troyan Dr Meadows Place, Tx 77477	Address:	1 Troyan Dr. Meadows Place, Tx 77477
Phone Number:	281-983-2900	Phone Number:	281-983-2900
Email:	stewart@cityofmeadowsplace.org	Email:	ashton@cityofmeadowsplace.org
NFIP Floodplain Administrator			
Name/Title:	Sean Eglinton/Assistant County Engineer*		
Address:	307 Fort St, Richmond, TX 77469		
Phone Number:	281-633-7513		
Email:	sean.eglinton@fortbendcountytx.gov		
Additional Contributors:			
Name/Title: Method of Participation:	Gary Stewart, Chief of Police/EMC Attended meetings. Provided status update on previous actions, capabilities, NFIP administration		
Name/Title: Method of Participation:	Jack Ashton, Asst. Chief, Meadows Place PD Attended meetings. Provided information on building permits		
Name/Title: Method of Participation:	Rod Hainey Attended meetings		
Name/Title: Method of Participation:	Charle Jessup Provided key input		

**Information Obtained from https://www.texasflood.org/flood-basics/fpa.html*

9.7.2 Municipal Profile

The City of Meadows Place is along the northeast edge of Fort Bend County and is bordered by the City of Sugar Land to the west, Stafford to the south, and Houston to the northeast in Harris County. The City is located between West Bellfort Avenue, U.S. Route 59/I-69, Dairy Ashford Road, and West Airport Boulevard. The City of Meadows Place has a total area of 0.93 square miles, all of which are land.

According to the American Community Survey, the 2021 population for the City of Meadows Place was 4,755. Data from the 2021 ACS indicates that 2.8 percent of the population is 5 years of age or younger, and 22.4 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.7.3 Jurisdictional Capability Assessment and Integration

The City of Meadows Place performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Meadows Place to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Meadows Place. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.7-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code – Ordinance 2018-24	Local	City Council
How does this reduce risk? The City of Meadows Place adopted the 2015 International Building Code and Fire Code.				
Zoning/Land Use Code	Yes	Chapter 153 – Planning and Zoning	Local	Planning and Zoning Commission
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Ordinance is utilized for promoting and protecting the health, safety, morals, and general welfare of the residents, citizens, and inhabitants of the City and for the general welfare of the community. Additionally, the Ordinance is further adopted in order to regulate the use of land within the City so as to promote orderly and healthful development, good government, peace and order of the City, and the trade and commerce.				
Subdivision Ordinance	Yes	Chapter 152 – Subdivision Regulations	Local	Planning Commission
How does this reduce risk? Subdivision regulations provide orderly urban development through land subdivision and assemblage to assure the best possible community environment in accordance with the City Comprehensive Plan, and to provide adequate municipal services and safe streets, and to protect and promote the public health, safety, and general welfare.				
Site Plan Ordinance	No	-	-	-
How does this reduce risk?				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Chapter 151 – Flood Damage Prevention – Ordinance 2014-06	Local	Floodplain Administrator
How does this reduce risk? It is the purpose of this chapter to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: • Protect human life and health • Minimize expenditure of public money for costly flood control projects • Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public • Minimize prolonged business interruptions • Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone, and sewer lines; and streets and bridges located in floodplains • Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas • Ensure that potential buyers are notified that property is in a flood area				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	No	-	-	-
How does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Planning Documents				
Comprehensive/Master Plan	Yes	City of Meadows Place Comprehensive Plan	Local	City Council, Planning and Zoning Commission
How does this reduce risk? The Comprehensive Plan is adopted as a present statement of policy by the City and as a guide for future land use decisions within the City. The Plan provides requirements for residential property and development including density of neighborhoods, capital improvements such as water and sewer				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
services, ingress and egress, and non-residential development adjacent to residential development. The plan also establishes requirements for business districts, U.S. Highway 59, Public services, lands abutting arterials, and circulation of traffic.				
Capital Improvement Plan	Yes	Capital Improvement Plan, September 1, 2022	Local	Public Works Director
How does this reduce risk? Allocates funding for potential mitigation projects.				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How does this reduce risk?				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	Yes	September 1, 2022	Local	Economic Develop Corp-
How does this reduce risk? *Assist with guidance in new development. Supports community awareness project for Hazard Mitigation*				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	Comprehensive Emergency Management Plan	Local	Emergency Management Coordinator
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Comprehensive Emergency Management Plan outlines the organization, establishment, and designated divisions and functions; assigns responsibilities, tasks, duties, and powers; and designates officers and employees to carry out specific actions prior to and after an emergency event.				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the City. FBHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk? FBHHS has plans in place to prevent public health issues through regular inspections of regulated facilities, as well as prepare for and respond to public health emergencies.				
Other	No	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Meadows Place to oversee and track development.

Table 9.7-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	Local Permits Department
If you do not issue development permits, what is your process for tracking new development?	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? • If yes, please describe	Yes	Approximately 9 acres in a commercial, non-floodplain zone
Describe the level of build-out in your jurisdiction.	N/A	95% build-out, only a small portion available for commercial development

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Meadows Place and their current responsibilities that contribute to hazard mitigation.

Table 9.7-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	The Planning and Zoning Board (P&Z) considers the impact of proposed development and zoning changes to the City. The Board seeks to achieve a balance between the needs of business and the rights of property owners while encouraging economic prosperity and development for the City. The Board's recommendations are used by the Mayor and City Council to make decisions regarding such changes. P&Z may also review requests from homeowners and residents who wish to do something to their home that may not have been allowed in the past, or that may not be covered and require a change in the zoning ordinances and can cover a wide range of items.
Zoning Board of Adjustment	Yes	The Board of Adjustment ("BOA") is responsible for considering applications for special exceptions or variances to the Zoning Code. Homeowners, landowners, or their agents, apply to the Building Official for a hearing. Formal dockets, which must be legally advertised, are scheduled for the BOA.
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Economic Development Corporation
Public Works/Highway Department	Yes	The Public Works Department is responsible for water, sewer, building and grounds maintenance. The Public Works Department oversees the operation of its three water plants, the water distribution system, a 1.5-million-gallon Wastewater Treatment Plant and a Sewer Collection System in accordance with rules and regulations set by the Environmental Protection Agency and the Texas Commission on Environmental Quality
Construction/Building/Code Enforcement Department	Yes	Code Enforcement works with property owners and occupants to maintain the status of our City as a clean, livable, and a safe place by routinely inspecting the City, responding to complaints, and notifying residents of code violations. Daily activities include removal of illegal signs, identifying non-permitted work, and enforcement of the City Codes of Ordinances including zoning ordinances.
Emergency Management/Public Safety Department	Yes	Emergency Management includes the City Police and Fire Department.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	No	-
Human Resources Manual	No	-
Other	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	No	-

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Planners or engineers with an understanding of natural hazards	Yes	Floodplain Administrator
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency manager	Yes	Emergency Management Coordinator
Grant writer(s)	Yes	Police Department has a part-time grant writer
Resilience officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

Fiscal Capability

The table below summarizes financial resources available to the City of Meadows Place.

Table 9.7-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Meadows Place.

Table 9.7-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	Yes	Meadows Place Communications Director
Personnel skilled or trained in website development	Yes	MP Communications Director
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-

Outreach Resources	Available? (Yes/No)	Comment:
Warning systems for hazard events	Yes	Code Red, Website, Social Media
Natural disaster/safety programs in place for schools	Yes	With Fort Bend ISD Police Dept./EMC
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	Yes	FBC-OEM

Community Classifications

The table below summarizes classifications for community programs available to the City of Meadows Place.

Table 9.7-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	No	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.7-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.7.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Meadows Place.

Table 9.7-9. NFIP Summary

Municipality	Policies in Force	Number of Paid Claims*	Amount of Paid Claims*	Number of NFIP RL Properties	Number of NFIP SRL Properties
Meadows Place (C)	N/A	1	$13,509.63	0	0

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP

Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.

**Number of RL and SRL properties provided by the State of Texas*

***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*

RL Repetitive Loss

SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Meadows Place.

Table 9.7-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	Yes. 12381 W. Bellfort is the only address/property within the floodplain
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	For City property/structures: TML, Professional Contractors - Follow FBC-OEM/TDEM/FEMA Process For private business/residences: Other sources per FBC-OEM/FEMA Guidelines Zero recent flood events
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	Yes
NFIP Compliance	
What local department is responsible for floodplain management?	Department of Public Works

NFIP Topic	Comments
Are any certified floodplain managers on staff in your jurisdiction?	Yes
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No, we do not have any area in the floodplain.
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability).	We do not have any unmitigated area. No floodplain property.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	N/A
What are the barriers to running an effective NFIP program in the community, if any?	N/A
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	N/A
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	Chapter 151, 151.04 03-25-2014
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceed through the CRS requirements and actions taken to reach Class 7.
Are there other local ordinances, plans, or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	All covered in Chapter 151
Does your community plan to join the CRS program, or is your community interested in improving your CRS classification?	Current CRS Community Rating of 7

9.7.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.7-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single-Family	0	0	0	0	0	0	0	0	0	0
Multi-Family	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	1	0	0	1	0	0	0	0

Type of Development	2018		2019		2020		2021		2022	
Total Permits Issued	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.7-12. Recent and Expected Future Development

Property or Development Name	Type (e.g., Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
Aldi/Starbucks Strip Center	Commercial	2	11700 Block of W. Airport Blvd	Expansive Soils	Completed
Jiffy Lube	Commercial	1	11700 Block W. Airport Blvd.	Expansive Soils	In Progress
Known or Anticipated Major Development in the Next Five (5) Years					
None Identified					

9.7.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Meadows Place's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Meadows Place has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.7-1. City of Meadows Place Hazard Area Extent and Location Map- Dam Inundation



Figure 9.7-2. City of Meadows Place Hazard Area Extent and Location Map-Expansive Soils

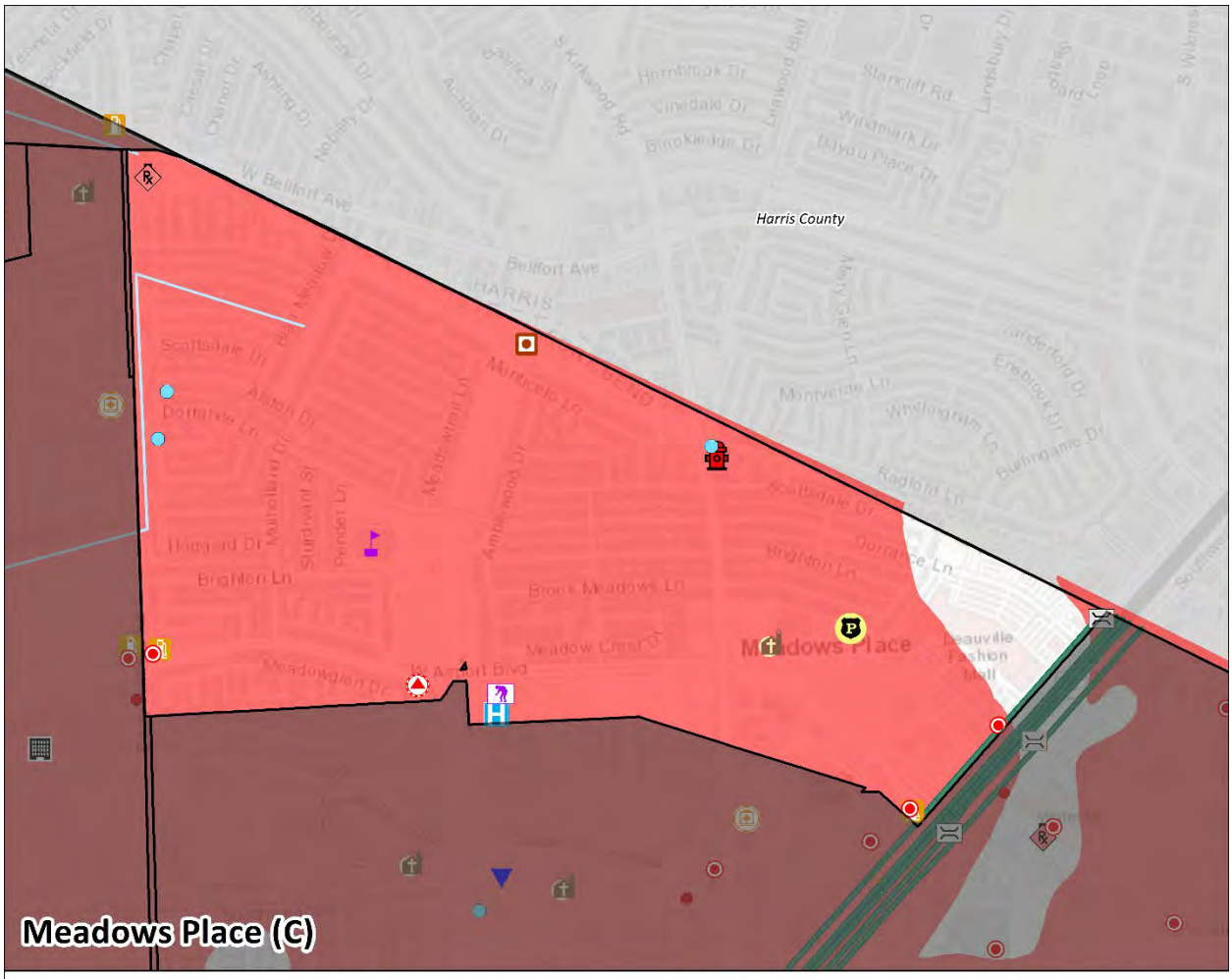


Figure 9.7-3. City of Meadows Place Hazard Area Extent and Location Map-Flood

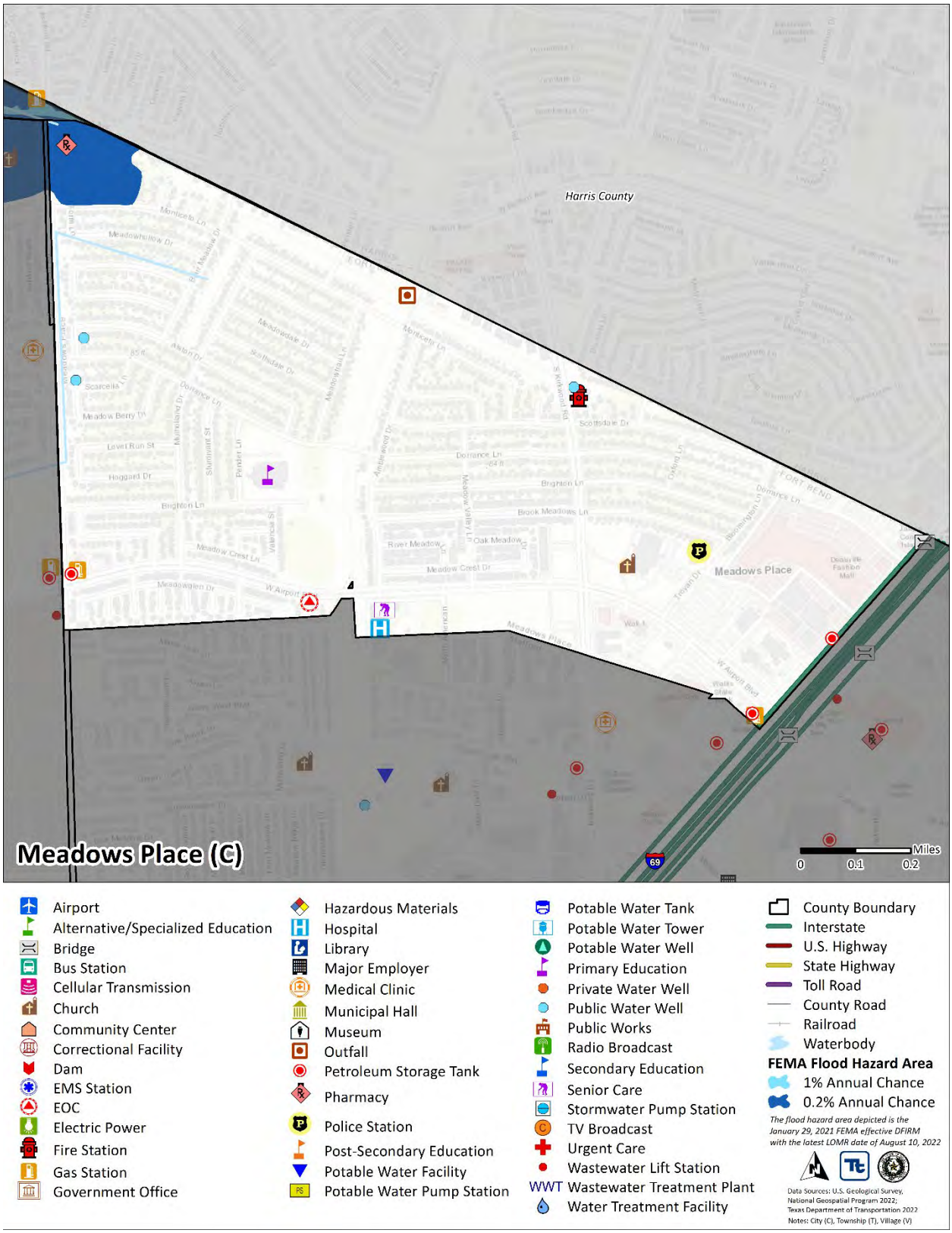


Figure 9.7-4. City of Meadows Place Hazard Area Extent and Location Map-Inland Erosion

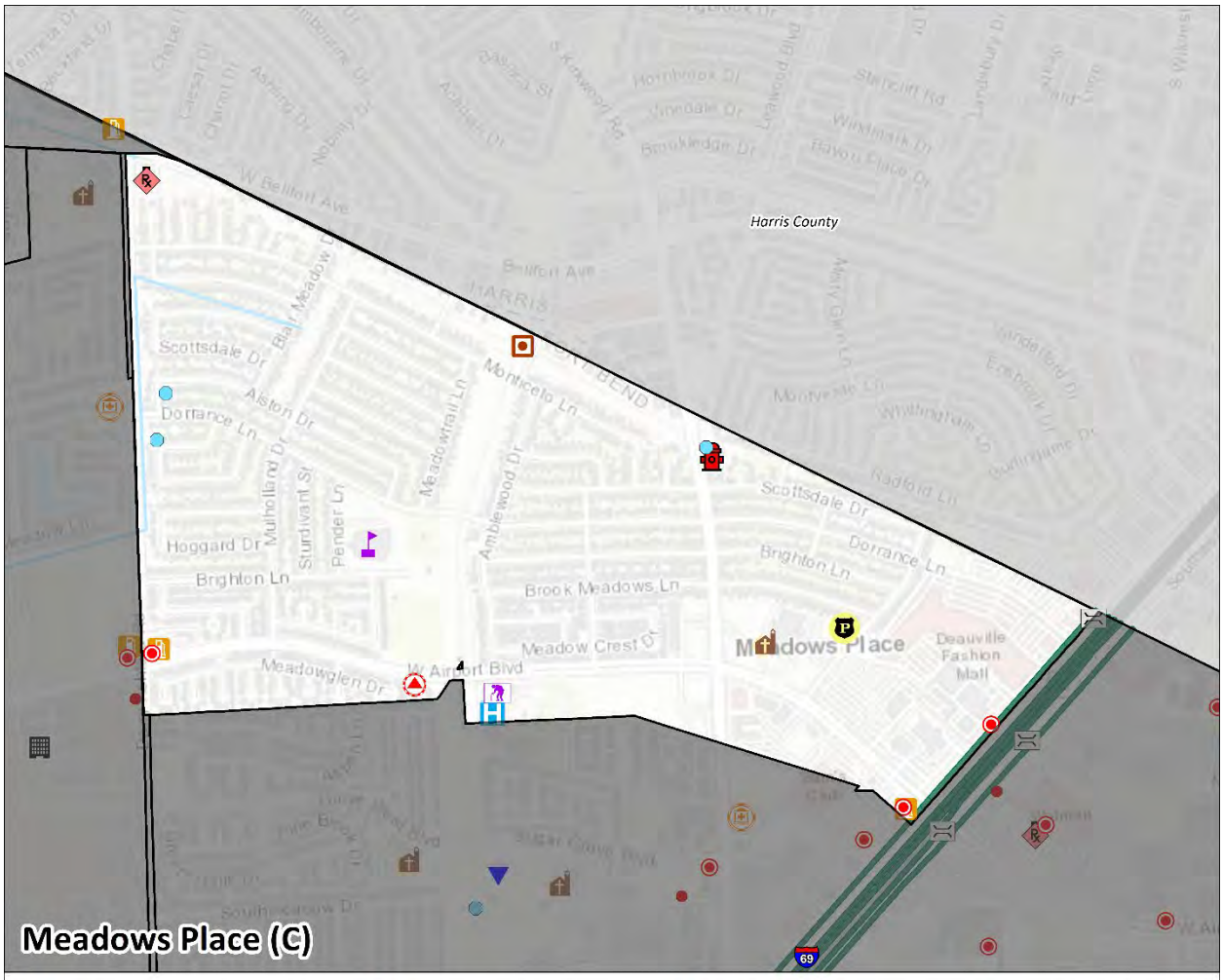
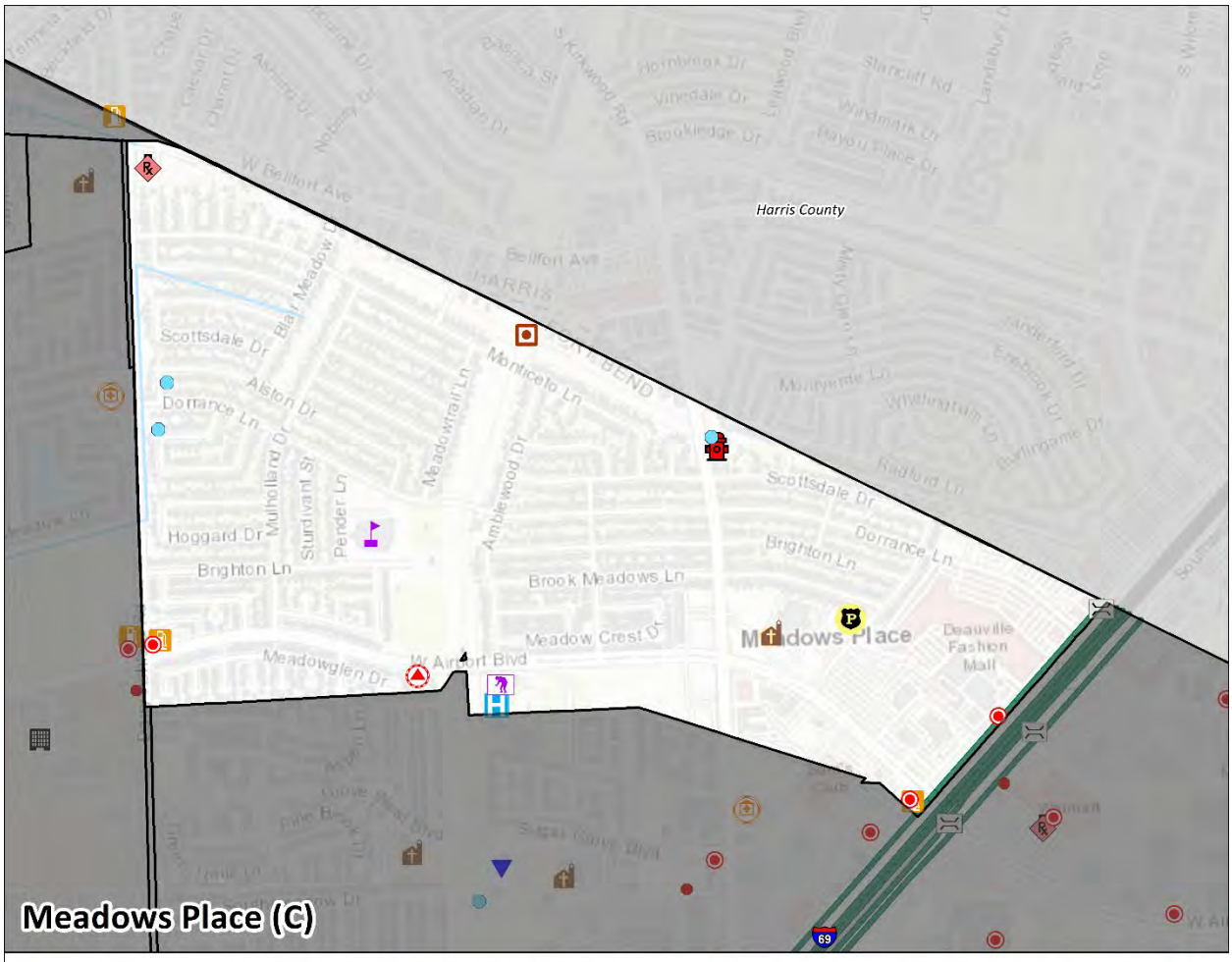


Figure 9.7-5. City of Meadows Place Hazard Area Extent and Location Map-Wildfire



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Wildfire Hazard Area

- Low Threat
- Moderate Threat

Miles
0 0.1 0.2

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022

Notes: City (C), Township (T), Village (V)

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Meadows Place's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Meadows Place experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.7-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration, if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	COVID-19 pandemic	City offices closed, limited City services available. Many businesses closed or limited operations Supply chain disruptions. Personnel shortages, increased sick leave, Mandatory OT/High Risk protocol implemented for City/Police, Partial activation of EOC. Financial impact $253k.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in significant number of downed trees and utility lines.	Although the County was impacted, the City did not report significant impacts.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated its emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County.	Limited activation of EOC. Mandatory personnel/overtime. Approx $14k for overtime - both events. City personnel dismissed early pending weather conditions Many City services unavailable.
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	Although the County was impacted, the City did not report significant impacts.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	EOC Activation. City offices closed, limited City services available. Many businesses closed or limited operations Supply chain disruptions (financial impact.)Personnel shortages, increased OT Approx $39K.

Source: FEMA 2023; NOAA 2023

In addition to the significant events listed above, the City has been impacted by significant rain events, resulting in flooding of local streets and power outages. Response has included deployment of high water vehicles.

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Meadows Place's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community-specific identification of the primary hazard concerns based on identified problems, impacts, and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Meadows Place. The City of Meadows Place reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City of Meadows Place agreed with the following rankings:

Table 9.7-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	Low
Disease Outbreak	Low
Drought	Medium
Extreme Temperature	Medium
Flood	Low
Geologic Hazards	High
Hurricane/Tropical Storm	Medium
Severe Weather	High
Tornado	Medium
Wildfire	Low
Winter Weather	Low

Critical Facilities

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.7-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area	
	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines
Meadows Place (C)	0	0	0	0	0	0	17	16	0	0	0	0	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the City of Meadows Place's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Meadows Place identified the following vulnerabilities within their community:

- Installing wind straps for Police Department roof.*
- There is flooding (water ponds on roads) at intersections: W. Airport Blvd at S. Kirkwood Rd. & W. Airport Blvd. at S.W.Freeway, which can impact emergency services and access. *
- The City lacks backup power to critical facilities, which prevents them from preforming a continuity of operations during extreme hazard events. Backup power is needed for the following critical facilities*:
    - EOC
    - Wastewater Treatment Plant
    - Water Well #3
    - Police Dept./City Hall
- The City residents lack knowledge and education related to hazard mitigation and awareness as well as flood insurance.
- The City does not have an up-to-date current evacuation plan that addresses all hazards of concern that may require an evacuation plan.
- The school-age population is at risk from hazards while school is in session.
- The City does not have a listing of potential mitigation projects and efforts to reduce natural hazard risks for the knowledge of residents and City departments.*
- The Police Department experiences problems with wind events destroying and ripping off parts of the roof.
- The City does not have cooling stations established to protect residents in case of extreme temperature and utility failure.
- The City experiences icing conditions on roadways/bridges throughout the jurisdiction during extreme temperatures and winter weather conditions.
- The City does not have routine maintenance completed on drainage systems, which contributes to overflows and flooding.
- The City has one repetitive loss and severe repetitive loss property. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.7.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this 2023 HMP update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.7-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Pursue Contract for Shade Removal	Meadows Place Director of Parks	Complete	No	-	-
Install Emergency Backup Generator	Meadows Place Director of Public Works/Utilities	In Progress	Yes	No emergency power during power outages. EOC/Wastewater Treatment Plant/Water Well #3	Local - Public Works
Promote Flood Insurance	Meadows Place EMC	In Progress	Yes	Public Awareness of Flood Insurance availability	Local – Communications Director
Increase Public Awareness on Mitigation	Meadows Place EMC	In Progress	Yes	Increase Public Awareness	Local – Communications Director
Evacuation Plan	Meadows Place EMC, Fort Bend Health Dept.	In Progress	Yes	Develop Interlocal agreements for Evacuation Procedures	EMC/FBC-OEM
Apply for Firewise Recognition	Meadows Place EMC, City of Stafford Fire Dept.	No Progress	No	-	-
Link to Drought Monitor	Meadows Place EMC	No Progress	No	-	-
Cooling Plan	Meadows Place EMC	In Progress	Yes	Cooling Stations for severe weather events	EMC/FBC-OEM
Sanding Prioritization Plan	Meadows Place Public Works	In Progress	Yes	Icing conditions roadways/bridges	FBC/Public Works
Co-Market Large Item Pickup	Meadows Place EMC	No Progress	No	-	-
Retrofit EOC	Meadows Place EMC	In Progress	Yes	Emergency Power during power outages for Emergency Operations Center	Public Works
City Hall Wind Strapping	Meadows Place Public Works	No Progress	No		
Police Department Wind strap for roof	Meadows Place Public Works	No Progress	Yes	New Police Department Design consideration	Public Works
City Hall/Police Department Generator	Meadows Place EMC	No Progress	Yes	Emergency Power for Police Dept. & City Hall (Same building)	Public Works

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Meadows Place identified the following mitigation efforts completed since the last HMP:

- None identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Table 9.7-17. Analysis of Mitigation Actions by Hazard and Category

	FEMA				CRS					
Hazard	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	X	-	X	X	-	X	-	-	X
Disease Outbreak	X	X	-	X	X	-	X	-	-	X
Drought	X	X	-	X	X	-	X	-	-	X
Extreme Temperature	X	X	-	X	X	-	X	-	-	X
Flood	X	X	-	X	X	X	X	-	X	X
Geologic Hazards	X	X	-	X	X	-	X	-	-	X
Hurricane/Tropical Storm	X	X	-	X	X	-	X	-	X	X
Severe Weather	X	X	-	X	X	-	X	-	X	X
Tornado	X	X	-	X	X	-	X	-	-	X
Wildfire	X	X	-	X	X	-	X	-	-	X
Winter Weather	X	X	-	X	X	-	X	-	X	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Meadows Place would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.7-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Meadows Place-001	Backup Generators	**Problem:** The City lacks backup power to critical facilities which prevents them from preforming a continuity of operations during extreme hazard events. Backup power is needed for the following critical facilities: • EOC • Wastewater Treatment Plant • Water Well #3 • Police Dept/City Hall **Solution:** Conduct a generator study to see what size and types of generators are needed at each facility. Install backup power in the EOC; Wastewater Treatment Plant; Water Well #3 and the Police Department/City Hall building once the study has been completed.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2, 5	Within 5 years	Meadows Place Director of Public Works/Utilities	BRIC, HMGP, FMA, City Budget	The EOC, Wastewater Treatment Plant, Water Well #3 and Police Dept/City Hall will be able to preform continuity of operations during a hazard event.	>$400,000	High	SIP	ES
2023-City of Meadows Place-002	Public Education	**Problem:** The City residents lack knowledge and education related to hazard mitigation and awareness as well as flood insurance. **Solution:** The City will implement public education through social media posts, create a website for Hazard Mitigation/Disaster Awareness and Recovery, and will create an informative webpage	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado,	1	Within 1 year	Local – Communications Director	HMGP, City Budget	The residents of the City will be more knowledgeable of flood insurance and hazard mitigation/recovery.	$5,000	High	EAP	PR, PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		relating to availability of Flood Insurance.	Wildfire, Winter Weather									
2023-City of Meadows Place-003	Evacuation Plan	**Problem:** The City does not have an up-to-date current evacuation plan that addresses all hazards of concern that may require an evacuation plan. **Solution:** The City will work with the County to develop an interlocal agreement with neighboring jurisdictions for evacuation procedures.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2, 5	1 Year	EMC/FBC-OEM	HMGP, City Budget	The City will have an updated evacuation plan to implement in the event of an evacuation is needed.	$5,000	High	LPR	ES
2023-City of Meadows Place-004	School Disaster Response Plan	**Problem:** The school-age population is at risk from hazards while school is in session. **Solution:** The City will ensure that schools will develop a School Disaster Response Plan, that integrates the updated HMP, to safely evacuate, shelter, and protect the people located in the schools.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2, 5	1 Year	EMC/FBC-OEM	HMGP, City Budget	Schools will have a Disaster Response Plan implemented to protect their students.	$3,000	High	LPR	ES
2023-City of Meadows Place-005	Human Resources Manual	**Problem:** The City does not have a listing of potential mitigation projects and efforts to reduce natural hazard risks for the knowledge of residents and City departments. **Solution:** The City will create a project description human resources	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards,	2, 5	1 Year	EMC	HMGP, City Budget	City Departments and individuals will have a resource manual readily available full of hazard mitigation projects that can be completed.	$3,000	High	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		list identifying Mitigation Projects and other efforts that reduce natural Hazard risks.	Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather									
2023-City of Meadows Place-006	Cooling Plan	**Problem:** The City does not have cooling stations established to protect residents in case of extreme temperature and utility failure. **Solution:** The City will establish Cooling Stations and install generators if needed for severe weather events that will operate in the event of a hazard event.	Extreme Temperature, Severe Weather	2, 5	2 Years	EMC/FBC-OEM	HMGP, BRIC, City Budget	The City will have cooling stations established to shelter their residents in the event of an extreme hazard.	$5,000	High	SIP	ES
2023-City of Meadows Place-007	Sanding Prioritization Plan	**Problem:** The City experiences icing conditions on roadways/bridges throughout the jurisdiction during extreme temperatures and winter weather conditions. **Solution:** The City will create a Sanding Prioritization Plan that prioritizes the order of roadway clearing in the event of icing and winter weather events.	Extreme Temperature, Winter Weather	2	1 Year	FBC/Public Works	BRIC, HMGP, City Budget	The City will be able to more efficiently clear roadways in the event of icing and winter weather.	$3,000	High	LPR	ES
2023-City of Meadows Place-008	Police Department Wind Strap for Roof	**Problem:** The Police Department experiences problems with wind events destroying and ripping off parts of the roof. **Solution:** The new Police Department design will include a wind strap for the roof to prevent wind destruction.	Severe Weather	2	1 Year	Public Works	BRIC, HMGP, City Budget	The City Police Department will not experience as much wind damage.	$20,000	High	SIP	SP
2023-City of Meadows Place-009	Routine Storm Drain Maintenance	**Problem:** The City does not have routine maintenance completed on drainage systems which contributes to overflows and flooding.	Flood	2	Ongoing	Public Works, FBC	BRIC, HMGP, FMA, City Budget	The City will see reduced flooding and the storm drain system will remain cleared out given	$10,000	High	SIP	PP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Solution: The City will work County agencies to ensure that the drainage system remains cleaned out to reduce flooding issues.						routine maintenance is followed.				
2023-City of Meadows Place-010	Repetitive Loss Mitigation	**Problem:** The City has 1 repetitive loss and severe repetitive loss properties. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage. **Solution:** The City will conduct outreach to the RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the flood-prone areas that experience frequent flooding (high risk areas).	Flood, Hurricane/Tropical Storm, Severe Weather, Winter Weather	2, 5	Less than 5 Years	NFIP Floodplain Administrator, supported by homeowners	HMGP and FMA, BRIC, local cost share by residents	Eliminates flood damage to homes and residents.	>$500,000	High	SIP	SP
2023-City of Meadows Place-011	Flood Study	**Problem:** There is flooding (water ponds on roads) at intersections: W. Airport Blvd at S. Kirkwood Rd. & W. Airport Blvd. at S.W.Freeway which can impact emergency services and access. **Solution:** The City will conduct a flood study at these intersections and will implement the most cost effective measure.	Flood	2	2 Years	FPA, Public Works	BRIC, FMA,	Reduces flooding issues and provides emergency access.	TBD after Study	High	SIP	SP

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS	*Community Rating System*
FEMA	*Federal Emergency Management Agency*
HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*
NFIP	*National Flood Insurance Program*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
BRIC	*Building Resilient Infrastructure and Communities Program*

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies, or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.7-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Meadows Place-001	Backup Generators	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-City of Meadows Place-002	Public Education	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Meadows Place-003	Evacuation Plan	1	0	1	1	1	1	1	1	1	1	1	1	1	0	12	High
2023-City of Meadows Place-004	School Disaster Response Plan	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2023-City of Meadows Place-005	Human Resources Manual	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Meadows Place-006	Cooling Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Meadows Place-007	Sanding Prioritization Plan	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Meadows Place-008	Police Department Wind Strap for Roof	1	1	1	1	1	1	0	0	1	1	0	1	1	0	10	High
2023-City of Meadows Place-009	Routine Storm Drain Maintenance	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Meadows Place-010	Repetitive Loss Mitigation	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2023-City of Meadows Place-011	Flood Study	1	1	1	1	1	1	0	1	1	1	0	1	1	1	12	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.8 City of Missouri City

This section presents the jurisdictional annex for the City of Missouri City that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Missouri City representatives who participated in the planning process, an assessment of the City of Missouri City's risk and vulnerability, the different capabilities used in the City of Missouri City, and an action plan that will be implemented to achieve a more resilient community.

9.8.1 Hazard Mitigation Planning Team

The City of Missouri City identified primary and alternate points of contact and developed the 2023 Hazard Mitigation Plan (HMP) over the course of several months with input from many City of Missouri City departments, including Emergency Management, Public Works, and Development Services. The Emergency Management Coordinator represented the community on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials who participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.8-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Trameka Jewett, Emergency Management Coordinator	Name/Title:	Shashi Kumar, Director of Public Works and City Engineer
Address:	18411 Parks Edge Blvd. Missouri City, TX 77459	Address:	1522 Texas Parkway Missouri City, TX 77489
Phone Number:	(281) 403-4370	Phone Number:	(281) 403-8579
Email:	Trameka.jewett@missouricitytx.gov	Email:	Shashi.kumar@missouricitytx.gov
NFIP Floodplain Administrator			
Name/Title:	Marcus Snell, PE, CFM, Assistant City Engineer		
Address:	1522 Texas Parkway, Missouri City, TX 77489		
Phone Number:	(281) 403-8685		
Email:	Marcus.snell@missouricitytx.gov		
Additional Contributors:			
Name/Title: Method of Participation:	Jennifer Gomez, AICP, Development Services Director Provided information on capabilities, building permits		
Name/Title: Method of Participation:	Trameka Jewett, Emergency Management Coordinator Provided information on past events		

Name/Title: Method of Participation:	Marcus Snell, PE, CFM, Assistant City Engineer Provided information on NFIP administration
Name/Title: Method of Participation:	Rachelle Dickerson, Communications Manager Provided updates on Public Education and Communications
Name/Title: Method of Participation	Michael Hafer, Fire Operation Division Chief Provided information Wildfire risk
Name/Title: Method of Participation	Vilma Sessoms, Facilities Superintendent, Provided information on building facilities action items
Name/Title: Method of Participation	Daniele Stewart, Parks Deputy Director Provided information on City erosion
Name/Title: Method of Participation	Brian Alexander, Senior Planner Provided information on building permits and capabilities
Name/Title: Method of Participation	Shashi Kumar, Public Works Director Provided info on action items and capabilities

9.8.2 Municipal Profile

The City of Missouri City is in the eastern corner of Fort Bend County, with a small portion located in Harris County. Missouri City is bordered by the City of Houston to the north and east, Stafford to the northwest, Sugar Land to the west, and Arcola to the southeast, as well as unincorporated communities such as Fifth Street to the north, Fresno to the east, and Sienna Plantation to the south. The City of Missouri City has a total area of 30.39 square miles, 29.02 square miles of land, and 1.38 square miles of water.

According to the American Community Survey, the 2021 population for the City of Missouri City was 73,682, a 9.39 percent increase from the 2010 Census. Data from the 2021 ACS indicates that 6.3 percent of the population is 5 years of age or younger, and 15.2 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.8.3 Jurisdictional Capability Assessment and Integration

The City of Missouri City performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Missouri City to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Missouri City. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.8-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code	Local	Building Official / Development Services Department
How does this reduce risk? The City of Missouri City adopted the 2015 International Building and Fire Code.				
Zoning/Land Use Code	Yes	The City of Missouri City Zoning Ordinance	Local	Development Services Department Director
How does this reduce risk? The Zoning Ordinance was established in accordance with the City Comprehensive Plan for the purpose of promoting the health, safety, and general welfare of the public. The Ordinance identifies measures to reduce congestion on the streets, to secure safety from fire, panic, and other dangers; to facilitate adequate provisions for transportation; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; and to facilitate adequate provisions of water, sewage, schools, parks, and other public requirements.				
Subdivision Ordinance	Yes	Chapter 82 – Subdivisions	Local	Development Services Department
How does this reduce risk? The Ordinance outlines the standards and procedures applicable to the subdivision (platting) of land in Missouri City. It establishes requirements for site design, streets, utilities, and drainage and procedures for dedicating land for streets, parkland, or other public purposes.				
Site Plan Ordinance	Yes	Sec. 46-35- Plan Review	Local	Public Works Department
How does this reduce risk? The Ordinance requires that all construction plans submitted, including public infrastructure plans, grading plans, commercial development plans, and major landscaping plans, be reviewed, and a submission fee must be paid to the City before review and approval.				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Flood Damage Prevention Ordinance	Yes	Chapter 42 – Floodplain Management	Local	City Engineer
How does this reduce risk? Duties and responsibilities of the floodplain administrator under this article shall include the following: • Maintain and hold open for public inspection. • Review permit applications to determine whether a proposed building site, a proposed subdivision, or any other proposed development, including a manufactured home park or a manufactured home subdivision, will be reasonably safe from flooding. • Review and approve or deny all applications for development permits. • Review permits for proposed development to ensure that all necessary permits have been obtained from those federal, state, or local governmental agencies from which prior approval is required (including permits required by Section 404 of the Federal Water Pollution Control Act amendments of 1972, 33 USC 1334). • Interpret the exact location of the boundaries of the areas of special flood hazard; for example, where there appears to be a conflict between a mapped boundary and actual field conditions. • Notify, in riverine situations, adjacent communities and the state coordinating agency, which is the Texas Water Development Board (TWDB), and the Texas Commission on Environmental Quality (TCEQ), or successors of such entities, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency. • Ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. • Obtain, review, and reasonably utilize any base flood elevation data and floodway data available from federal, state, and other sources. • When a regulatory floodway has not been designated, the building official must require that no new construction, substantial improvements or other development (including fill), shall be permitted within zones A1-30 and AE on the community's FIRM. • Under the provisions of 44 CFR § 65.12 (2003) of the National Flood Insurance Program regulations, a community may permit certain development in Zones A1-30, AE, and AH on the community's FIRM, which would result in an increase in the base flood elevation by more than one (1) foot, provided that the community first completes all of the provisions required by 44 CFR § 65.12 (2003).			
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	Yes	Ordinance 0-05-40	Local	Emergency Management
How does this reduce risk? This ordinance requires all full-time staff to take emergency management training. This reduces the risk by ensuring all staff are properly trained to respond to emergencies.				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Planning Documents				
Comprehensive/Master Plan	Yes	Missouri City Comprehensive Plan	Local	Development Services Department
How does this reduce risk? The Missouri City Comprehensive Plan is designed as a framework for guiding future development, redevelopment, and community enhancement in the City and its associated planning area over the next 20 years and beyond. The plan is aimed at ensuring the ongoing development and redevelopment of land use, growth capacity, parks and recreation, and mobility.				
Capital Improvement Plan	Yes	Capital Improvement Program	Local	City Council
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The City of Missouri City Capital Improvements Program (CIP) is a process by which the City develops a multi-year plan for major capital expenditures that matches available resources and satisfies the City tax rate stabilization objective.				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	Yes	Watershed Master Plan	Local	Public Works – Drainage Division
How does this reduce risk? The purpose of this watershed master plan update is to review specific flood-related information that can be used by the City staff in activities related to flood risk preparedness, planning, and flood response during emergencies. The scope of this update will also include opportunities for stakeholder input. This includes entities that have drainage roles and responsibilities (such as the Levee Improvement Districts and Municipal Utility Districts) and the citizens of Missouri City.				
Stormwater Management Plan	Yes	Stormwater Management Program	Local	Public Works
How does this reduce risk? The City of Missouri City's Municipal Separate Storm Sewer System (MS4) is a program that addresses the conveyance or system of conveyances that is owned and operated by a governmental entity and used for collecting or conveying storm water. The City of Missouri City created a Storm Water Management Program (SWMP) to manage the quality of discharges from the MS4. The SWMP includes best management practices and schedules for implementation to address five Minimal Control Measures (MCMs). 1. Public Education and Outreach on Storm Water Quality Issues 2. Illicit Discharge Detection and Elimination 3. Construction Site Storm Water Runoff Control 4. Post-Construction Storm Water Management in Areas of New Development and Redevelopment 5. Pollution Prevention/Good Housekeeping Measures for Municipal Operations				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk? See Watershed Master Plan.				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No			
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	Yes	Traffic Management Plan	Local	Public Works – Traffic Operations Division
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The goal of the TMP is to provide a road map for development of a comprehensive transportation network that the City can use to better manage the existing, interim, and projected transportation-related issues as it continues to grow through the year 2025. The TMP is a useful tool that allows Missouri City to plan for the projects that are necessary to enable the transportation network to function properly and at a desired and measurable level of performance.				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	Comprehensive Emergency Management Plan	Local	Emergency Management Coordinator
How does this reduce risk? The plan sets forth the form of the organization; establishes and designates divisions and functions; assigns responsibilities, tasks, duties, and powers; and designates officers and employees to carry out the provisions of this article. The plan complies with the standards and criteria established by the Texas Division of Emergency Management. The form of organization, titles, and terminology conforms to the recommendations of the Texas Division of Emergency Management. It is the duty of all departments and agencies to perform the functions assigned by the plan and to always maintain their portion of the plan in a current state of readiness. The emergency management plan is to be considered supplementary to this article and has the effect of law during the time of a disaster.				
Continuity of Operations Plan	Yes	Missouri City Continuity of Operations Plan. Last updated 2020	Local	Emergency Management
The plan ensures the City maintains continuity of operations when activated, by detailing the City essential functions, technology requirements, and orders of succession.				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Missouri City to oversee and track development.

Table 9.8-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	Development Services - Permits & Inspections division
If you do not issue development permits, what is your process for tracking new development?	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? • If yes, please describe	Yes	City's Comprehensive Plan – Existing land use inventory; developed vs undeveloped land
Describe the level of build-out in your jurisdiction.	N/A	About 32% inside City limits; 43.1% City limits and ETJ, extraterritorial jurisdiction combined (2017 Comprehensive Plan)

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Missouri City and their current responsibilities that contribute to hazard mitigation.

Table 9.8-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	The Planning and Zoning Commission consists of nine members that reside in the City and are appointed by City Council for staggered two-year terms. The Planning and Zoning Commission is the final authority on applications concerning the subdivision of land and makes recommendations to City Council regarding applications for amendments to the Missouri City Zoning Map and Zoning Ordinance.
Zoning Board of Adjustment	Yes	The Zoning Board of Adjustment and Appeals consists of five regular members and four alternate members appointed by the City Council who serve staggered two-year terms. The Zoning Board of Adjustment and Appeals hears appeals in the enforcement of the Zoning Ordinance.
Planning Department	Yes	The Development Services Department, Planning & Development Division is responsible for a variety of activities and initiatives related to the protection of property values and the responsible growth of the community. Among other duties, this division is the contact point for the following services: • Architectural Design Reviews • Planned Developments and Specific Use Permits • Platting and Subdivisions • Signage Reviews • Zoning
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Economic Development Commission/Committee	No	-
Public Works Department	Yes	The Department of Public Works consists of five divisions: • Administration: Provides oversight over all divisions for the effective delivery of services and infrastructure projects. • Engineering and CIP: CIP is an ongoing 5-year plan for major, non-routine expenditures for new construction and improvements to existing buildings and facilities Engineering is responsible for reviewing plats, construction plans, drainage impact analysis (DIA), and traffic impact analysis (TIA) along with providing construction inspection services, updating City design guidelines, standard details, specifications, and floodplain administration. • Streets and Drainage: Responsible for preventative and regular maintenance of City-owned streets, sidewalk, drainage channels, roadside ditches, bridges, pavement markings, and signs in a programmed environment. • Traffic Operations: Responsible for the implementation of recommendations from the Traffic Management and the ITS (Intelligent Transportation System) master plans, and the day-to-day operations and maintenance of traffic control devices. • Utilities: Responsible for the planning and development of utilities to support growth in coordination with various other entities. Provides operational oversight over the regional water and wastewater treatment plants and the administration of the Groundwater Reduction Plan (GRP) program.
Construction/Building/Code Enforcement Department	Yes	The Development Services Department, Code Enforcement & Health Division provides proactive and reactive services to ensure compliance with property maintenance standards and improve the quality of neighborhoods.
Emergency Management/Public Safety Department	Yes	The Division of Emergency Preparedness is responsible for the planning, preparation, and reduction of the impact of any type of disaster that could strike the City.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	Yes	Warning systems in place for floods, freezing conditions and thunderstorms
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	No	-
Human Resources Manual	Yes	Human Resource Director
Other	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Development Services Department- Planning and Development division; Public Works Department – Engineering Division
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works Department – Engineering Division - City Engineer
Planners or engineers with an understanding of natural hazards	Yes	Public Works Department – Engineering Division - City Engineer
Staff with expertise or training in benefit/cost analysis	Yes	City Financial Services Director

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Professionals trained in conducting damage assessments	Yes	City Financial Services Director
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Damage Assessment Team
Environmental scientist familiar with natural hazards	No	Innovation and Technology Director
Surveyor(s)	No	-
Emergency manager	Yes	-
Grant writer(s)	Yes	Fire Department – Division of Emergency Management
Resilience officer	No	City has a 3-year contract for Recovery services and mitigation grant development
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

Fiscal Capability

The table below summarizes financial resources available to the City of Missouri City.

Table 9.8-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Missouri City.

Table 9.8-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	Yes	City has both a PIO and Communications Office.
Personnel skilled or trained in website development	Yes	City has several staff trained and have access to City social media and City employees a social media manager.
Hazard mitigation information available on your website	Yes	NFIP, Fire safety, etc.

Outreach Resources	Available? (Yes/No)	Comment:
Social media for hazard mitigation education and outreach	Yes	Facebook, Twitter, YouTube, Instagram, Snapchat, and NextDoor
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Parks Board
Warning systems for hazard events	Yes	Warning systems in place for floods, freezing conditions and thunderstorms
Natural disaster/safety programs in place for schools	N/A	-
Does the jurisdiction have any public outreach mechanisms/programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	Yes	Public education campaigns on natural hazards and emergency preparedness; mass notification, emergency management website; targeted website, social media, and text messages; AM radio station.

Community Classifications

The table below summarizes classifications for community programs available to the City of Missouri City.

Table 9.8-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	Yes	7	May 1, 2010
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Class 01/1Y	August 1, 2016
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	No	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.8-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.8.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Missouri City.

Table 9.8-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Missouri (C)	N/A	37	$1,992,728.47	0	0

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP
Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
****From the Sugar Land Plan 2021*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Missouri City.

Table 9.8-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
• Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	• Flood-prone areas within the City are generally within three areas: the communities North of the US 90A and S Sam Houston Parkway intersection, the central communities between and along Oyster and Long Point Creeks, and the communities on the Southwest edge between Peninsulas Dr and Sienna Springs Blvd. • Yes, since Hurricane Harvey for major disasters.
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	• Yes, the City maintains a list. • The City has not received interest requests.
Are any RiskMAP projects currently underway in your jurisdiction?	None

NFIP Topic	Comments
If so, state what projects are underway.	
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	• Substantial Damage Estimator Spreadsheet from FEMA • None
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? If there are mitigated properties, how were the projects funded?	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	To most extent. However, Brazos backwater impacts are not adequately mapped.
NFIP Compliance	
What local department is responsible for floodplain management?	Public Works - Engineering
Are any certified floodplain managers on staff in your jurisdiction?	Yes (3)
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	Not at this time. Training needs are met by TFMA.
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Plan & Permit review, Inspections, Community Outreach, GIS Mapping on publicly available site
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Not applicable as development/redevelopment is prohibited within the floodplain
What are the barriers to running an effective NFIP program in the community, if any?	Resource constraints – funding\staffing
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	CAV in August 2019
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	Chapter 42 of Missouri City Ordinance, 2020
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Yes. The City is a CRS Class 7 community.
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Missouri City's adopted public infrastructure design manual (Chapter 8): Detention\Flood Mitigation Requirements; Example: Minimum Building Slab Elevations
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Missouri City joined the CRS on May 1, 2010. The City is a Class 7 community.

9.8.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table and figure below summarizes and illustrates recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.8-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single Family	1,116	N/A	1,124	N/A	1,373	N/A	1,267	N/A	1,510	N/A
Multi-Family	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other (commercial, mixed-use, etc.)	883	N/A	586	N/A	615	N/A	596	N/A	339	N/A
Total Permits Issued	**1,999**	**N/A**	**1,710**	**N/A**	**1,988**	**N/A**	**1,863**	**N/A**	**1,859**	**N/A**

SFHA Special Flood Hazard Area (1% annual chance flood event)

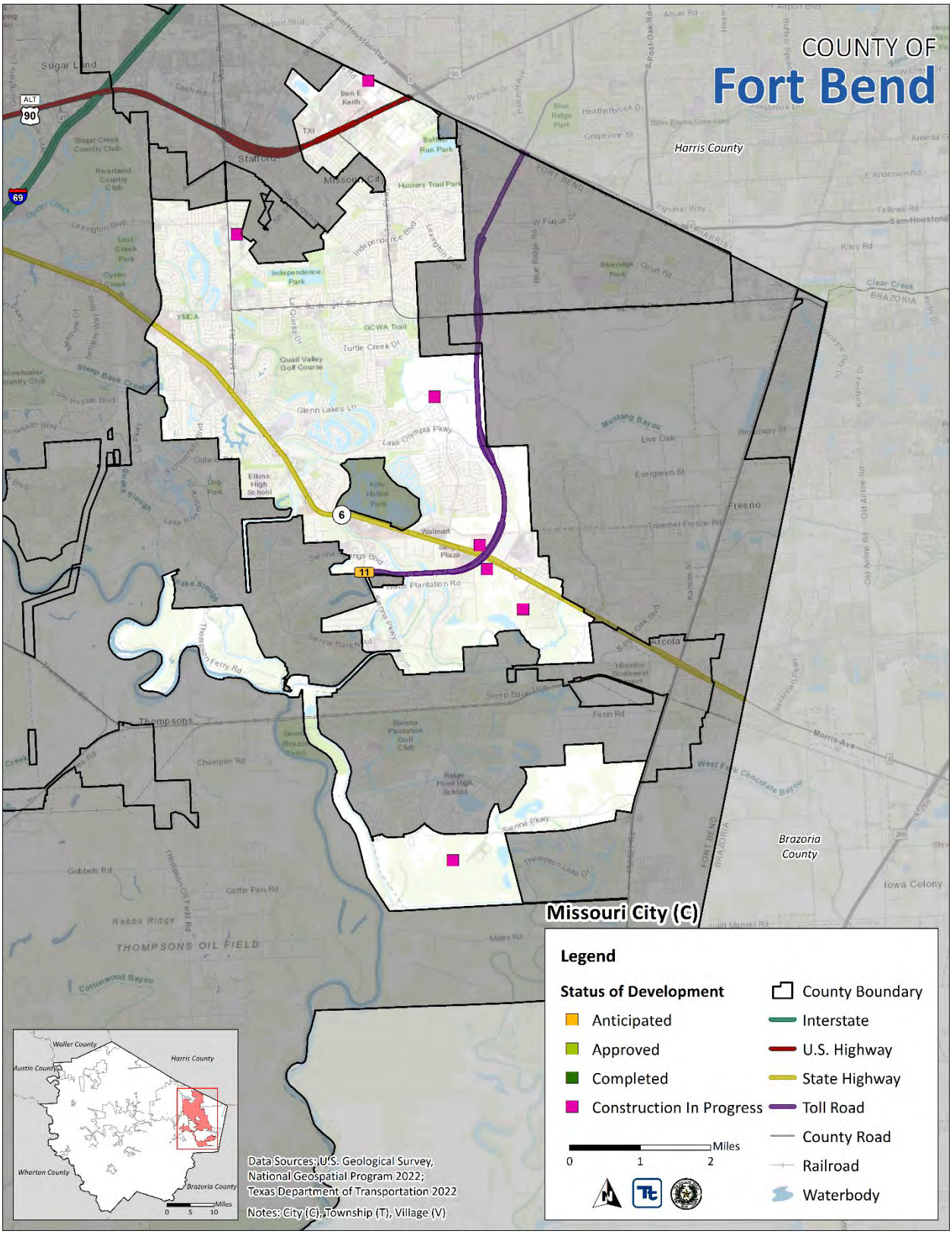
** Only location-specific hazard zones or vulnerabilities identified.*

Note: Only total permits were available for this planning process.

Table 9.8-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
Citypark Logistics Center	Industrial	N/A	Citypark Drive and Cravens Road	Low Wildfire	In Progress
Parks Edge	Residential	1029	Parks Edge Blvd and Lake Olympia Pkwy	Inland Erosion; Low Wildfire; 1 and 0.2 Percent Floodplain	In Progress
Shipmans Cove	Residential	274	Watts Plantation and State Highway 6	Expansive Soil; Low Wildfire	In Progress
Sienna South	Residential	5000	Sienna Parkway	Expansive Soil; Low Wildfire	In Progress
Known or Anticipated Major Development in the Next Five (5) Years					
Fort Bend Town Center II	Commercial	N/A	Fort Bend Parkway Tollroad and State Highway 6 (NWC)	Expansive Soils	Anticipated
Fort Bend Town Center III	Mixed Use	750	Fort Bend Parkway Tollroad and State Highway 6 (SEC)	Expansive Soils; Low Wildfire	Anticipated
Lexington Village	Residential	341	Independence Blvd and FM 1092	Expansive Soils	Anticipated

Figure 9.8-1. Recent and Expected Future Development Identified in the Municipality

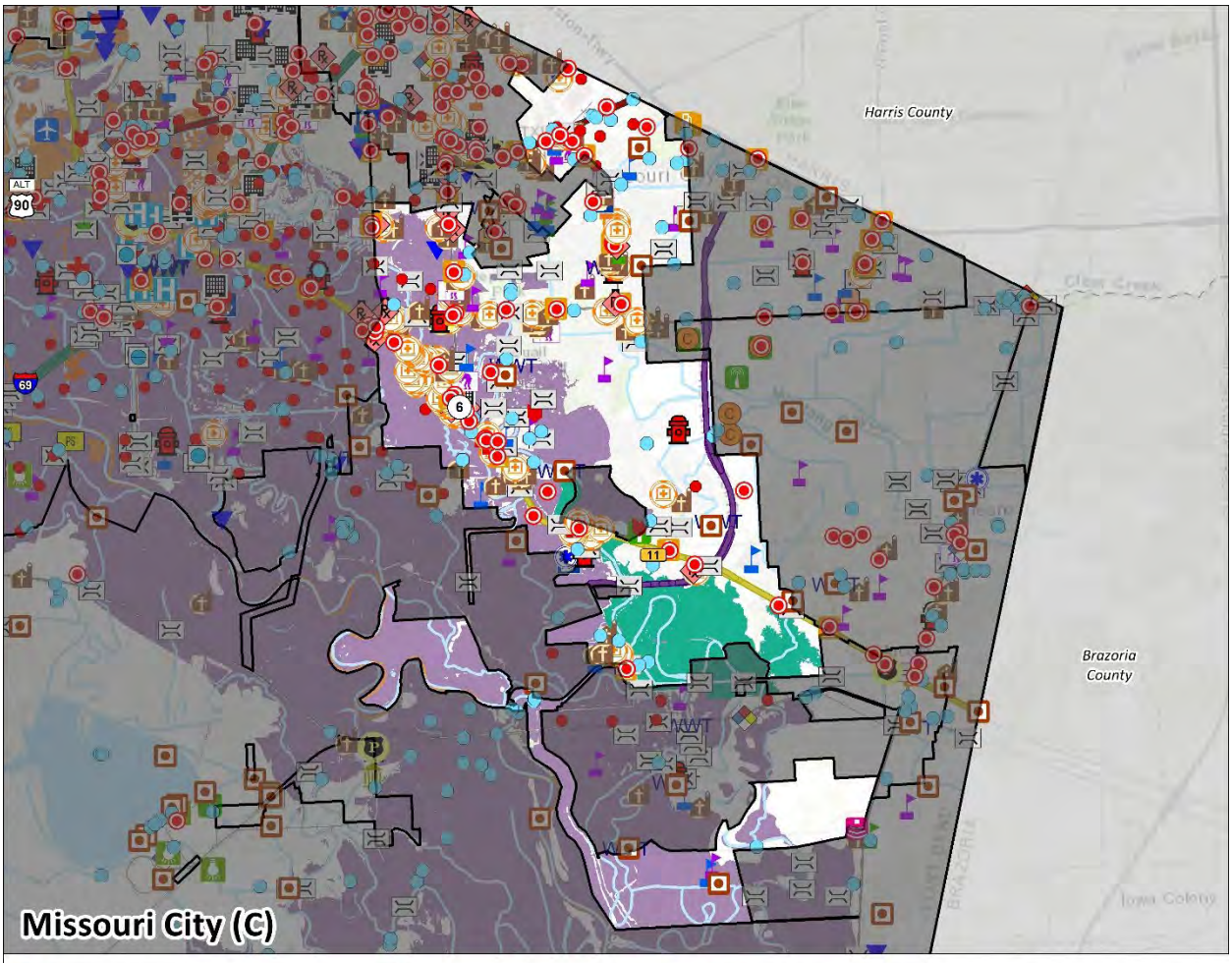


9.8.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Missouri City's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Missouri City has significant exposure.

Figure 9.8-2. City of Missouri City Hazard Area Extent and Location Map-Dam Inundation



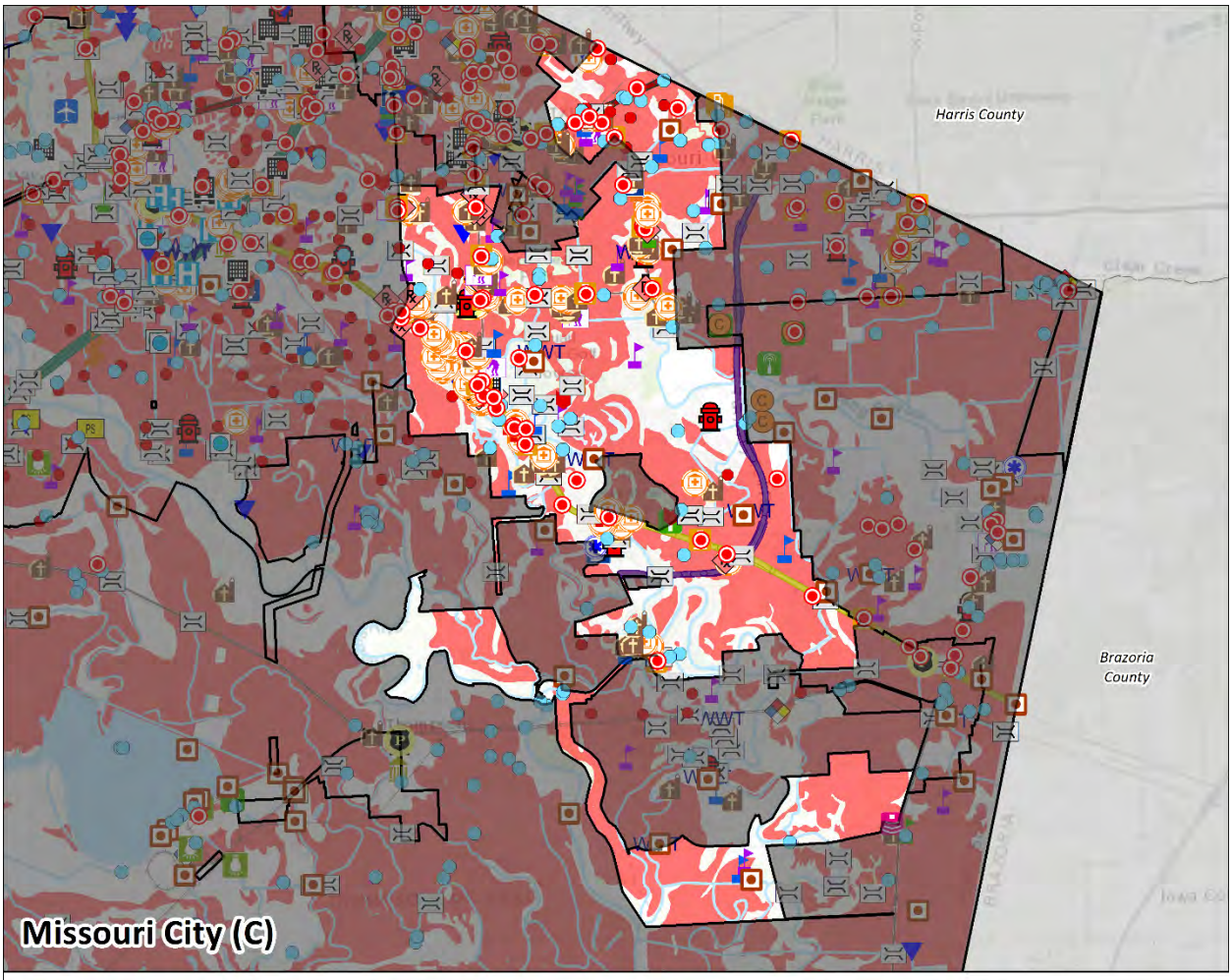
- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody
- Barker Reservoir
- Kitty Hollow Dam
- Lake Sommerville

Miles
0 1 2

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Army Corp of Engineers 2023

Notes: City (C), Township (T), Village (V)

Figure 9.8-3. City of Missouri City Hazard Area Extent and Location Map-Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 1.25 2.5

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.8-4. City of Missouri City Hazard Area Extent and Location Map-Flood

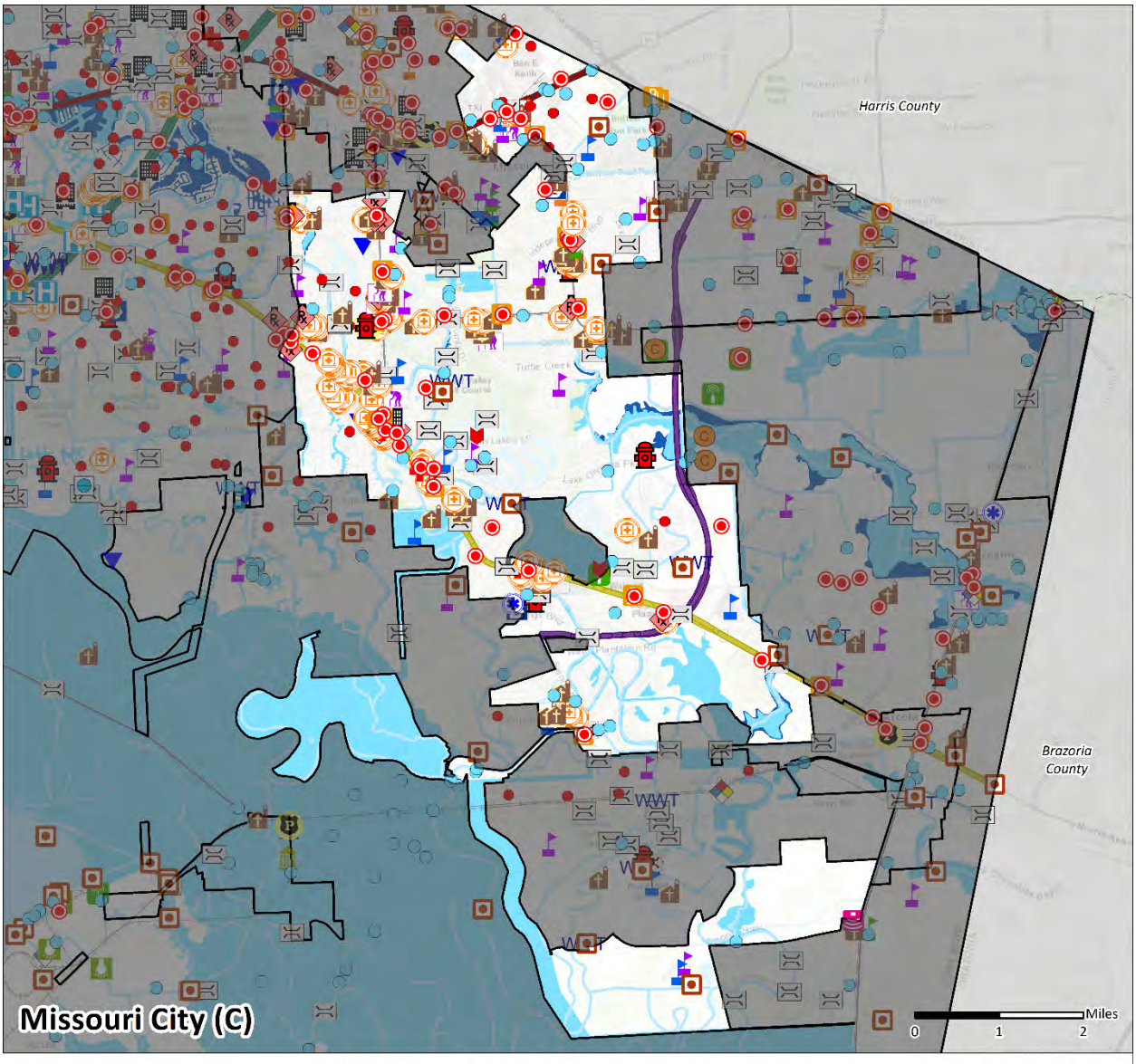


Figure 9.8-5. City of Missouri City Hazard Area Extent and Location Map-Inland Erosion

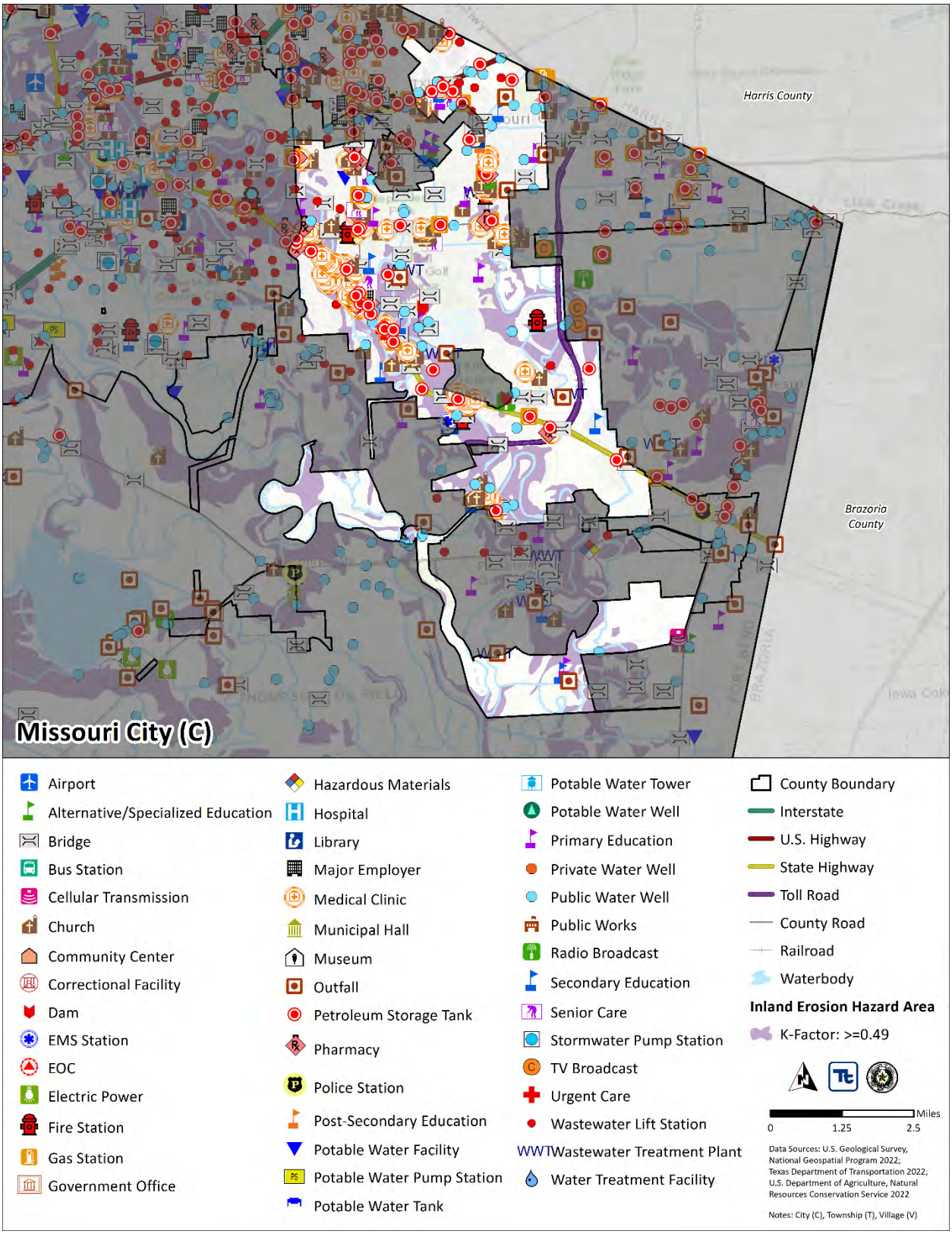
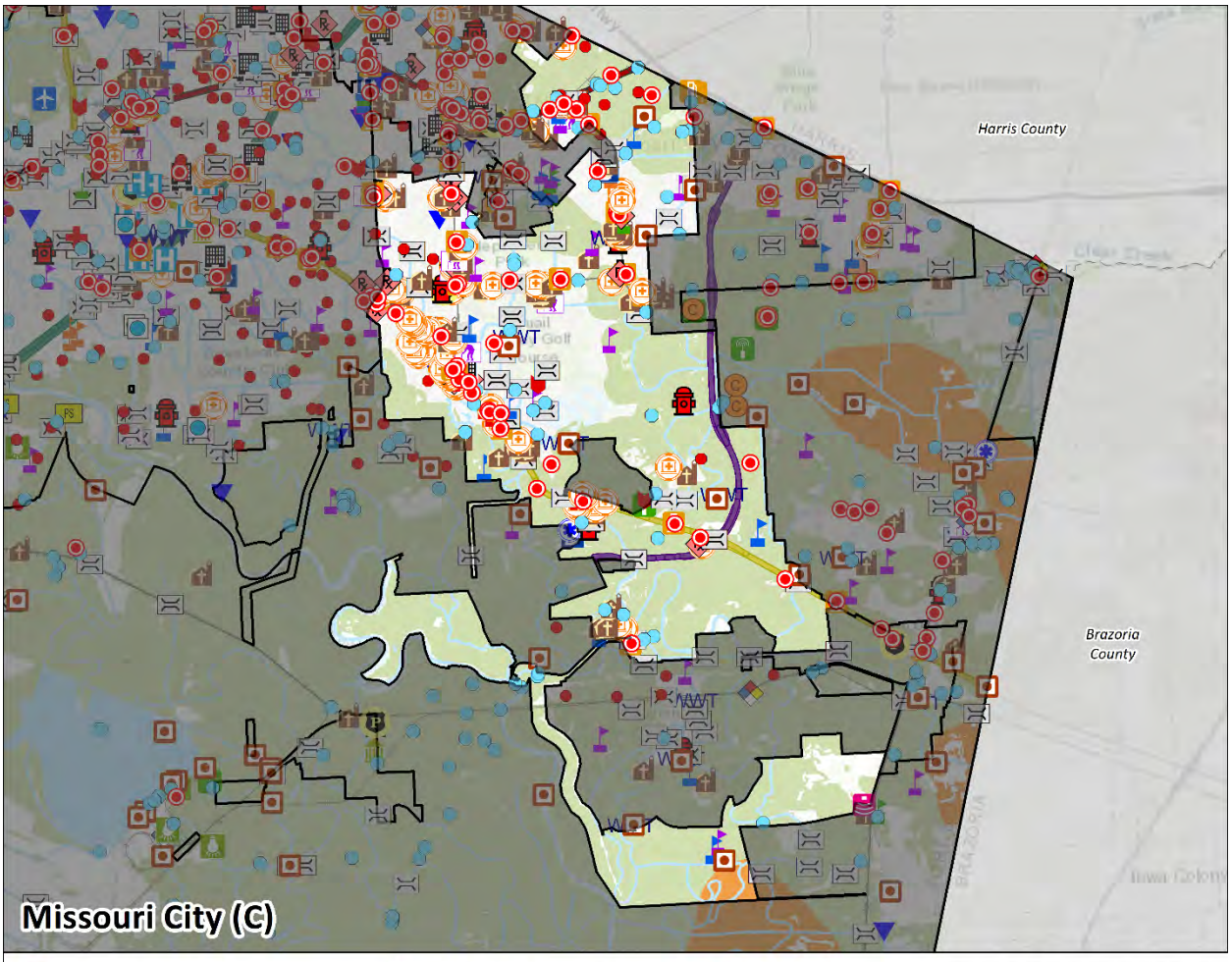


Figure 9.8-6. City of Missouri City Hazard Area Extent and Location Map-Wildfire



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Wildfire Hazard Area

- Low Threat
- Moderate Threat

Miles
0 1 2

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022

Notes: City (C), Township (T), Village (V)

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Missouri City's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Missouri City experienced during hazard events since the last HMP update. Information provided in the table below is based on reference material or local sources.

Table 9.8-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration, if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	COVID-19 pandemic	The City was subject to closures and masking/social distancing requirements.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in significant number of downed trees and utility lines.	Minor damage, tree limbs.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County.	Minor damage Tree limbs, damage to fences at citizens homes.
September 12-18, 2021	EM-3572 Hurricane Nicholas	Yes	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	Minor wind damage, down fences and trees and limbs and minor power outages.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Moderate infrastructure damage, moderate damage to citizen's homes. Main damage was damage to pipes. Estimated damage over $500k.

Notes:
EM Emergency Declaration (FEMA)
FEMA Federal Emergency Management Agency
DR Major Disaster Declaration (FEMA)
N/A Not applicable

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Missouri City's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community-specific identification of the primary hazard concerns based on identified problems, impacts, and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Missouri City. The City of Missouri City reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City of Missouri City indicated the following:

- Changed Flood Risk from Low to Medium due to drainage and flood issues throughout the City

Table 9.8-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	**Medium**
Disease Outbreak	**Low**
Drought	**Medium**
Extreme Temperature	**Medium**
Flood	**Medium**
Geologic Hazards	**High**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**Low**
Winter Weather	**Low**

Critical Facilities and Community Lifelines in Hazard Areas

The table below summarizes the number of critical facilities and community lifelines in the municipality that are located within hazard areas. Refer to Section 4.3 (Hazard Profiles) for details on the impacts to critical facilities and community lifelines.

Table 9.8-15. Critical Facilities and Community Lifelines in Hazard Areas

Jurisdiction	1% Annual Chance Flood Hazard Area		Moderate Wildfire Hazard Area		Expansive Soils		Inland Erosion		Baker Reservoir Dam Inundation		Lake Sommerville Dam Inundation		Kitty Hollow Dam Inundation	
	Critical Facilities	Community Lifelines	Critical Facilities	Community Lifelines	Critical Facilities	Community Lifelines	Critical Facilities	Community Lifelines	Critical Facilities	Community Lifelines	Critical Facilities	Community Lifelines	Critical Facilities	Community Lifelines
Missouri City	25	24	0	0	117	103	181	154	3	3	174	155	30	29

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the City of Missouri City's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Missouri City identified the following vulnerabilities within their community:

- The public is aware of hazards, and the City needs to continue to educate them as well as new citizens on new and existing hazards.
- The City has a drought/contingency plan that needs to be enhanced and socialized with the public so that the public can become more knowledgeable on drought issues.*
- Extended precipitation events contribute to flooding roads, which leads to road closures that may prevent emergency responders from accessing an area. The following areas consistently flood:*
    - Pine Meadow / S Cravens Road
    - Bolton Estates
    - Lexington Village
    - Peninsula / Lake Olympia
    - Oakwick Forest
- The Watts culvert is undersized and contributes to drainage and mobility issues.
- City infrastructure is not fully backed up by generators, and the City wishes to enhance the generator capabilities on buildings that are used during emergencies. Some of these buildings include:
    - City Hall Complex
    - Rec and Tennis Center
    - Parks and Maintenance Building
- The City experiences flooding and drainage issues stemming from creeks and canals and drainage ditches overflowing and degrading. These streams and canals include:
    - Mustang Bayou Channel
    - GCWA Canal
    - Briscoe Canal Flume
    - Lower Oyster Creek
    - North East Oyster Creek Drainage
    - Gregory & McLain
- The City needs to update and enhance their current Continuity of Operations Plan and ensure that the plan addresses all the new and existing hazards of concern.
- The City needs to enhance the Evacuation Plan with the LIDs to ensure that all entities are aware and prepared to evacuate.
- The City has 37 repetitive loss and severe repetitive loss properties that were built before the current flood standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage.
- The following critical facilities are located in the special flood hazard area and were built before the current flood standards were adopted by the City:
    - Next Level Urgent Care Sienna
    - Elkins
    - River Pointe Church Missouri City Campus
    - Palmer Plantation WWTF

    - Drainage Ditch
- The City is aware of the structural/engineering soundness of the Missouri City public facilities and would like to create a list potential funding streams to address the repairs or modifications that are needed to protect the infrastructure from the hazards of concern.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.8.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.8-16. Status of Previous Mitigation Actions

Project #	Project	Responsible Party	Status of the Mitigation Action	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)? Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
1	Detention area outfall and levee improvements at Kitty Hollow Lake, Vicksburg Diversion Channel, Weir enlargement, and channel improvements for the Vicksburg Diversion Channel.	Missouri City Department of Public Works	In Progress; funded jointly through the City and Fort Bend County Drainage District; managed by the District; est. cost $2.0M	No	-	-
2	Channel improvements along the Mustang Bayou Diversion Channel from the confluence with the old channel to Kitty Hollow Lake Detention area.	Missouri City Department of Public Works	Completed; funded and managed privately through local Developer	No	-	-
3	Replacement of the Watts Plantation Road Culvert with appropriately sized box culverts.	Missouri City Department of Public Works	In Progress; funded and managed jointly through the City and Fort Bend County; est. cost $9M	Yes	Undersized culvert creating backwater and flooding issues	Public Works - Engineering
4	Channel improvement for Mustang Bayou from the GCWA Canal through the Thunderbird North Subdivision including the reconstruction of the bridge at Turtle Creek Dr.	Missouri City Department of Public Works	Ongoing Capability	Yes	Undersized in-line detention capacity leading to residential flooding issues	Public Works - Engineering
5	Channel improvements along Mustang Bayou from the Thunderbird North Subdivision to the confluence with the old channel; including pipeline relocations and a sheet pile structure.	Missouri City Department of Public Works	Completed; funded and managed privately through local Developer	No	-	-
6	Extend the Brisco Canal Flume over Lower Oyster Creek to enable excavation of the widening of the channel; plus allow for channel improvements upstream of the flume.	Missouri City Department of Public Works	No Progress	No	-	-
7	Chanel Improvements along the Long Point Creek Overflow Channel upstream of the Brisco Canal Flume.	Missouri City Department of Public Works	In Progress; funded jointly through the City and Fort Bend County Drainage District;	No	-	-

Project #	Project	Responsible Party	Status of the Mitigation Action	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)? Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
			managed by the District; est. cost $2.5M			
8	Providing information about the NFIP in County offices.	Missouri City Department of Public Works	No progress	No	-	-
9	Improve NFIP CRS rating. Review the existing floodplain ordinance and evaluate ways to improve the City's CRS rating to reduce the flood insurance premium. Choose from the variety of methods and projects available that can be implemented to improve the CRS rating.	Missouri City Department of Public Works	Ongoing Capability	No	-	-
10	Increasing public awareness of natural hazards and hazardous areas; distributing information regarding hazards and potential mitigation measures. Promotional sources would include the City website, social media, and public education programs.	Missouri City Office of Emergency Management	Ongoing Capability	No	-	-
11	Ensure that the City has adequate evacuation plans and notification procedures in place.	Missouri City Office of Emergency Management	Ongoing Capability	No	-	-
12	Develop a drought emergency/contingency plan.	Missouri City Office of Emergency Management	In Progress	Yes	Change to update and enhance plan	Public Works and Emergency Management
13	Cooperate and coordinate with County and State agencies in developing public information campaigns and/or water use restrictions to ensure sufficient water pressure for fire-fighting and provision of drinking water during periods of drought.	Missouri City Communications Department	No Progress	No	-	-

Project #	Project	Responsible Party	Status of the Mitigation Action	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)? Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
14	Evaluate the risks presented by excessive heat and humidity, especially in terms of high-risk populations such as the elderly/ low income.	Missouri City Office of Emergency Management	No Progress	No	-	-
15	In cooperation with County and State officials, ensure that high-risk populations are adequately addressed in response plans that are related to excessive heat risks.	Missouri City Office of Emergency Management	Ongoing Capability	No	-	-
16	Engage with County and State floodplain managers, engineers and emergency managers to ensure that local officials have a detailed understanding of potential risks to the community from dam and/or levee failures.	Missouri City Office of Emergency Management	In Progress	Yes	Need to continue to work with partners on risk	Missouri City Office of Emergency Management
17	Engage with County and State floodplain managers, engineers and emergency managers to ensure that local officials have a detailed understanding of potential risks to the community from dam and/or levee failures.	Missouri City Office of Emergency Management	See above. Duplicate	No	-	-
18	Conduct a review of the City's current plans and resources to address the risks posed by ice and snow hazards during winter storms. Focus on City's ability to respond to snow and ice emergencies, and on potentially at-risk populations in the community.	Missouri City Office of Emergency Management	Ongoing Capability	No	-	-
19	On a case-by-case basis, develop and initiate mitigation actions to reduce the wildfire and brushfire risk through the creation of fire breaks. Actions	Missouri City Fire Department	Ongoing Capability	No	-	-

Project #	Project	Responsible Party	Status of the Mitigation Action	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)? Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
	may include informing property owners of appropriate actions, clearing vegetation and wildfire fuels, and monitoring antecedent conditions, among others.					
20	Initiate upgrades to at-risk public facilities to include structurally fortifying at-risk facilities, integrating increased thermal insulation, impact-resistant film or glass, surge protection systems, and wind-resistant windows and doors. Integrate higher levels of soil compaction standards and mandate freeboard for new development. Mitigates specific risks to structures, people, and operations.	Missouri City Public Works Department and Fire Marshall's Office	No Progress	No	-	-
21	Complete a detailed structural/engineering survey of Missouri City public facilities to ensure their soundness with respect to resisting the effects of high winds, extreme roof loading from snow or ice, and hail. Forms basis of decisions about any additional actions to mitigate risk.	Missouri City Department of Public Works	No Progress	Yes	Lacking detailed survey to guide complex decisions	Public Works – Engineering

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Missouri City identified the following mitigation efforts completed since the last HMP:

- None identified

Since the adoption of the County's first HMP, the City of Missouri City has made significant mitigation progress in the following areas:

- The City has maintained a Class 7 in the CRS program since 2010.

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County conducted a mitigation action workshop in March 2023. During the meeting, the following FEMA publications were distributed to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Table 9.8-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	X	-	X	X	-	X	-	X	X
Disease Outbreak	X	X	-	X	X	-	X	-	-	X
Drought	X	X	-	X	X	-	X	-	X	X
Extreme Temperature	X	X	-	X	X	-	X	-	X	X
Flood	X	X	X	X	X	X	X	X	X	X
Geologic Hazards	X	X	-	X	X	-	X	-	X	X
Hurricane/Tropical Storm	X	X	X	X	X	-	X	X	X	X
Severe Weather	X	X	X	X	X	-	X	X	X	X
Tornado	X	X	-	X	X	-	X	-	X	X
Wildfire	X	X	-	X	X	-	X	-	X	X
Winter Weather	X	X	X	X	X	-	X	X	X	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Missouri City would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.8-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Missouri City-001	Hazard Mitigation Outreach	**Problem:** The public is aware of hazards and the City needs to continue to educate them as well as new citizens on new and existing hazards. **Solution:** Increase public awareness of natural hazards and hazardous areas; distribute information regarding hazards and potential mitigation measures to the public. Promotional sources would include a tab on the City website, additional social media, and public education programs that inform the public of the hazards of concern and how to prepare for them.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1	1 Year	City Public Works	BRIC, HMGP, FMA	Residents will be more knowledgeable about the hazards of concern.	$5,000	High	EAP	PI
2023-City of Missouri City-002	Drought Emergency Plan	**Problem:** The City has a drought/contingency plan that needs to be enhanced and socialized with the public so that the public can become more knowledgeable on drought issues **Solution:** The City will partner with relevant departments and agencies to enhance the comprehensive drought emergency/contingency plan and will share the plan with the public.	Drought	2,3	1 Year	City Public Works	BRIC, HMGP, FMA, City Budget	The City will be more prepared for Drought events.	$1,000	High	LPR	ES
2023-City of Missouri City-003	Flood Study and Mitigation	**Problem:** Extended precipitation events contribute to flooding roads which leads to road closures that may prevent emergency responders from accessing an area. The following areas consistently flood: • Pine Meadow / S Cravens Road • Bolton Estates • Lexington Village • Peninsula / Lake Olympia	Flood	2	1 Year	FPA, City of Missouri Public Works	BRIC, HMGP, FMA, City Budget	The City will have reduced flooding once actions are implemented.	>$100,000	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		• Oakwick Forest **Solution:** The City will perform a study to locate the specific problem areas and evaluate what method would best solve each flooding issue and implement that method.										
2023-City of Missouri City-004	Watts Culvert Replacement	**Problem:** The Watts culvert is undersized and contributes to drainage and mobility issues. **Solution**: The City will conduct a study to determine the proper size of culverts that are needed to handle the amount of drainage that passes through the Watts Plantation Road Culvert.	Flood, Severe Weather, Winter Weather	2	Less than 5 Years	Missouri City Public Works	BRIC, HMGP, BRIC, City Budget	Upgrading the culvert will reduce flood issues.	>$100,000	High	SIP	SP
2023-City of Missouri City-005	Generator Installation/Warming and Cooling Stations	**Problem:** City infrastructure is not backed up by generators, and when generators are needed the City must rent generators in order to operate during extreme hazard events. These buildings include: • City Hall Complex • Rec and Tennis Center • Parks and Maintenance Building **Solution:** The City will conduct generator studies to determine what size generators are needed to power these facilities so that they may operate during hazard events and can also operate as emergency heating/cooling shelters.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2, 3	3 Years	Missouri City Internal Services Department	BRIC, HMGP	The City will have less damage to infrastructure due to lack of power, and staff will be able to perform continuity of operations during hazard events.	$4,000,000	High	SIP	ES
2023-City of Missouri City-006	Stream Channel Improvements	**Problem:** The City experiences flooding and drainage issues stemming from creeks and canals and drainage ditches overflowing and degrading. These streams and canals include: • Mustang Bayou Channel • GCWA Canal • Briscoe Canal Flume • Lower Oyster Creek • North East Oyster Creek Drainage	Flood, Hurricane/Tropical Storms, Severe Weather, Winter Weather	2,3	5 Years	Missouri City Public Works	HMGP, BRIC, FMA, CDBG	The City will experience less flooding and degrading.	>$100,000 each	High	NSP	NR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		• Gregory & McLain **Solution:** The City will conduct drainage and channel studies to determine proper flood mitigation techniques and will implement them.										
2023-City of Missouri City-007	Develop an updated Continuity of Operations Plan	**Problem:** The City needs to update and enhance their current Continuity of Operations Plan and ensure that the plan addresses all the new and existing hazards of concern. **Solution:** The City will integrate the current HMP into an updated Continuity of Operations Plan.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	1 Year	Missouri City Emergency Management	HMGP, City Budget	The Plan ensures the City is able to keep essential functions running during severe weather, hurricanes, pandemics etc.	$100,000	High	LPR	PR, PI
2023-City of Missouri City-008	Develop an Evacuation Plan	**Problem:** The City needs to enhance the Evacuation Plan with the LIDs, to ensure that all entities are aware and prepared to evacuate. **Solution:** The City will implement an Evacuation Plan that addresses the hazards of concern and integrates the LIDs.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	3 Years	Missouri City Public Works	HMGP, BRIC, City Budget	The City will be able to evacuate in a timely manner.	$3,000	High	LPR	ES
2023-City of Missouri City-009	Repetitive Loss Mitigation	**Problem:** The City has 37 repetitive loss and severe repetitive loss properties that were built before the current flood standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage. **Solution:** The City will conduct outreach to the RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating	Flood, Hurricane/Tropical Storm, Severe Weather, Winter Weather	2	Less than 5 Years	NFIP Floodplain Administrator, supported by homeowners	HMGP and FMA, BRIC, local cost share by residents	Eliminates flood damage to homes and residents.	>$500,000	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		residential homes in the flood-prone areas that experience frequent flooding (high-risk areas).										
2023-City of Missouri City-010	Critical Facilities Flood Protection	**Problem**: The following critical facilities are located in the special flood hazard area and were built before the current flood standards were adopted by the City: • Next Level Urgent Care Sienna • Elkins • River Pointe Church Missouri City Campus • Palmer Plantation WWTF • Drainage Ditch **Solution:** The City will conduct a feasibility assessment to determine what additional floodproofing measures are needed at these facilities to protect each to the 500-year flood level. Options include: • Elevation of facility • Floodproofing of facility • Mobile flood barriers Once the most cost-effective option is identified, the City will carry out the option.	Flood	2	Less than 5 years	City Engineer	HMGP and PDM, BRIC, USDA Community Facilities Grant Program, Emergency Management Performance Grants (EMPG) Program, City Budget	Ensures that facilities can carry out continuity of operations.	TBD by feasibility assessment	High	SIP	SP
2023-City of Missouri City-011	Complete a detailed structural/engineering survey of Missouri City public facilities	**Problem:** The City is aware of the structural/engineering soundness of the Missouri City public facilities and would like to create a list potential funding streams to address the repairs or modifications that are needed to protect the infrastructure from the hazards of concern. **Solution:** The City will complete a detailed structural/engineering survey of the public facilities in the City to ensure their stability with respect to resisting impacts from the hazards of concern. The City will record potential funding streams of each project and will record the results and ensure that stability for all public facilities is achieved.	Dam/Levee Failure, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	3 years	City Engineer, City Administration	HMGP and FMA, BRIC,	The City will become more knowledgeable about the stability of public facilities.	>$5,000 for engineer study	High	SIP	SP

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS	*Community Rating System*
FEMA	*Federal Emergency Management Agency*
N/A	*Not applicable*
NFIP	*National Flood Insurance Program*
OEM	*Office of Emergency Management*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
BRIC	*Building Resilient Infrastructure and Communities Program*

Timeline: The time required for completion of the project upon implementation
Cost: The estimated cost for implementation.
Benefits: A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR) – These actions include government authorities, policies, or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP) - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP) – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP) – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR) - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP) - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.8-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Missouri City-001	Hazard Mitigation Outreach	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Missouri City-002	Drought Emergency Plan	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Missouri City-003	Flood Study and Mitigation	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-City of Missouri City-004	Watts Culvert Replacement	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Missouri City-005	Generator Installation/Warming and Cooling Stations	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-City of Missouri City-006	Stream Channel Improvements	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Missouri City-007	Develop an updated Continuity of Operations Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Missouri City-008	Develop an Evacuation Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Missouri City-009	Repetitive Loss Mitigation	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High
2023-City of Missouri City-010	Critical Facilities Flood Protection	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
2023-City of Missouri City-011	Complete a detailed structural/engineering survey of Missouri City public facilities	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.9 City of Needville

This section presents the jurisdictional annex for the City of Needville that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Needville representatives who participated in the planning process, an assessment of the City of Needville's risk and vulnerability, the different capabilities used in the City of Needville, and an action plan that will be implemented to achieve a more resilient community.

9.9.1 Hazard Mitigation Planning Team

The City of Needville identified primary and alternate points of contact and developed the 2023 Hazard Mitigation Plan (HMP) update over the course of several months with input from many City of Needville departments, including the Police Department and Operations. The Chief of the Police Department represented the community on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Michael Dickerson, Chief/Police Department	Name/Title:	Brian Sebesta, Operations Manager
Address:	P.O. Box 527 Needville, Texas 77461	Address:	P.O. Box 527 Needville, Texas 77461
Phone Number:	832-344-6665	Phone Number:	832-945-8009
Email:	chiefdickerson@cityofneedville.com	Email:	bsebesta@cityofneedville.com
NFIP Floodplain Administrator			
Name/Title:	Brian Sebesta/Operations Manager*		
Address:	15502 Fm 442 Rd, Needville, TX 77461-9116		
Phone Number:	979-793-4253		
Email:	bsebesta@cityofneedville.com		
Additional Contributors:			
Name/Title: Method of Participation:		Brian Sebesta/Operations Manager Provided key input in the planning process	
Name/Title: Method of Participation:		Michael Dickerson Provided key input in the planning process	

**Information obtained from https://www.texasflood.org/flood-basics/fpa.html*

9.9.2 Municipal Profile

The City of Needville is located in southern Fort Bend County near the Village of Fairchilds, Village of Pleak, and the City of Beasley. Texas State Highway 36 passes through the City. Downtown Houston is located 41 miles to the northeast. The City of Needville has a total area of 2.01 square miles.

According to the American Community Survey, the 2021 population for the City of Needville was 3,059. Data from the 2021 ACS indicates that 5.9 percent of the population is 5 years of age or younger, and 15.6 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.9.3 Jurisdictional Capability Assessment and Integration

The City of Needville performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Needville to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Needville. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code 2015	Local	Code Official
How does this reduce risk? The City of Needville adopted the 2015 International Building Code.				
Zoning/Land Use Code	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Subdivision Ordinance	Yes	Chapter 78 – Subdivisions	Local	City Council
How does this reduce risk? The City Ordinance requires all subdivisions and developers provide for constructions or underground utilities, street improvements, alleys or easements.				
Site Plan Ordinance	Yes	-	Local	Planning and Zoning Commission
How does this reduce risk? All development designs are required to submit plat designs with details of infrastructure that includes egress, utility lines, driveways, any easements and setbacks.				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	-	The Private Real Property Rights Preservation Act - Subchapter B: Chapter 2007 of the General Government Code	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Chapter 38 – Flood Prevention	Local	City Mayor/ Floodplain Administrator

How does this reduce risk?

The Flood Damage Prevention Ordinance identifies the Floodplain Administrator and the duties they are responsible for. These responsibilities include;

- Maintain and hold open for public inspection all records.
- Review permit applications to determine whether to ensure that the proposed building site project, including the placement of manufactured homes, will be reasonably safe from flooding.
- Review, approve, or deny all applications for development permits required by adoption of this chapter.
- Review permits for proposed development to assure that all necessary permits have been obtained from those federal, state or local governmental agencies, including section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 USC 1334, from which prior approval is required.
- Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards, for example, where there appears to be a conflict between a mapped boundary and actual field conditions, the Floodplain Administrator shall make the necessary interpretation.
- Notify, in riverine situations, adjacent communities and the state coordinating agency which is the Texas Water Development Board (TWDB) and also the Texas Commission on Environmental Quality (TCEQ), prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.
- Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
• When base flood elevation data has not been provided the Floodplain Administrator shall obtain, review and reasonably utilize any base flood elevation data and floodway data available from a federal, state or other source, in order to administer the provisions of article III of this chapter. • When a regulatory floodway has not been designated, the Floodplain Administrator must require that no new construction, substantial improvements, or other development, including fill, shall be permitted within zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	Yes	Chapter 26 – Emergency Management	Local	Emergency Manager
How does this reduce risk? The Emergency Management Ordinance is designed to establish an emergency operations plan and emergency operations manager and establish the requirements for the plan and position.				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Planning Documents				
Comprehensive/Master Plan	No	-	-	-
How does this reduce risk?				
Capital Improvement Plan	No	-	-	-
How does this reduce risk?				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How does this reduce risk?				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	Emergency Management Plan	Local	Emergency Operations Manager
How does this reduce risk? A comprehensive emergency management plan shall be developed and maintained in a current state. The plan shall set forth the form of the organization, establish and designate divisions and functions, assign responsibilities, tasks, duties, and powers, and designate officers and employees to carry out the provisions of this chapter. As provided by state law, the plan shall follow the standards and criteria established by the governor's division of emergency management of the state. Insofar as possible, the form of organization, titles and terminology shall conform to the recommendations of the governor's division of emergency management. When approved, it shall be the duty of all departments and agencies to perform the functions assigned by the plan and to maintain their portion of the plan in a current state of readiness at all times. The emergency management plan shall be considered supplementary to this chapter and have the effect of law during the time of a disaster.				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS)	County	FBHHS

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
		provides public health services for the City of Needville. FBHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.		
How does this reduce risk?				
Other	-	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Needville to oversee and track development.

Table 9-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	Development Permits within the special flood hazard areas are issued at City Hall in accordance with the Flood Prevention Ordinance.
If you do not issue development permits, what is your process for tracking new development?	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	No permits have been issued within special flood hazard areas.
Do you have a buildable land inventory? • If yes, please describe	No	-
Describe the level of build-out in your jurisdiction.	N/A	Build-out is currently estimated at 65% of the area within the existing City limits.

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Needville and their current responsibilities that contribute to hazard mitigation.

Table 9-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	Planning Commissions is a six person board that is responsible for the following: • Identifying community needs and to advise the city council of their short range and long

		range implications for the total development of the city • Provide recommendations for achievable community goals as a basis for long range planning and development programs • Recommend plans, programs and policies that will aid the entire community in achieving its defined goals • Interpretation of the adopted plans and programs to concerned citizens so that private activities and desires may be accomplished in harmony with public needs and policies.
Zoning Board of Adjustment	No	The City does not have zoning regulations.
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Economic Development Corporations. The Development Corporation of Needville's mission is to enhance the economic well-being of the City of Needville and its citizens.
Public Works/Highway Department	Yes	Public Works includes construction equipment and field personnel for responding to drainage and City utility problems.
Construction/Building/Code Enforcement Department	Yes	Code Review & Inspections by TX BBG Consulting, Inc. (Consultant).
Emergency Management/Public Safety Department	Yes	The Emergency Management Coordinator is established and decided by an elected official.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Ditch and Storm sewer maintenance by Public Works.
Mutual aid agreements	No	-
Human Resources Manual	No	-
Other	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	City Engineer (Consultant)
Engineers or professionals trained in building or infrastructure construction practices	Yes	City Engineer & Buildings by TX BBG Consulting, Inc. (Consultants).
Planners or engineers with an understanding of natural hazards	Yes	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	City Engineer (Consultant)
Emergency manager	Yes	City Mayor- Director; Police Chief & Public Works Director - Coordinators
Grant writer(s)	No	-

Resilience officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

Fiscal Capability

The table below summarizes financial resources available to the City of Needville.

Table 9-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Needville.

Table 9-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the City of Needville.

Table 9-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	-	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.9.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Needville.

Table 9-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Needville (C)	145	39	$1,535,039.29	2	N/A

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP
Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Needville.

Table 9-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	Yes, available from City Staff.
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	We do not make substantial damage determinations. None were made.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	One slab raised; private funding.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	No, due to the size of the watersheds with the City Limits, the maps do not show flood hazard designations for waterways within the City.
NFIP Compliance	
What local department is responsible for floodplain management?	City Mayor or Mayor's Designee
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	No

Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Permit Review by TX BBG Consulting, Inc. (Consultant).
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Replacement/Rehabilitation cost greater than 50% of the replacement cost.
What are the barriers to running an effective NFIP program in the community, if any?	Lack of special flood hazard designations adjoining waterways in the City.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	Chapter 38 – Flood Prevention
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Yes, Meets
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Chapter 78 - Subdivisions
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	No

9.9.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single Family	-	-	-	-	-	-	-	-	-	-
Multi-Family	-	-	-	-	-	-	-	-	-	-
Other (commercial, mixed-use, etc.)	-	-	-	-	-	-	-	-	-	-

Type of Development	2018		2019		2020		2021		2022	
Total Permits Issued	-	-	-	-	-	-	-	-	-	-

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
None Identified					
Known or Anticipated Major Development in the Next Five (5) Years					
None Identified					

9.9.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Needville's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Needville has significant exposure. The maps also show the location of potential new development, where available.

Figure 9-1. City of Needville Hazard Area Extent and Location Map-Dam Inundation

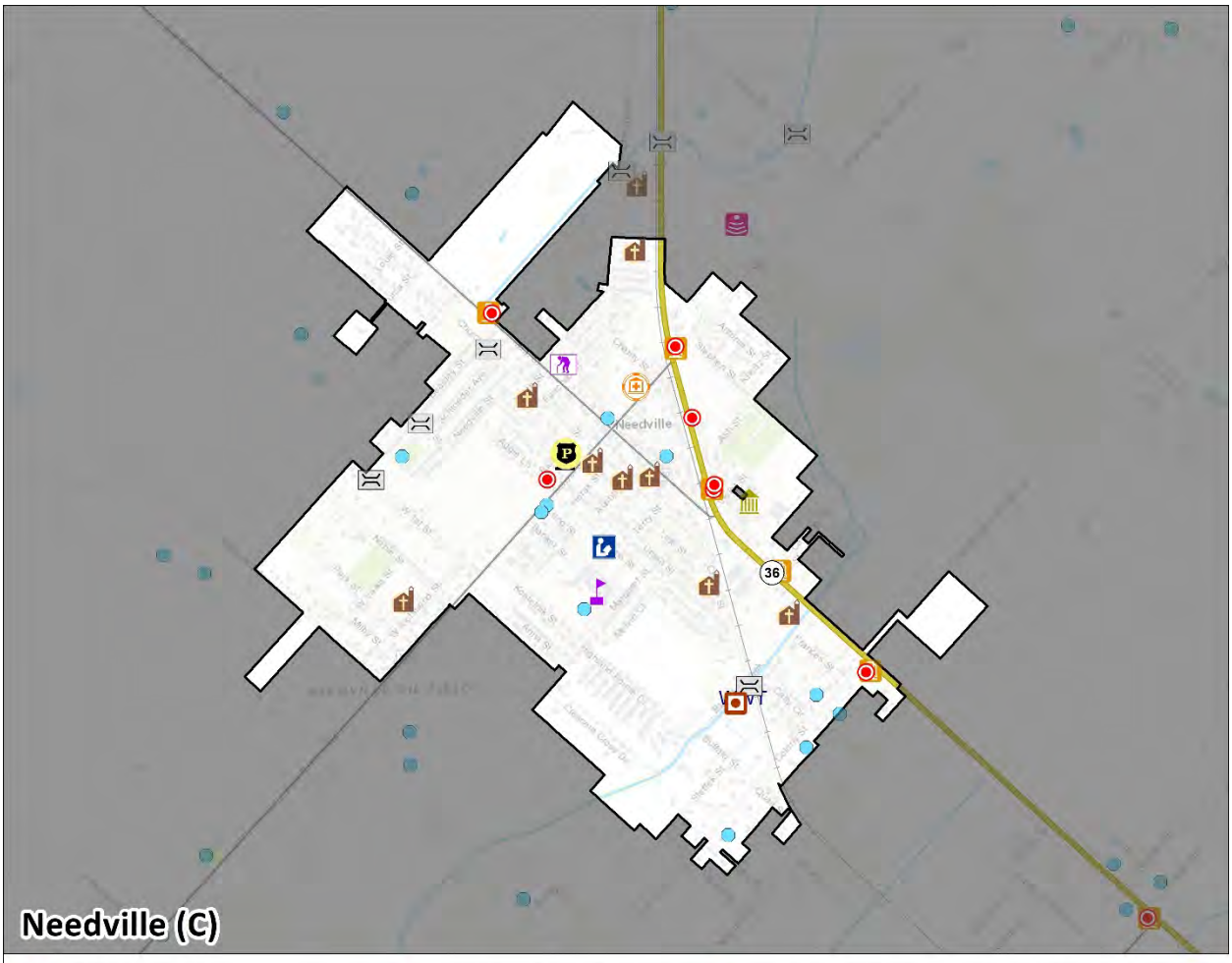
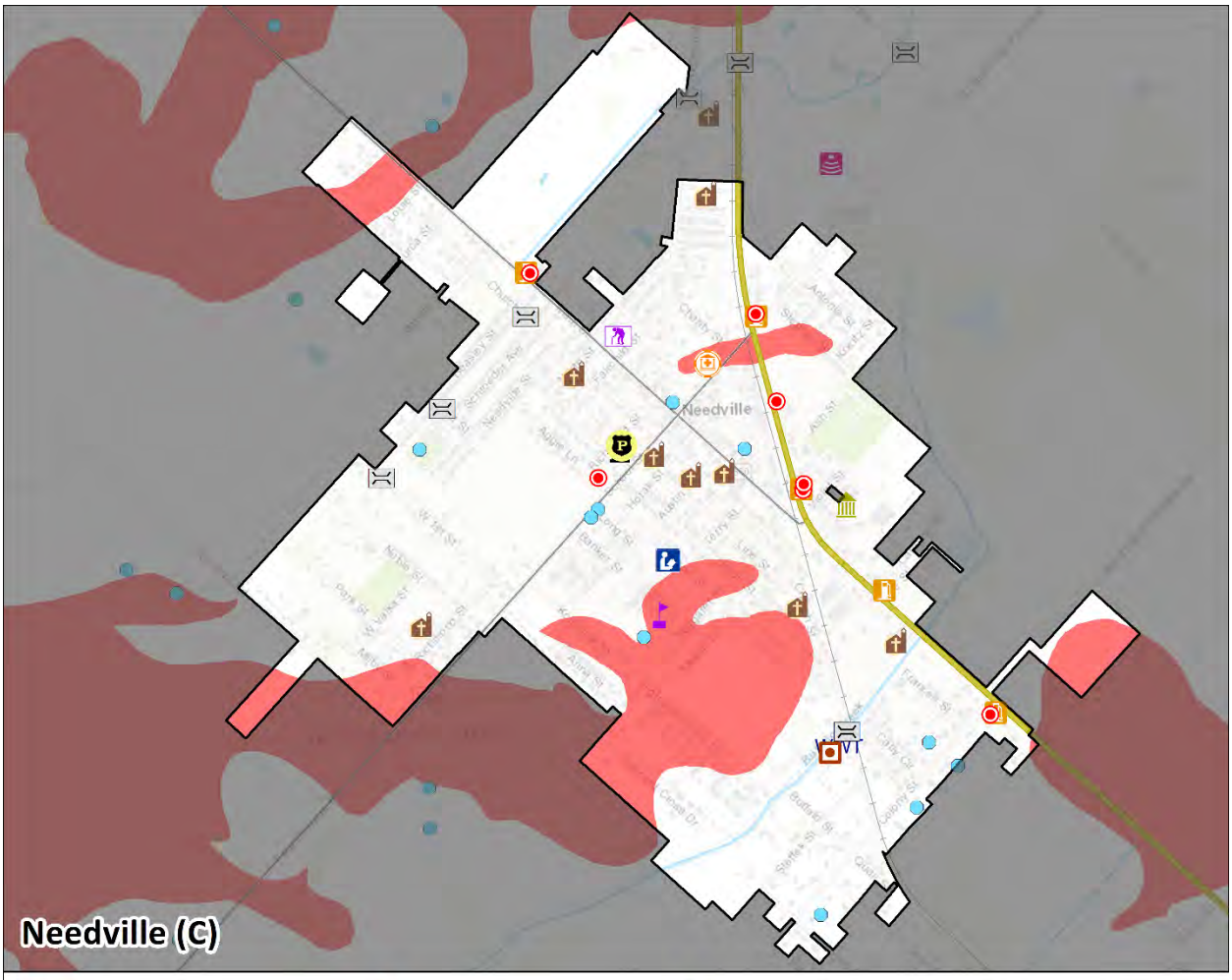


Figure 9-2. City of Needville Hazard Area Extent and Location Map-Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 0.2 0.4

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9-3. City of Needville Hazard Area Extent and Location Map-Flood

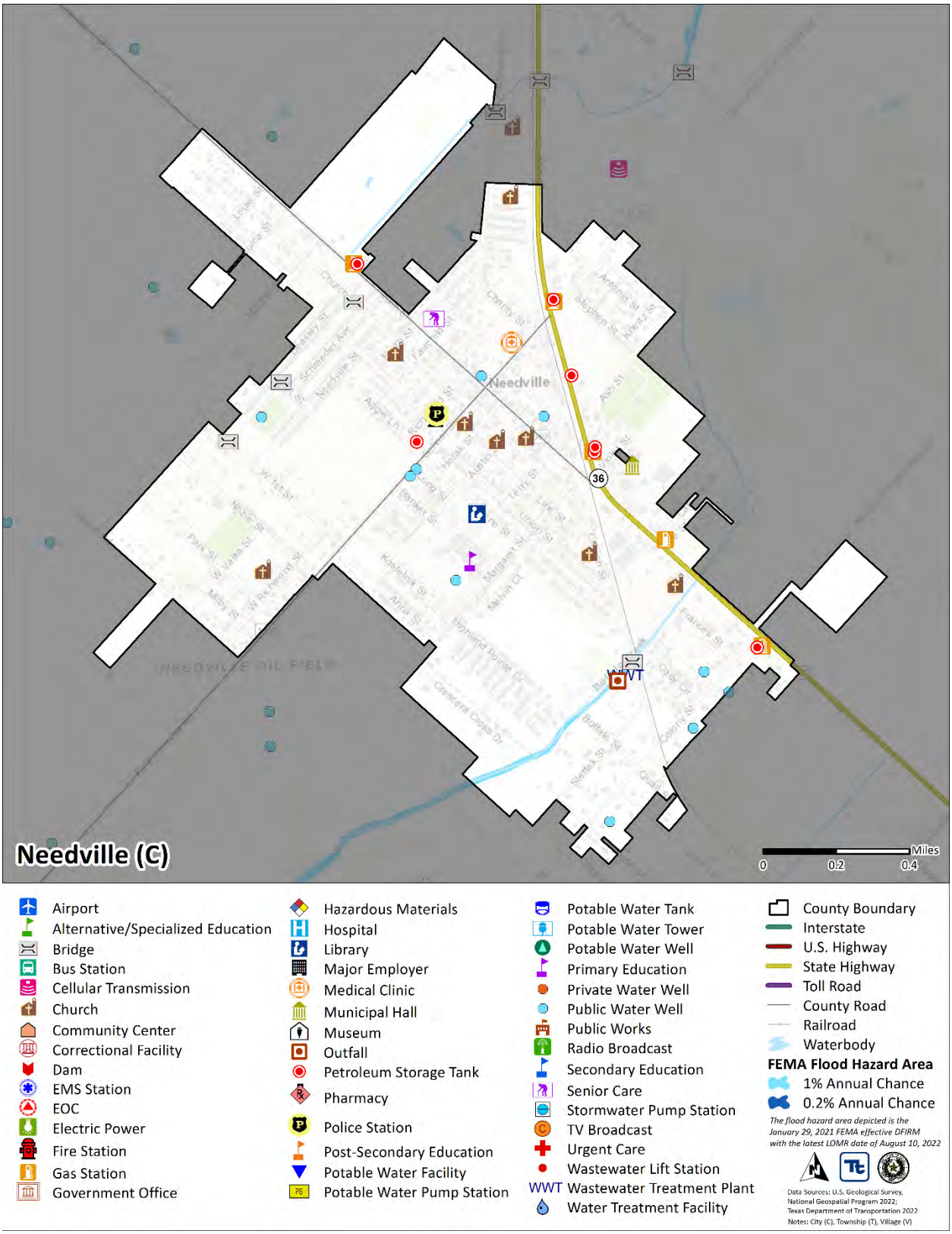


Figure 9-4. City of Needville Hazard Area Extent and Location Map-Inland Erosion

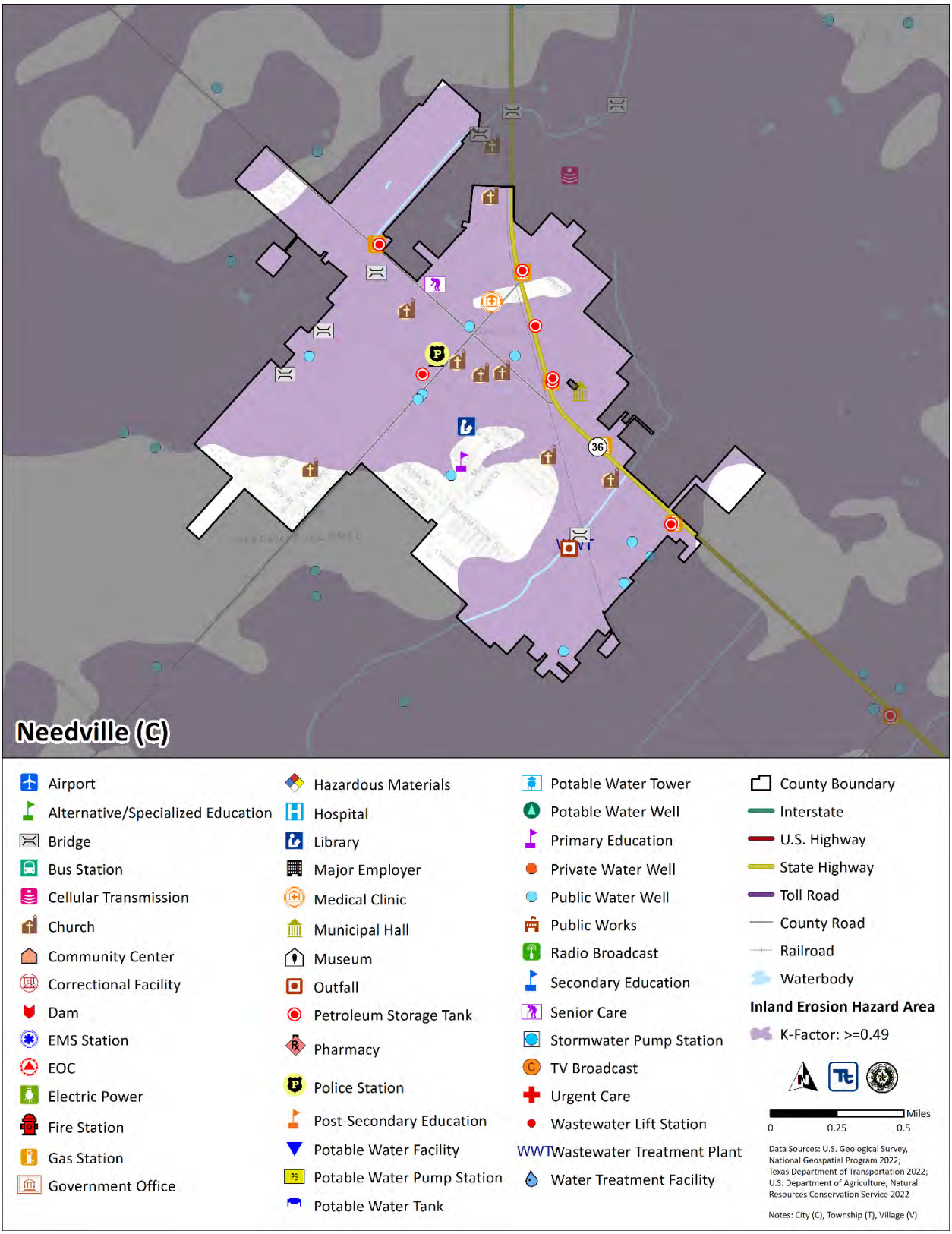
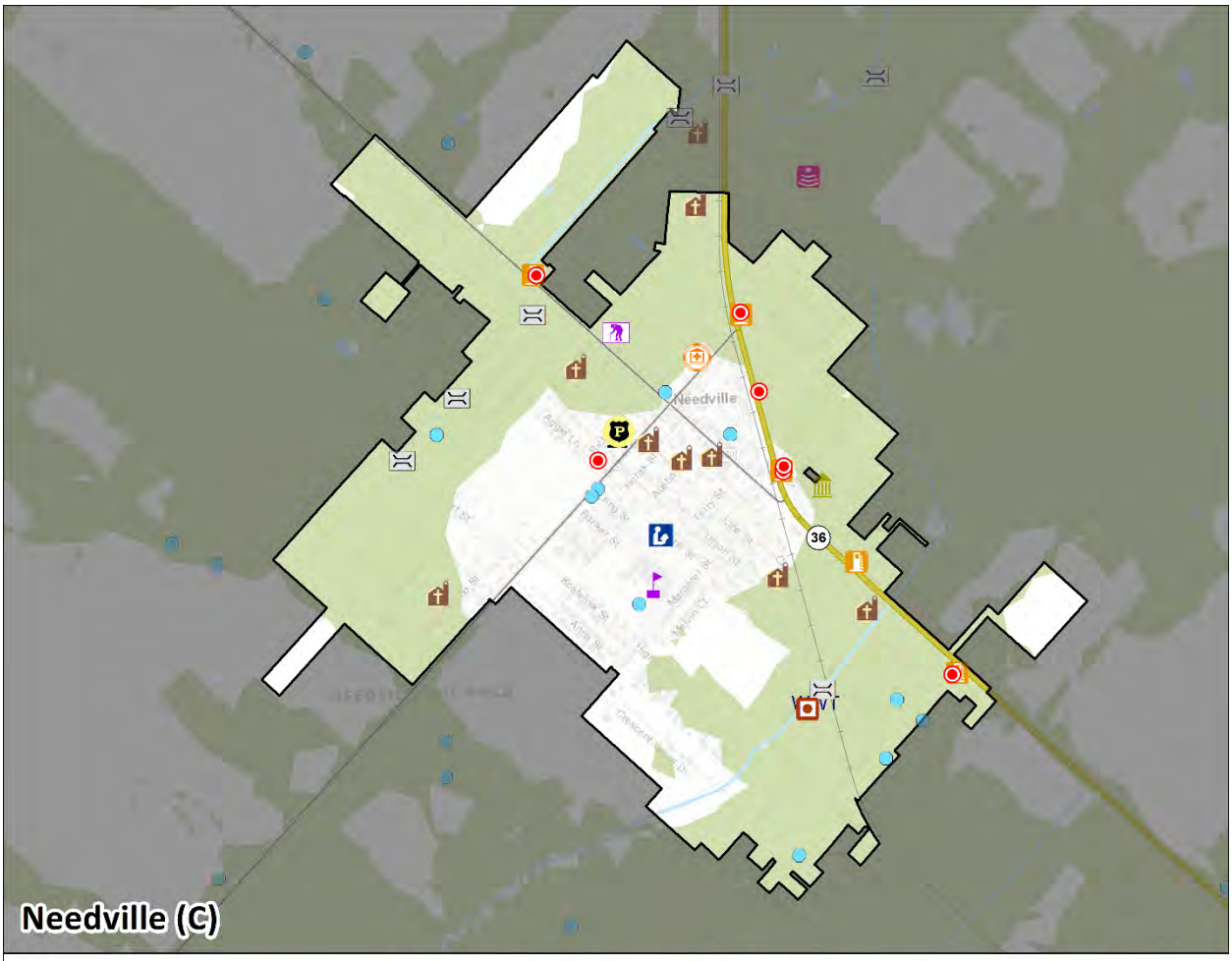


Figure 9-5. City of Needville Hazard Area Extent and Location Map-Wildfire



Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Needville's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Needville experienced during hazard events since the last HMP update. Information provided in the table below is based on reference material or local sources.

Table 9-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	COVID-19 pandemic	The City experienced damages equivalent to the County level.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in significant number of downed trees and utility lines.	The City experienced damages equivalent to the County level.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County	The City experienced damages equivalent to the County level.
September 12-18, 2021	EM-3572 Hurricane Nicholas	Yes	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	The City experienced damages equivalent to the County level.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	The City experienced damages equivalent to the County level.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Needville's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard

and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Needville. The City of Needville reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

Table 9-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	**Medium**
Disease Outbreak	**Low**
Drought	**Medium**
Extreme Temperature	**Medium**
Flood	**Low**
Geologic Hazards	**Medium**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**Low**
Winter Weather	**Low**

Critical Facilities

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		**Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area**	
	Critical Facilities	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**
Needville (C)	1	1	0	0	39	31	2	2	0	0	0	0	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the City of Needville's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Needville identified the following vulnerabilities within their community:

- The City has an aged maintenance barn that is not designed to meet current standards and cannot withstand high winds from severe weather and tornadoes.
- The City does not currently have a map documenting their wildfire hazard area.
- The high-risk and socially vulnerable populations are underrepresented in City plans, which puts them at a greater risk than the rest of the population.
- The City has limited plans and resources to address the risk posed by winter weather and extreme cold.
- The City is at risk for wildfire risk due to property owners not fully understanding what causes wildfires.
- The City has numerous at-risk public structures that need upgrades in order to withstand the hazards of concern.
- The Police Department Office and wastewater treatment plant are susceptible to damages from the hazards of concern.
- The City does not have an alert system in place to alert the public of incoming hazard events which limits the time that the residents have to react.
- The City does not have an evacuation plan developed in the event an evacuation is needed.
- City Hall cannot perform continuity of operations during power/utility outages because it does not have backup power.
- The Cities critical facilities are at risk from extreme hazard events that may damage windows and prevent continuity of operations.
- There are residents of the City that are unaware of hazard preparation and mitigation due to lack of informative material.
- The City has two repetitive loss and severe repetitive loss properties. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.9.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)? Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Replace existing culverts with larger culverts for better drainage along Charity and Richmond Streets.	FBC Engineer, FBC Road and Sewer, City of Needville	Complete	No	-	-
Install culverts at Gene and Church Street.	FBC Engineer, FBC Road and Sewer, City of Needville	No Progress	No	-	-
Reinforcement of critical facilities to withstand high winds from severe weather and geological hazards (Hurricanes, Tornadoes, High Winds) – specifically the fire station.	Needville City Hall	No Progress	No	-	-
Reinforce the Needville City maintenance barn to withstand high winds from severe weather and tornadoes.	Needville City Hall	In Progress	Yes	Aged facilities not designed to meet current standards.	Public Works
Install a 50-kilowatt (kW) generator for the Public Safety buildings to include Police, Fire, EMS and Emergency Management.	Needville City Hall	No Progress	No	-	-
Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the NFIP.	Needville City Hall	No Progress	No	-	-
Conduct study to determine and map potential wildfire hazard areas.	City of Needville Fire Dept.	Ongoing	Yes	-	-
Increase public awareness of hazards, hazardous areas and mitigation techniques. Distribute public awareness information regarding flood hazards, SFHA's, and potential mitigation measures using the local newspaper, utility bill inserts, inserts in the phone book, a City hazard awareness website, and an educational program for school-age children or "how to" classes in retrofitting by local merchants.	Needville City Hall	No Progress	No	-	-
In cooperation with County and State officials, ensure that high-risk populations are	Needville City Hall	Ongoing	Yes	-	-

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
adequately addressed in response plans that are related to excessive heat risks.					
Review plans and resources to address risk posed by snow and ice hazard during winter storms.	Needville City Hall	Ongoing	Yes	-	-
On a case-by-case basis, develop and initiate mitigation actions to reduce wildfire and brushfire risk. Actions may include informing property owners of appropriate actions, clearing vegetation and wildfire fuels, and monitoring antecedent conditions, among others.	City of Needville Fire Dept.	Ongoing	Yes	-	-
Initiate upgrades to at-risk public structures and public higher standards for new structures.	City of Needville Inspections Dept.	No Progress	Yes	-	-
Complete a detailed structural/engineering survey of Needville public facilities to ensure their soundness with respect to resisting the effects of high winds, extreme roof loading from snow or ice, and hail. Forms basis of decisions about any additional actions to mitigate risk. Geological hazard consideration made for new facility locations.	City of Needville Engineer	No Progress	No	-	-
Upgrading the Police Department office to help mitigate the risk of lightning, windstorms, tornadoes, or hurricanes/ tropical storms. Mitigate expansive soil impacts on building foundation. Consider xeriscaping options for landscaping.	Needville City Hall	Ongoing	Yes	-	-
Upgrading the wastewater treatment plant to help mitigate the risk of lightning, tornadoes, floods, or hurricanes/tropical storms.	Needville City Hal	Ongoing	Yes	-	-
Upgrading the street department gradall to help mitigate the risk of tornadoes, floods, or hurricanes/tropical storms	Needville Inspections Dept/	Complete	No	-	-

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Needville identified the following mitigation efforts completed since the last HMP:

- None identified

Since the adoption of the County's first HMP, the City of Needville has made significant mitigation progress in the following areas:

- None identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Table 9-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	X	-	X	X	X	X	-	X	X
Disease Outbreak	X	-	-	X	-	X	X	-	-	X
Drought	X	X	-	X	X	X	X	-	X	X
Extreme Temperature	X	X	-	X	X	X	X	-	X	X
Flood	X	X	-	X	X	X	X	-	X	X
Geologic Hazards	X	X	-	X	X	X	X	-	X	X
Hurricane/Tropical Storm	X	X	-	X	X	X	X	-	X	X
Severe Weather	X	X	-	X	X	X	X	-	X	X
Tornado	X	X	-	X	X	X	X	-	X	X
Wildfire	X	X	-	X	X	X	X	-	X	X
Winter Weather	X	X	-	X	X	X	X	-	X	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Needville would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Needville -001	Reinforce the Needville City maintenance barn	**Problem:** The City has an aged maintenance barn that is not designed to meet current standards and cannot withstand high winds from severe weather and tornadoes. **Solution:** The City will conduct a study to determine how to best reinforce the building and will implement it.	Hurricane/Tropical Storm, Severe Weather, Tornado	2	2 Years	Public Works	BRIC. HMGP, City Budget	The maintenance barn will be better able to withstand high wind events.	>$100,000	High	SIP	PP, SP
2023-City of Needville -002	Conduct study to determine and map potential wildfire hazard areas.	**Problem:** The City does not currently have a map documenting their wildfire hazard area. **Solution:** The City will conduct a study to determine the wildfire hazard area and will map it for reference.	Wildfire	2, 4	1 Year	Public Works, Fire Department	BRIC, HMGP, City Budget	The City will be able to reference a fire hazard map when looking at building something.	$50,000	High	EAP	PR, PP
2023-City of Needville -003	In cooperation with County and State officials, ensure that high-risk and socially vulnerable populations are adequately addressed in plans	**Problem:** The high-risk and socially vulnerable populations are underrepresented in City plans which puts them at a greater risk than the rest of the population. **Solution:** The City will ensure that all plans adequately address the high-risk and socially vulnerable populations and will integrate the current HMP into all plans, including listing medical and emergency equipment that may be needed in a hazard emergency.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1, 2	1 Year	Public Works	HMGP, City Budget	The high-risk and socially vulnerable populations will be better protected from hazards of concern.	$5,000	High	LPR	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Needville -004	Review Plans and Resources to Address Risk Posed by Snow and Ice Hazard During Winter Storms	**Problem:** The City has limited plans and resources to address the risk posed by winter weather and extreme cold. **Solution:** The City will review plans and resources and update them to address the risk posed by extreme cold and winter weather.	Extreme Temperature, Winter Weather	1, 2	1 Year	Public Works	HMGP, City Budget	Extreme Cold and Winter Weather will be adequately addressed in the City's plans and resources.	$1,000	High	LMP	ES
2023-City of Needville -005	Develop and initiate mitigation actions to reduce wildfire and brushfire risk.	**Problem:** The City is at risk for wildfire risk due to property owners not fully understanding what causes wildfires. **Solution:** The City will develop and initiate mitigation actions to reduce wildfire risk and educate property owners on appropriate actions to take to lessen the risk.	Wildfire	2, 3	6 months	Public Works	HMGP, City Budget	The City's population will be less at risk for the wildfire hazard.	$1,000	High	EAP	PP, PI
2023-City of Needville -006	Initiate Upgrades to at-risk Public Structures	**Problem:** The City has numerous at-risk public structures that need upgrades in order to withstand the hazards of concern. **Solution:** The City will inventory at-risk structures and conduct engineering studies for each building before implementing strategies to upgrade these structures and limit risk.	Dam/Levee Failure, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2, 3	4 Years	Public Works, Building Department	BRIC, HMGP, FMA, City Budget	The at-risk buildings will become safer and less at risk from the hazards of concern.	>$500,000	High	SIP	SP, PP, PR
2023-City of Needville -007	Upgrading the Police Department office and wastewater treatment plant	**Problem:** The Police Department Office and wastewater treatment plant are susceptible to damages from the hazards of concern. **Solution:** The City will conduct a study to evaluate how to best upgrade the Police Department Office and	Dam/Levee Failure, Drought, Extreme Temperature, Flood, Geologic Hazards,	2, 3, 5	Less than 5 Years	Public Works, Police Department	BRIC, HMGP, FMA, City Budget	The Police Department Office building will be able to withstand the hazards of concern	>$500,000	High	SIP	SP, PP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		wastewater treatment plant and will implement those strategies.	Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather					better than the current office.				
2023-City of Needville -008	Public Alert/Warning System	**Problem:** The City does not have an alert system in place to alert the public of incoming hazard events which limits the time that the residents have to react. **Solution:** The City will obtain funding and install a warning system that covers the entire City and operates using outdoor sirens and notifications on cell phones so that residents have ample time to prepare for a hazard event.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1	Less than 5 Years	Public Works, County, Fire Department	BRIC, FMA, HMGP, City Budget	City residents will have a greater warning time period to prepare for incoming hazard events.	>$100,000	High	EAP	ES
2023-City of Needville -009	Develop an Evacuation Plan	**Problem:** The City does not have an evacuation plan developed in the event an evacuation is needed. **Solution:** The City will develop an evacuation plan that takes into account the at-risk population.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1, 2	1 Year	Public Works	HMGP, City Budget	The City will have an evacuation plan prepared which will make evacuating a more time efficient process.	$5,000	High	LPR	ES
2023-City of Needville -010	Generator for City Hall	**Problem**: City Hall cannot perform continuity of operations during power/utility outages because it does not have backup power.	Dam/Levee Failure, Drought, Extreme Temperature, Flood,	2	Less than 5 Years	Public Works	HMGP, BRIC, City Budget	City Hall will be able to perform continuity of operations	$100,000	High	SIP	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Solution: The City will conduct a generator study and will purchase and install the correct sized generator to keep City Hall functioning during hazard events.	Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather					during outages.				
2023-City of Needville -011	Firewise Storm Shutters on Critical Facilities	**Problem:** The Cities critical facilities are at risk from extreme hazard events that may damage windows and prevent continuity of operations. **Solution:** The City will inventory what facilities need Firewise Storm Shutters to ensure continuity of operations.	Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	Less than 5 years	Public Works	HMGP, BRIC, City Budget	The City's critical facilities will be able to operate more safely during extreme hazard events.	>$100,000	High	SIP	ES, PP
2023-City of Needville -012	Public Outreach	**Problem:** There are residents of the City that are unaware of hazard preparation and mitigation due to lack of informative material. **Solution:** The City will add a webpage to their website that details proper hazard mitigation and preparation. This will include actions that property owners can take in order to protect their properties better.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1	1 Year	Public Works	HMGP, City Budget	The City's residents will become more aware of hazard preparation and mitigation.	$500	High	EAP	PI, PP
2023-City of Needville -013	Repetitive Loss Mitigation	**Problem:** The City has two repetitive loss and severe repetitive loss properties. Many of these structures were built without flood design standards. These properties require mitigation to prevent future losses and prevent loss of life and property damage.	Flood, Hurricane/Tropical Storm, Severe Weather, Winter Weather	2, 3	Less than 5 Years	NFIP Floodplain Administrator, supported by homeowners	HMGP and FMA, BRIC, local cost share by residents	Eliminates flood damage to homes and residents.	>$500,000	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Solution: The City will conduct outreach to the RL/SRL property owners and provide information on mitigation alternatives. After preferred mitigation measures are identified, collect required property-owner information and develop a FEMA grant application and BCA to obtain funding to implement acquisition/purchase/moving/elevating residential homes in the flood prone areas that experience frequent flooding (high-risk areas).										

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS Community Rating System
FEMA Federal Emergency Management Agency
HMA Hazard Mitigation Assistance
N/A Not applicable
NFIP National Flood Insurance Program

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program
BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*

- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Needville-001	Reinforce the Needville City maintenance barn	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-City of Needville-002	Conduct study to determine and map potential wildfire hazard areas	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Needville-003	In cooperation with County and State officials, ensure that high-risk and socially vulnerable populations are adequately addressed in plans	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2023-City of Needville-004	Review Plans and Resources to Address Risk Posed by Snow and Ice Hazard During Winter Storms	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Needville-005	Develop and initiate mitigation actions to reduce wildfire and brushfire risk	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Needville-006	Initiate Upgrades to at-risk Public Structures	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Needville-007	Upgrading the Police Department office and wastewater treatment plant	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2023-City of Needville-008	Public Alert/Warning System	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-City of Needville-009	Develop an Evacuation Plan	1	0	1	1	1	1	1	1	1	1	1	1	1	0	12	High
2023-City of Needville-010	Generator for City Hall	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2023-City of Needville-011	Firewise Storm Shutters on Critical Facilities	1	1	1	1	1	1	0	0	1	1	1	1	1	0	11	High
2023-City of Needville-012	Public Outreach	1	1	1	1	1	1	1	0	1	1	1	1	1	0	12	High
2023-City of Needville-013	Repetitive Loss Mitigation	1	1	1	1	1	1	0	1	0	0	1	0	1	1	10	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.10 City of Orchard

This section presents the jurisdictional annex for the City of Orchard that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Orchard representatives who participated in the planning process, an assessment of the City of Orchard's risk and vulnerability, the different capabilities used in the City of Orchard, and an action plan that will be implemented to achieve a more resilient community.

9.10.1 Hazard Mitigation Planning Team

The City of Orchard identified primary and alternate points of contact and developed the 2023 Hazard Mitigation Plan (HMP) update over the course of several months with input from many City of Orchard departments, including Department of Emergency Services. The Mayor represented the community on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials who participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.10-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Rodney Pavlock/Mayor	Name/Title:	N/A
Address:	9714 Kibler Street	Address:	N/A
Phone Number:	(979)478-6893	Phone Number:	N/A
Email:	coforchard@twlt.net	Email:	N/A
NFIP Floodplain Administrator			
Name/Title:	Melissa Andel/Assistant Administrator *		
Address:	9714 Kibler Street		
Phone Number:	979-478-6893		
Email:	coforchard@twlt.net		
Additional Contributors:			
Name/Title: Method of Participation:	No additional contributors		

**Information obtained through https://www.texasflood.org/flood-basics/fpa.html*

9.10.2 Municipal Profile

The City of Orchard is in the western part of Fort Bend County and is located along State Highway 36 and the BNSF Railway between Roseburg and Wallis in Austin County. Missouri Street is the major north-south artery, intersecting SH

36 and crossing the railroad. Missouri Street goes north as far as Brazos Elementary School. The City has a total area of.36 square miles, with all of it being land.

According to the American Community Survey, the 2021 population for the City of Orchard was 219, a 43.9 percent decrease from the 2010 Census. Data from the 2021 ACS indicates that 3.2 percent of the population is 5 years of age or younger, and 31.1 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.10.3 Jurisdictional Capability Assessment and Integration

The City of Orchard performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Orchard to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Orchard. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.10-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	Ordinance 110-16 – Standard Building Codes	Local	Code Enforcement
How does this reduce risk? The City of Orchard adopted the International Building Code standards in 2005.				
Zoning/Land Use Code	No	-	-	-
How does this reduce risk?				
Subdivision Ordinance	Yes	Ordinance 085-07-Subdivision Ordinance	Local	City Council
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Subdivision Ordinance regulations were adopted to provide the orderly, safe, and healthful development of the lands within the City limits or withing the City's extraterritorial jurisdiction.				
Site Plan Ordinance	No	-	-	-
How does this reduce risk?				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Flood Damage Prevention Ordinance	Local	-
How does this reduce risk? Dictates the minimum flood standards adopted by the City to meet the Federal standards of the National Flood Insurance Program (NFIP). Could be enhanced through higher standards adoption				
Wellhead Protection	Yes	Ordinance 002-74 – Private Water Wells	Local	City Council
How does this reduce risk? Ordinance making illegal the use for human consumption of water from a private water well within the corporate limits of the Town of Orchard (sic). Used to consider modifications or enhancements for water conservation and drought mitigation purposes.				
Emergency Management Ordinance	No	-	-	-
How does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Planning Documents				
Comprehensive/Master Plan	No	-	-	-
How does this reduce risk?				
Capital Improvement Plan	No	-	-	-
How does this reduce risk?				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	No	-	-	-

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How does this reduce risk?				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	No	-	-	-
How does this reduce risk?				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the City of Orchard. FBHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk?				
Other	No	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Orchard to oversee and track development.

Table 9.10-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	Building Department
If you do not issue development permits, what is your process for tracking new development?	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Floodplain is tracked with Floodplain certificates
Do you have a buildable land inventory? • If yes, please describe	N/A	-
Describe the level of build-out in your jurisdiction.	N/A	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Orchard and their current responsibilities that contribute to hazard mitigation.

Table 9.10-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	No	-
Zoning Board of Adjustment	No	-
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Economic Development Council
Public Works/Highway Department	Yes	Water and Sewer Manager
Construction/Building/Code Enforcement Department	No	-
Emergency Management/Public Safety Department	Yes	Elected Official
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	No	-
Human Resources Manual	No	Consider the following: Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?
Other	Yes	City Administrator
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	Yes	Dictates the minimum flood standards adopted by the City to meet the Federal standards of the National Flood Insurance Program (NFIP).
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency manager	Yes	Elected Official
Grant writer(s)	No	Consider the following:

		Are data and maps from the HMP used to support documentation in grant applications?
Resilience officer		
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

Fiscal Capability

The table below summarizes financial resources available to the City of Orchard.

Table 9.10-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	No
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Orchard.

Table 9.10-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the City of Orchard.

Table 9.10-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	No	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.10-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.10.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

National Flood Insurance Program (NFIP) Summary

The following table summarizes the NFIP statistics for the City of Orchard.

Table 9.10-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Orchard (C)	8	6	$213,258.75	0	0

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP
Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Orchard.

Table 9.10-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	-
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	-
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	-
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	-
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	-
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	-
NFIP Compliance	
What local department is responsible for floodplain management?	Building department
Are any certified floodplain managers on staff in your jurisdiction?	-
Do you have access to resources to determine possible future flooding conditions from climate change?	-
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	-
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	-
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	-
What are the barriers to running an effective NFIP program in the community, if any?	-

NFIP Topic	Comments
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	-
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	-
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	-
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	-
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	-

9.10.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.10-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single Family	-	-	-	-	-	-	-	-	-	-
Multi-Family	-	-	-	-	-	-	-	-	-	-
Other (commercial, mixed-use, etc.)	-	-	-	-	-	-	-	-	-	-
Total Permits Issued	-	-	-	-	-	-	-	-	-	-

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.10-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
None Identified					
Known or Anticipated Major Development in the Next Five (5) Years					
None Identified					

9.10.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Orchard's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Orchard has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.10-1. City of Orchard Hazard Area Extent and Location Map-Dam Inundation

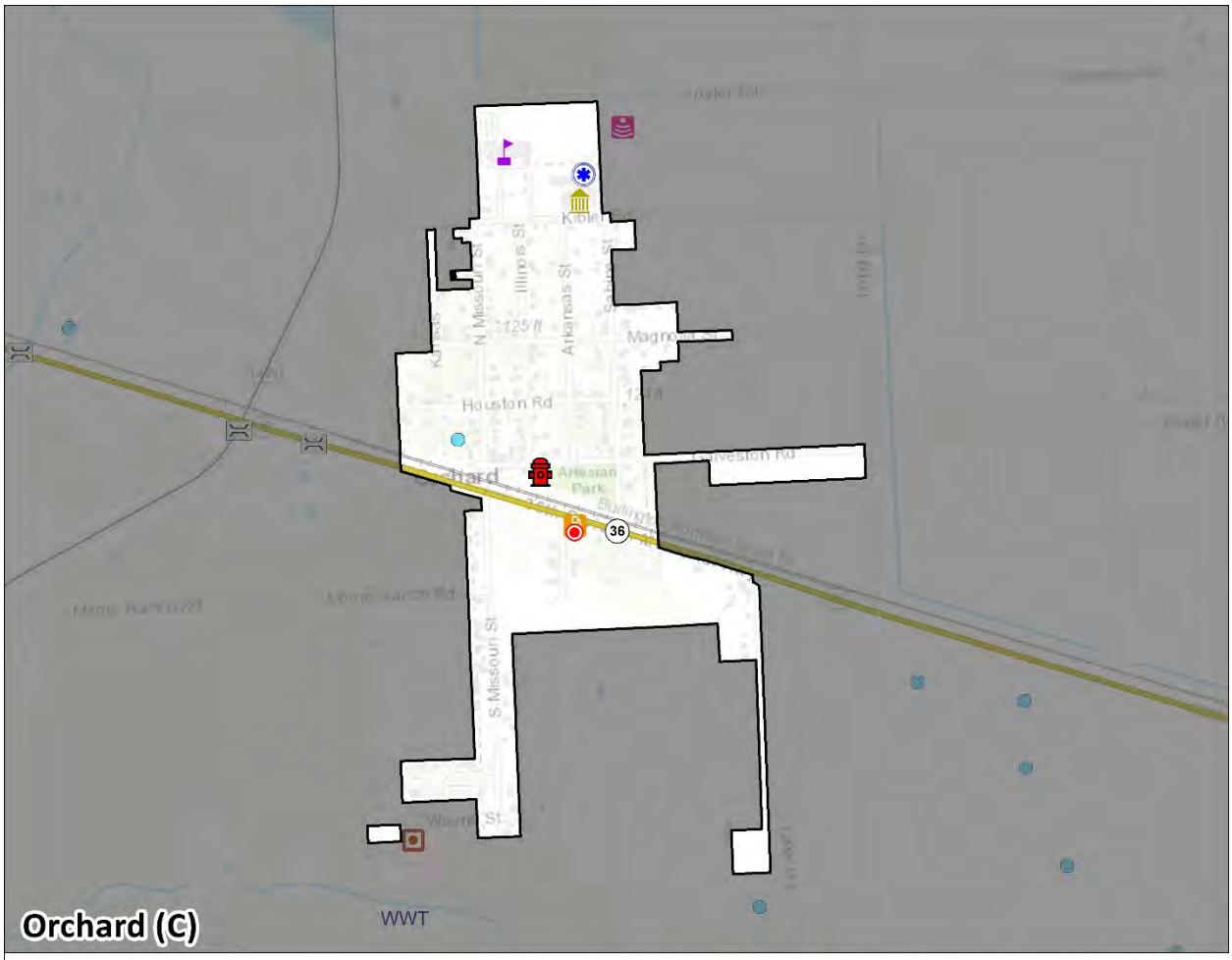


Figure 9.10-2. City of Orchard Hazard Area Extent and Location Map-Expansive Soils

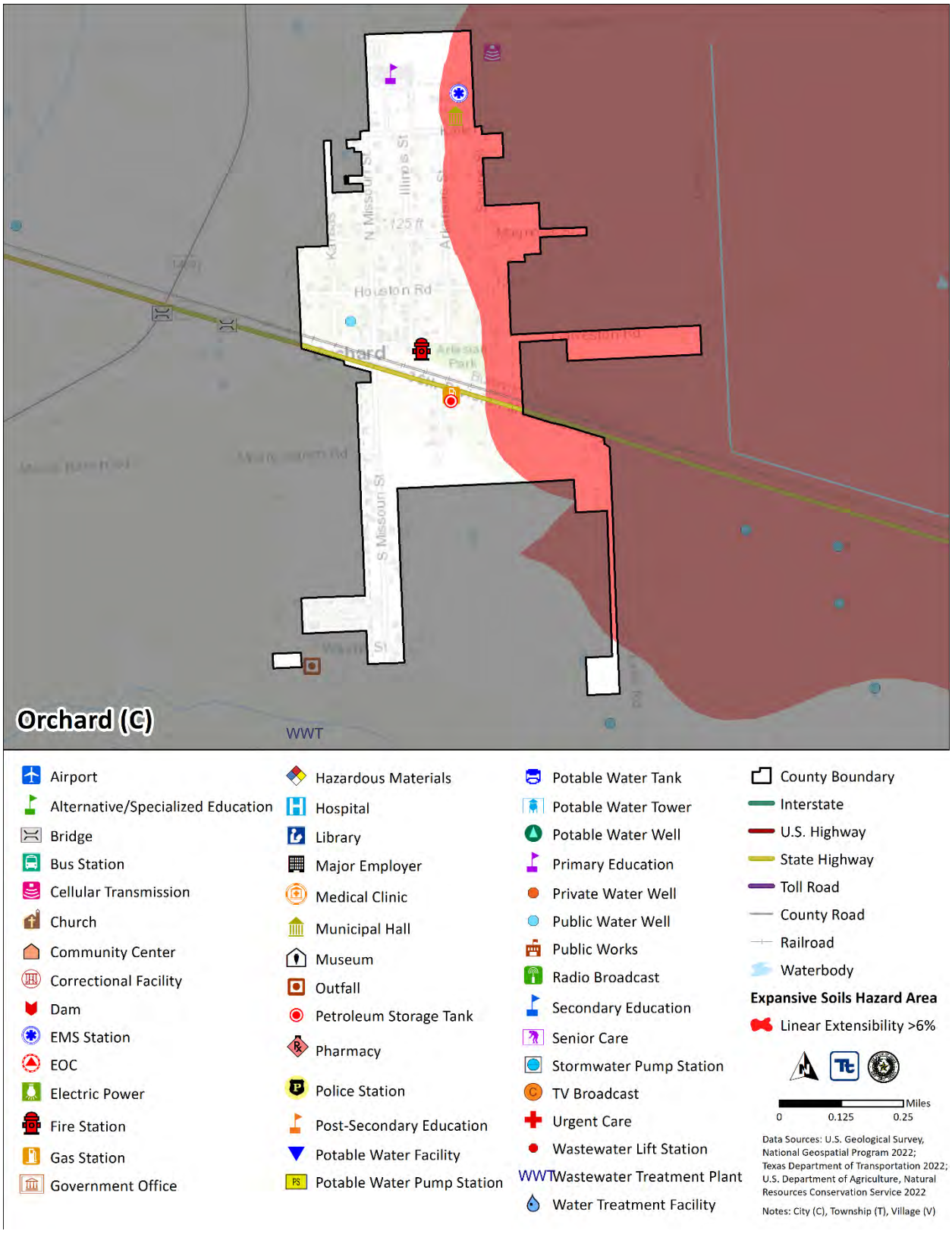


Figure 9.10-3. City of Orchard Hazard Area Extent and Location Map-Flood



Figure 9.10-4. City of Orchard Hazard Area Extent and Location Map-Inland Erosion



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Inland Erosion Hazard Area

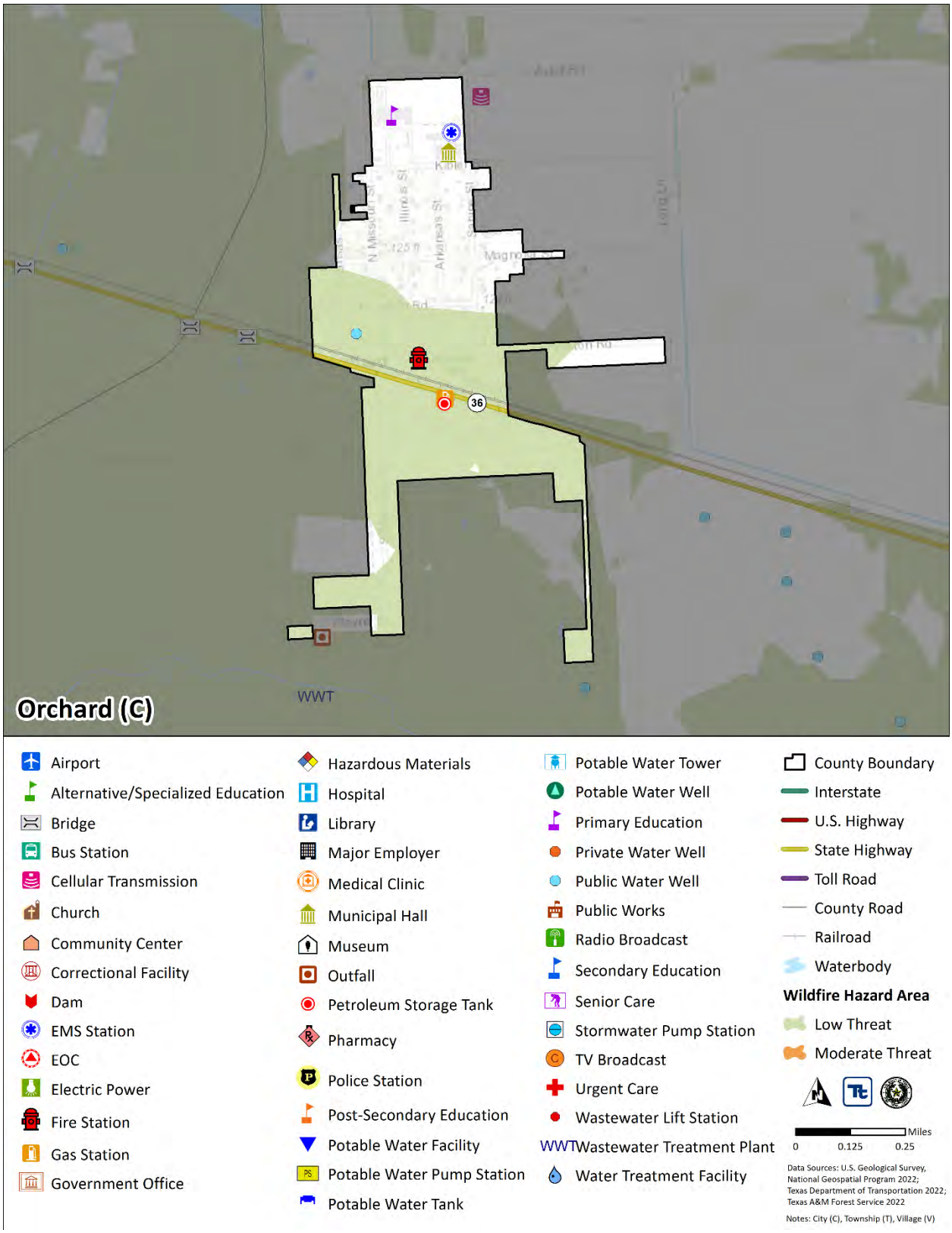
- K-Factor: >=0.49

Miles
0 0.15 0.3

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.10-5. City of Orchard Hazard Area Extent and Location Map-Wildfire



Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Orchard's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Orchard experienced during hazard events since the last HMP update. Information provided in the table below is based on reference material or local sources.

Table 9.10-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	COVID-19 pandemic	The City did not incur additional damages or losses that were documented.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in significant number of downed trees and utility lines.	The City did not incur additional damages or losses that were documented.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County.	The City did not incur additional damages or losses that were documented.
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	The City did not incur additional damages or losses that were documented.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	The City did not incur additional damages or losses that were documented.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Orchard's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community-specific identification of the primary hazard concerns based on identified problems, impacts, and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Orchard. The City of Orchard reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

Table 9.10-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	**Low**
Disease Outbreak	**Medium**
Drought	**Medium**
Extreme Temperature	**Medium**
Flood	**Low**
Geologic Hazards	**Medium**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**Low**
Winter Weather	**Low**

Critical Facilities

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.10-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		**Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area**	
	Critical Facilities	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**
Orchard (C)	0	1	0	0	0	0	2	2	0	0	0	0	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the City of Orchard's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Orchard identified the following vulnerabilities within their community:

- The City cannot expand the City limits due to the shortened span of the water lines. Additionally, the City struggles to combat wildfire prior to the hazard entering City lines.
- The City does not have a hazard warning system in place that helps protect and warn residents against incoming hazard events.
- The City does not currently have a Continuity of Operations Plan to implement in the event a hazard disrupts the City's function.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.10.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.10-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Reinforcement of Critical Facilities	City of Orchard Engineer	-	-	-	-
Retrofit Existing Public-School Buildings	City of Orchard Engineer	-	-	-	-
Increase Public Awareness of Hazard Mitigation	City of Orchard City Hall	-	-	-	-
Evacuation Plans	City of Orchard City Hall	-	-	-	-
Wildfire Hazard Areas	City of Orchard City Hall	-	-	-	-
Monitor Drought Conditions	City of Orchard City Hall	-	-	-	-
Public Information Campaigns	City of Orchard City Hall	-	-	-	-
Evaluate Excess Heat Risks	City of Orchard City Hall	-	-	-	-

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Address High Risk Populations (excessive heat)	City of Orchard City Hal	-	-	-	-
Review Plans and Resources to Address Risk Posed by Snow and Ice Hazards during winter storms	City of Orchard City Hall	-	-	-	-
Various Mitigation Actions to reduce Wildfire Risk	City of Orchard City Hall	-	-	-	-
Upgrades to At-Risk Structures and higher Standards for New Structures	City of Orchard Engineer	-	-	-	-
Install Ground System/Surge Protections	City of Orchard Engineer	-	-	-	-
Review City Ordinance and Building Codes	City of Orchard City Hall	-	-	-	-

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Orchard identified the following mitigation efforts completed since the last HMP:

- None identified

Since the adoption of the County's first HMP, the City of Orchard has made significant mitigation progress in the following areas:

- None identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Table 9.10-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	-	-	-	X	-	-	-	-	-	X
Disease Outbreak	-	-	-	X	-	-	-	-	-	X
Drought	-	-	-	X	-	-	-	-	-	X
Extreme Temperature	-	-	-	X	-	-	-	-	-	X
Flood	-	-	-	X	-	-	-	-	-	X
Geologic Hazards	-	-	-	X	-	-	-	-	-	X
Hurricane/Tropical Storm	-	-	-	X	-	-	-	-	-	X
Severe Weather	-	-	-	X	-	-	-	-	-	X
Tornado	-	-	-	X	-	-	-	-	-	X
Wildfire	-	X	-	X	-	X	-	-	-	X
Winter Weather	-	-	-	X	-	-	-	-	-	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Orchard would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.10-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Orchard-001	Expand Water Lines	**Problem:** The City cannot expand the City limits due to the shortened span of the water lines. Additionally, the City struggles to combat wildfire prior to the hazard entering City lines. **Solution:** The City will do an engineering study to figure out how to expand the waterlines out of the City limits in order to be able to expand the City and better protect the City from the wildfire hazard.	Wildfire	2, 3	5 Years	Fire Department, Public Works, County	HMGP, BRIC, City Budget, County Budget	The City will be better protected from the wildfire hazard.	>$300,000	High	SIP	ES,PP
2023-City of Orchard-002	Warning systems for hazard events	**Problem:** The City does not have a hazard warning system in place that helps protect and warn residents against incoming hazard events. **Solution:** The City will work to acquire necessary funding to install a hazard warning system that operates using outdoor sirens and notifications on cell phones to protect their residents.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	Less than 5 years	City Administration	BRIC, HMGP, FMA	Residents will have increased warning time before a hazard event affects the City.	$50,000	High	EAP	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Orchard-003	Develop a Continuity of Operations Plan	**Problem:** The City does not currently have a Continuity of Operations Plan to implement in the event a hazard disrupts the City's function. **Solution:** The City will develop a Continuity of Operations Plan and integrate the current HMP into it so that the Plan covers all the City's hazards of concern.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	1 Year	City Planning Department	HMGP, City	The City will have a fully developed plan in case of hazard disruptions.	$5,000	High	LPR	ES

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS Community Rating System
FEMA Federal Emergency Management Agency
HMA Hazard Mitigation Assistance
N/A Not applicable
NFIP National Flood Insurance Program

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program
BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*

- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.10-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Orchard-001	Expand Water Lines	1	1	1	1	0	1	0	1	1	1	0	0	1	1	10	High
2023-City of Orchard-002	Warning systems for hazard events	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-City of Orchard-003	Develop a Continuity of Operations Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.11 Village of Pleak

This section presents the jurisdictional annex for the Village of Pleak that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the Village of Pleak representatives who participated in the planning process, an assessment of the Village of Pleak's risk and vulnerability, the different capabilities used in the Village of Pleak, and an action plan that will be implemented to achieve a more resilient community.

9.11.1 Hazard Mitigation Planning Team

The Village of Pleak identified primary and alternate points of contact and developed this 2023 Hazard Mitigation Plan (HMP) update over the course of several months with input from the Village of Pleak Secretary and Fire Chief. The City Secretary represented the community on the Fort Bend County HMP Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.11-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Erin Walley, City Secretary	Name/Title:	Jordan Blegen, Fire Chief
Address:	6621 FM 2218 South Richmond, TX 77469	Address:	6621 FM 2218 Richmond, TX 77469
Phone Number:	(281) 239-8504	Phone Number:	(281) 342-3692
Email:	pleakvillage@yahoo.com	Email:	pleakvfd@yahoo.com
NFIP Floodplain Administrator			
Name/Title:	Sean Eglinton/Assistant County Engineer*		
Address:	301 Jackson St, Richmond, Texas, 77469, United States		
Phone Number:	281-633-7513		
Email:	sean.eglinton@fortbendcountytx.gov		
Additional Contributors:			
Name/Title: Method of Participation:	Erin Walley/ City Secretary Provided key information through answering worksheets		

**Information obtained from https://www.texasflood.org/flood-basics/fpa.html*

9.11.2 Municipal Profile

The Village of Pleak is south of the center of Fort Bend County on Texas State Highway 36, south of Rosenberg. Pleak gets its name from real estate developer A.E. Pleak. A successful oilman, he donated land for a school in 1912, which resulted in the formation of a small community in the area that still bears his name (Fort Bend County n.d.). The Village of Pleak has a total area of 1.85 square miles: 1.82 square miles of land and 0.03 square miles of water.

According to the American Community Survey, the 2021 population for the Village of Pleak was 1,756, a 7 percent decrease from the 2010 Census. Data from the 2020 U.S. Census indicate that 1.9 percent of the population is 5 years of age or younger, and 12.4 percent is 65 years of age or older.

9.11.3 Jurisdictional Capability Assessment and Integration

The Village of Pleak performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Village of Pleak to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Village of Pleak. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.11-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code	Local	Planning and Zoning
How does this reduce risk? The Village of Pleak follows the International Building Code to protect development.				
Zoning/Land Use Code	Yes	Zoning Ordinance #16-80	Local	Planning and Zoning
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
This ordinance is adopted for the purpose of promoting and protecting the health, safety, morals, and general welfare of the residents, citizens, and inhabitants of the Village of Pleak. The provisions of this ordinance are the requirements necessary to accomplish these purposes as specifically delineated in this and other applicable ordinances. This ordinance is further adopted in order to regulate the use of land within the Village of Pleak so as to promote orderly and healthy development, good governmental policies, peace and order of the Village and the trade and commerce thereof, as may be necessary or proper to carry into effect the powers vested in the Village of Pleak by the Constitution and laws of the State of Texas.				
Subdivision Ordinance	Yes	Subdivision Ordinance	Local	Village Council
How does this reduce risk? It is the purpose of this chapter to provide for the orderly, safe, and healthful development of the area within the Village and its extraterritorial jurisdiction and to promote the health, safety, morals, and welfare of the community.				
Site Plan Ordinance	No	-	-	-
How does this reduce risk?				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Flood Damage Ordinance – NO. 08-16	Local	Village Council
How does this reduce risk? It is the purpose of this ordinance to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: (1) Protect human life and health; (2) Minimize expenditure of public money for costly flood control projects; (3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; (4) Minimize prolonged business interruptions; (5) Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, and sewer lines, streets and bridges located in floodplains; (6) Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and (7) Ensure that potential buyers are notified that property is in a flood area.				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Planning Documents				
Comprehensive/Master Plan	Yes	Village of Please Comprehensive Plan	Local	Planning and Zoning
How does this reduce risk? The Plan lays out goals for development which includes locations of flood areas.				
Capital Improvement Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Stormwater Management Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Open Space Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Urban Water Management Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Economic Development Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Shoreline Management Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Community Forest Management Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Transportation Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Agriculture Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Tourism Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Other	No	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the Village. FBHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The Village of Pleak relies on Fort Bend County for help with this. FBHHS has plans in place to prevent public health issues through regular inspections of regulated facilities, as well as prepare for and respond to public health emergencies.				
Other	No	-	-	-
How does this reduce risk? The Village of Pleak relies on Fort Bend County for help with this.				

Development and Permitting Capability

The table below summarizes the capabilities of the Village of Pleak to oversee and track development.

Table 9.11-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	No	Fort Bend County
If you do not issue development permits, what is your process for tracking new development?	No	Fort Bend County
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	Fort Bend County
Do you have a buildable land inventory? • If yes, please describe	No	Fort Bend County
Describe the level of build-out in your jurisdiction.	N/A	

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Village of Pleak and their current responsibilities that contribute to hazard mitigation.

Table 9.11-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	Planning and Zoning Commission is responsible for maintaining zoning within the Village and reviewing subdivision plats, site plans, and granting easements for land uses.
Zoning Board of Adjustment	Yes	See Planning Board
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	No	-
Construction/Building/Code Enforcement Department	No	-
Emergency Management/Public Safety Department	Yes	Fire Department

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Warning Systems / Services		
(mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	Yes	Have mutual aid agreement for emergency services and sheltering with Fort Bend County.
Human Resources Manual	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	City Engineer
Engineers or professionals trained in building or infrastructure construction practices	No	-
Planners or engineers with an understanding of natural hazards	Yes	Village Engineer
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency manager	Yes	Village Mayor
Grant writer(s)	No	-
Resilience officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	-	-

Fiscal Capability

The table below summarizes financial resources available to the Village of Pleak.

Table 9.11-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	No
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas, or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	Yes
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Village of Pleak.

Table 9.11-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the Village of Pleak.

Table 9.11-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	7.9	1996
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	No	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.11-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.11.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the Village of Pleak.

Table 9.11-9. NFIP Summary

Municipality	Policies in Force	Number of Paid Claims*	Amount of Paid Claims*	Number of NFIP RL Properties	Number of NFIP SRL Properties
Pleak (V)	N/A	0	0	0	0

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP

Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.

**Number of RL and SRL properties provided by the State of Texas*

***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*

RL Repetitive Loss

SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Village of Pleak.

Table 9.11-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	No list maintained. Trinity Road, Trinity Drive, Saddle Drive, Kari Lane, and Coon Creek all flood.
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No N/A
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No

NFIP Topic	Comments
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	Procedures need to be developed.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	Yes
NFIP Compliance	
What local department is responsible for floodplain management?	Fort Bend County
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	None
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Procedures need to be developed.
What are the barriers to running an effective NFIP program in the community, if any?	Funding
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	N/A
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	ORD. 08-16
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meet
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	No
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	No

9.11.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.11-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single-Family	County completes permitting									
Multi-Family										
Other (commercial, mixed-use, etc.)										
Total Permits Issued										

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.11-12. Recent and Expected Future Development

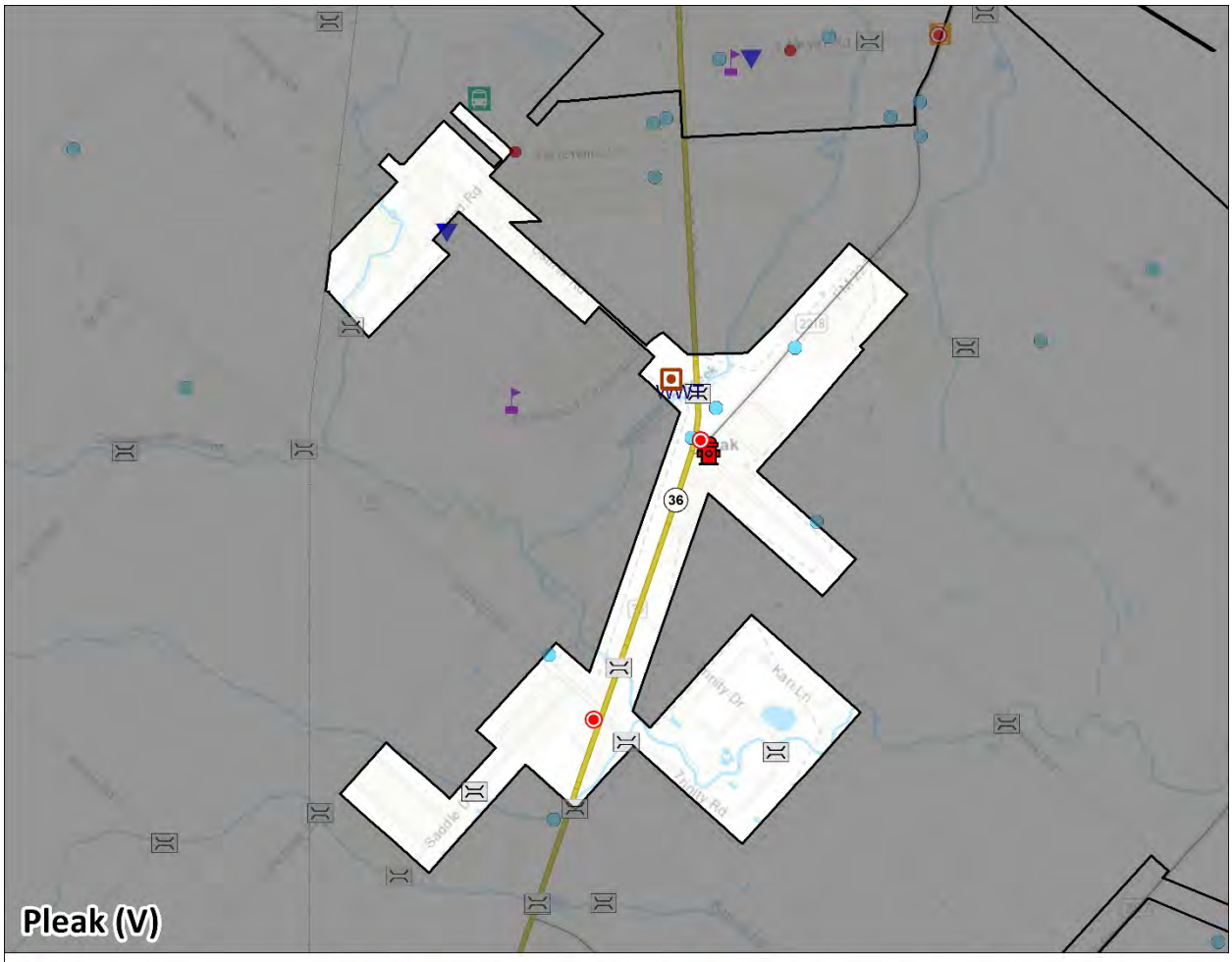
Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
None Identified					
Known or Anticipated Major Development in the Next Five (5) Years					
None Identified					

9.11.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the Village of Pleak's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the Village of Pleak has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.11-1. Village of Pleak Hazard Area Extent and Location Map-Dam Inundation



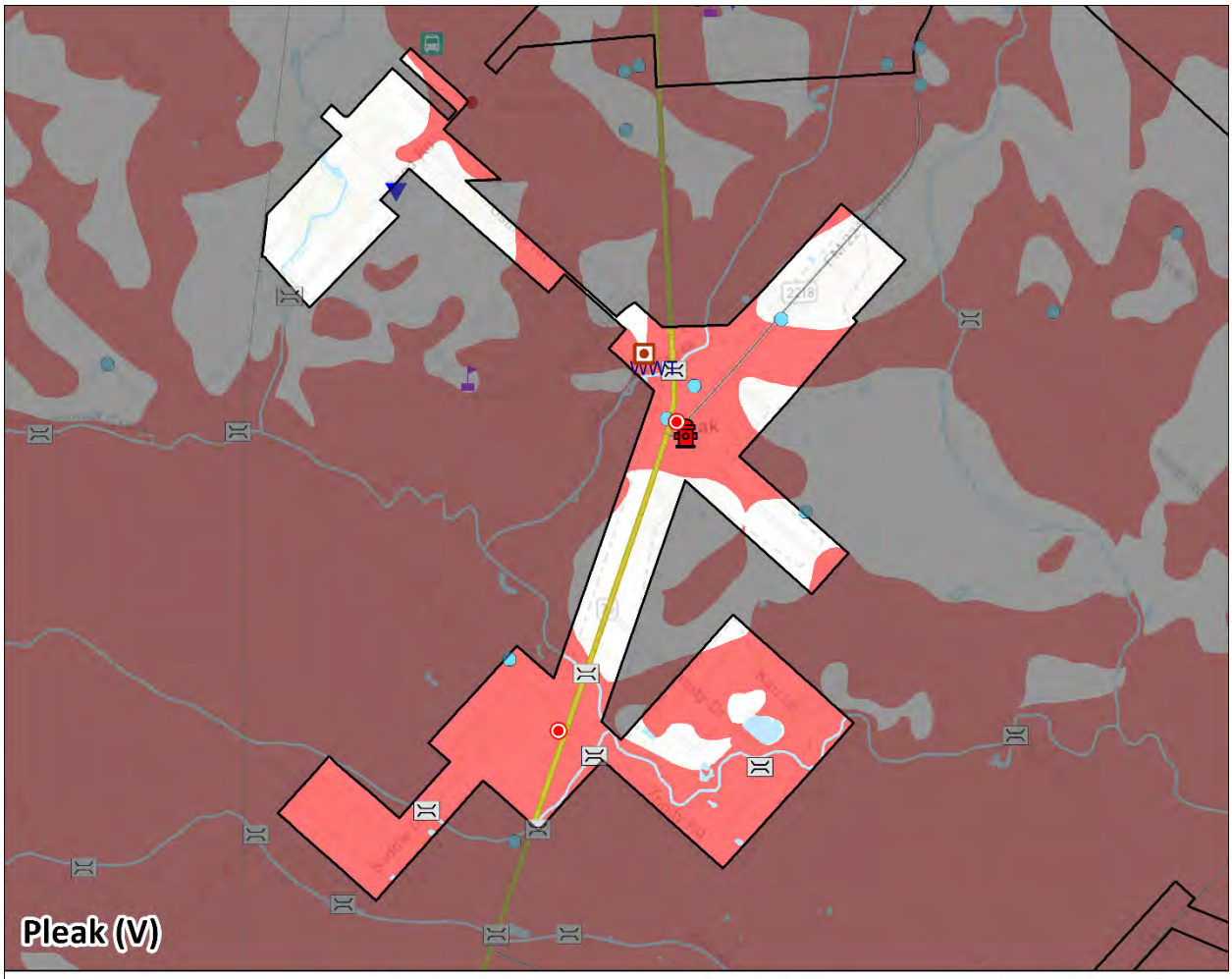
- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWTP Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody
- Barker Reservoir
- Kitty Hollow Dam
- Lake Sommerville

Miles
0 0.325 0.65

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Army Corp of Engineers 2023

Notes: City (C), Township (T), Village (V)

Figure 9.11-2. Village of Pleak Hazard Area Extent and Location Map-Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWTWastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 0.3 0.6

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.11-3. Village of Pleak Hazard Area Extent and Location Map-Flood

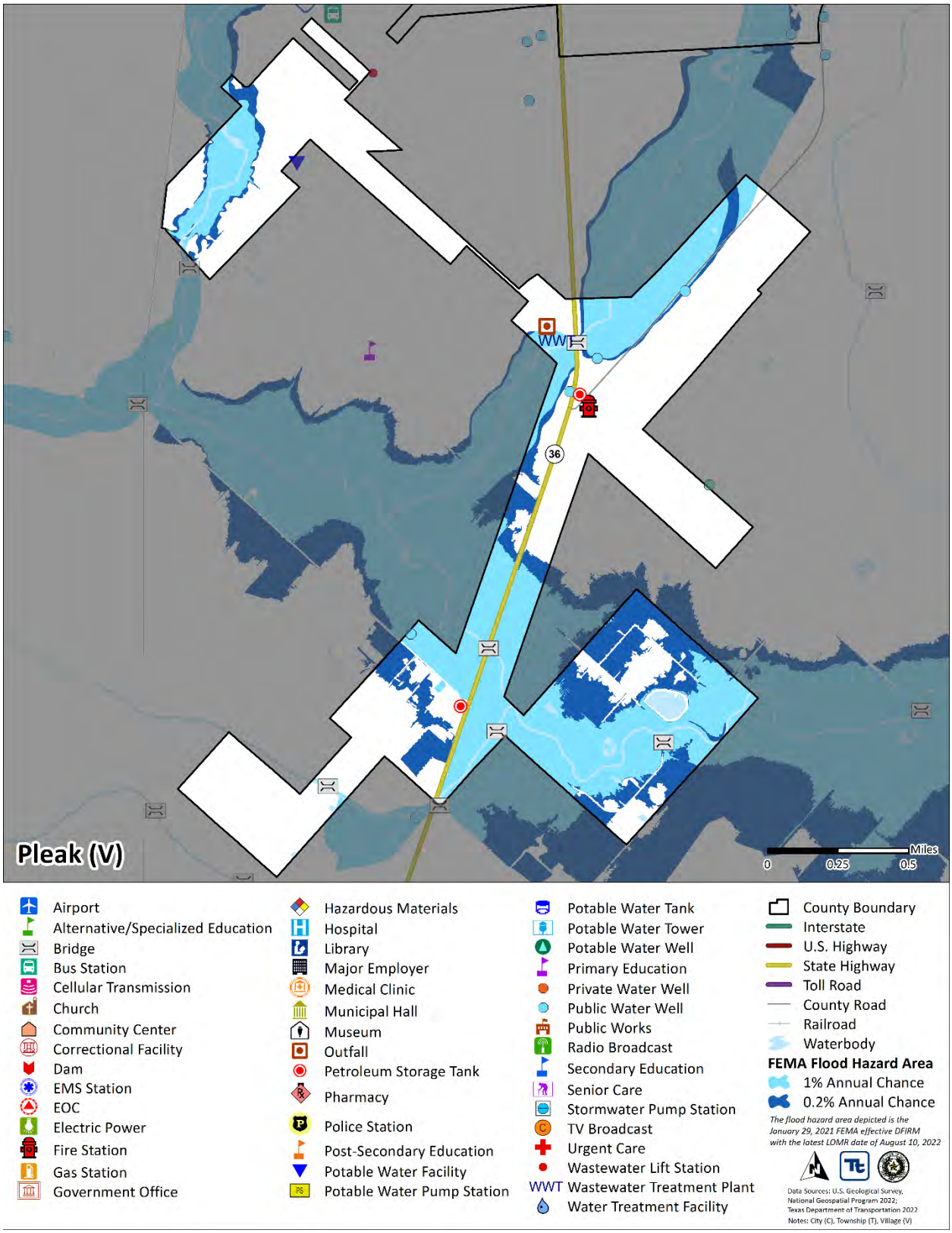


Figure 9.11-4. Village of Pleak Hazard Area Extent and Location Map-Inland Erosion

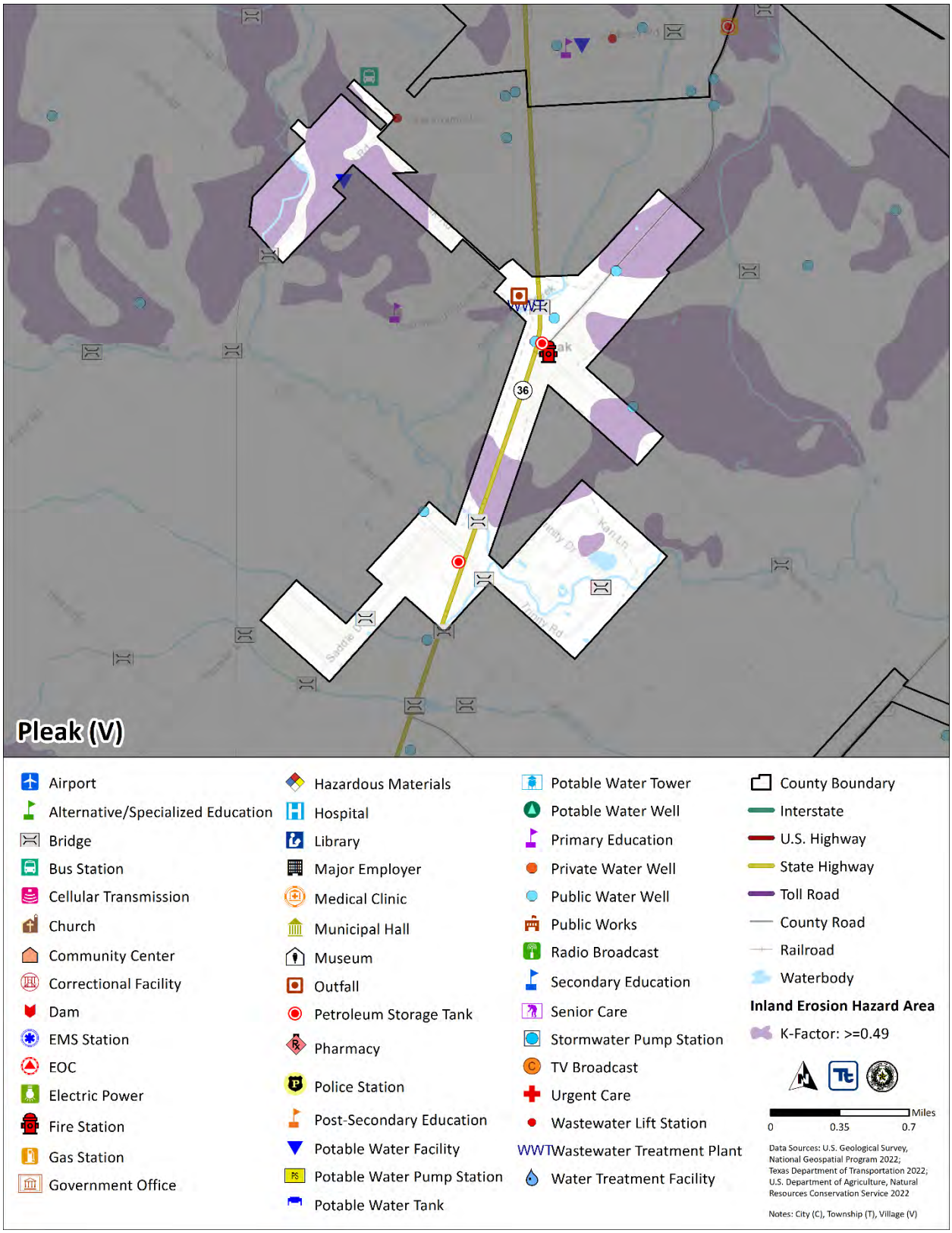
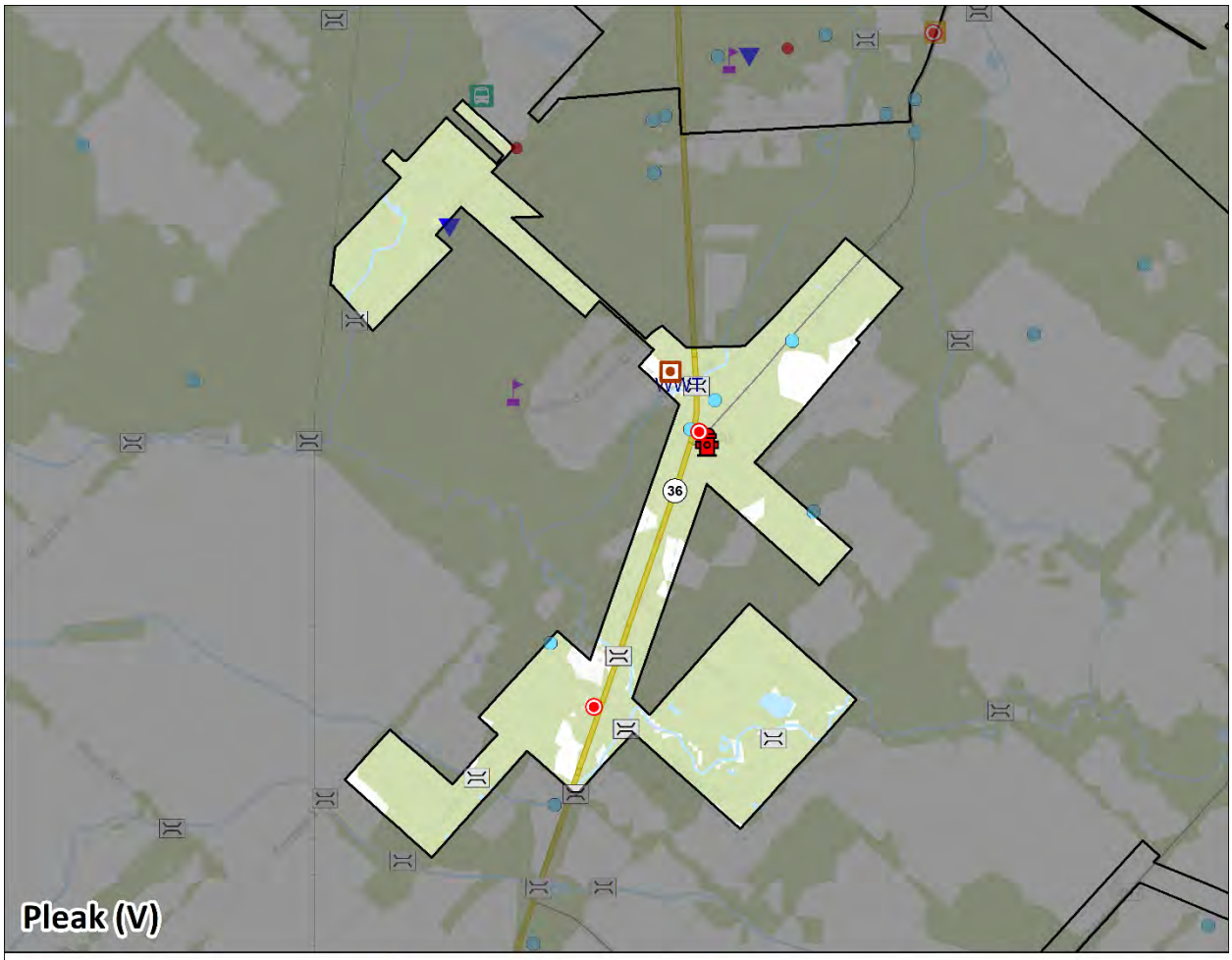


Figure 9.11-5. Village of Pleak Hazard Area Extent and Location Map-Wildfire



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Wildfire Hazard Area

- Low Threat
- Moderate Threat

Miles
0 0.3 0.6

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022

Notes: City (C), Township (T), Village (V)

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Village of Pleak's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the Village of Pleak experienced during hazard events since the last HMP update. Information provided in the table below is based on reference material or local sources.

Table 9.11-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	Covid-19 pandemic declared	Modular building with accessories to assist of prevent Covid transmission.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane force winds resulted in a significant number of downed trees and utility lines.	Although the County was impacted, the Village did not report substantial damages.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Hurricane Marco and Laura	Although the County was impacted, the Village did not report substantial damages.
February 11-21, 2021	EM-3554 – Severe Winter Storm; DR-4586 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Increased Fire Dept. staffing to respond to public emergencies. $6,500.00.
March 18 – November 13, 2022	Wildland Fire Disaster	Yes	Wildland Fire Disaster	Vehicle & Equipment damage to calls locally and regionally. $8,541.02.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Village of Pleak's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts, and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Village of Pleak. The Village of Pleak reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

Table 9.11-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	**Low**
Disease Outbreak	**Low**
Drought	**Low**
Extreme Temperature	**Low**
Flood	**Low**
Geologic Hazards	**High**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**Low**
Winter Weather	**Low**

Critical Facilities

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.11-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		**Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area**	
	Critical Facilities	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**	**Critical Facilities**	**Lifelines**
Pleak (V)	7	7	0	0	1	1	14	14	0	0	0	0	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the Village of Pleak's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Village of Pleak identified the following vulnerabilities within their community:

- Additional public education is needed to increase the public's awareness and preparation for hazard events.*
- The City needs improved warning times for severe weather events to properly prepare residents, including the socially vulnerable population.*
- The Village does not have a current up-to-date evacuation plan to protect residents against extreme hazard events.*
- The Village lacks procedures to identify and address substantial damage from flood and other hazard events.
- During storms, the Village regularly loses power, internet, and phone services due to older, vulnerable infrastructure. Dispatch for emergency services is sometimes lost as well. Homes on private well water lose water when electricity is lost.
- The Village of Pleak is a traditional farming community. The stormwater infrastructure, other than subdivisions, is very limited. Creeks and ditches are often clogged or silted. With increased development, there is an increasing need for stormwater infrastructure. Several roadways are impassable during heavy rainfall events.
- The Fire Station/Village Hall lacks a permanent fixed-site generator. The facility is roughly 6,000 sq ft. Power loss limits the ability to provide critical services to the community.
- The Fire Department currently is located in an outdated and undersized facility that is shared with Village Hall.
- Water access to the community is limited. Most residents are on their own water wells, and the Village does not have fire hydrants right now. Homes on private well water lose water when electricity is lost.
- The Village has increasing wildland interface issues due to new development and subdivisions.
- The following critical facilities are located in the special flood hazard area:
    - Foss Creek
    - Big Creek
    - Seabourne Creek
    - Ft. Bend MUD 5
    - Public Water Well

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.11.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and

are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.11-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Purchase and Installation of Commercial Water Filtration System	Pleak Village Hall	Complete	No	-	-
Promote Flood Insurance	Pleak Village Hall	No Progress	No		Mayor
Increase Public awareness of Hazard Mitigation	Pleak Village Hall	No Progress	No		Mayor
Evacuation Plans	Pleak Village Hall	No Progress	No		Mayor
Public Information Campaigns	Pleak Village Hall	No Progress	No		Mayor
Evaluate Excess Heat Risks	Pleak Village Hall	No Progress	No		Mayor
Expansive Soil Information and Construction Requirements	Pleak Village Hall	No Progress	No		Mayor
Weather Radio Installation at Public Facilities and Programming Class for Residents	Village Hall OEM, non-profit	No Progress	No		Mayor

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Village of Pleak identified the following mitigation efforts completed since the last HMP:

- None identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Table 9.11-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	X	-	X	X	X	X	-	-	X
Disease Outbreak	X	X	-	X	X	X	X	-	-	X
Drought	X	X	-	X	X	X	X	-	X	X
Extreme Temperature	X	X	-	X	X	X	X	-	X	X
Flood	X	X	-	X	X	X	X	-	X	X
Geologic Hazards	X	X	-	X	X	X	X	-	-	X
Hurricane/Tropical Storm	X	X	-	X	X	X	X	-	-	X
Severe Weather	X	X	-	X	X	X	X	-	X	X
Tornado	X	X	-	X	X	X	X	-	-	X
Wildfire	X	X	-	X	X	X	X	-	X	X
Winter Weather	X	X	-	X	X	X	X	-	X	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the Village of Pleak would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.11-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Village of Pleak-001	Public Information Campaign	**Problem:** Additional public education is needed to increase the public's awareness and preparation for hazard events. **Solution:** The Village will conduct public information campaigns on various hazard topics including promoting flood insurance and encourage personal preparation and hazard mitigation of personal property regarding the hazards of concern.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1	2 years	Mayor's Office, Village Hall	Village budget	Increased public awareness and preparation for hazard events	Low	High	EAP	PI
2023-Village of Pleak-002	Weather Radio	**Problem:** The City needs improved warning times for severe weather events to properly prepare residents, including the socially vulnerable population. **Solution:** The Village will install weather radios at public facilities for hazard preparation.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	Less than 3 years	Village Hall	HMGP, FMA, BRIC, Village Budget	Increased warning time for hazard events	>$100,000	High	EAP	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Village of Pleak-003	Evacuation Planning	**Problem:** The Village does not have a current up-to-date evacuation plan to protect residents against extreme hazard events. **Solution:** The Village will create an evacuation plan and inform Village residents of implementation procedures.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1, 2	1 Year	Planning Board	Village Budget	Residents will be able to evacuate in a timely manor	$1,000	High	LPR	ES
2023-Village of Pleak-004	Substantial Damage Planning	**Problem:** The Village lacks procedures to identify and address substantial damage from flood and other hazard events. **Solution:** The Village will develop official procedures for Substantial Damage Determinations and substantial improvements.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	5	2 years	Planning Board	HMGP, BRIC, FMA, Village Budget	Increased capabilities, meet NFIP standards	Low	High	LPR	ES, PR
2023-Village of Pleak-005	Power Failure	**Problem:** During storms, the Village regularly loses power, internet, and phone services due to older, vulnerable infrastructure. Dispatch for emergency services is sometimes lost as well. Homes on private well water lose water when electricity is lost.	Severe Weather, Winter Weather, Extreme Temperature	2, 5	Less than 5 Years	Village Hall	HMGP, BRIC, Village Budget	Continuity of operations with emergency services	>$200,000	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Solution: The Village will conduct an engineering study to see where utility failure occurs and implement new and updated infrastructure to support new utility lines and services.										
2023-Village of Pleak-006	Stormwater Upgrades	**Problem:** The Village of Pleak is a traditional farming community. The stormwater infrastructure, other than subdivisions, is very limited. Creeks and ditches are often clogged or silted. With increased development, there is an increasing need for stormwater infrastructure. Several roadways are impassable during heavy rainfall events. **Solution:** The Village will perform an engineering study to see what kinds of stormwater infrastructure updates need to be complete in order to limit flooding issues. The Village will implement what the engineering study suggests is the best fit for each area.	Severe Weather, Flood	2, 3	Less than 5 Years	Village Hall	HMGP, BRIC, FMA, Village Budget	The Village will experience reduced flooding	$5,000 for the study	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Village of Pleak-007	Critical Facility Backup Power	**Problem:** The Fire Station/Village Hall lacks a permanent fixed site generator. The facility is roughly 6,000 sq ft. Power loss limits the ability to provide critical services to the community. **Solution:** The Fire State/Village Hall will undergo a study to evaluate the size of a generator needed to provide critical services to the community and will purchase and install the suggested generator. The Village will keep up with maintenance on the generator.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	Less than 5 Years	Village Hall	HMGP, FMA, BRIC, Village Budget	Continuity of operations during hazard events	>$100,000	High	SIP	ES
2023-Village of Pleak-008	Fire Department	**Problem:** The Fire Department currently is located in an outdated and undersized facility that is shared with Village Hall. **Solution:** The Fire Department will construct a stand-alone facility with adequate space.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	5 Years	Village Hall, Fire Department	BRIC, HMGP, Village Budget	The Fire Department will be able to operate more efficiently	>$500,000	High	SIP	PP, ES
2023-Village of Pleak-009	Water Sources	**Problem:** Water access to the community is limited. Most residents are on their own water wells and the Village	Drought, Wildfire	2	Less than 5 years	Village Hall, County	HMGP, Village Budget, County Budget	The Village will have a water supply during	>$100,000	High	SIP	SP, ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		does not have fire hydrants right now. Homes on private well water lose water when electricity is lost. **Solution:** The Village will work with the County and FEMA to create a secondary water source hookup that allows the Village access to water in the event of an outage and can also be used in the event of an intense drought or wildfire.						outages and will be better protected from wildfire and drought.				
2023-Village of Pleak-010	Wildland Interface	**Problem:** The Village has increasing wildland interface issues due to new development and subdivisions. **Solution:** The Village will create a fire hazard map that shows where the wildland interface issues are located and will ensure that proper wildfire equipment is located in these areas in the event of a fire.	Wildfire	2	2 Years	Village Hall, County	Village Budget	The Village will be better protected from the wildland interface issues	$25,000	High	LPR	ES
2023-Village of Pleak-011	Critical Facilities Flood Protection	**Problem**: The following critical facilities are located in the special flood hazard area: • Foss Creek • Big Creek • Seabourne Creek	Flood	2, 5	Less than 5 years	City Engineer	HMGP and PDM, BRIC, USDA Community Facilities Grant Program, Emergency Management	Ensures that facilities can carry out continuity of operations	TBD by feasibility assessment	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		• Ft. Bend MUD 5 • Public Water Well **Solution:** The Village will conduct a feasibility assessment to determine what additional floodproofing measures are needed at these facilities to protect each to the 500-year flood level. Options include: • Elevation of facility • Floodproofing of facility • Mobile flood barriers Once the most cost-effective option is identified, the Village will carry out the option.					Performance Grants (EMPG) Program, Village Budget					

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS Community Rating System
FEMA Federal Emergency Management Agency
HMA Hazard Mitigation Assistance
N/A Not applicable
NFIP National Flood Insurance Program

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program
BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies, or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*

- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.11-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Village of Pleak-001	Public Information Campaign	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-Village of Pleak-002	Weather Radio	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-Village of Pleak-003	Evacuation Planning	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2023-Village of Pleak-004	Substantial Damage Planning	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-Village of Pleak-005	Power Failure	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-Village of Pleak-006	Stormwater Upgrades	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Village of Pleak-007	Critical Facility Backup Power	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2023-Village of Pleak-008	Fire Department	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-Village of Pleak-009	Water Sources	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-Village of Pleak-010	Wildland Interface	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-Village of Pleak-011	Critical Facilities Flood Protection	1	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.12 City of Richmond

This section presents the jurisdictional annex for the City of Richmond that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Richmond representatives who participated in the planning process, an assessment of the City of Richmond's risk and vulnerability, the different capabilities used in the City of Richmond, and an action plan that will be implemented to achieve a more resilient community.

9.12.1 Hazard Mitigation Planning Team

The City of Richmond identified the primary and alternate points of contact and developed this 2023 Hazard Mitigation Plan (HMP) over the course of several months with input from City of Richmond departments, including the Department of Emergency Services, and the Department of Engineering. The Mayor is a member of the Steering Committee and represents the community on the Fort Bend County HMP Planning Partnership along with the Emergency Management Coordinator and the City Engineer. The City supported the local planning process requirements by securing input from additional persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials who participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.12-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Robert Oliver, Emergency Management Coordinator	Name/Title:	Terri Vela City Manager
Address:	600 Morton Street Richmond, Tx 77469	Address:	402 Morton Street Richmond, Tx 77469
Phone Number:	281-342-0559	Phone Number:	281-342-5456
Email:	roliver@richmondx.gov	Email:	Tvela@richmondx.gov
NFIP Floodplain Administrator			
Name/Title:	Duane Whitehead, City Engineer		
Address:	600 Morton Street Richmond, Tx 77469		
Phone Number:	281-341-0808		
Email:	dwhitehead@kaluzainc.com		
Additional Contributors:			
Name/Title: Method of Participation:	Rebacca K. Haas, Mayor On Steering Committee, Planning Committee Member and prepared correspondence.		
Name/Title: Method of Participation:	Jim Whitehead, Assistant Public Works Director Planning Committee Member		

Name/Title: Method of Participation:	Donald Kovar / Planning Section Chief

9.12.2 Municipal Profile

The City of Richmond, incorporated in May 1837, is the county seat of Fort Bend County and is on the Brazos River 15 miles southwest of Houston. The City's transportation links include U.S. highways 90A and 59, the Southern Pacific Railroad, and the Atchison, Topeka, and Santa Fe Railway.

As the county seat for Fort Bend County, Richmond has a concentration of County and City jobs. In addition, the educational services, health care, social assistance, and construction industries are the largest employers in Richmond, primarily due to Lamar Consolidated Independent School District, Wharton County Junior College, Texas State Technical College, and OakBend Medical Center.

The City of Richmond is the county seat of Fort Bend County. Richmond's downtown shops and small businesses are part of what gives Richmond its unique culture and atmosphere. The overall City of Richmond Jurisdiction has a total of 21,366.5 acres or 33.4 square miles. The City limits have a total area of 2,710.4 acres or 4.2 square miles.

According to the 2021 American Community Survey, the total population for the City of Richmond was 11,768, a slight increase from the 2010 Census population of 11,679. Data from the 2020 U.S. Census indicate that 5.7 percent of the population is 5 years of age or younger, and 13.4 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.12.3 Jurisdictional Capability Assessment and Integration

The City of Richmond performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Richmond to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Richmond. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.12-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code	Local	Code Enforcement
How does this reduce risk? The City of Richmond adopted the 2015 International Building Code, which incorporates the latest safety standards to address known hazards to the community. The City's current building code has not been updated since the 2018 HMP; therefore, it does not integrate the HMP. When the City does update the code, they will review the current HMP and integrate into the code accordingly.				
Zoning/Land Use Code	Yes	Unified Development Ordinance – Revised Through 8/15/2022	Local	City Council
How does this reduce risk? The Unified Development Ordinance is part of the Development Services Code which details requirements for all zoning, land use, public infrastructure development, lot sizes, site designs, parking and access. The City's Unified Development Ordinance has been updated since the 2018 HMP and the City has integrated the HMP accordingly through the implementation of integrated regulations and design criteria the ordinance preserves and protects existing trees and vegetation, floodplains, stream corridors, and other areas of environmental significance from adverse impacts of development.				
Subdivision Ordinance	Yes	Unified Development Ordinance – Revised Through 8/15/2022– Revised Through 8/15/2022	Local	City Council
How does this reduce risk? The Unified Development Ordinance is part of the Development Services Code which details requirements for all zoning, land use, public infrastructure development, lot sizes, site designs, parking and access. The City's Unified Development Ordinance has been updated since the 2018 HMP and the City has integrated the HMP accordingly through the implementation of integrated regulations and design criteria the ordinance preserves and protects existing trees and vegetation, floodplains, stream corridors, and other areas of environmental significance from adverse impacts of development.				
Site Plan Ordinance	Yes	Unified Development Ordinance – Revised Through 8/15/2022	Local	City Council
How does this reduce risk? The Unified Development Ordinance is part of the Development Services Code which details requirements for all zoning, land use, public infrastructure development, lot sizes, site designs, parking and access.				
Stormwater Management Ordinance	Yes	Public Infrastructure Design Manual – 11/21/2016	Local	City Council
How does this reduce risk? Chapter 7 - Stormwater System Design Requirements identifies the requirements and goals of stormwater design requirements. One of the main goals is the prevention of structure flooding and the maintenance of one passable travel lane in each direction on major thoroughfares during a 100-year storm event to maintain safe routes for emergency vehicles and to critical facilities.				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	-	The Private Real Property Rights Preservation Act - Subchapter B: Chapter 2007 of the General Government Code	-	-
How does this reduce risk?				
Growth Management	N/A	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	N/A	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Flood Damage Prevention Ordinance	Yes	Unified Development Code – 4.3.200 Floodplain Management and Flood Damage Prevention	Local	-
How does this reduce risk? It is the purpose of this Division to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas. It reduces risk by: • Restricting or prohibiting uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities; • Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; • Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters; • Controlling filling, grading, dredging and other development which may increase flood damage; and • Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands. The City's Unified Development Ordinance has been updated since the 2018 HMP and the City has integrated the HMP accordingly through the implementation of integrated regulations and design criteria the ordinance preserves and protects existing trees and vegetation, floodplains, stream corridors, and other areas of environmental significance from adverse impacts of development.				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	No	-	-	-
How does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Planning Documents				
Comprehensive/Master Plan	Yes	City of Richmond Comprehensive Master Plan – July 2014	Local	City Commission
How does this reduce risk? The City of Richmond Comprehensive Master Plan objective is to establish a community supported vision to guide growth and development, strengthen the public and private partnership between intergovernmental, institutional, and private sector leaders, influence the regulatory environment to ensure the community values and desired outcomes are realistic and enforceable, and design a strategic implementation program for directing annual work programs and prioritize capital improvement projects. The City's Comprehensive Master Plan has not been updated since the 2018 HMP and the City has integrated the HMP accordingly through the implementation of integrated recommendations the plan's goals include preserving and protecting existing trees and vegetation, floodplains, stream corridors, and other areas of environmental significance from adverse impacts of development, in addition to recommending facility improvements to mitigate future hazards. (It should be noted that the Master Plan is in the process of being updated).				
Capital Improvement Plan	Yes	9/19/2022	Local	Finance
How does this reduce risk? Fiscal Year 2023 FY23 capital projects total $34.46 million. Drainage projects make up much of the distribution at 36.90% and will reduce the risk of flooding in the targeted areas. Streets projects are at 11.75%, Municipal projects are at 19.22%, and Utilities projects are at 32.13%. Drainage projects total $12.71 million and include $7.65 million for Northside drainage improvements and $5.06 million Clay Street/Second Street drainage improvements				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Stormwater Management Plan	Yes	Stormwater Management Program	Local	Department of Public Works – Street and Drainage
How does this reduce risk? The City of Richmond has developed a Storm Water Management Program to reduce pollutants in the City's storm water system and to improve the water quality in the local creeks and rivers. The City's Stormwater Management Program addresses the following seven minimum control measures: • Public Education and Outreach • Public Involvement and participation • Illicit Discharge Detection and Elimination • Construction Site Runoff Control • Post-Construction Storm water Management in New Development and redevelopment • Pollution Prevention and Good Housekeeping and Municipal Operations • Authorization for Municipal Construction Activities To satisfy the minimum control measures requirements, City developed various programs known as Best Management Practices (or BMPs). The effectiveness of the implementation of each bmp is assessed by one or more measurable goals.				
Open Space Plan	Yes	Parks, Recreations and Open Space Plan – 2017 - 2027	Local	City Commission
How does this reduce risk? The Parks, Recreation, and Open Space Master Plan provides the City of Richmond with an information base to help guide decisions related to parks, recreation, and open space. The plan set guidelines for future park and open space development that are feasible for Richmond in accordance with the desires of its citizens and assist in the implementation of those decisions. The plan includes the area within the incorporated limits of Richmond as well as property outside of the City limits which is owned by the municipality. The plan has a ten-year life (2017-2027) Aspects of the plan that integrate with the goals of the HMP include objectives such as; • To be proactive in the acquisition and protection of unique natural open spaces along the Brazos River Corridor and its contributing tributaries. • To limit development in natural open spaces and encourage environmentally responsible private development to minimize adverse effects on valuable ecosystems.				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	Yes	Transportation Section - City of Richmond Comprehensive Master Plan – July 2014	Local	City Commission
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
A policy of creating a mobility network of interconnected activity centers, corridors, and neighborhoods will provide a structure for guiding new growth and development. This will entail an efficient, well connected street layout that provides multiple paths to external destinations (and critical access for emergency vehicles) while also discouraging non-local or cut-through traffic The City's Comprehensive Master Plan has not been updated since the 2018 HMP and the City has integrated the HMP accordingly through the implementation of integrated recommendations the plan's goals include preserving and protecting existing trees and vegetation, floodplains, stream corridors, and other areas of environmental significance from adverse impacts of development, in addition to recommending facility improvements to mitigate future hazards. (It should be noted that the Master Plan is in the process of being updated).				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	Fort Bend County - Emergency Operation Plan 2018	County	OEM
How does this reduce risk? *The Emergency Operations Plan (EOP) is an all-hazard plan that guides Fort Bend County's efforts to prepare for, respond to, recover from, and mitigate the effects of a major emergency or disaster. Consider the following:* • Does your CEMP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards?				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the City. FBHHS has public health plans as part of Annex H of the Fort Bend County EOP.	County	FBHHS
How does this reduce risk? FBHHS has plans in place to prevent public health issues through regular inspections of regulated facilities, as well as prepare for and respond to public health emergencies.				
Other	Yes	Bravos River Erosion Study – 1/7/2019	Local	City Commission-

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk? Due to the accelerated bank erosion along the Brazos River following significant flooding in 2015. 2016 and Hurricane Harvey in 2017, the City of Richmond contracted to have a geomorphologic study of bank erosion along the Bravos River. The river's meander migration was projected for the next 30 years to allow for advanced planning to address future flooding.				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Richmond to oversee and track development.

Table 9.12-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	Building and Permits Department
If you do not issue development permits, what is your process for tracking new development?	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	City Floodplain Administrator
Do you have a buildable land inventory? • If yes, please describe	No	-
Describe the level of build-out in your jurisdiction.	N/A	85%

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Richmond and their current responsibilities that contribute to hazard mitigation.

Table 9.12-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	The Planning and Zoning Commission is a five member Commission appointed by the City Commission. The Planning and Zoning Commission is appointed to staggered terms of two years. The Planning and Zoning Commission is charged with undertaking a continued planning program for the physical, social, and economic growth, development, and redevelopment of the City and Extraterritorial Jurisdiction. The Planning and Zoning Commission is charged with review and making recommendations on text amendments to the Unified Development Code; amendments to the Official Zoning Map; conceptual or specific area plans; annexations; plats; concepts plans; periodic review of the Unified Development Code and Official Zoning Map; periodic review of the Comprehensive Master Plan; and ensure for the orderly growth, development, and welfare of the City.
Zoning Board of Adjustment	Yes	The Zoning Board of Adjustment (ZBA) is five member Board appointed for terms of two years by the City Commission. The ZBA is authorized by the Texas Local Government Code Section 211.008, Board of Adjustment. The ZBA is authorized to enforce ordinances related to appeals from alleged errors in the Code Official's

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		decision; interpretations to the provisions of the Unified Development Code; and variances from the standards of the Unified Development Code where exceptional and peculiar hardship would be caused by enforcement of the regulations and where such variance would not substantially deviate from the intent of the Unified Development Code (UDC)
Planning Department	Yes	The goal of the Planning Department is to guide the development in the City of Richmond and the extraterritorial jurisdiction by advocating a long-term, comprehensive approach to planning in a manner that preserves the values, character, and history of Richmond while providing for strategic and complimentary new growth. The Department administers the Comprehensive Master Plan, the UDC, and other Master Plans, while ensuring the health, safety, and welfare of its citizens and property by regulating the use of land within the corporate limits of the City of Richmond.
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	The Public Works Department is responsible for the operation and maintenance of the City's public streets; bridges; drainage system; capital improvement projects, solid waste; water service; wastewater; and recycling. The Public Works Department is dedicated to providing the highest level of service to the citizens of Richmond.
Construction/Building/Code Enforcement Department	Yes	The mission of The Code Enforcement Department is to enhance City of Richmond's livability by protecting the health, safety and welfare of the City's residents and visitors by assuring compliance with the Development Code and General Ordinances. The City will ensure compliance both by encouraging voluntary compliance and by following progressive steps, including legal action, if necessary, for ordinance violators.
Emergency Management/Public Safety Department	Yes	The mission of the Emergency Management Department is to provide an integrated emergency management plan for all natural, man-made, or technological hazards that could adversely affect citizens, businesses, and visitors to the community by preparing, training, and coordinating emergency responses and recover efforts for the City of Richmond.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	Yes	Email Alerts vis Emergency Management Department
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	See Public Works
Mutual aid agreements	No	-
Human Resources Manual	Yes	All staff members have training for working during an emergency situation. All staff members sign off knowing that if there is an emergency situation, they may be called into work.
Other	-	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Public Works Dept.
Engineers or professionals trained in building or infrastructure construction practices	Yes	Code Enforcement Dept.
Planners or engineers with an understanding of natural hazards	Yes	Planning Department

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Staff with expertise or training in benefit/cost analysis	Yes	Finance
Professionals trained in conducting damage assessments	Yes	Building Department / Fire Marshall
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Emergency Management Coordinator
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

Fiscal Capability

The table below summarizes financial resources available to the City of Richmond.

Table 9.12-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open space acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	-

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Richmond.

Table 9.12-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	Yes	Emergency Management Department website provides information for man-made and natural hazards.

Outreach Resources	Available? (Yes/No)	Comment:
Social media for hazard mitigation education and outreach	Yes	Email
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	Yes	FBC Alert / City of Richmond Alert System
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	Yes	The Department of Emergency Management has a webpage that provides safety, preparation and evacuation tips and instructions for Natural Disasters such as, Hurricanes, Tornadoes, Floods and Severe Thunderstorms.

Community Classifications

The table below summarizes classifications for community programs available to the City of Richmond.

Table 9.12-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	-	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.12-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Strong
Disease Outbreak	Moderate
Drought	Strong

Extreme Temperature	Strong
Flood	Strong
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Strong
Severe Weather	Strong
Tornado	Strong
Wildfire	Strong
Winter Weather	Moderate

9.12.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Richmond.

Table 9.12-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Richmond (C)	338	226	$4,391,812.52	13	0

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP
Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Richmond.

Table 9.12-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	The City of Richmond is capable of maintaining this information; however, it is currently outsourced.
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	N/A
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	N/A
• How do you make Substantial Damage determinations?	N/A

NFIP Topic	Comments
• How many were declared for recent flood events in your jurisdiction?	
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	Yes. The City uses the mapping developed by the County and approved by FEMA.
NFIP Compliance	
What local department is responsible for floodplain management?	N/A
Are any certified floodplain managers on staff in your jurisdiction?	The City Engineer is contracted staff and is a CFM.
Do you have access to resources to determine possible future flooding conditions from climate change?	The FBC Drainage District may have access to resources needed to predict future flooding resulting from Climate Change but the City does not.
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	N/A
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Floodplain Development permit applications are reviewed. Once in compliance, permits are issued.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	The City utilizes FBCAB value and construction cost to determine if it is over 50% of the current value.
What are the barriers to running an effective NFIP program in the community, if any?	N/A
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	N/A
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	N/A
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	N/A
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	N/A
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	N/A
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	N/A

9.12.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below

summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.12-11. Number of Building Permits for New Construction

Type of Development	2016		2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)														
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single Family	1	0	1	0	2	0	3	0	8	0	106	0	147	0
Multi-Family	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Other (commercial, mixed-use, etc.)	2	0	5	0	1	0	2	0	3	0	17	0	1	0
Total Permits Issued	3	0	6	0	3	0	5	0	11	0	123	0	148	0

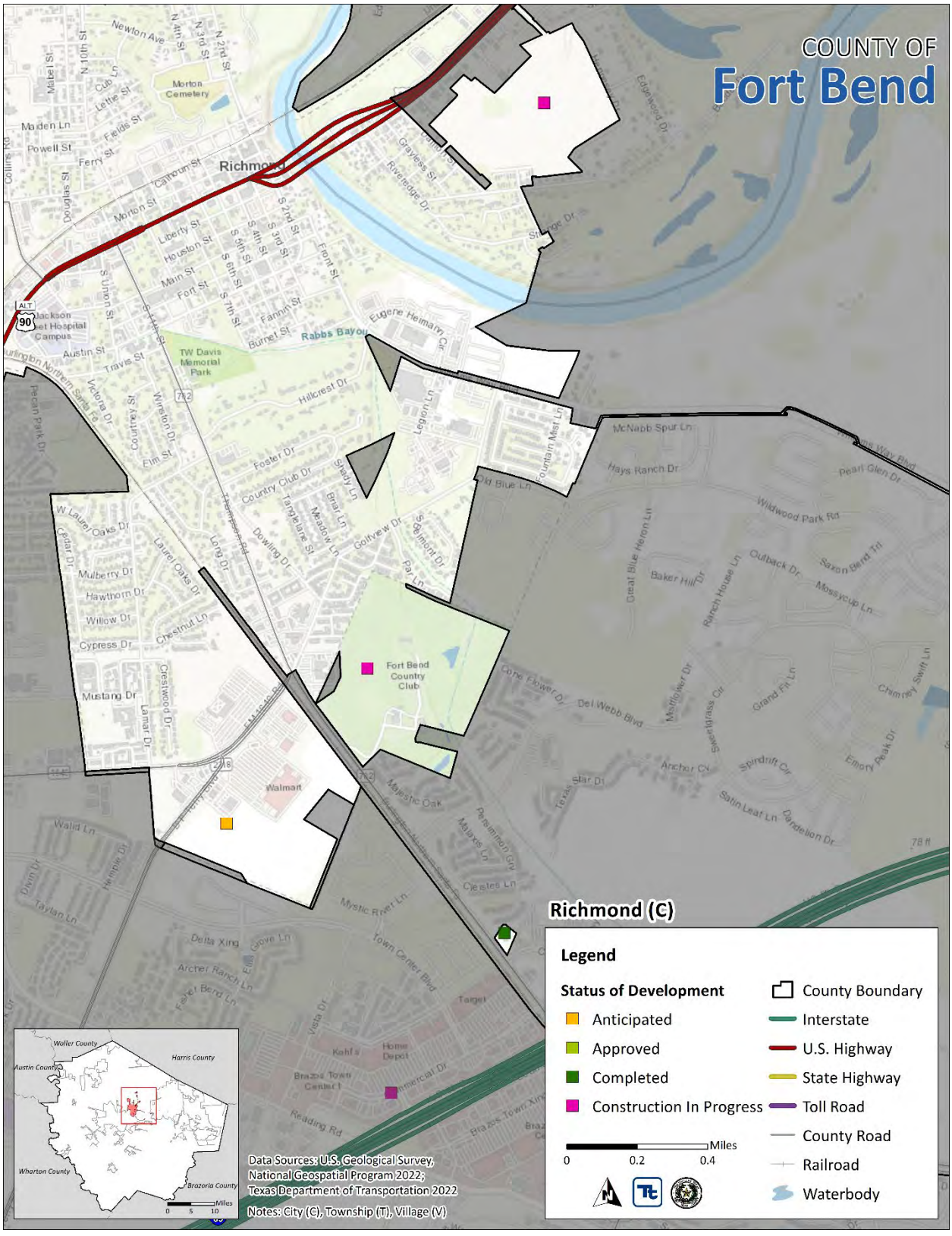
SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.12-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
Mandola Farms	Residential	263	200 Mandola Farms Drive	Expansive Soils, 1% Flood, 2% Flood	Construction in progress
Veranda	Residential	10 Buildings with future build-out possible	24500 Wildwood Park Drive	Expansive soils, Wildfire	Construction in progress
New Quest	Commercial	1 Structure – 5 Units	3415 FM 762 Road	Expansive soils, Wildfire	Completed
Known or Anticipated Major Development in the Next Five (5) Years					
West Street Village	Residential	150	200 Wall Street	Expansive Soils	Anticipated, no approval date
Pit-Stop Express	Commercial	2 Structures	Williams Way @ 59	Expansive Soils	Anticipated, no approval date
Circle Oak	Mixed-use	Unknown currently	100 Cemetery Road	Wildfire	Construction in progress

Figure 9.12-1. City of Richmond Extent and Location Map-New Development

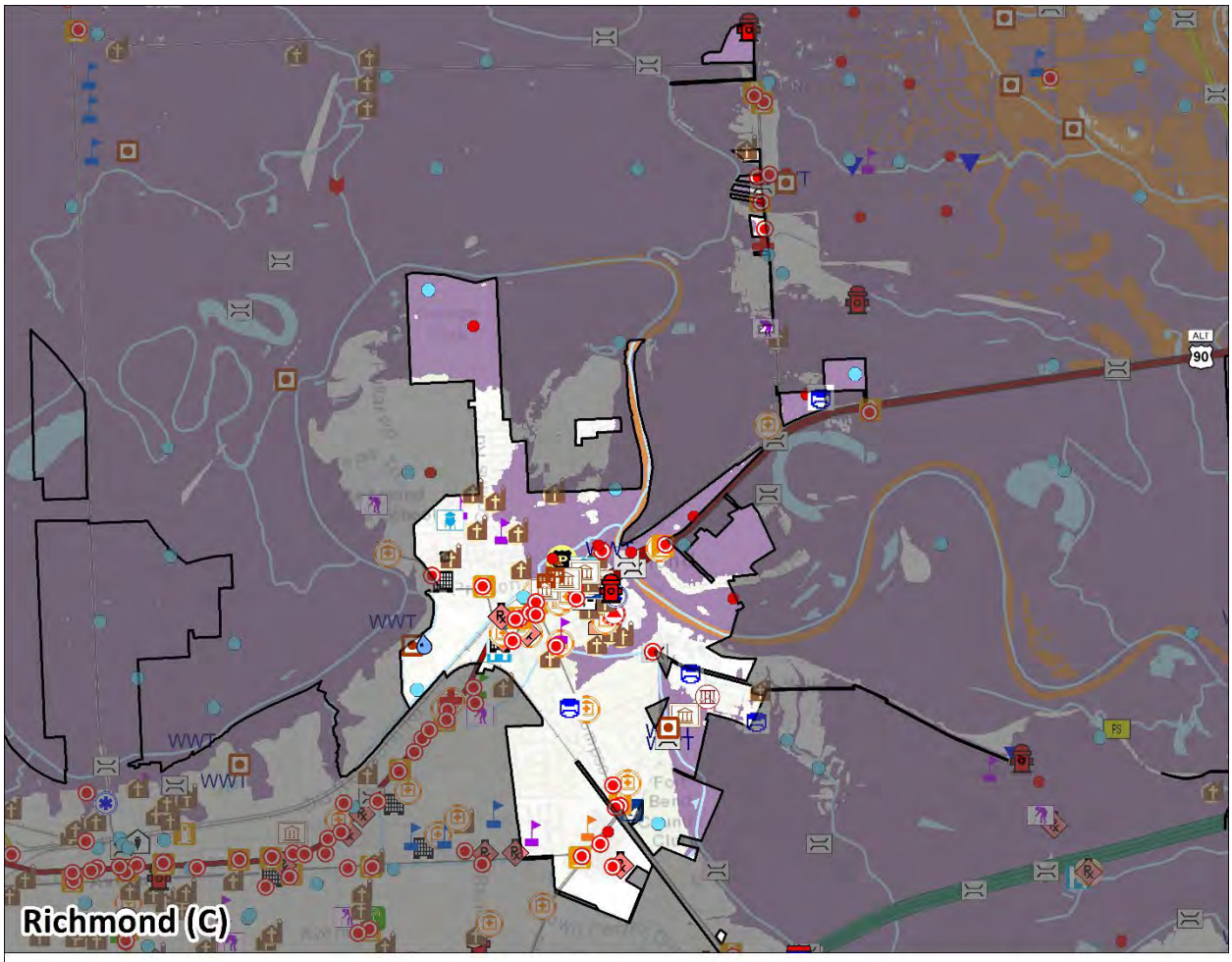


9.12.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Richmond's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Richmond has significant exposure. The maps also show the location of potential new developments, where available.

Figure 9.12-2. City of Richmond Hazard Area Extent and Location Map-Dam Inundation



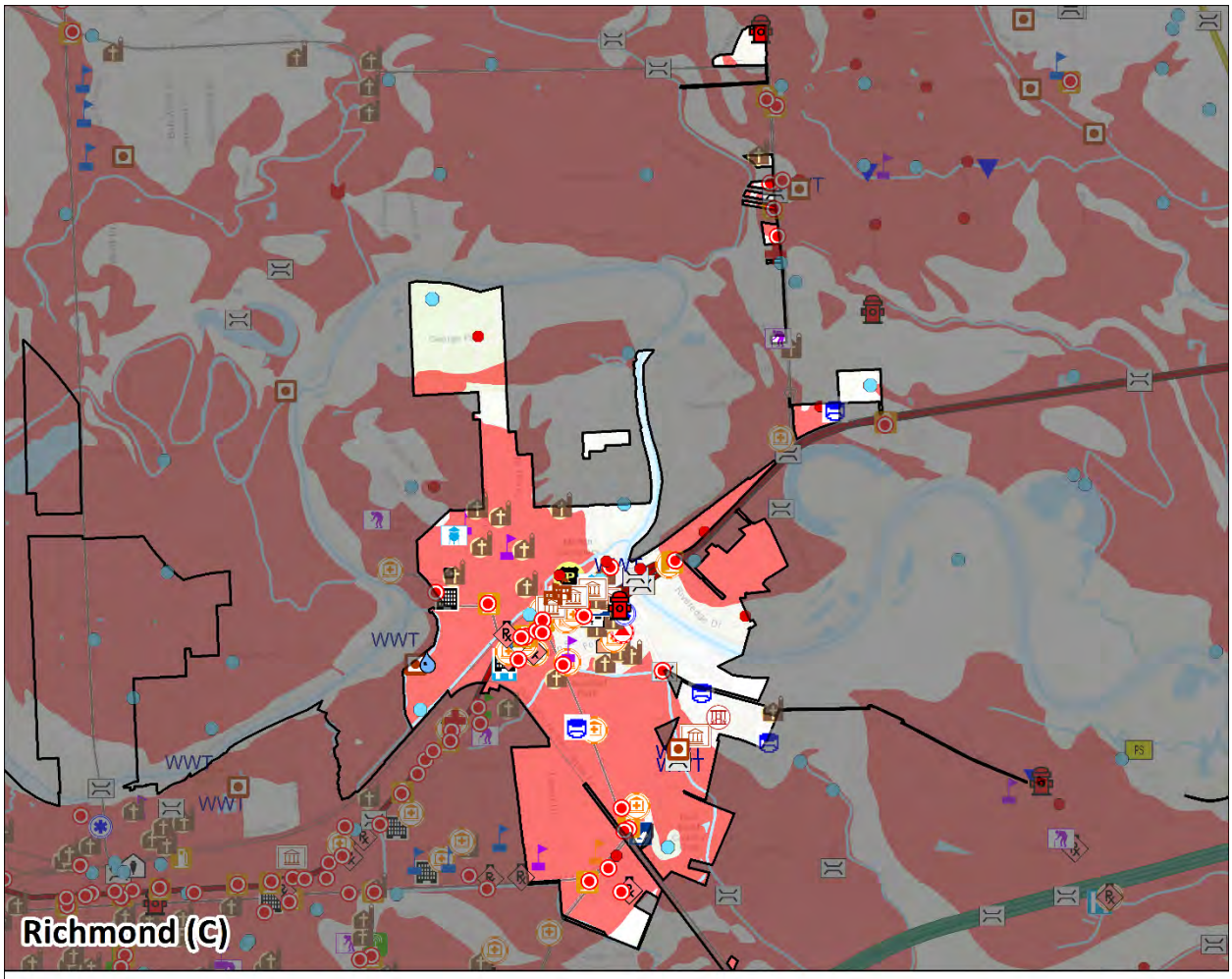
- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody
- Barker Reservoir
- Kitty Hollow Dam
- Lake Sommerville

Miles
0 0.5 1

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Army Corp of Engineers 2023

Notes: City (C), Township (T), Village (V)

Figure 9.12-3. City of Richmond Hazard Area Extent and Location Map- Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

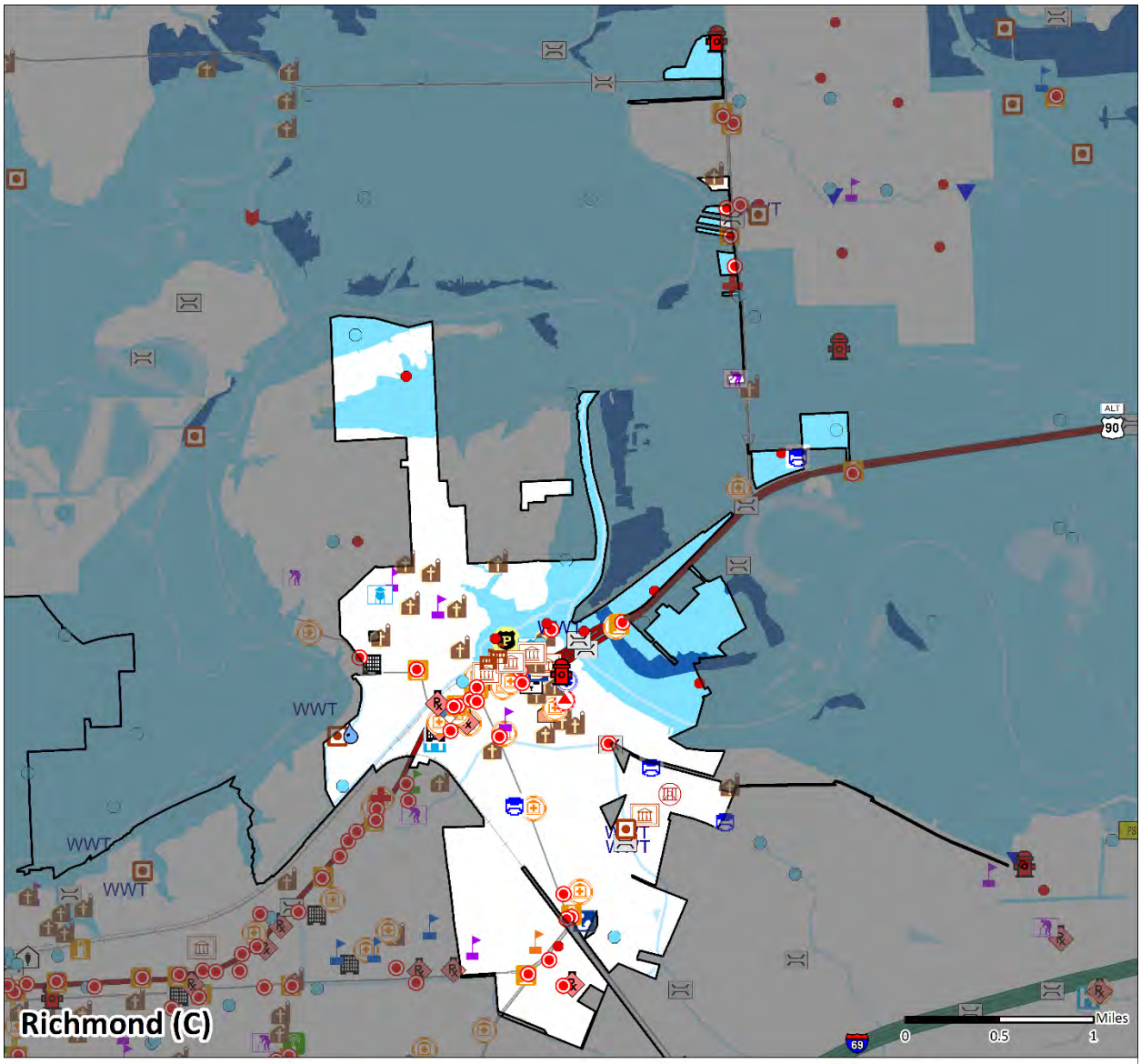
- Linear Extensibility >6%

Miles
0 0.475 0.95

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.12-4. City of Richmond Hazard Area Extent and Location Map- Flood



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

FEMA Flood Hazard Area

- 1% Annual Chance
- 0.2% Annual Chance

The flood hazard area depicted is the January 29, 2021 FEMA effective DFIRM with the latest LOMR date of August 10, 2022

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022
Notes: City (C), Township (T), Village (V)

Figure 9.12-5. City of Richmond Hazard Area Extent and Location Map- Inland Erosion

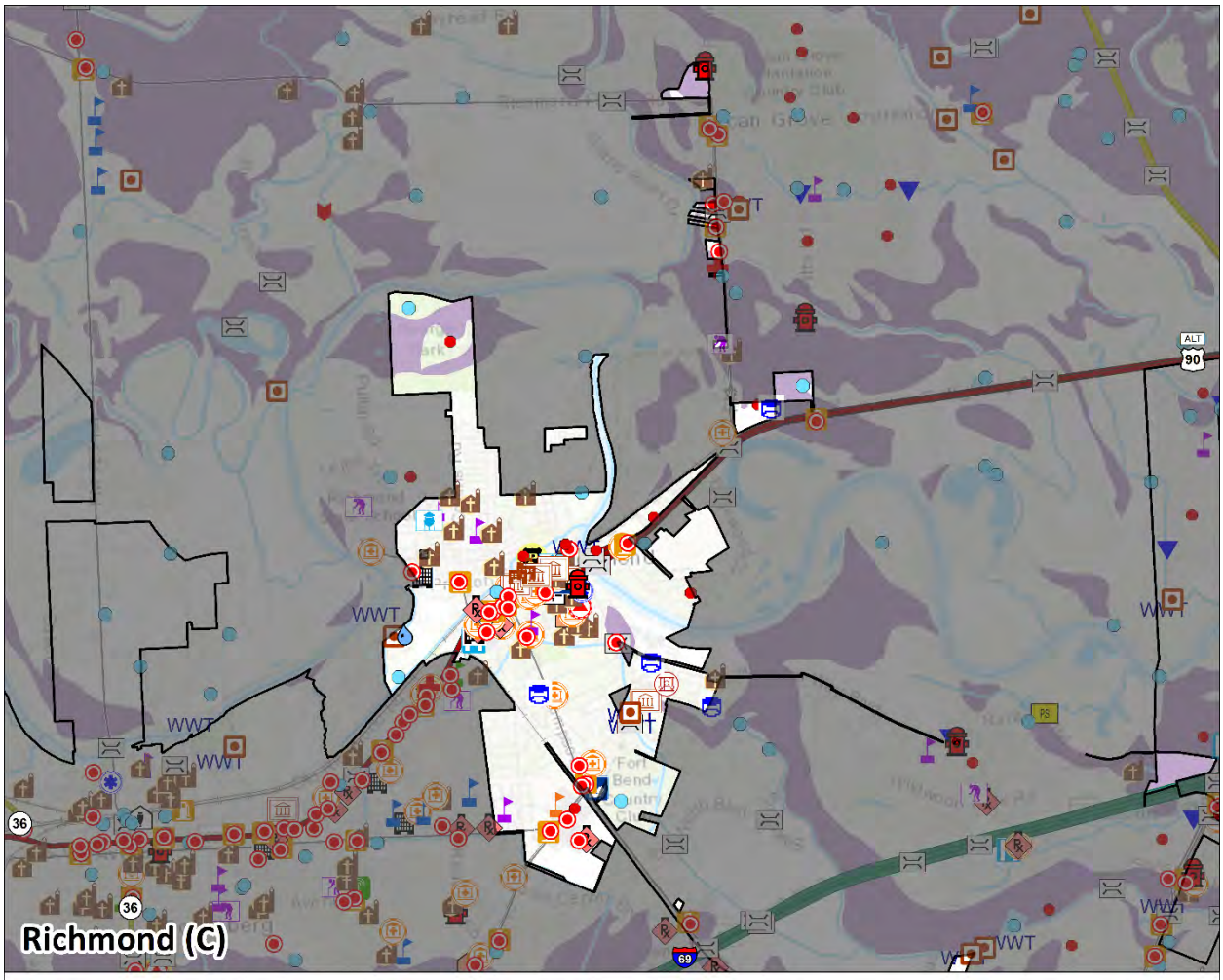
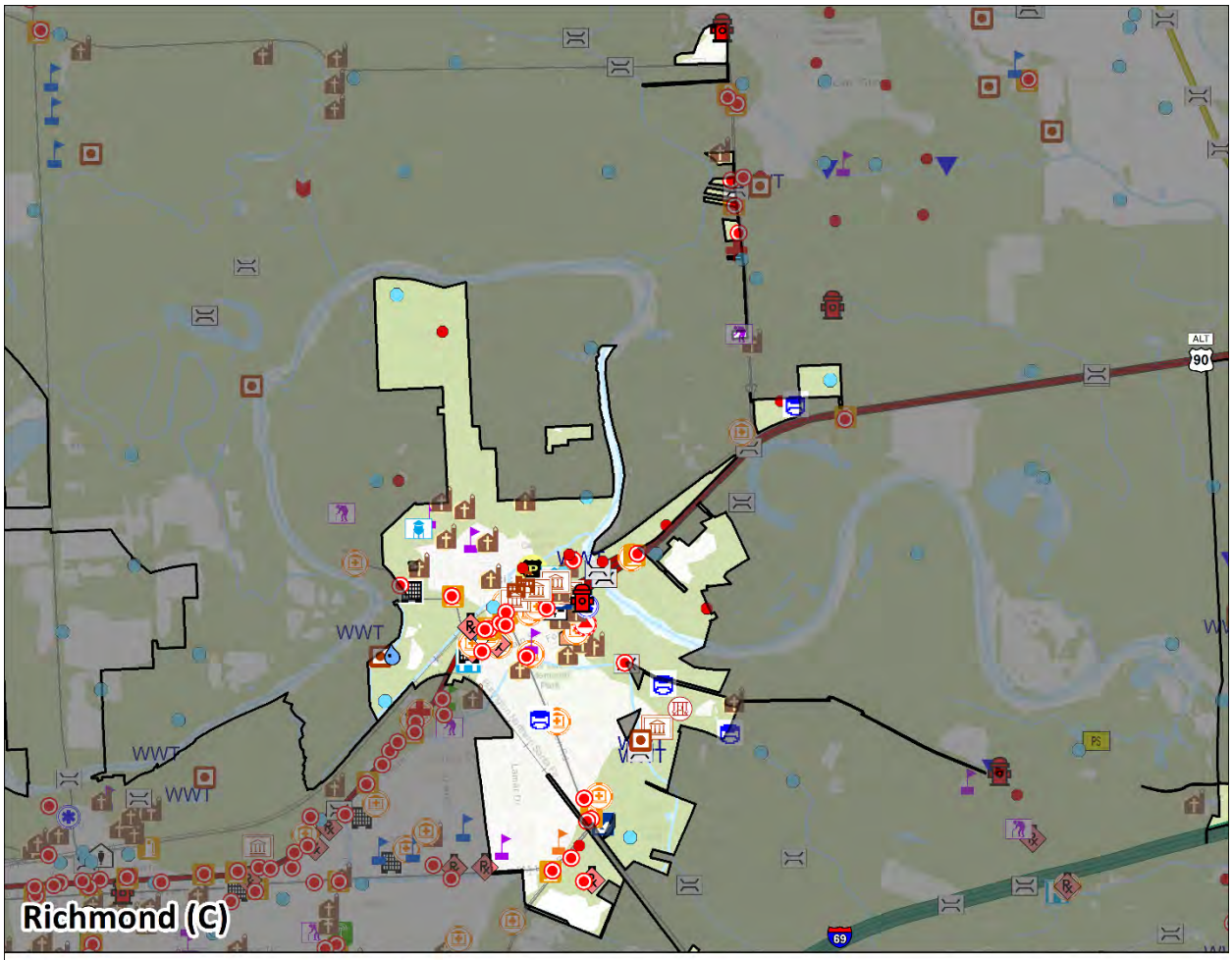


Figure 9.12-6. City of Richmond Hazard Area Extent and Location Map-Wildfire



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
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- Potable Water Well
- Primary Education
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- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Wildfire Hazard Area

- Low Threat
- Moderate Threat

Miles
0 0.5 1

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022

Notes: City (C), Township (T), Village (V)

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Richmond's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Richmond experienced during hazard events since the last HMP update. Information provided in the table below is based on reference material or local sources.

Table 9.12-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	COVID-19 pandemic	$661,815
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in a significant number of downed trees and utility lines.	While the County was impacted by this event, the City did not document significant damages or losses.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County.	While the County was impacted by this event, the City did not document significant damages or losses
September 12-18, 2021	EM-3572 – Hurricane Nicholas	Yes	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	While the County was impacted by this event, the City did not document significant damages or losses
February 11-21, 2021	DR-4586; EM-3554 - Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	$56,577

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Richmond's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with the highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Richmond. The City of Richmond reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City of Richmond indicated the following:

- Extreme Temperature – The City adjusted the ranking to high. The City is concerned w/ climate change.
- Geologic Hazards – The City adjusted the ranking to medium. The City has not had an incident in years.
- Wildfire – The City adjusted the ranking to medium due to drought conditions and the amount of undeveloped land located throughout the municipality.

Table 9.12-14. Hazard Ranking Input

Hazard	Municipal Hazard Ranking
Dam/Levee	Medium
Disease Outbreak	Low
Drought	Medium
Extreme Temperature	High
Flood	Low
Geologic Hazards	Medium
Hurricane/Tropical Storms	Medium
Severe Weather	High
Tornado	Medium
Wildfire	Medium
Winter Storm	Low

Critical Facilities

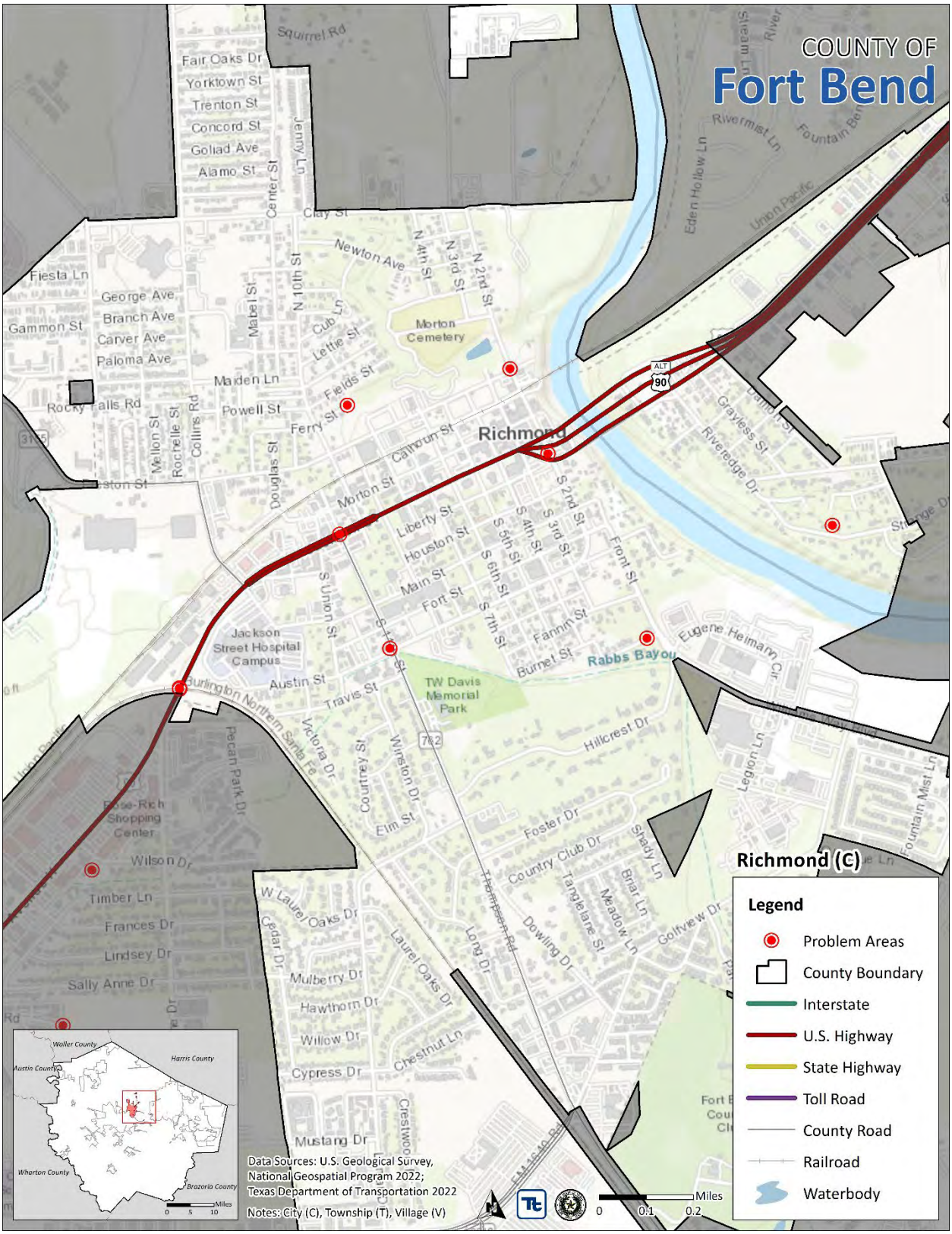
The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.12-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area	
	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines
Richmond (C)	21	21	0	0	8	8	72	63	0	0	35	33	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Figure 9.12-7. City of Richmond Extent and Location Map-Problem Areas



Identified Issues

After review of the City of Richmond's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Richmond identified the following vulnerabilities within their community:

- During river rising events, North Second Street is inundated with water making it impassable to vehicular traffic. North Second is a direct emergency route for Fire Police and EMS.
- During river rising and/or flood events, the lift station at Greenwood becomes inundated and inoperable.
- Residents may be unaware or underinformed about potential hazards within the community in which they live due to lack of internet or technical knowledge/smart devices.
- Richmond, like all other cities, are susceptible to all types of pathogens and diseases that are undetectable until someone becomes infected. Some of these diseases can be highly contagious and could infect a large portion of the population.
- Many residents may not have proper heating and/or cooling equipment or they may not have access to temperature-controlled facilities.
- There are some areas in the City that may have an excess amount of potential fuels that could help ignite a wildfire. The City of Richmond has not had a wildfire in many years, however, the potential is always there, especially in the undeveloped areas of the City.
- Drought, land subsidence and infrastructure fortification. Solution: Initiate upgrades to at-risk structures and/or infrastructure to include structurally fortifying at-risk infrastructure, integrating increased thermal insulation, impact resistant film or glass, surge protection systems and wind resistant windows and doors.
- The areas of Riveredge Drive south of Edgewood Drive, 800 block Ferry Street, and Rabbs Bayou - Wheaton Street at Richmond Pkwy flood during major river rising events impacting private residences and roadways.
- These areas experience excessive ponding during heavy rains, US Hwy 90A at South Second Street, US Hwy 90A at South Eleventh (FM 762), US Highway 90A at Underpass, and Austin at Thompson Hwy (FM 762). In many cases the roadways must be closed and the underpass Floods during heavy rain events - Road access to the area is often hampered. Avenue H at the Railroad Underpass at Lane Drive Floods during heavy rain events - Road access to the area is impacted.

9.12.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.12-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Pursue acquisition, elevation or floodproofing projects and structural solutions to flooding for the 11 repetitive loss structures.	City of Richmond Public Works	Complete	No	-	-
Promote flood insurance.	City of Richmond Engineering	Ongoing	No	-	City of Richmond Communications Division
Join the NFIP's Community Rating System (CRS).	City of Richmond Engineering	In Progress	No	-	-
Increase public awareness of hazard mitigation.	City of Richmond OEM	Ongoing	No	-	-
Ensure that the City has adequate evacuation plans and notification procedures in place.	City of Richmond OEM, Police	Ongoing	No	-	-
Wildfire hazard areas study	City of Richmond Fire Dept.	Ongoing	No	-	-
Monitor drought conditions	City of Richmond Water Dept.	Ongoing	No	-	City of Richmond Public Works
Public information campaigns	City of Richmond OEM	Ongoing	No	-	-
Evaluate the risks presented by excessive heat and humidity, especially in terms of high-risk populations such as the elderly/low-income.	City of Richmond OEM	Ongoing	No	-	-
In cooperation with County and State officials, ensure that high-risk populations are adequately addressed in response plans that are related to excessive heat risks.	City of Richmond OEM	Ongoing	No	-	-
Review plans and resources to address risk posed by snow and ice hazards during winter storms.	City of Richmond Public Works, OEM	Ongoing	No		City of Richmond Public Works, OEM
Various mitigation actions to reduce wildfire risk	City of Richmond Fire Dept.	Ongoing	No	-	-

Upgrades to at-risk structures and higher standards for new structures	City of Richmond Engineering, Public Works	Ongoing	Yes		City of Richmond Engineering, Public Works
Complete a detailed structural/engineering survey of Richmond public facilities to ensure their soundness with respect to resisting the effects of high winds, extreme roof loading from snow or ice, and hail. Test soil for traits of expansive soil. Establishes basis of decisions about any additional actions to mitigate risk.	City of Richmond Public Works	Complete	No		
Understanding dam/levee risks	City of Richmond Engineering	Complete	No		
Evacuation plans	City of Richmond OEM	Choose an item.	No		

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Richmond identified the following mitigation efforts completed since the last HMP:

- Upper Rabbs Bayou Drainage Improvements – General Land Office Flood Mitigation Grant to improve drainage for Rabbs Bayou from the Richmond/Rosenberg City limits near Victoria Drive through Freeman Town Park. Project will mitigate flooding along Austin Street. City of Richmond Public Works is managing the project
- Elevate North Second Street - General Land Office Flood Mitigation Grant to prevent Brazos River flooding Lake Richmond, Richmond Police Department and Wessendorff Park. Elevating North Second Street will create a barrier to prevent the Brazos River from flooding when it reaches flood stage. City of Richmond Public Works is managing the project
- Elevating/relocating sanitary sewer lift stations- General Land Office Flood Mitigation Grant to prevent flooding sanitary sewer facilities in the flood plain in North Richmond and East of the Brazos River. City of Richmond Public Works is managing the project
- North Richmond Drainage Improvement Project – Project will include underground storm drainage infrastructure from Clay at Collins, east on Clay to Second St, down Second St and outfall into the Brazos River. Project will mitigate flooding in North Richmond. City of Richmond Public Works is managing the project.

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

Table 9.12-17. Analysis of Mitigation Actions by Hazard and Category

	FEMA				CRS					
Hazard	**LPR**	**SIP**	**NSP**	**EAP**	**PR**	**PP**	**PI**	**NR**	**SP**	**ES**
Dam/Levee		X		X			X		X	
Disease Outbreak			X					X		
Drought		X		X			X		X	
Extreme Temperature		X		X			X		X	
Flood		X		X			X		X	
Geologic Hazards		X		X			X		X	
Hurricane/Tropical Storms		X		X			X		X	
Severe Weather		X		X			X		X	
Tornado		X		X			X		X	
Wildfire		X	X	X			X	X	X	
Winter Storm				X			X			

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Richmond would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.12-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Richmond-001	North Second Mitigation	**Problem**: During river rising events, North Second Street is inundated with water making it impassable to vehicular traffic. North Second is a direct emergency route for Fire Police and EMS. **Solution**: The City will complete an engineering study to determine next steps in elevating North Second Street. Once the study is complete, the City will seek funding to begin elevating the roadway which will protect infrastructure and allow emergency personnel to access this roadway during a disaster.	Dam and Levee Failure; Flood; Hurricane/Tropical Storm; Severe Weather	2, 3	Within two years	Public Works	BRIC and HMGP; TX Local Government Projects Program	Allows the roadway to stay open for all emergency traffic during events. This will also reduce the risk to certain areas of the City from being inundated.	$5 Million	High	SIP	SP
2023-Richmond-002	Lift station elevation	**Problem**: During river rising and/or flood events, the lift station at Greenwood becomes inundated and inoperable. **Solution**: By raising the lift station, the City may continue providing services without interruption during flood events. The station will be elevated to the City's requirements for structural elevations.	Dam and Levee Failure; Flood; Hurricane/Tropical Storm; Severe Weather	2, 5	Three years	Public Works	FMA, BRIC, or HMGP; City Budget	Being able to continue uninterrupted services.	$2 million	High	SIP	SP
2023-Richmond-003	Public Outreach	**Problem**: Residents may be unaware or underinformed about potential hazards within the community in which they live due to	Dam and Levee Failure; Drought; Extreme Temperature; Flood; Geologic;	1, 2, 3, 4, 5	1 year	OEM	City Budget	This will assist in getting more of the citizens informed about potential hazards that could	$10,000	High	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		lack of internet or technical knowledge/smart devices. **Solution**: Continue to provide information on all web-based platforms. Send informational flyers along with water bills in the mail. Post information at City facilities.	Hurricane/Tropical Storm; Disease Outbreak; Severe Weather; Tornado; Wildfire; Winter Weather					occur and how to react if they do occur.				
2023-Richmond-004	PPE Storage	**Problem**: Richmond, like all other cities, are susceptible to all types of pathogens and diseases that are undetectable until someone becomes infected. Some of these diseases can be highly contagious and could infect a large portion of the population. **Solution**: Stockpile PPE kits for distribution during an outbreak event. PPE will include face masks, face shields, gowns, gloves, eye protection, hand sanitizer, and any other essential items needed during a disease outbreak.	Disease Outbreak	1, 2, 3, 5	1 year	OEM	HMGP, City Budget	It would allow the City to help reduce the number of infect citizens by providing PPE in a timely manner.	$250,000	Medium	NSP	NR
2023-Richmond-005	Warming/Cooling Centers	**Problem**: Many residents may not have proper heating and/or cooling equipment or they may not have access to temperature-controlled facilities. **Solution**: Working with local businesses, churches and schools, the City will identify facilities to use as warming/cooling centers for residents. The City will create MOUs with the facility owners to allow them to access the facilities when needed to serve as heating/cooling centers.	Extreme Temperature; Winter Weather	1, 2, 3, 5	1 year	OEM	City Budget	This will help reduce the risk to our citizens during extreme temperatures by providing them a safe place to go to get out of the weather.	$10,000	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Richmond-006	Reduce exposure and vulnerability	**Problem**: There are some areas in the City that may have an excess amount of potential fuels that could help ignite a wildfire. The City of Richmond has not had a wildfire in many years, however, the potential is always there, especially in the undeveloped areas of the City. **Solution**: On a case by case basis, develop and initiate mitigation actions to reduce the wildfire and brush fire risk by creating fire breaks. Actions may include informing property owners of appropriate actions, clearing vegetation and wildfire fuels.	Wildfire	1, 2, 3, 4, 5,	5 years	Fire Department	Staff Time	Cost-effective, as measures tend to be inexpensive and prevent fires.	No additional cost	Medium	NSP	NR
2023-Richmond-007	Reduce Exposure and Vulnerability to Natural Hazards	**Problem**: Drought, land subsidence and infrastructure fortification. Solution: Initiate upgrades to at-risk structures and/or infrastructure to include structurally fortifying at risk infrastructure, integrating increased thermal insulation, impact resistant film or glass, surge protection systems and wind resistant windows and doors. **Solution**: Integrate higher levels of soil compaction standards, foundation supports and mandate freeboard for new development.	Drought; Extreme Temperature; Flood; Geologic; Hurricane/Tropical Storm; Severe Weather; Tornado; Wildfire; Winter Weather; Dam and Levee Failure	1, 2, 3, 5	One to two years per project	City Engineer	Locally funded, HMGP and FMA	Infrastructure will be hardened and capable of withstanding many natural disasters and continue to operate without interruption.	$10,000 - $1,000,000	Medium	SIP	SP
2023-Richmond-008	Bravos River Flood Mitigation	**Problem**: The areas of Riveredge Drive south of Edgewood Drive, 800 block Ferry Street, and Rabbs Bayou - Wheaton Street at Richmond Pkwy flood during major river rising events impacting private residences and roadways.	Flood	2 and 3	2 years	City Engineer	BRIC, HMGP, FMA	The Brazos River will not flood as much, and the properties nearby will not be flooded as often.	Engineering Study: $5,000	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Solution: Identify river bank areas most vulnerable to breaches for additional fortification measures; elevate homes and roadways at risk.										
2023-Richmond-009	Stormwater Flooding Study	**Problem**: These areas experience excessive ponding during heavy rains, US Hwy 90A at South Second Street, US Hwy 90A at South Eleventh (FM 762), US Highway 90A at Underpass, and Austin at Thompson Hwy (FM 762). In many cases the roadways must be closed and the underpass Floods during heavy rain events - Road access to the area is often hampered. Avenue H at the Railroad Underpass at Lane Drive Floods during heavy rain events - Road access to the area is impacted. **Solution:** Inspect conveyance structures for obstructions, increase quantity of stormwater detained and conveyed, and identify nonstructural means of conveying stormwater allowing for percolation.	Flood	2 and 3	2 years	City Engineer	BRIC HMGP, FMA	Roadways will not flood allowing for evacuation and emergency access during storm events.	$10,000	High	SIP	SP

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS	*Community Rating System*
FEMA	*Federal Emergency Management Agency*
HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*
NFIP	*National Flood Insurance Program*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
BRIC	*Building Resilient Infrastructure and Communities Program*

Timeline:
The time required for completion of the project upon implementation.

Cost:
The estimated cost for implementation.

Benefits:
A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct man-made structures to reduce the impact of hazards.*

- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.12-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community	Total	High / Medium / Low
2023-Richmond-001	North Second Mitigation	1	1	1	1	1	1	1	1	-1	1	1	1	1	1	12	High
2023-Richmond-002	Lift station elevation	1	1	1	1	1	1	0	1	-1	1	1	1	1	1	11	High
2023-Richmond-003	Public Outreach	1	1	1	0	1	1	1	1	-1	1	1	1	1	1	11	High
2023-Richmond-004	PPE Storage	1	0	1	0	1	1	1	0	0	1	0	1	1	0	8	Medium
2023-Richmond-005	Warming/Cooling Centers	1	0	1	1	1	1	1	1	-1	0	1	1	1	0	9	High
2023-Richmond-006	Reduce exposure and vulnerability	1	1	1	1	1	1	1	1	-1	1	1	1	1	1	12	High
2023-Richmond-007	Reduce Exposure and Vulnerability to Natural Hazards	1	1	1	1	1	1	1	1	-1	0	1	1	1	1	11	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community	Total	High / Medium / Low
2023-Richmond-008	Bravos River Flood Mitigation	1	1	1	1	0	0	1	1	0	1	0	1	1	0	9	High
2023-Richmond-009	Stormwater Flooding Study	1	1	1	1	0	0	1	1	0	1	0	1	1	1	10	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.13 City of Rosenberg

This section presents the jurisdictional annex for the City of Rosenberg that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Rosenberg representatives who participated in the planning process, an assessment of the City of Rosenberg's risk and vulnerability, the different capabilities used in the City of Rosenberg, and an action plan that will be implemented to achieve a more resilient community.

9.13.1 Hazard Mitigation Planning Team

The City of Rosenberg identified primary and alternate points of contact and developed this plan over the course of several months with input from many City of Rosenberg departments, including Department of Emergency Services. The Emergency Management Coordinator, Fire Chief, Police Chief, Executive Director of Public Services, City Engineer and Building Official represented the community on the Fort Bend County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.13-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Jonathan White, Police Chief/Emergency Management Coordinator	Name/Title:	Rigo Calzoncin, Executive Director of Public Services
Address:	2120 4th Street Police Department Rosenberg, TX 77471	Address:	2110 4th Street Rosenberg City Hall Rosenberg, TX 77471
Phone Number:	832-595-3713	Phone Number:	832-595-3591
Email:	jowhite@rosenbergtx.gov	Email:	rcalzoncin@rosenbergtx.gov
NFIP Floodplain Administrator			
Name/Title:	Charles A. Kalkomey, PE, City Engineer		
Address:	2110 4th Street Rosenberg City Hall Rosenberg, TX 77471		
Phone Number:	832-595-3301		
Email:	ckalkomey@rosenbergtx.gov		
Name/Title:	Darrell Himly Fire Chief (Retired)		

Method of Participation:	Participated in meetings. Completed Homework Sheets and input Survey 123 data. Planning Committee Member
Name/Title: Method of Participation:	Kevin Raines, Mayor Steering Committee and Planning Committee Member
Name/Title: Method of Participation:	Brian Swint, Building Official Participant in completing Hazard Mitigation Plan

9.13.2 Municipal Profile

The City of Rosenberg is located within the Houston-The Woodlands-Sugar Land Metropolitan Statistical Area (MSA). While located at the ever-expanding southwestern edge of the Houston metropolitan area, Rosenberg is centrally located within Fort Bend County, with the original portions of the City lying along the Brazos River on an east-west axis. The City's area of greatest building intensity and population density is generally flanked on the south by the U.S. Highway 59/Interstate 69 corridor. Substantial annexation activity has pushed the City's boundaries much further to the south and west in a meandering but linear profile. The City of Rosenberg has a total area of approximately 108 square miles, of which 36.63 square miles are within the Corporate City Limits.

According to the American Community Survey, the 2021 population for the City of Rosenberg was 37,871, a 23.6% percent increase from the 2010 Census population of 30,618. Data from the 2020 U.S. Census indicate that 8.6 percent of the population is 5 years of age or younger, and 11.5 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.13.3 Jurisdictional Capability Assessment and Integration

The City of Rosenberg performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhanced its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Rosenberg to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Rosenberg. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.13-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	2018 International Code	Local	Building Inspection and Code Enforcement
How does this reduce risk? The City of Rosenberg adopted the 2018 International Codes, the 2015 International Energy Code, and the 2017 National Electric Code, which incorporates the latest safety standards to address known hazards to the community. The City's current building code has not been updated since the 2018 HMP; therefore, it does not integrate the HMP. When the City does update the code, they will review the current HMP and integrate into the code accordingly.				
Zoning/Land Use Code	Yes	Unified Development Code (UDC) – May 2, 2017	Local	Planning Department
How does this reduce risk? No "zoning", but the City has a UDC regulating land uses. The UDC is established to maintain the growth and development within the City. Some sections of the City's UDC have not been updated since the 2018 HMP; therefore, it does not integrate the HMP. When the City does update the code, they will review the current HMP and integrate into the code accordingly. The City indicated the following regarding the zoning/land use code: • Prior to zoning changes, or development permitting, does your jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use? No zoning or zoning changes but, prior to development permitting, the City has many codes and ordinances within the UDC that are reviewed and that address hazard mitigation. • Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains? No zoning, but yes, the UDC most definitely does this. The UDC contains a Flood Prevention and Protection chapter (Ch. 2) that thoroughly addresses this risk. • Does it contain natural overlay zones that set conditions? There are not necessarily overlay zones, but there are different floodplain designations with different rules that are stricter based on greater risk. • Does the ordinance require developers to take additional actions to mitigate natural hazard risk? Absolutely. See the Flood Prevention and Protection rules in particular. • Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use? No zoning, but there are other rules for density that could be seen as indirectly addressing hazard mitigation by reducing the intensity of development. • The code is found online: https://rosenbergtx.gov/281/Unified-Development-Code (UDC link)				
Subdivision Ordinance	Yes	Subdivision Regulations (UDC Ch. 4) May 2, 2017	Local	Planning Department
How does this reduce risk? The Ordinance works to ensure the health, safety, and welfare of citizens and property by regulating the development of land within the City limits and in certain cases, within the extraterritorial jurisdiction (ETJ) of the City. The City's UDC relative to Subdivision, has not been updated since the 2018 HMP; therefore, it does not integrate the HMP. When the City does update the code, they will review the current HMP and integrate into the code accordingly. The City indicated the following regarding the subdivision ordinance: *Consider the following:* • Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas? Yes. A prime example would be floodplain areas. • Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources? No, the ordinance does not currently do this. However, it does provide for Planned Unit Developments (PUDs) where this could potentially be done. • Do the regulations allow density transfers where hazard areas exist? No, the ordinance does not currently address this. • The code is found online: https://rosenbergtx.gov/281/Unified-Development-Code (UDC, see Ch. 4)				
Site Plan Ordinance	Yes	Article VII. Chapter 7, Uniform Development Code, adopted by Ordinance No. 2017-07 on May 2, 2017	Local	Planning Department
How does this reduce risk? The City does not have a "Site Plan Ordinance", but it does require site plans for commercial developments, which addresses hazard mitigation such as flood prevention. Article VII, Chapter 7, Uniform Development Code addresses the requirement for site				

development plans for new development. This Article references flood protection facilities, minimum slab elevations (to comply with Flood Prevention and Protection Ordinance) and site drainage.				
Stormwater Management Ordinance	Yes	The City local codes and ordinances sets standards for storm water management in Chapter 6 of the UDC, adopted May 2, 2017	Local	Public Works/Code Enforcement
How does this reduce risk? Ensuring that storm drains are free of debris and are protected during construction from allowing illicit discharges to occur, reduces the impacts of flooding to allow water to flow with minimal restriction through the storm water drainage system. The City's UDC relative to Stormwater Protection has not been updated since the 2018 HMP; therefore, it does not integrate the HMP. When the City does update the code, they will review the current HMP and integrate into the code accordingly				
Post-Disaster Recovery/ Reconstruction Ordinance	Yes	Building Codes	Local	Building Official
How does this reduce risk? Ensuring that after the even, we design and build to current standards reduces the risk from future events.				
Real Estate Disclosure	No	The Private Real Property Rights Preservation Act - Subchapter B: Chapter 2007 of the General Government Code	-	-
How does this reduce risk?				
Growth Management	Yes	Chapter 4 and Chapter 7, Uniform Development Code, adopted by Ordinance No. 2017-07 on May 2, 2017; Flood Prevention and Protection Ordinance amended by Ordinance No. 2020-09 dated February 18, 2020	Local	Planning and Engineering
How does this reduce risk? By ensuring that new development accounts for and mitigates impacts from new development. All increases in peak flow rates are identified and adequately detained or managed to achieve no net increase in stormwater created by the development. The 2020 amendment integrates aspects of the 2018 HMP by establishing standards for increased flood protection measures, which encourages development to occur outside of flood hazard areas.				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Flood Prevention and Protection Ordinance, Chapter 2, Uniform Development Code adopted by Ordinance No. 2014-10 on February 18, 2014 (Chapter 12, Code of Ordinances); last amended by Ordinance No. 2020-09 dated February 18, 2020,	Local	Planning and Engineering
How does this reduce risk? Establishes requirements for any construction in a flood hazard area including defining minimum finished floor elevations above the base flood elevation.				

Wellhead Protection	Yes	Flood Prevention and Protection Ordinance, Chapter 2, Uniform Development Code adopted by Ordinance No. 2014-10 on February 18, 2014 (Chapter 12, Code of Ordinances); last amended by Ordinance No. 2020-09 dated February 18, 2020,	- Local	- Planning and Engineering
How does this reduce risk? Ensures wellhead is above the base flood elevation.				
Emergency Management Ordinance	Yes	Chapter 10 – Emergency Management - June 21, 2005	Local	Emergency Manager
How does this reduce risk? The Emergency Management Ordinance establishes an emergency management plan and identifies the responsible parties				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Planning Documents				
Comprehensive/Master Plan	Yes	2035 Comprehensive Master Plan – November 17, 2015	Local	Planning Department
How does this reduce risk? The City Comprehensive Plan guides future decisions of the City leadership regarding the types, patterns, and direction of growth; the scope and direction of transportation and other infrastructure network expenditure; and the enhancement of the community. The City's Comprehensive Plan has not been updated since the 2018 HMP; therefore, it does not integrate the HMP. When the City does update the Plan, they will review the current HMP and integrate into the Plan accordingly. The City will provide additional information regarding the comprehensive plan: • Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? Yes, particularly flooding. • Does the future land use map clearly identify natural hazard areas? Yes, particularly floodplain areas. • Do the land use policies discourage development or redevelopment with natural hazard areas? Yes. • Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? Yes, as you would expect, the Plan attempts to deter growth in hazard areas such as floodplains. • The plan is found online: https://rosenbergtx.gov/252/2035-Comprehensive-Plan (Comprehensive Plan link)			
Capital Improvement Plan	Yes	Current 5-year Capital Improvements Plan adopted by Resolution R-3326 on September 6, 2022	Local	Public Works and Engineering
How does this reduce risk? Identifies, prioritizes, and defines funding for floodplain management and drainage projects for a five-year period. Actions from the 2018 HMP have been integrated in the Capital Plans.				
Disaster Debris Management Plan	Yes	County Agreement	County	Public Works
How does this reduce risk? The removal of debris caused by storms reduces the risks for clogging stormwater systems, reduces health risk, reduces fire risk, and allows a community the opportunity to recover.				
Floodplain Management or Watershed Plan	Yes	Flood Prevention and Protection Ordinance, Chapter 2, Uniform Development Code adopted by Ordinance No. 2014-10 on February	Local	Planning and Engineering

		18, 2014 (Chapter 12, Code of Ordinances); last amended by Ordinance No. 2020-09 dated February 18, 2020,		
How does this reduce risk? Establishes requirements for any construction in a flood hazard area including defining minimum finished floor elevations above the base flood elevation.				
Stormwater Management Plan	Yes	Stormwater Management Plan- June 2014	Local	Public Works
How does this reduce risk? The Stormwater Management Program is established to obtain coverage for stormwater discharges. The program requires five minimum control measures to be addressed in the plan; 1. Public Education, Outreach, and Involvement 2. Illicit Discharge Detection and Elimination 3. Construction Site Storm Water Runoff Control 4. Post-Construction Storm Water Management in New Development & Redevelopment 5. Pollution Prevention / Good Housekeeping for Municipal Operations				
Open Space Plan	Yes	Parks Master Plan/Parkland Dedication Ordinance	- Local	Planning and Parks Department
How does this reduce risk? There is not an "Open Space Plan", but there is (1) a Parks Master Plan and (2) a Parkland Dedication ordinance, both of which indirectly reduce risk by conserving and adding open space areas, in contrast to additional impervious cover. The plan is available online: https://rosenbergtx.gov/229/Parks-Master-Plan (Parks Master Plan link) and the code is online https://rosenbergtx.gov/281/Unified-Development-Code (UDC, see Ch. 4, Art. IV)				
Urban Water Management Plan	Yes	Water Conservation Plan – 2019	Local	Public Services Dept.
How does this reduce risk? The Plan was adopted to identify and establish principles and practices to effectively monitor and conserve the efficient use of available water supplies and distribution system capacity.				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	Yes	Economic Development Strategic Plan-2023	Local	Economic Development
How does this reduce risk? Provides funding in support of infrastructure projects to maintain compliance with adopted codes and regulations				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	Yes	Master Thoroughfare Plan	Local	Planning Department
How does this reduce risk? The Master Thoroughfare Plan (MTP) defines the network of future roads identified to handle various levels of vehicular traffic and defines a hierarchy for roadways to provide balance between mobility and access. The Plan identifies the general location and scale for thoroughfares within the City. The City provided additional information regarding this plan:				

• Does the transportation plan limit access to hazard areas? Yes, additional thoroughfares and development are not encouraged in floodplain areas, for example. • Is transportation policy used to guide growth to safe locations? Yes. • Are transportation systems designed to function under disaster conditions (e.g. evacuation)? Yes. • The plan is found online: https://rosenbergtx.gov/274/Master-Thoroughfare-Plan (Master Thoroughfare Plan link)				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	Yes	Sustainability Project-Generators	- Local	- Emergency Management
How does this reduce risk? By providing emergency generators at all facilities it allows the continuation of government operations during disasters.				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	Emergency Operations Plan	County	Fort Bend County Homeland Security and Emergency Management
How does this reduce risk? The Emergency Operations Plan (EOP) is an all-hazard plan that guides Fort Bend County's efforts to prepare for, respond to, recover from, and mitigate the effects of a major emergency or disaster.				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				
Strategic Recovery Planning Report	Yes	Fort Bend County	County	Fort Bend County Homeland Security & Emergency Management
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	Fort Bend County	County	Fort Bend County Homeland Security & Emergency Management
How does this reduce risk?				
Post-Disaster Recovery Plan	Yes	Fort Bend County	County	Fort Bend County Homeland Security & Emergency Management
How does this reduce risk?				
Public Health Plan	Yes	Fort Bend County	County	Fort Bend County Health & Human Services
How does this reduce risk? FBHHS has plans in place to prevent public health issues through regular inspections of regulated facilities, as well as prepare for and respond to public health emergencies.				
Other	Yes	Plans and Reports	City	Planning, Engineering, Public Works and Fire-

How does this reduce risk?
As ongoing capabilities listed in the Past Mitigation Initiative Status section of this annex (Table 9.15-16 Previous Mitigation Actions), the City is in the process of preparing and updating many plans and reports that address problems identified in the 2018 HMP. Additionally, the City will review the 2023 HMP and integrate it into the updated plans and reports accordingly.

Development and Permitting Capability

The table below summarizes the capabilities of the City of Rosenberg to oversee and track development.

Table 9.13-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	No	City does not have a defined Development Permit.
If you do not issue development permits, what is your process for tracking new development?	Yes	Development permits are a part of the Building Permit process for review and approval of new development.
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	The City does not currently "track" permits by hazard area, but can identify such permits.
Do you have a buildable land inventory? • If yes, please describe	Yes	The City maintains access to available property.
Describe the level of build-out in your jurisdiction.	Yes	Approximately 50%

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Rosenberg and their current responsibilities that contribute to hazard mitigation.

Table 9.13-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	The Commission is a recommending body to the City Council and considers such items as plat and replat submittals, subdivision regulation amendments to the Code of Ordinances, and variance requests. The Commission makes recommendations to the City Council concerning proposed changes in land use, and reviews developments through the platting process.
Zoning Board of Adjustment	No	-
Planning Department	Yes	The Planning Department is responsible for processing and reviewing applications for subdivision plats, land plans, and variance requests to the regulations of the Subdivision Ordinance, and other related development applications.
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Economic Development Board is responsible for seeking out development partners. They support mitigation by offsetting costs for projects including stormwater flows.
Public Works/Highway Department	Yes	Public Works Department is responsible for street maintenance, drainage, and storm water management. Other responsibilities include:

		• Maintaining the City's bridges, streets and alleys, drainage ditches and storm sewer inlets • Maintaining street and traffic signage, and street striping in the rights-of-way • Tree trimming on public rights-of-way
Construction/Building/Code Enforcement Department	Yes	The mission of the City of Rosenberg Code Enforcement is to attain compliance with City codes regarding land use regulations and the maintenance of structures and premises through education, cooperation, enforcement, and abatement to achieve a cleaner, healthier and safer City.
Emergency Management/Public Safety Department	Yes	Public Safety Department consists of the Fire Department and Police Department
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	Yes	Nixle Mass Communication System
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Public Works Department has a seasonal program for trimming vegetation and maintaining stormwater facilities.
Mutual aid agreements	Yes	Fire Dept.
Human Resources Manual	Yes	City of Rosenberg Policy and Procedure Manual
Other	-Yes	City of Rosenberg Safety Manual
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	City Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	City Code Enforcement
Planners or engineers with an understanding of natural hazards	Yes	City Engineer
Staff with expertise or training in benefit/cost analysis	Yes	Building Official
Professionals trained in conducting damage assessments	Yes	Building Official
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	The GIS Division is a member of the Community Development Department. The GIS Department responsibilities include but are not limited to: • Addressing • Digital and Print Cartographic Presentation • Data Analysis, Collection, Creation, Distribution, Maintenance, and Storage • Quality Control
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	City Engineer
Emergency Manager	Yes	Police Chief
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	Yes	Contracted Stormwater Engineer
How do your administrative/technical capabilities contribute to risk reduction in your community? Through the permitting, plan review, inspection and Certificate of Occupancy process, we follow development from the beginning of the project to the close out of the project. This review process allows us to address and mitigate issues with site drainage, traffic impacts, and construction impacts before development begins.		

Fiscal Capability

The table below summarizes financial resources available to the City of Rosenberg.

Table 9.13-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	Yes
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes
Open space acquisition funding programs	Yes
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Through Parkland dedication funds, we created the Seabourne Nature Creek Park which restored natural habitats in the City.

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Rosenberg.

Table 9.13-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	Yes	Provide timely information to the public through all mediums.
Personnel skilled or trained in website development	Yes	IT and Communications Department
Hazard mitigation information available on your website	Yes	Emergency management
Social media for hazard mitigation education and outreach	Yes	Provide detailed information on emergencies impacting the public on website, social media, and through the mass notification system.
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	Yes	Nixle, Social Media Resident Targeted Alerts
Natural disaster/safety programs in place for schools	Yes	Fire and police provide safety programs in Schools. Rosenberg Police Department has Community Resource Officers to work directly with citizen groups in the City.
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	Yes	The City hosts a Rosenberg 101 class which teaches Citizens about the City department including safety.

Community Classifications

The table below summarizes classifications for community programs available to the City of Rosenberg.

Table 9.13-7. Community Classifications

Program	Participating? (Yes/No)	Classification	Date Classified

		(if applicable)	(if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	2	2015
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	-	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.13-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather (hail-lighting)	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Storm	Moderate

9.13.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Rosenberg.

Table 9.13-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Rosenberg (C)	946	114	$1,558,635.13	11	N/A

Sources: *a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)*
b 2018 Fort Bend County HMP

Notes: *Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.*

**Number of RL and SRL properties provided by the State of Texas*

***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*

RL Repetitive Loss

SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Rosenberg.

Table 9.13-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	There are four (4) major watershed areas prone to flooding. The first is the area along the Brazos River. The second is the area along Dry Creek. The third is the area along Seaborne Creek. There are also areas along Avenue N and Mons Avenue that are prone to street flooding. The fourth area is Rabbs Bayou The City of Rosenberg has a list of properties that were damaged by Hurricane Harvey in 2017.
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	The City of Rosenberg does not maintain a list of property owners interested in flood mitigation.
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	Substantial Damage (Substantial Improvement) determinations are made based on the market value of the structure (primarily based on Appraisal District records) as compared to the cost of the repairs (improvements). The City of Rosenberg has not declared any Substantial Damage (Substantial Improvement) determinations after 2017.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	Since 2017, the City has permitted 27 properties that have been elevated. There have been no property mitigations through acquisition. All such mitigations were funded through a combination of flood insurance policies and private funds.
Do your Flood Hazard Maps adequately address the flood risk within your jurisdiction? • If not, state why.	Yes, the Flood Hazard Maps for the area adequately address the flood risk.
NFIP Compliance	
What local department is responsible for floodplain management?	Floodplain management is the responsibility of the City of Rosenberg Planning Department and Engineering Department.
Are any certified floodplain managers on staff in your jurisdiction?	Yes, the City of Rosenberg has one (1) certified floodplain manager on staff (City Engineer).
Do you have access to resources to determine possible future flooding conditions from climate change?	No.
Does your floodplain management staff need any assistance or training to support its floodplain management program?	No.

• If so, what type of assistance/training is needed?	
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	The City of Rosenberg reviews permit applications for the construction of new structures and for modifications/upgrades to existing structures. Through the permitting process, floodplain mitigation requirements are identified and incorporated in the issuance of the permit. The City conducts inspections of construction to confirm adherence to permit requirements. The City has engineering capability to adequately determine the floodplain status of property and provide requirements for construction to meet NFIP requirements.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Substantial Improvement determinations are based on the value of the improvements versus market value of the existing structure. The value of the improvements is derived from a detailed cost proposal for both labor and materials. The market value of the structure is taken from the Central Appraisal District value or a current market value appraisal of the structure. If the cost improvements exceed 50% of the market value of construction, and the proposed work constitutes Substantial Improvement and the structure must be brought into full compliance with the City's current Flood Prevention and Protection Ordinance and current City building codes.
What are the barriers to running an effective NFIP program in the community, if any?	The biggest problem in running an effective NFIP program is obtaining accurate construction cost estimates and current market values for making Substantial Improvement determinations.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	Not that we are aware of.
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	Unknown
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	The current Flood Prevention and Protection Ordinance is identified as Chapter 2, Uniform Development Code. The last major adoption of the ordinance was by Ordinance No. 2014-10 adopted on February 18, 2014 (Chapter 12, Code of Ordinances). The ordinance was amended by Ordinance No. 2017-22 on August 1, 2017, for the purpose of adopting a new Flood Insurance Study and Flood Insurance Rate Maps. The document was again amended by Ordinance No. 2020-09 dated February 18, 2020, for the purpose of raising the minimum finished floor elevation.
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	The current Flood Prevention and Protection Ordinance exceeds the minimum requirements with respect to the lowest finished floor elevation. The ordinance requires between 24 inches and 48 inches above the base flood elevation depending on property location.
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	All proposed permits for development involving structures require a site plan review which must show adherence to the Flood Prevention and Protection Ordinance.
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	The City is interested in improving its CRS classification. However, there are no definite plans to join the CRS program.

9.13.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.13-11. Number of Building Permits for New Construction

Type of Development	2016		2017		2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)														
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single Family	**	**	**	**	222	8	498	8	771	8	1058	4	841	10
Multi-Family	**	**	**	**	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	**	**	**	**	106	0	178	0	166	0	189	0	196	2
Total Permits Issued	**	**	**	**	328	8	676	8	937	8	1247	4	1037	12

SFHA Special Flood Hazard Area (1% annual chance flood event)

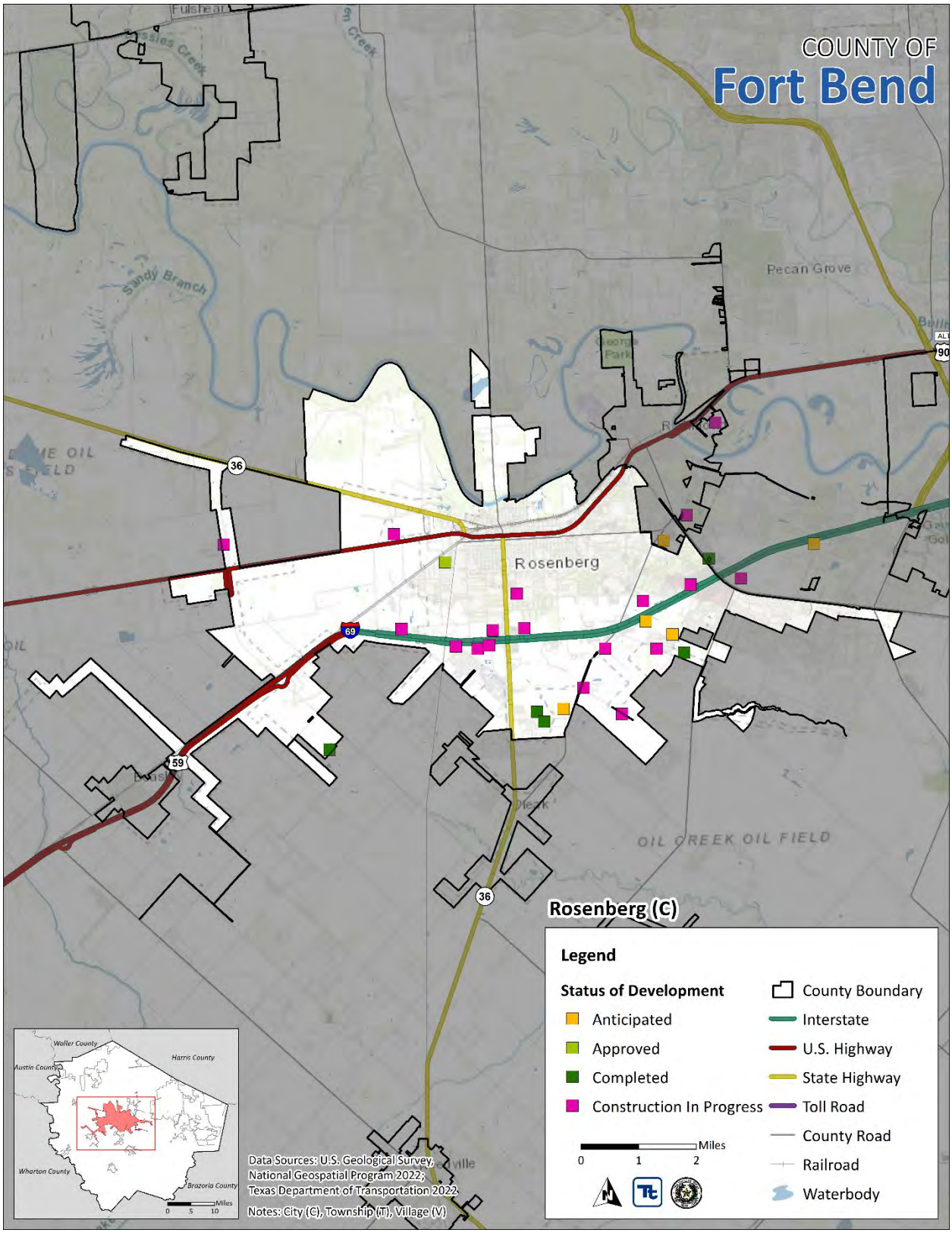
** Only location-specific hazard zones or vulnerabilities identified. ** Change in computer permitting software.*

Table 9.13-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
Sendero	residential	640	Koeblen Road	Inland erosion, Wildfire	Construction in progress
Brazos Crossing	residential	218	Bryan Road	Expansive soils	completed
Bryan Grove	residential	254	Bryan Rd	Inland erosion, Wildfire	Construction in progress
Evergreen	residential	757	Koeblen Road	Expansive soils, Wildfire	Construction in progress
Seabourne Landing	residential	232	J. Meyer Rd	Expansive soils, Wildfire	completed
Brazos Town Center	mixed-use	n/a	Town Center Blvd	Inland Erosion	Construction in progress
Rosenberg Business Park	industrial	n/a	Business Park Drive	Inland erosion, Wildfire	Construction in progress
Epicenter	commercial	n/a	N Fairgrounds Road	Expansive soils	Construction in progress
Walsh Road Business Park	industrial	n/a	Walsh Road	Expansive soils, Wildfire	Construction in progress
CenterPoint Area Service Center	industrial	n/a	US90A	Expansive soils	Construction in progress
Village Crossing	commercial	n/a	Airport Avenue	Expansive soils, Wildfire	Construction in progress
Rosenberg Warehouse Complex	commercial	n/a	Randon Dyer Road	Wildfire	Construction in progress

Brazos Point	residential	118	Blume Road	Expansive soils, Wildfire	Approved by Board/Committee
Spacek Road Duplexes	residential	72	Spacek Road	Expansive soils, Wildfire	Anticipated, no approval to date
SS Moreno (Kubota)	commercial	n/a	IH69	Expansive soils, Wildfire	Anticipated, no approval to date
Storage Buildings	commercial	n/a	2331 4th	Inland erosion	Construction in progress
Callender Townhomes	residential	18	1415 Callender Street	Inland erosion	Construction in progress
Dollar Tree Warehouse	industrial	n/a	1210 Hartledge	Expansive soils, Wildfire	completed
Rosenberg 36/59 Replat	commercial	n/a	IH 69	Inland erosion	Construction in progress
Hallimore Farms	residential	n/a	Cottonwood School Road	Inland erosion	Construction in progress
Rosenberg DPS Office	commercial	n/a	Deedco Center Drive	Inland erosion, Wildfire	Construction in progress
Trails at Seabourne Parke	residential	457	J Meyer Road	Expansive soils, Wildfire	Completed
Known or Anticipated Major Development in the Next Five (5) Years					
The Preserve	residential	564	J. Meyer Road	2% annual chance of flood	Anticipated, no approval date

Figure 9.13-1. City of Rosenberg Extent and Location Map-New Development

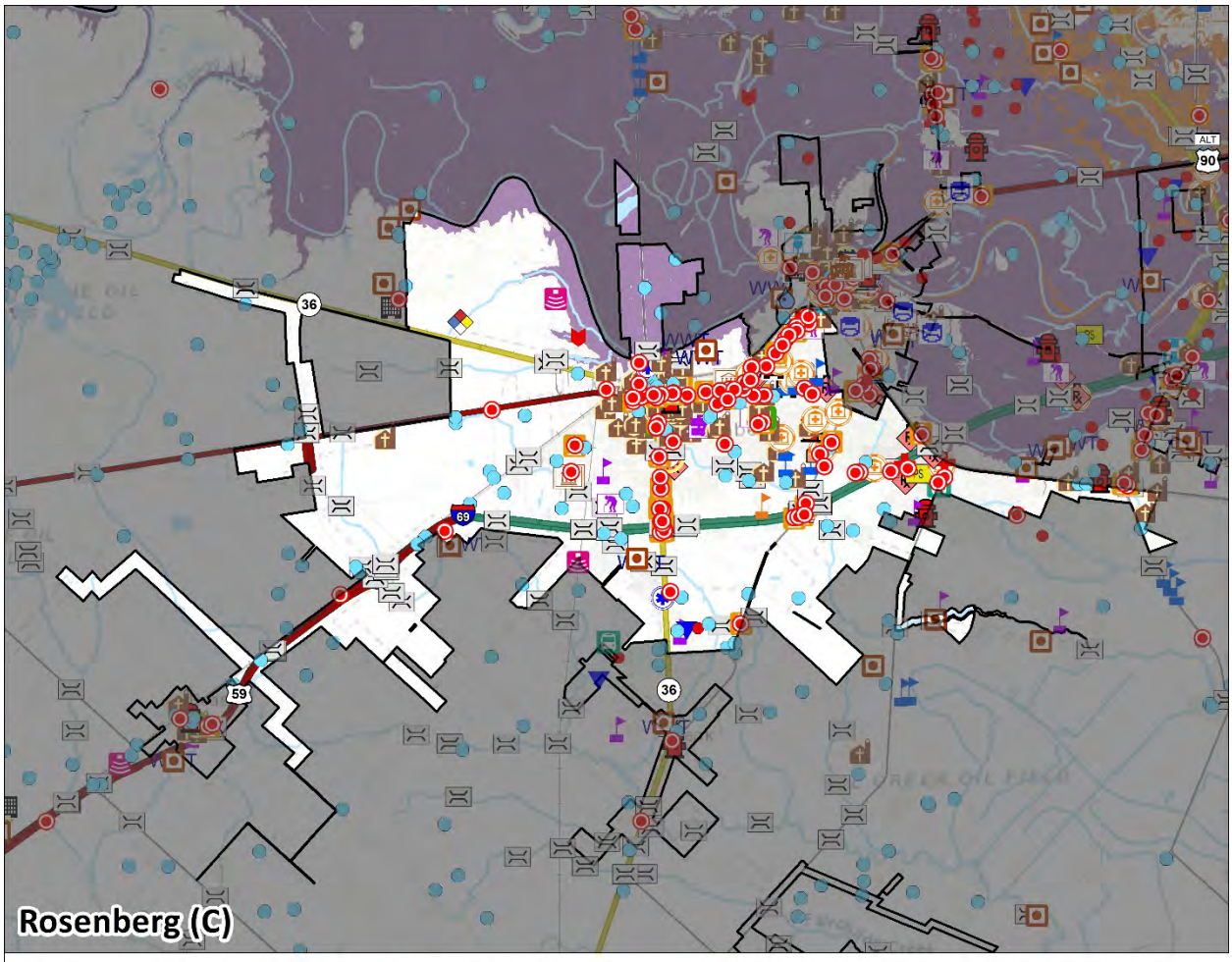


9.13.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Rosenberg's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Rosenberg has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.13-2. City of Rosenberg Hazard Area Extent and Location Map-Dam Inundation



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody
- Barker Reservoir
- Kitty Hollow Dam
- Lake Sommerville

Miles
0 1 2

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Army Corp of Engineers 2023

Notes: City (C), Township (T), Village (V)

Figure 9.13-3. City of Rosenberg Hazard Area Extent and Location Map- Expansive Soils

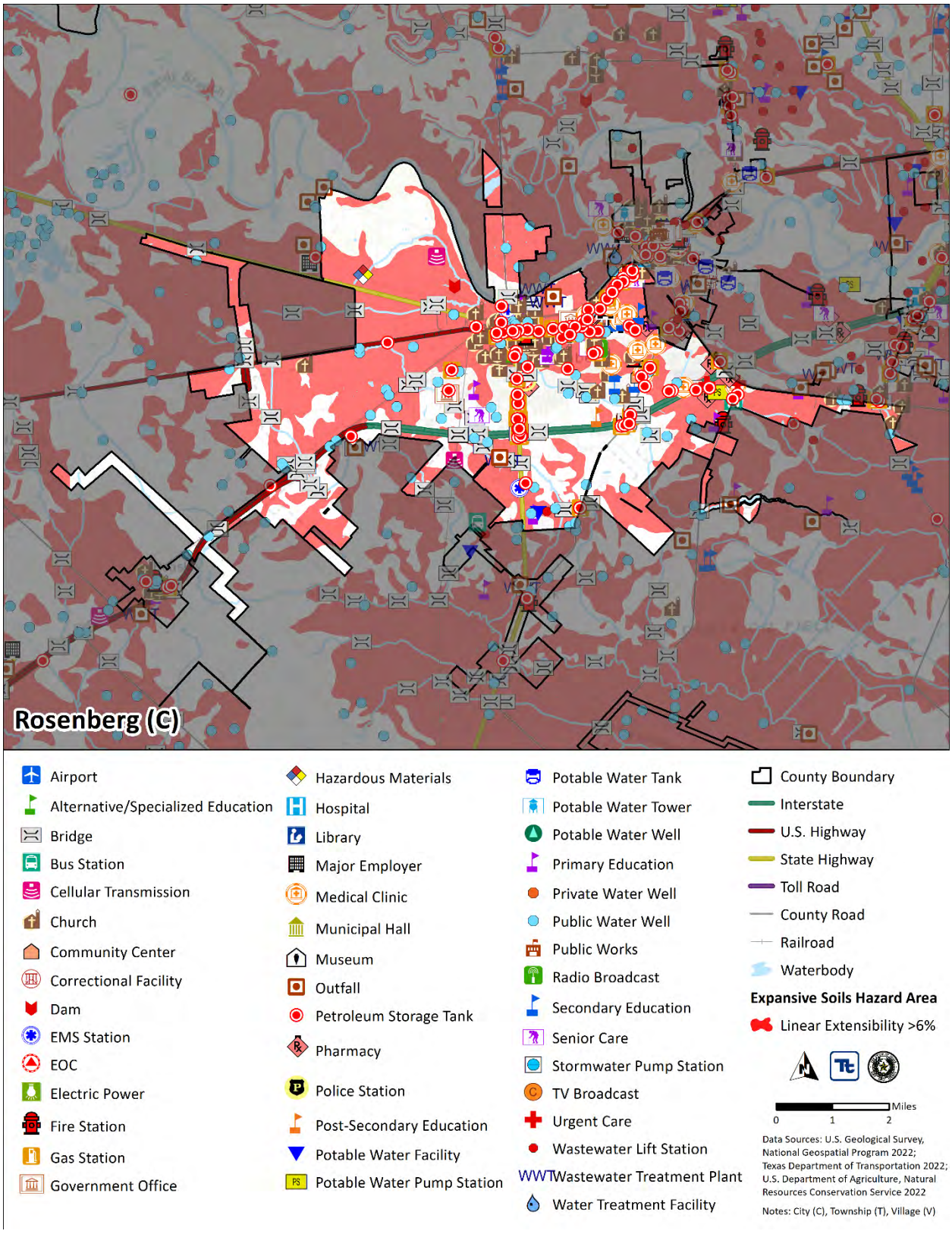


Figure 9.13-4. City of Rosenberg Hazard Area Extent and Location Map-Flood

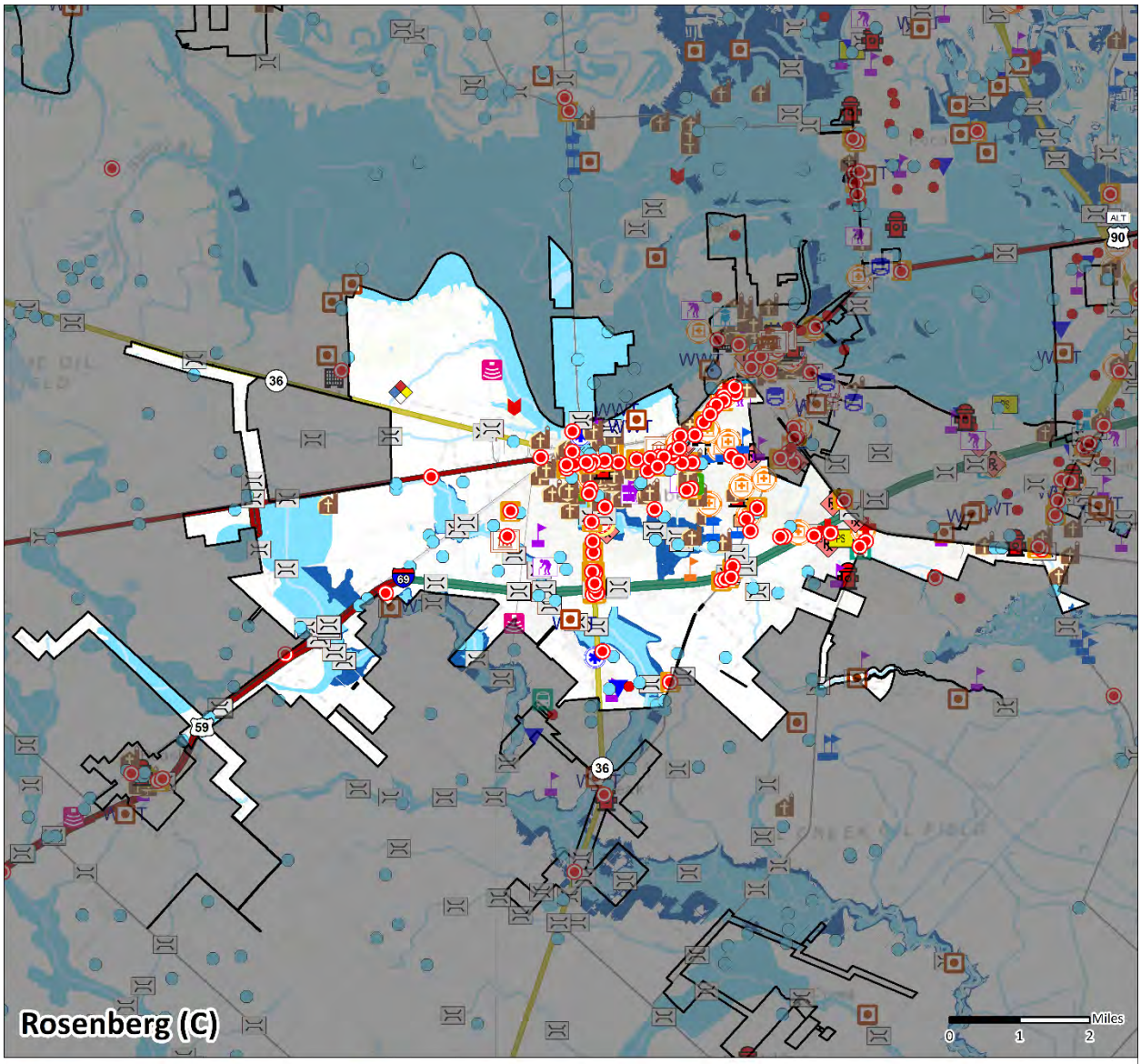


Figure 9.13-5. City of Rosenberg Hazard Area Extent and Location Map-Inland Erosion

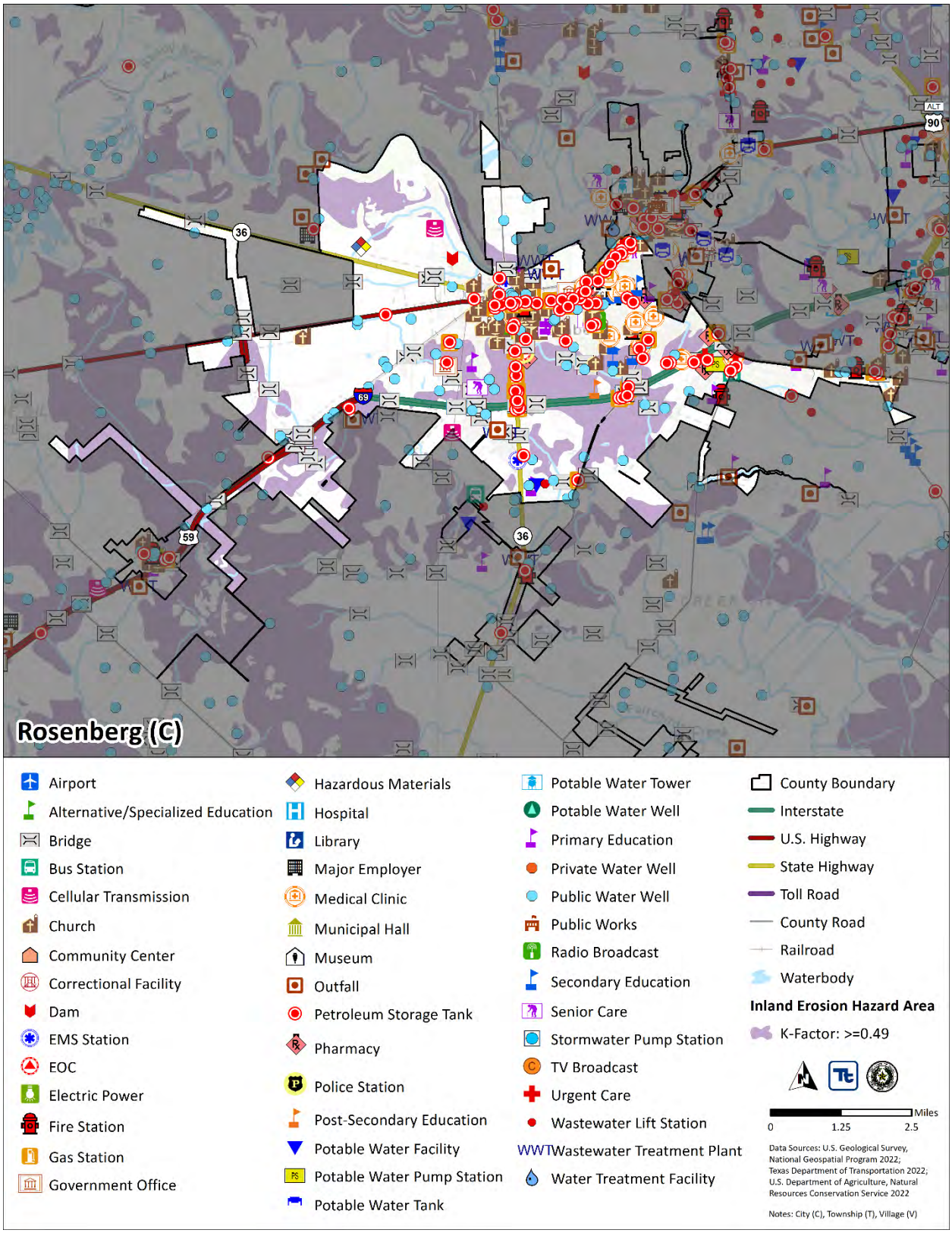
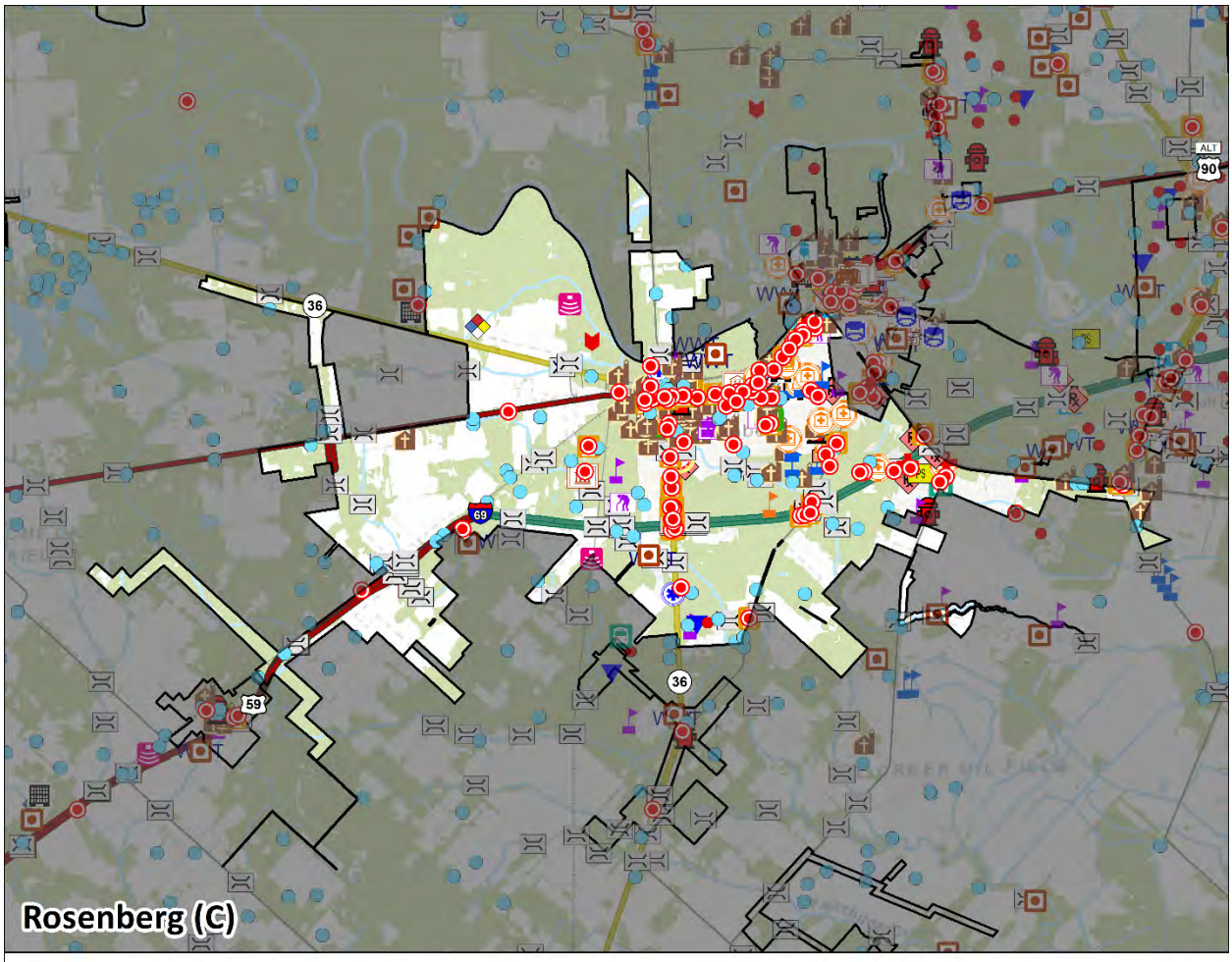


Figure 9.13-6. City of Rosenberg Hazard Area Extent and Location Map-Wildfire



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Wildfire Hazard Area

- Low Threat
- Moderate Threat

Miles
0 1 2

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022

Notes: City (C), Township (T), Village (V)

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Rosenberg's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Rosenberg experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.13-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	Covid-19 pandemic	Damages included impact to closed businesses, PPE requirements, sanitation measures, loss of staff time.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in a significant number of downed trees and utility lines.	Monitored storm; no major impacts.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County.	Monitored storm; increased staffing to be prepared to respond to any damages.
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	Monitored storm; no major impacts.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Impassable roadways, major loss of power, broken water pipes.
May 7, 2019	n/a	No	Local flooding event closing roadways.	Local roadways closed impacting mobility throughout the City. Roadways closed included Ave N, SH 36, Bernard, Ave P, Ave R, Oaks of Rosenberg Subdivision
October 1, 2021	N/A	No	Local flooding event closing roadways.	Local Roadways impacted, Austin St, Ave K, Lawrence, Allen, Texas, Dallas, West, Ave K, Sh36 @ Ave H, Mons @ Sequoia, Mahlmann, George, Ave M Ave N, Miles, Rice, Callendar
August 18, 2022	n/a	No	Local flooding event closing roadways.	Mustang, @ Lane, Ave N, Damon, Tobola, Mons, George, SH 36 @ Ave M and Dyer, Ave I @ Lane

August 31, 2022	N/A	No	Local flooding event closing roadways.	Local Roadways Impacted- Ave N, 3500 Block of Ave O and P, 100-1200 block of Tobola, 1600 Junker
November 24, 2022	N/A	No	Local flooding event closing roadways.	Ave N was flooded and the Roadway was closed.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Rosenberg's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Rosenberg. The City of Rosenberg reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City of Rosenberg indicated the following:

- The City of Rosenberg had three flooding events in 2015, 2016, and 2017
- Experienced erosion along the Brazos River banks

Table 9.13-14. Hazard Ranking Input

Hazard	Hazard Ranking
Dam/Levee Failure	**Medium**
Disease Outbreak	**Low**
Drought	**Medium**
Extreme Temperature	**Medium**
Flood	**Medium**
Geologic Hazards	**High**
Hurricane/ Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**Low**
Winter Storm	**Low**

Critical Facilities

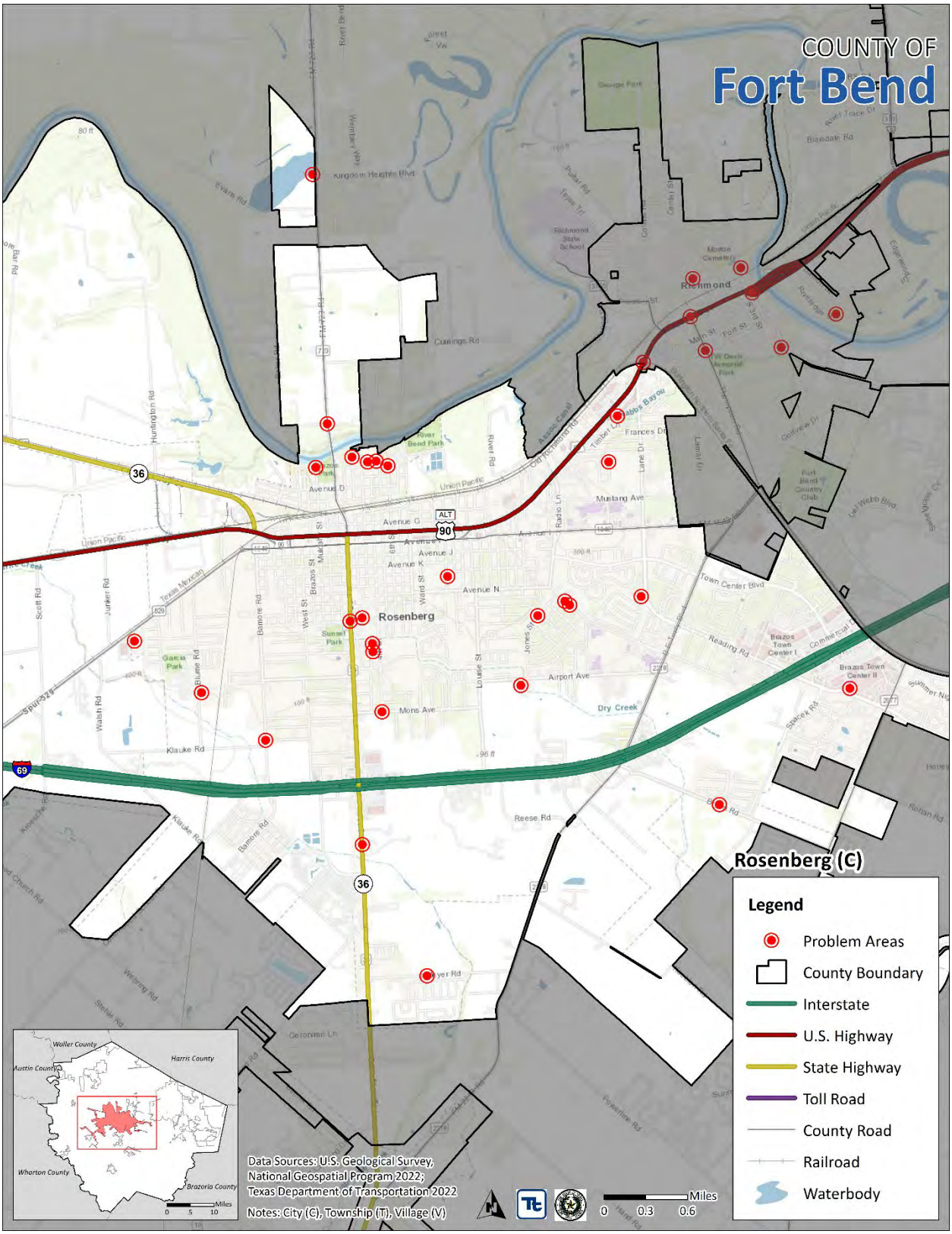
The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.13-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area	
	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines
Rosenberg (C)	53	52	0	0	94	91	225	186	0	0	12	9	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Figure 9.13-7. City of Rosenberg Area Extent and Location Map-Problem Areas



Identified Issues

After review of the City of Rosenberg's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Rosenberg identified the following vulnerabilities within their community:

- The City struggles to notify as many residents as possible about hazard information and emergency notifications.
- Citizens in the City have a lack of knowledge of hazards of concern and threats.
- During winter weather events roads become impassible due to icy road conditions.
- Areas within the City that are along Dry Creek are vulnerable to flood damage and experience inundation along roadways that inhibit access of emergency responders.
- The City needs a comprehensive drainage plan that will provide future protection for areas in the City that experience flooding and drainage problems.
- The Brazos River floodway is where the majority of flood losses occur within the City of Rosenberg.
- The City does not participate in the FEMA CRS.
- Public Awareness of hazard mitigation needs to be more accessible to vulnerable populations.
- The City lacks sufficient plans to address Winter Storm hazards.
- The City's at-risk facilities, need hazard fortifications to prevent damages and ensure continuity of operations can be met during hazard events.
- Many of the City's buildings may be at risk of structural failure due to wind and winter storm events.
- Several critical facilities within the City need protection from flood hazards.
- Areas within the City that are along Rabbs Bayou are vulnerable to flood damage.
- The City has numerous critical facilities that do not have backup power and cannot perform continuity of operations during power outages.
- There are numerous areas in the City that experience inundation and ponding that inhibit emergency responders from accessing roads and properties.

9.13.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.13-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Dry Creek Drainage Improvements	City of Rosenberg/ Fort Bend County	In Progress	Yes	Mitigate flooding within the City Limits of Rosenberg associated with Dry Creek	Capital Projects Department managing engineering design
Compile Development Regulations	City of Rosenberg Planning Administrator	Ongoing	Yes	The Unified Development Code, or UDC, is a compilation of all the City's development-related rules and regulations. This came out of the Comprehensive Plan that was done in 2015, and the UDC itself was completed in 2017. However, there have been and continue to be many amendments including as recently as the last few weeks. It is a work in progress as we maintain and update development-related rules and regulations. Here is an overview of the chapters: Chapter 1: Buildings and Building Regulations Chapter 2: Flood Prevention and Protection Chapter 3: Manufactured Housing, Mobile Homes and Travel Trailers and Parks Chapter 4: Subdivisions Chapter 5: Extension of Systems and Creation of Certain Special Districts Chapter 6: Storm Water Protection Chapter 7: Design Standards Chapter 8: Definitions Here is a link to the website for it. The original ordinance was No. 2017-07, adopted May 2, 2017. Unlike other codes we adopt in Municode, we update these rules in-house online: https://rosenbergtx.gov/281/Unified-Development-Code	Planning
Storm Drainage System Mapping	City of Rosenberg Planning and Engineering	Ongoing	Yes	Locate, identify, and map drainage features; additional features being added as development occurs.	City of Rosenberg Planning Department (GIS)

Implement Stormwater Management Technical Manual	City of Rosenberg Planning and Engineering	Ongoing – the City currently reviews and updates the stormwater management technical manual for new development redevelopment	No	-	-
Develop a comprehensive drainage plan that will provide future protection for areas in the City that experience flooding and drainage problems.	City of Rosenberg Planning and Engineering	Ongoing	Yes	Update comprehensive drainage plan for Dry Creek and Seabourne Creek Watersheds, including tributaries. Computer models have been updated to Atlas-14 rainfall amounts.	City of Rosenberg Engineering Department
Pursue acquisition, elevation or floodproofing projects and structural solutions to flooding for the two repetitive loss structures.	City of Rosenberg Planning and Engineering	In Progress	Yes	Applicable primarily within Brazos River floodway where the majority of flood losses occur within the City of Rosenberg	City of Rosenberg Planning Department and Engineering Department
Promote Flood Insurance	City of Rosenberg Planning and Engineering	Ongoing	Yes	Encourage and promote the purchase of Flood Insurance through the National Flood Insurance Program	City of Rosenberg Planning Department and Engineering Department
Join the NFIP's CRS	City of Rosenberg Planning and Engineering	Ongoing	Yes	Continue to review floodplain ordinance and evaluate ways to improve the City's CRS rating to reduce flood insurance premiums.	City of Rosenberg Planning Department and Engineering Department
Installation of emergency power generators at two water plants. Water Plant No. 3 and Water Plant No. 5 have no functional capacity during periods of power loss to maintain TCEQ required minimum water pressure and firefighting capabilities. This will allow the water plants to continue to function during periods of power loss.	City of Rosenberg Utilities	Complete	No	-	-
Plan for Routine Maintenance of Ditches	City of Rosenberg Utilities	Ongoing	Yes	Routine maintenance of ditches must be on a regular basis to reduce flooding risks	City of Rosenberg Department of Public works and Fort Bend County Drainage District
Purchase two portable sewage pumps to bypass sanitary sewer lift stations during power failures.	City of Rosenberg Utilities	Complete	No	-	-
Purchase Trailer Mounted Generator	City of Rosenberg Utilities	Complete	No	-	-
Installation of emergency power generators at Wastewater Treatment Plant No. 1-A.	City of Rosenberg Utilities	Complete	No	-	-

Increase Public Awareness of Hazard Mitigation	City of Rosenberg Communications	Ongoing	Yes	increasing public awareness of natural hazards and hazardous areas; distributing public awareness information regarding hazards and potential mitigation measures. Promotional sources include City website, social media, and public education programs.	City of Rosenberg Communications
Evacuation Plans	City of Rosenberg Police Department	Ongoing	Yes	Evacuation plans and notification procedures to be reviewed and updated as dictated by new development.	City of Rosenberg Police Department
Wildfire Hazard Areas Study	City of Rosenberg Fire Department	Ongoing	Yes	Continue to determine and map potential wildfire hazard areas as development continues	City of Rosenberg Fire Department
Monitor Drought Conditions	City of Rosenberg Utilities	Ongoing	Yes	Continue to monitor traffic conditions through contact with State Agencies	City of Rosenberg Utility Department
Public Information Campaigns	City of Rosenberg Fire Marshall	Ongoing	Yes	Continue to cooperate and coordinate with County and State agencies in developing public information campaigns and/or water use restrictions to ensure sufficient water availability and pressure during periods of drought.	City of Rosenberg Fire Marshall
Evaluate Excess Heat Risks	City of Rosenberg Fire Department	Ongoing	Yes	Continue to evaluate risks from excessive heat and humidity, especially in terms of high-risk populations	City of Rosenberg Fire Department
Address High-Risk Populations (Excessive Heat)	City of Rosenberg Fire Department	Ongoing	Yes	continue to cooperate with County and State officials to ensure high-risk populations are adequately addressed in response plans.	City of Rosenberg Fire Department
Review Plans and Resources to Address Risk Posed by Snow and Ice Hazards During Winter Storms	City of Rosenberg Utilities	Ongoing	Yes	Update and review current plans and resources necessary to address the risks created by ice and snow hazards during winter storms. Focus on City's ability to address the needs of at-risk populations.	City of Rosenberg Public Works Department
Various Mitigation Actions to Reduce Wildfire Risk	City of Rosenberg Fire Department	Ongoing	Yes	On case-by case basis, initiate mitigation actions to reduce wildfire and brushfire risks by creating fire breaks. Inform property owners appropriate actions, clear vegetation and wildfire fuels, monitor antecedent conditions, etc.	City of Rosenberg Fire Department
Initiate Upgrades to at-risk Structures and Higher Standards for New Structures	City of Rosenberg Planning and Engineering	Ongoing	Yes	Initiate upgrades to at-risk structures and\or infrastructure to include structurally fortifying at-risk infrastructure, integrating increased thermal insulation, impact resistant film or glass, surge protection systems, and wind resistant windows and doors. Integrate higher numbers of soil compaction standards, foundation supports, xeriscaping, and freeboard requirements for new development.	City of Rosenberg Planning Department and Engineering Department
Structural/Engineering Study of Rosenberg Public Facilities	City of Rosenberg Public Works and Engineering	Ongoing	Yes	Conduct and update a detailed structural/engineering survey of Rosenberg public facilities to ensure their soundness with respect to resisting the effects of high winds, extreme roof loading from snow or ice, and hail.	City of Rosenberg Public Works Department and Engineering Department

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Rosenberg identified the following mitigation efforts completed since the last HMP:

- Generators for all major City facilities- After being affected by loss of power during the severe weather events, the City submitted a grant request for replacement or new generators to become a more resilient community.
- Rabbs Bayou drainage improvements- The City has begun drainage improvements on the Rabbs Bayou Watershed to improve drainage in the City flowing into this watershed. Improvements include widening of the watershed and increased detention of water to mitigate a flooding problem caused by the narrow channel and insufficient detention. Project is being funded with funds from the General Land Office.
- The City utilizes Mass Communication, Education, De-Icing Equipment and Material Distribution as mitigation measures to address its hazards of concern.

Since the adoption of the County's first HMP, the City of Rosenberg has made significant mitigation progress in the following areas:

- Installation of emergency generators at two water plants
- Purchase of two portable sewage pumps
- Purchase trailer mounted generator
- Installation of emergency generators at WWTP 1A
- Completed drainage study for Rabbs Bayou

Proposed Hazard Mitigation Initiatives for the HMP Update

The City of Rosenberg participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide range of activities and mitigation measures selected.

Table 9.13-17. Analysis of Mitigation Actions by Hazard and Category

	FEMA				CRS					
Hazard	**LPR**	**SIP**	**NSP**	**EAP**	**PR**	**PP**	**PI**	**NR**	**SP**	**ES**
Dam/Levee Failure		X		X			X		X	
Disease Outbreak		X		X			X		X	
Drought		X		X			X		X	
Extreme Temperature		X		X			X		X	
Flood		X		X			X		X	
Geologic Hazards		X		X			X		X	
Hurricane/Tropical Storm	X	X		X	X		X		X	
Severe Weather		X		X			X		X	
Tornado	X	X		X	X		X		X	
Wildfire				X			X			
Winter Storm	X	X		X	X		X		X	

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Rosenberg would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.13-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Rosenberg-001	Mass Communication	**Problem:** The City struggles to notify as many residents as possible about hazard information and emergency notifications. **Solution:** The City will use social media, press releases, and Ever Bridge (Nixel) to communicate with the Public to educate them on hazard information and warn them of	Dam and Levee Failure; Drought; Extreme Temperature; Flood; Geologic; Hurricane/Tropical Storm; Disease Outbreak; Severe Weather; Tornado; Wildfire; Winter Weather	1, 2, 3, 4, and 5	Annually	City Communications	General Fund	Rapid sharing of information.	$11,000 per year for Ever Bridge (Nixel) subscription.	High	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		incoming hazards..										
2023-Rosenberg-002	Education Programs	**Problem:** Citizens in the City have a lack of knowledge of hazards of concern and threats. **Solution:** The City will develop educational programs and materials for specific hazards.	Dam and Levee Failure; Drought; Extreme Temperature; Flood; Geologic; Hurricane/Tropical Storm; Disease Outbreak; Severe Weather; Tornado; Wildfire; Winter Weather	1,2,3,4 & 5 and	By 2028	City Communications	FEMA (HMGP or BRIC), NFPA	Risk reduction through education. (CF)	$20,000	Medium	EAP	PI
2023-Rosenberg-003	De Icing Equipment/ Material Spreading	**Problem:** During winter weather events roads become impassible due to icy road conditions. **Solution:** Obtain de-icing equipment/ material spreaders	Extreme Temperature; Winter Weather	2,3 & 5	By 2028	City Public Works	H-GAC	Keep roads open for emergency responders (CF).	$250,000	Low	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Rosenberg-004	Dry Creek Drainage Improvements	**Problem:** Areas within the City that are along Dry Creek are vulnerable to flood damage and experience inundation along roadways that inhibit access of emergency responders. **Solution:** Mitigate flooding within the City Limits of Rosenberg associated with Dry Creek by improving channels and adding detention.	Flood, Severe Weather	2 and 3	5 years	Capital Projects Department managing engineering design	BRIC, FMA, HMGP, GLO	Reduce flooding risk and associated problems in vulnerable areas along creek	$31,000,000	High	SIP	SP
2023-Rosenberg-005	Comprehensive Drainage Plan.	**Problem:** The City needs a comprehensive drainage plan that will provide future protection	Flood, Severe Weather	2 and 3	2 years	City of Rosenberg Engineering Department	In-Kind and City Budget	Completion of the Plan will allow for targeted improvements within the enhancing efficiency and	$50,000	Medium	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		for areas in the City that experience flooding and drainage problems. **Solution:** The City will update the comprehensive drainage plan for Dry Creek and Seabourne Creek Watersheds, including tributaries to evaluate drainage problem areas.						effectiveness				
2023-Rosenberg-006	NFIP Repetitive Loss Structures	**Problem:** The Brazos River floodway is where the majority of flood losses occur within the City of Rosenberg. **Solution:** The City will pursue acquisition, elevation or	Flood	2 and 3	5 years	City of Rosenberg Planning Department and Engineering Department	HMGP, FMA	Protect life and property by elevating or flood proofing properties that are repetitively flooded	$33,000,000	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		flood proofing projects and structural solutions to flooding for the two repetitive loss structures at the Public Works Fleet Department and will implement the best and most cost-effective solution.										
2023-Rosenberg-007	Join the NFIP's CRS	**Problem:** The City does not participate in the FEMA Community Rating System Program (CRS). **Solution**: Continue to review floodplain ordinance	Flood	1,2,4 & 5	18 months	City of Rosenberg Planning and Engineering	In-Kind	Protect life and property; reduce flood insurance premiums.	$15,000	Medium	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		and evaluate ways to improve the City's CRS rating to reduce flood insurance premiums in pursuit of participation of the CRS Program.										
2023-Rosenberg-008	Increase Public Awareness of Hazard Mitigation	**Problem:** Public Awareness of hazard mitigation needs to be more accessible to vulnerable populations. **Solution**: The City will take place in distributing public awareness information regarding hazards and potential mitigation measures. Promotional	Dam and Levee Failure; Drought; Extreme Temperature; Flood; Geologic; Hurricane/Tropical Storm; Disease Outbreak; Severe Weather; Tornado; Wildfire; Winter Weather	1 & 2	3 years	City of Rosenberg Communications	In-kind services, City Budget	Informing and educating the public of natural disasters will save lives and protect property	$20,000	High	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		sources include City website, social media, public education programs and brochures to those that may not have internet access.										
2023-Rosenberg-009	Review Plans and Resources to Address Risk Posed by Snow and Ice Hazards During Winter Storms	**Problem:** The City lacks sufficient plans to address Winter Storm hazards. **Solution**: The City will update and review current plans and resources necessary to address the risks created by ice and snow hazards during winter storms.	Extreme Temperature; Winter Storm	2 & 4	1 year	City of Rosenberg Utilities	In-kind eservices & City Budget	Contributes to maintaining public services; protects at-risk populations.	$5,000	High	LPR	PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Focus on City's ability to address the needs of at-risk populations.										
2023-Rosenberg-010	Initiate Upgrades to at-risk Structures and Higher Standards for New Structures	**Problem:** The City's at-risk facilities, need hazard fortifications to prevent damages and ensure continuity of operations can be met during hazard events. **Solution:** The City will initiate upgrades to at-risk structures and/ or infrastructure to include structurally fortifying at-risk infrastructure, integrating increased thermal	Dam and Levee Failure; Drought; Extreme Temperature; Flood; Geologic; Hurricane/Tropical Storm; Disease Outbreak; Severe Weather; Tornado; Wildfire; Winter Weather	2 & 3	3 years	City of Rosenberg Planning and Engineering	BRIC, HMGP, FMA	Instituting the proposed improvements mitigates specific risks to structures, people, and operations	$250,000	Medium	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		insulation, impact resistant film or glass, surge protection systems and wind resistant windows and doors. Integrate higher levels of soil compaction standards, foundation supports, xeriscaping and mandate freeboard for new development.										
2023-Rosenberg-011	Structural/Engineering Study of Rosenberg Public Facilities	**Problem:** Many of the City's buildings may be at risk of structural failure due to wind and winter storm events **Solution:** The City will conduct and	Tropical Storm/Hurricane; Tornado; Winter Weather	2 & 4	2 year	City of Rosenberg Public Works and Engineering	In-kind services, City Budget	This the initial step in identifying appropriate structural problems at public facilities forms basis of decisions about any additional actions to mitigate risk.	$30,000	Medium	LPR	PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		update a detailed structural/engineering survey of Rosenberg public facilities to ensure their soundness with respect to resisting the effects of high winds, extreme roof loading from snow or ice, and hail										
2023-Rosenberg-012	Critical Facility Mitigation Plan	**Problem:** Several critical facilities within the City need protection from flood hazards. **Solution:** The City will improve water shed drainage to lower floodplain levels, elevate bridges, and improve	Flood	2 & 3	5 years	City of Rosenberg Public Works and Engineering	BRIC, FMA, HMGP, GLO	Protect life and property and restore evacuation routes	$50,000,000	Medium	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		conveyance capacity, and elevate facilities where possible. The City will also relocate facilities outside of existing flood plains as needed.										
2023 – Rosenberg – 013	Rabbs Bayou Drainage Improvements	**Problem:** Areas within the City that are along Rabbs Bayou are vulnerable to flood damage. **Solution:** Mitigate flooding within the City Limits of Rosenberg associated with Rabbs Bayou by improving channels and adding detention.	Flood, Severe Weather	2 and 3	5 years	Capital Projects Department managing engineering design	BRIC, FMA, HMGP, GLO	Reduce flooding risk and associated problems in vulnerable areas along Bayou	$7,000,000	High	SIP	SP
2023 – Rosenberg – 014	Generator Study	**Problem:** The City has numerous critical	Dam and Levee Failure; Drought;	2, 3	4 Years	City Administration, Public	BRIC, FMA, HMGP, Generator	Critical facilities can perform	$100,000/ generator	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		facilities that do not have backup power and cannot perform continuity of operations during power outages. **Solution:** The City will develop a generator list of facilities that need backup power to perform continuity of operations. Once a list is developed an engineering study will be performed and the City will acquire funding for the implementation of generators.	Extreme Temperature; Flood; Geologic; Hurricane/Tropical Storm; Disease Outbreak; Severe Weather; Tornado; Wildfire; Winter Weather			Works, Engineering	Grant Program	continuity of operations.				
2023 – Rosenberg – 015	Flood Study	**Problem:** There are numerous areas in the	Flood, Severe Weather,	2, 3	Less than 5 years	City Administration, Public	BRIC, FMA, HMGP	Emergency responders will be able to access	TBD	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		City that experience inundation and ponding that inhibit emergency responders from accessing roads and properties. **Solution:** The City will conduct a flood study to determine flood problem areas and will conduct engineering studies to determine the best and most cost effective method to fix each flooding problem area.	Winter Weather			Works, Engineering		the entirety of the City.				

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS Community Rating System
FEMA Federal Emergency Management Agency
HMA Hazard Mitigation Assistance
N/A Not applicable

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program
BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

NFIP National Flood Insurance Program *A description of the estimated benefits, either quantitative and/or qualitative.*

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as 'High', 'Medium', or 'Low.' The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.13-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Rosenberg-001	Mass Communication	1	0	1	1	1	1	1	-1	-1	1	1	1	1	1	9	High
2023-Rosenberg-002	Education Programs	1	1	1	1	1	1	0	0	-1	0	1	1	0	-1	6	Medium
2023-Rosenberg-003	De Icing Equipment/Material Spreading	1	1	1	0	1	1	-1	0	-1	1	1	1	0	0	6	Medium

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Rosenberg-004	Dry Creek Drainage Improvements	1	1	1	0	1	0	1	1	1	1	1	1	1	0	11	High
2023-Rosenberg-005	Comprehensive Drainage Plan	1	1	1	1	1	0	1	0	1	0	1	1	0	0	9	High
2023-Rosenberg-006	NFIP Repetitive Loss Structures	1	1	1	1	1	1	1	1	1	1	0	1	0	1	12	High
2023-Rosenberg-007	Join the NFIP's CRS	1	1	1	0	1	1	0	0	1	1	1	0	0	1	9	High
2023-Rosenberg-008	Increase Public Awareness of Hazard Mitigation	1	1	1	0	1	0	0	0	1	0	1	1	0	1	8	Medium
2023-Rosenberg-009	Review Plans and Resources to Address Risk Posed by Snow and Ice Hazards During Winter Storms	1	1	1	1	0	0	1	0	0	1	0	1	1	0	8	Medium
2023-Rosenberg-010	Initiate Upgrades to at-risk Structures and Higher Standards for New Structures	1	1	1	0	0	0		1	1	1	1	0	1	1	9	High
2023-Rosenberg-011	Structural/Engineering Study of Rosenberg Public Facilities	1	1	0	1	1	1	1	0	0	0	1	1	0	0	8	Medium
2023-Rosenberg-012	Critical Facility Mitigation Plan	1	1	0	0	1	0	0	1	1	0	0	0	0	1	6	Medium
2023 – Rosenberg – 013	Rabbs Bayou Drainage Improvements	1	1	1	0	1	0	1	1	1	1	1	1	1	0	11	High
2023 – Rosenberg – 014	Generator Study	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023 – Rosenberg – 015	Flood Study	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.14 City of Simonton

This section presents the jurisdictional annex for the City of Simonton that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Simonton representatives who participated in the planning process, an assessment of the City of Simonton's risk and vulnerability, the different capabilities used in the City of Simonton, and an action plan that will be implemented to achieve a more resilient community.

9.14.1 Hazard Mitigation Planning Team

The City of Simonton identified primary and alternate points of contact and developed this plan over the course of several months with input from many City of Simonton departments, including the City Secretary, Emergency Management Coordinator. The Emergency Management Coordinator represented the community on the Fort Bend County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.14-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Erica Molina – City Secretary/EMC	Name/Title:	N/A
Address:	35011 FM 1093, Simonton, TX 77476	Address:	N/A
Phone Number:	(281) 533-9809	Phone Number:	N/A
Email:	emolina@simontontexas.gov	Email:	N/A
NFIP Floodplain Administrator			
Name/Title:			
Address:			
Phone Number:			
Email:			
Additional Contributors:			
Name/Title: Method of Participation:	Erika Molina/City Secretary Provided Key input in the planning process		
Name/Title: Method of Participation:			
Name/Title: Method of Participation:			
Name/Title: Method of Participation:			

9.14.2 Municipal Profile

The City of Simonton is in the southwest corner of Fort Bend County and borders the southern shore of Lake Lyndon B. Johnson. Located 50 miles northwest of downtown Austin, the City of Simonton is known for its scenic golf courses, resorts, and hotels. The City of Simonton has a total area of 11.6 square miles, 11.4 square miles of land and 0.23 square miles of water.

According to the American Community Survey, the 2021 population for the City of Simonton was 838. Data from the 2021 American Community Survey indicate that 10.5 percent of the population is 5 years of age or younger, and 11.6 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.14.3 Jurisdictional Capability Assessment and Integration

The City of Simonton performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Simonton to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Simonton. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.14-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code	Local	Building Department
How does this reduce risk? The City of Simonton adopted the 2018 International Building Code.				
Zoning/Land Use Code	-	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Subdivision Ordinance	Yes	Chapter 26 – Subdivisions	Local	City Council
How does this reduce risk? The City adopted the Subdivision Ordinance Regulations to provide for the orderly, safe, and healthful development of land within the City limits and its extraterritorial jurisdiction.				
Site Plan Ordinance	Yes	Chapter 8 – Buildings and Building Regulations – Sec. 8-27. – Site Plan	Local	Building Department
How does this reduce risk? The Ordinance establishes requirements for developments within the 100-year floodplain. These requirements include an elevation certificate prepared by a qualified surveyor, licensed by the State of Texas, where the certificates states the first floor of the building or structure is at the required height of at least eight-teen inches above the natural ground, 12 inches above the curb of the street, the crown of the street and/or the base flood elevation. The Ordinance requires any structure/building be built on a foundation that is significantly above grade – pier, beam, steamwall – or other foundation type, the subfloor of the first level cannot be higher than four inches from the grade shown below the foundation.				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	Yes	Chapter 8 Article IV	Local	Building dept/floodplain administrator
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	Yes	Chapter 12	Local	Building dept
How does this reduce risk? Purpose of the ordinance is to protect the environment of the City in conjunction with land planning and development.				
Flood Damage Prevention Ordinance	Yes	Chapter 8 – Buildings and Building Regulations – Article IV. – Flood Damage Prevention	Local	Building Dept/Floodplain Administrator
How does this reduce risk? It is the purpose of this article to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to: • Protect human life and health • Minimize expenditure of public money for costly flood control projects • Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public • Minimize prolonged business interruptions • Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains • Help maintain a stable tax base by providing for the sound use and development of floodprone areas in such a manner as to minimize future flood blight areas • Ensure that potential buyers are notified that property is in a flood area				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	Yes	Chapter 10 and Chapter 14	Local	FBCOEM

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Planning Documents				
Comprehensive/Master Plan	No	-	-	-
How does this reduce risk?				
Capital Improvement Plan	Yes	1996 and 2022	Local	Engineer
How does this reduce risk? CIP includes long-term drainage projects to enhance and maintain drainage				
Disaster Debris Management Plan	Yes	Interlocal Agreement	County	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	Yes	Chapter 8 Article IV	Local	Floodplain
How does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How does this reduce risk?				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	No	-	-	-
How does this reduce risk?				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the city. FBHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk? FBHHS has plans in place to prevent public health issues through regular inspections of regulated facilities, as well as prepare for and respond to public health emergencies.				
Other	-	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Simonton to oversee and track development.

Table 9.14-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	Building Department and Floodplain Administrator

Indicate if your jurisdiction implements the following	Yes/No	Comment:
If you do not issue development permits, what is your process for tracking new development?	N/A	
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Flood Hazard Area
Do you have a buildable land inventory? • If yes, please describe	No	
Describe the level of build-out in your jurisdiction.	N/A	

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Simonton and their current responsibilities that contribute to hazard mitigation.

Table 9.14-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	City Council
Zoning Board of Adjustment	No	-
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Volunteers
Public Works/Highway Department	No	-
Construction/Building/Code Enforcement Department	Yes	Building Department reviews all potential building permits
Emergency Management/Public Safety Department	Yes	Emergency Operations Center
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	Yes	Nixle by Everbridge notification system is utilized
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	City Capital Improvement Plans and Interlocal Agreement with County Road and Bridge
Mutual aid agreements	Yes	Interlocal agreement with Fort Bend County Office of Emergency Management
Human Resources Manual	No	-
Other		
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	City Engineer
Engineers or professionals trained in building or infrastructure construction practices	Yes	Bureau Veritas
Planners or engineers with an understanding of natural hazards	Yes	City Engineer
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	Yes	Engineer
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Engineer
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	Yes	Engineer
Emergency manager	Yes	Emergency Management Coordinator

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Grant writer(s)	Yes	
Resilience officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	-	-
How do your administrative/technical capabilities contribute to risk reduction in your community?		

Fiscal Capability

The table below summarizes financial resources available to the City of Simonton.

Table 9.14-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Texas Water Development Fund, TWDB Clean Water State Revolving Fund, TWDB Flood Protection Planning Grant,

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Simonton.

Table 9.14-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	Yes	Contracted
Personnel skilled or trained in website development	Yes	Contracted
Hazard mitigation information available on your website	Yes	Emergency Operations Center Information
Social media for hazard mitigation education and outreach	Yes	Emergency Operations Center provides information via social media
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	Yes	Nixle by Everbridge Notification system
Natural disaster/safety programs in place for schools	No	-

Outreach Resources	Available? (Yes/No)	Comment:
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	Yes	Utilize website, social media, and in-person education of living in a hazard area

Community Classifications

The table below summarizes classifications for community programs available to the City of Simonton.

Table 9.14-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other			

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.14-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Storm	Low

9.14.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Simonton.

Table 9.14-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Simonton (C)	170	595	$49,505,014.02	32	N/A

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP
Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Simonton.

Table 9.14-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	90 percent of the city residential is in the floodplain, specifically SFHA. Yes the City maintains a list of property owners interested in flood mitigation
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	After flood event, floodplain admin inspects flooded properties. Initial assessments are based on FEMA's assessment tool and continue during reconstruction permitting. 9 were sub damaged in 2017
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	12 buyouts and 4 elevations have been funded by hazard mitigation grants
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	Yes
NFIP Compliance	

NFIP Topic	Comments
What local department is responsible for floodplain management?	City Engineer (Floodplain Administrator)
Are any certified floodplain managers on staff in your jurisdiction?	Yes, City Engineer
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	No
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Permit Review and GIS Mapping
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	Permit Process
What are the barriers to running an effective NFIP program in the community, if any?	None
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	None. The City was audited in February 2022
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	February 2022
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	Chapter 8 Article IV January 2021
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceeds – Pier and Beam construction with finished flood 24" above BFE
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Flood risk is taken into consideration with any and all construction within the floodplain
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Not at this time

9.14.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.14-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single-Family	3	3	7	7	1	1	2	2	3	3
Multi-Family	0	0	0	0	0	0	0	0	0	0

Type of Development	2018		2019		2020		2021		2022	
Other (commercial, mixed-use, etc.)	1	0	0	0	0	0	0	0	0	0
Total Permits Issued	4	3	7	7	1	1	2	2	3	3

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.14-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
Not Applicable					
Known or Anticipated Major Development in the Next Five (5) Years					
Not Applicable					

9.14.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Simonton's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Simonton has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.14-1. City of Simonton Hazard Area Extent and Location Map-Dam Inundation



Figure 9.14-2. City of Simonton Hazard Area Extent and Location Map-Expansive Soils



Figure 9.14-3. City of Simonton Hazard Area Extent and Location Map-Flood

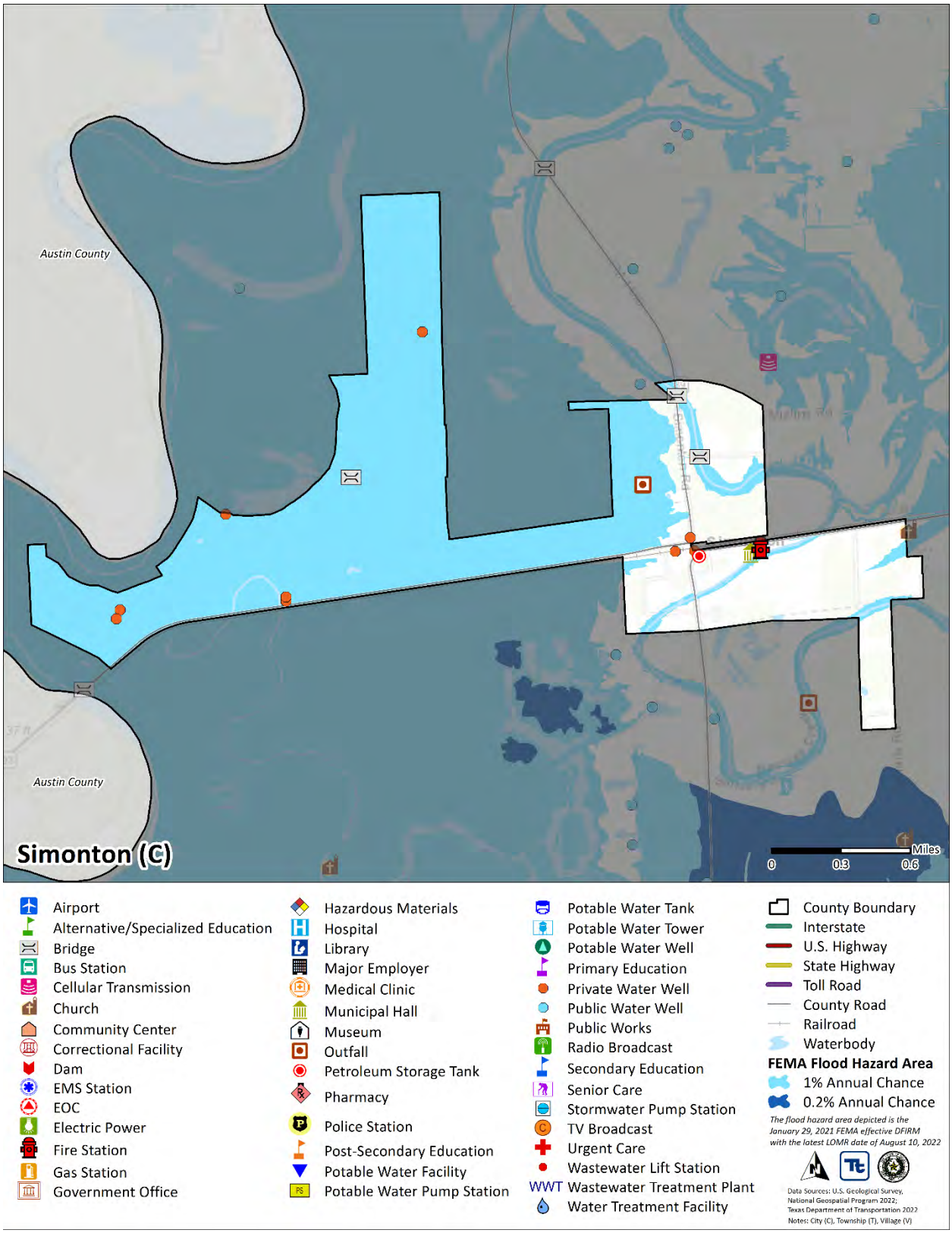


Figure 9.14-4. City of Simonton Hazard Area Extent and Location Map-Inland Erosion

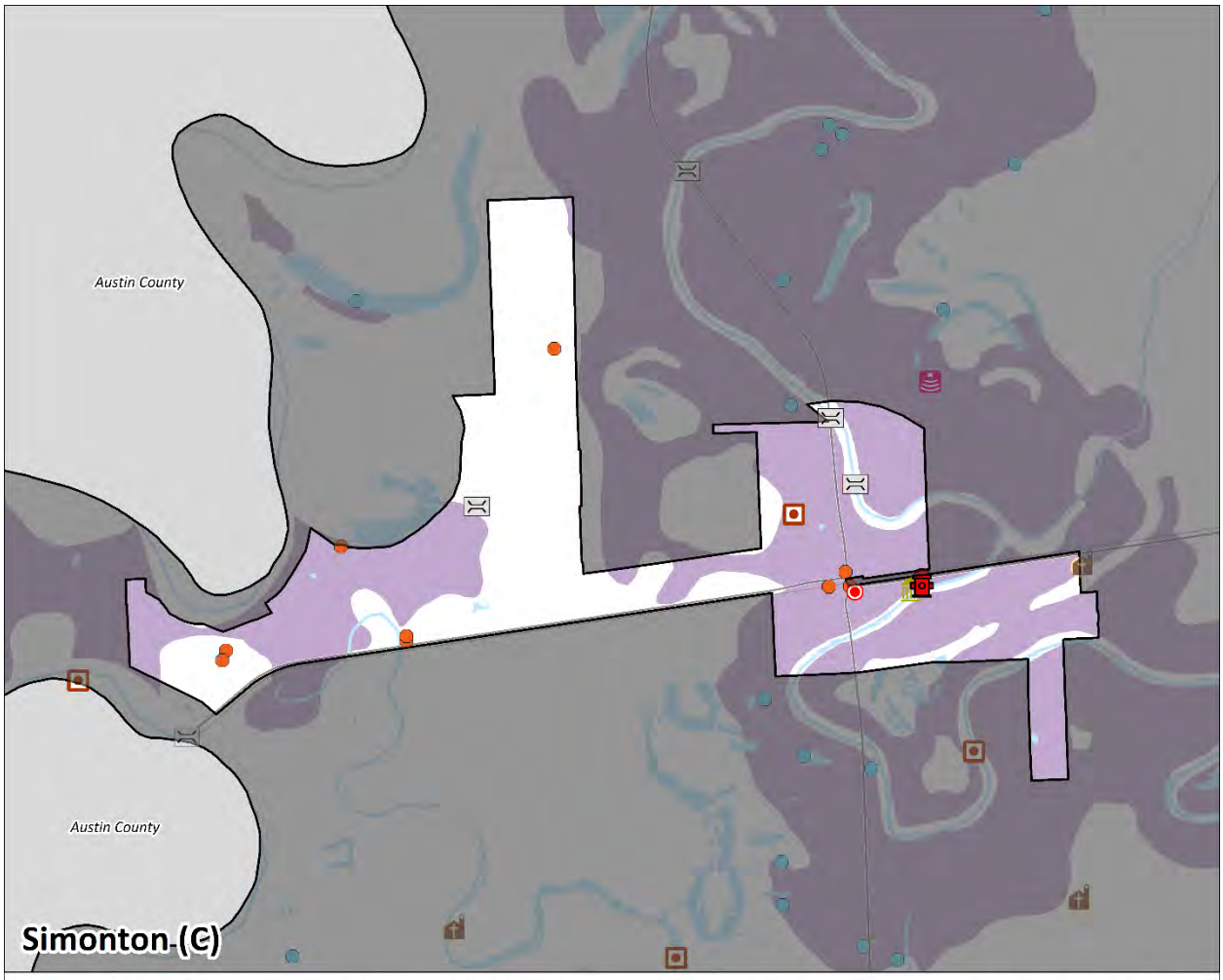
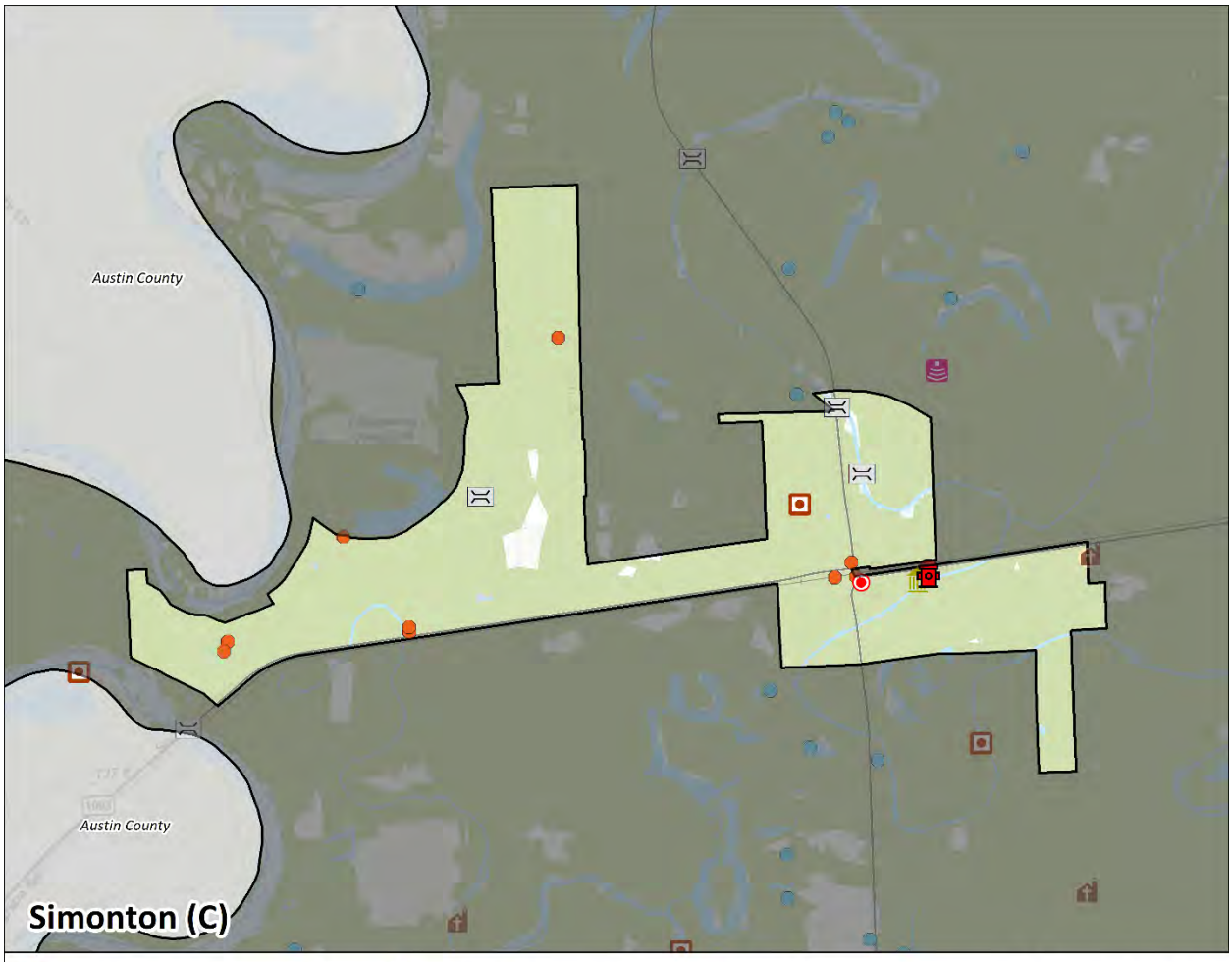


Figure 9.14-5. City of Simonton Hazard Area Extent and Location Map-Wildfire



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

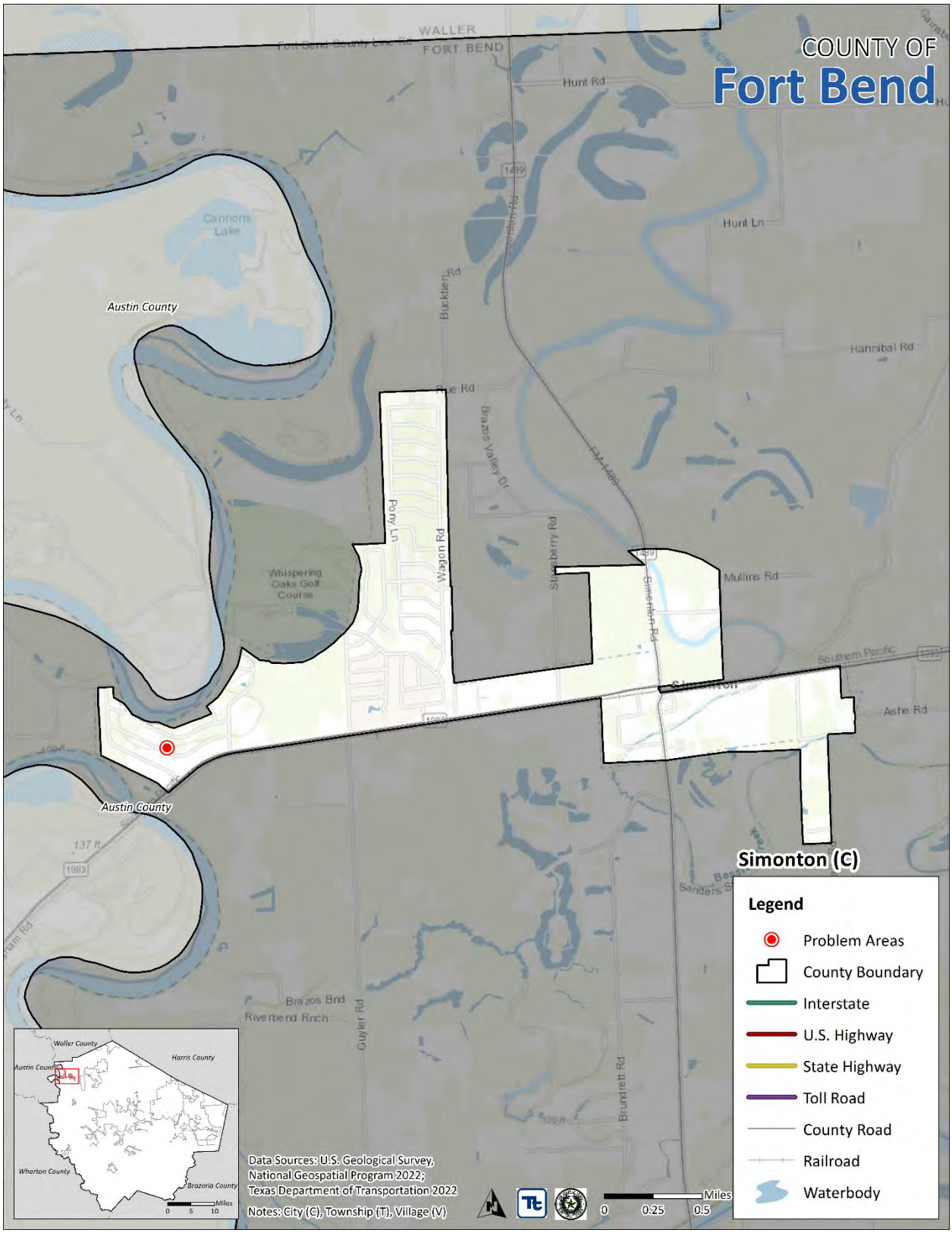
Wildfire Hazard Area

- Low Threat
- Moderate Threat

Miles
0 0.3 0.6

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022

Notes: City (C), Township (T), Village (V)


COUNTY OF
Fort Bend
WALLER
FORT BEND
Hunt Rd
Hunt Ln
Cannons Lake
Austin County
Buckler Rd
Hannibal Rd
Rue Rd
Brazos Valley Dr
FM 1489
Pony Ln
Wagon Rd
Strawberry Rd
Simonton Rd
Whispering Oaks Golf Course
Mullins Rd
Southern Pacific
Ashe Rd
Austin County
137 ft
1093
Simonton (C)
Brazos Bnd
Riverbend Rnch
Guyler Rd
Brundrett Rd
100 ft
Legend
Problem Areas
County Boundary
Interstate
U.S. Highway
State Highway
Toll Road
County Road
Railroad
Waterbody
Waller County
Harris County
Austin County
Wharton County
Brazoria County
Miles
0 5 10
Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022
Notes: City (C), Township (T), Village (V)
0 0.25 0.5
Miles

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Simonton's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Simonton experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.14-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
April 4, 2016	DR-4269	Yes	River Flood	$195,000 residential
May 30, 2016	DR-4272	Yes	River Flood	$9,200,00 residential
August 23, 2017	DR-4332	Yes	River Flood	$12,500,000 residential
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	Covid-19 pandemic	The City was subject to closures and masking/social distancing requirements.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in significant number of downed trees and utility lines.	Minor damage, tree limbs.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County.	Minor damage, tree limbs.
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	Minor wind damage, down fences and trees and limbs and minor power outages.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Moderate infrastructure damage, moderate damage to citizen's homes. Main damage was damage to pipes. Estimated damage over $500K.
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	Covid-19 pandemic	The City was subject to closures and masking/social distancing requirements.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Simonton's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts, and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Simonton. The City of Simonton reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

Table 9.14-14. Hazard Ranking Input

Hazard	Hazard Ranking
Dam/Levee Failure	**Low**
Disease Outbreak	**Low**
Drought	**Medium**
Extreme Temperature	**Medium**
Flood	**High**
Geologic	**High**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**Low**
Winter Weather	**Low**

Critical Facilities

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.14-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area	
	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines
Simonton (C)	10	10	0	0	9	9	8	8	0	0	14	14	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the City of Simonton's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Simonton identified the following vulnerabilities within their community:

- The City of Simonton does not have a public water supply and operates only on private water wells.
- The City of Simonton does not have available space for warming and cooling centers to properly house residents during winter storm and extreme temperature events.
- Residents in the City are unaware of how to properly prepare for severe weather events including what to do during and after an event.
- The Valley Lodge Subdivision within the City of Simonton is susceptible to flooding from the Brazos River from storm events greater than the 50-year storm.
- The Valley Lodge Subdivision within the City of Simonton is susceptible to flooding from the Brazos River from storm events greater than the 50-year storm.
- The City's roadway infrastructure is dominantly asphalt and gravel with roadside ditches. These roadways flood during storm events and cause standing water to remain on the roads for extended periods of time.
- The majority of residential portions of the City are within the Special Flood Hazard Area.
- The City residential portions are in the Special Flood Hazard Area. Many of the residents are not aware of the flood risk outside the FEMA FIRMs.
- During major flood events the Brazos River rate of erosion increased threatening existing homes and roadways.
- The City of Simonton does not have designated safe rooms for severe storms and tornado events.
- The City of Simonton does not experience frequent tornadoes, resulting in lack of awareness to the risks and how to prepare and react to tornadoes.
- The City does not currently participate in the Firewise Program.
- The City of Simonton does not have a debris clearing maintenance resulting in downed trees and vegetation in rivers, streams post-hazard event.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.14.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.14-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Enhance Emergency Operations	City of Simonton Emergency Operations Coordinator	Completed. Emergency Operations Committee Created in 2014	No		
Establish and Man a Point of Distributions for Emergencies	City of Simonton and FBCOEM	Complete. Simonton Community Church is the POD and EOC volunteers will man it.	No		
Construct Flood Gates	City of Simonton Emergency Operations Coordinator	Completed. Grant Money was used to pay for project. City utilizes gates at necessary	No		
Promote Flood Insurance	City of Simonton Emergency Operations Coordinator	In Progress	Yes	Property owner continuing education	Website
Initiate Participation in the Community Rating System	City of Simonton Emergency Operations Coordinator	No progress	No		
Increase Public Awareness of Hazard Mitigation	City of Simonton Emergency Operations Coordinator	In Progress	Yes	City is always looking for new grants to help residents mitigate loss	City Staff
Evacuation Plans	City of Simonton Emergency Operations Coordinator	Complete We utilize the county/region evacuation routes. Residents are given evacuation instructions prior to event.	No		
Wildfire Hazard Areas Study	City of Simonton Emergency Operations Coordinator	No progress	No		
Monitor Drought Conditions	City of Simonton Emergency Operations Coordinator	In progress	Yes	Ongoing concern over drought and how it affects our heavily treed residential areas	City Staff

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Public Information Campaigns	City of Simonton Emergency Operations Coordinator	In Progress Always working on educating the public through social media and community outreach	Yes	Education the residents of a city that sits on the river is always a priority	
Evaluate Excess Heat Risks	City of Simonton Emergency Operations Coordinator	Complete. Work with the County to make sure information is spread about staying cool and available cooling centers for the elderly/low income	No		
Address High Risk Populations	City of Simonton Emergency Operations Coordinator	No progress	Yes	Look at vulnerable populations and make sure they are aware of services offered	
Review Plans and Resources to Address Risk Posed by Snow and Ice Hazards During Winter Storms	City of Simonton Emergency Operations Coordinator	Complete. City Hall to double as warming center as well as other County warming centers available.	No		
Various Mitigation Actions to Reduce Wildfire Risk	City of Fulshear/ Simonton Fire Department	In progress	Yes	Education property owners about clearing vegetation, wildfire fuels. And monitoring conditions	
Upgrades to At-Risk Structures and Higher Standards for New Structures	City of Simonton City Administrator	Complete. New requirements implemented in flood prevention ordinance for building	No		
Building Construction Ordinances	City of Simonton City Council	Complete. Same as above	No		

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Simonton identified the following mitigation efforts completed since the last HMP:

- Expansion of City Hall to be able to house hoses and pumped needed for flooding conditions.
- Continued road and drainage projects throughout the City.
- Continued efforts to obtain buyouts and elevation of structures in the SFHA.

Since the adoption of the County's first HMP, the City of Simonton has made significant mitigation progress in the following areas:

- None identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

Table 9.14-17. Analysis of Mitigation Actions by Hazard and Category

	FEMA				CRS					
Hazard	**LPR**	**SIP**	**NSP**	**EAP**	**PR**	**PP**	**PI**	**NR**	**SP**	**ES**
Dam/Levee Failure	X			X	X		X			
Disease Outbreak										
Drought			X	X	X		X			X
Extreme Temperature		X		X			X			X
Flood	X	X	X	X	X	X	X	X	X	
Geologic Hazards		X	X	X	X	X	X	X		X
Hurricane/Tropical Storm	X	X		X	X	X	X	X	X	
Severe Weather	X			X	X		X	X	X	X
Tornado	X			X			X		X	
Wildfire		X		X			X			X
Winter Weather		X		X			X			X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Simonton would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.14-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Simonton-001	Educate Residents on water saving techniques	**Problem**: The City of Simonton does not have a public water supply and operates only on private water wells. **Solution**: The City of Simonton Emergency Operations Coordinator will work with the City Officials to education the public on water conservation techniques.	Drought, Geological Hazards	1, 2	1 to 2 years	City of Simonton, City of Simonton Emergency Operations Coordinator	City Budget, Local Funds	Reduce unnecessary water use and reduce the risk of subsidence	Staff Time	High	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Simonton-002	Water Conservation Requirement	**Problem**: The City of Simonton does not have a public water supply and operates only on private water wells. **Solution**: The City of Simonton Emergency Operations Coordinator and Floodplain Administrator will monitor drought conditions by identifying local drought indicators and establishing a regular schedule to monitor and report conditions on at least a monthly basis.	Drought, Geological Hazards	2	1 to 2 years	City of Simonton Emergency operations Coordinator, Floodplain Administrator	City Budget, Local Funds	Advanced warning of potential drought conditions to help prepare residents in water conservation	$50,000	High	NSP	PR, ES

2023-City of Simonton-003	Warming and Cooling Center	**Problem:** The City of Simonton does not have available space for warming and cooling centers to properly house residents during winter storm and extreme temperature events. **Solution:** The City and City Emergency Operations Coordinator will work the Fort Bend County to identify possible locations in Western Fort Bend County for warming and cooling centers and assist the County with public communications on the locations open during extreme temperature and severe weather events.	Extreme Temperature, Winter Weather	2, 4, 5	1 to 2 years	City of Simonton, City of Simonton Emergency Operations Coordinator, Fort Bend County,	City Budget, Local Funds, HMGP,	Reduce the risk of illness or loss of life	TBD	High	SIP, EAP	PI, ES

2023-City of Simonton-004	Increase Awareness of Extreme Weather Risk and Safety	**Problem:** Residents in the City are unaware of how to properly prepare for severe weather events including what to do during and after an event. **Solution:** The City, City Emergency Operations Coordinator and Fire Departments will work with the County and American Red Cross to educate citizens regarding the dangers of extreme heat and cold conditions, winter storms and severe weather (lightning, thunderstorm, hail, wind) and the steps they can take to protect themselves prior to, during, and after an event.	Extreme Temperature, Winter Weather, Severe Storm	1, 2, 4	Ongoing	City of Simonton Emergency Operations Coordinator, Fire Department, Fort Bend County, American Red Cross	City Budget, Local Funds	Reduce the risk of illness and loss of life	Staff Time	High	EAP	PI, ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Simonton-005	Buy-Out Program	**Problem:** The Valley Lodge Subdivision within the City of Simonton is susceptible to flooding from the Brazos River from storm events great than the 50 year storm. **Solution:** The City will work with FEMA and the County to establish a buy-out program that will remove structures from the 500 year flood hazard area.	Flood, Hurricane/Tropical Storm	2,3,4	Ongoing	City of Simonton, FEMA, Local Residents, Fort Bend County	HMGP, FMA, BRIC, City Budget	Reduce the flood risk for structures within the City and reduce future flood damages.	High	High	SIP	PP, SP
2023-City of Simonton-006	Elevate Structures	**Problem:** The Valley Lodge Subdivision within the City of Simonton is susceptible to flooding from the Brazos River from storm events great than the 50 year storm. **Solution:** The City will work with the County	Flood, Hurricane/Tropical Storm	2,3,4	5 years	City of Simonton, FEMA, Fort Bend County	HMGP, FMA, BRIC,	Reduce the flood risk for structures within the City and reduce future flood damages.	TBD	High	SIP	PP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		and FEMA to elevate structures so that the lowest floor, including the basement, is raised above the base flood elevation.										
2023-City of Simonton-007	Drainage Capital Improvement Plan	**Problem:** The City's roadway infrastructure is dominantly asphalt and gravel with roadside ditches. These roadways flood during storm events and cause standing water to remain on the roads for extended periods of time. **Solution:** The City will work with the City Emergency Management Coordinator to develop a drainage improvement plan to establish proper drainage procedure throughout the City.	Flood, Hurricane/Tropical Storm	2,3,5	5 years	City of Simonton, City of Simonton Emergency Operations Coordinator, Fort Bend County	HMGP, FMA, BRIC	Reduce the flood risk for structures within the City and reduce future flood damages.	$5,000,000	High	LPR	PP,NR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Simonton-008	Increase Flood Risk Awareness	**Problem:** The majority of residential portions of the City are within the Special Flood Hazard Area. **Solution:** The City will work to create an online campaign to educate its residents on flood risk, how to prepare for flood events, and the necessary steps to take during and after a flood event. This includes encouraging the purchase of flood insurance and establishing an online resource center for preparedness activities.	Dam/Levee Failure, Flood, Hurricane/Tropical Storm	1, 2	1 to 4 years	City of Simonton	HMGP, FMA, City Budget	Increase residents knowledge of flood preparedness and response time to flood events. Reduce the risk to the general public health.	Staff Time	High	EAP	PI
2023-City of Simonton-009	Incorporate Flood Mitigation in Local Planning	**Problem:** The City residential portions are in the Special Flood Hazard Area. Many of the residents	Dam/Levee Failure, Flood, Hurricane/Tropical Storm	1,2	1 to 2 years	City of Simonton	HMGP, CDBG, City Budget	Increase the time frame residents have to respond to flood events which	Local Funds	High	LPR	PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		are not aware of the flood risk outside the FEMA FIRMs. **Solution:** The City of Simonton will incorporate critical flood elevation review into the Floodplain Management Plan to provide assistance when responding to flood events, including public notifications before a flood events and evacuation instructions.						reduced public health risks.				
2023-City of Simonton-010	Brazos River Erosion Monitoring	**Problem:** During major flood events the Brazos River rate of erosion increased threatening existing homes and roadways. **Solution:** The City of Simonton will work with Fort Bend County to review the	Geologic Hazards, Flood	3, 4	5 years	City of Simonton, Fort Bend County	HMGP, BRIC, FMA	Reduce the risk of major bank erosion resulting in roadway or structural damages.	$8,000,000,000	High	NSP, SIP	PP, NR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		erosion risks through the use of GIS mapping to identify and map high erosion hazard areas on Brazos River.										
2023-City of Simonton-011	Safe Rooms	**Problem:** The City of Simonton does not have designated safe rooms for severe storms and tornado events **Solution:** The City will work with Fort Bend County to locate safe rooms inside or directly adjacent to residential, commercial, and industrial structures to take shelter in the event of a severe storm or tornado.	Severe Storm, Tornado	1,2	1 to 3 years	City of Simonton, Fort Bend County	City Budget	Reduce potential loss of life	TBD	Medium	LPR, EAP	PR,SP
2023-City of Simonton-012	Tornado and Severe Storm Awareness	**Problem:** The City of Simonton does not experience frequent tornadoes,	Severe Storm, Tornado	1	1 to 2 years	City of Simonton, City Emergency Management Coordinator	City budget	Reduce potential loss of life, increase mitigation awareness	Staff Time	High	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		resulting in lack of awareness to the risks and how to prepare and react to tornadoes. **Solution:** The City will work with the City Emergency Operations Coordinator to educate citizens on the potential risks and how to prepare for tornado events.										
2023-City of Simonton-013	Firewise Program	**Problem:** The City does not currently participate in the Firewise Program. **Solution:** The City will work with Fort Bend County to join the Firewise Community recognition program sponsored by the National Wildlife Coordinating Group.	Wildfire	1	1 to 2 years	City of Simonton, Fort Bend County	City Budget	Reduce risk of wildfire damage	Staff Time	Medium	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Simonton-014	Debris Management Plan	**Problem:** The City of Simonton does not have a debris clearing maintenance resulting in downed trees and vegetation in rivers, streams post-hazard event. **Solution:** The City will work with Fort Bend County Road and Bridge to develop a debris management plan to assist with debris clearing protocol.	Severe Storm, Flood	1,2	1 to 2 years	City of Simonton, Fort Bend County Road and Bridge	HMGP, FMA, City Budget	Reduce risk of property loss, and loss of life	Staff Time	High	LPR	NP

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS Community Rating System
FEMA Federal Emergency Management Agency
HMA Hazard Mitigation Assistance
N/A Not applicable
NFIP National Flood Insurance Program

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program
BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies, or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*

- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.14-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Simonton-001	Educate Residents on water saving techniques	1	1	1	0	1	1	1	1	1	1	1	1	1	1	13	High
2023-City of Simonton-002	Water Conservation Requirement	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Simonton-003	Warming and Cooling Center	1	1	1	0	1	1	1	0	1	1	1	1	1	1	12	High
2023-City of Simonton-004	Increase Awareness of Extreme Weather Risk and Safety	1	1	1	0	1	1	1	0	1	1	1	1	1	1	12	High
2023-City of Simonton-005	Buy-Out Program	1	1	0	1	1	1	1	1	1	1	1	1	1	1	13	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Simonton-006	Elevate Structures	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
2023-City of Simonton-007	Drainage Capital Improvement Plan	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
2023-City of Simonton-008	Increase Flood Risk Awareness	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Simonton-009	Incorporate Flood Mitigation in Local Planning	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Simonton-010	Brazos River Erosion Monitoring	1	1	0	1	1	1	1	1	1	1	1	1	1	1	13	High
2023-City of Simonton-011	Safe Rooms	1	0	1	1	0	0	1	0	1	0	1	1	0	1	8	Medium
2023-City of Simonton-012	Tornado and Severe Storm Awareness	1	1	1	0	0	0	1	0	1	0	1	1	1	0	9	High
2023-City of Simonton-013	Firewise Program	1	0	1	1	0	0	0	1	1	0	0	1	0	0	6	Medium
2023-City of Simonton-014	Debris Management Plan	1	1	1	1	0	1	1	1	1	1	1	1	1	1	13	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. CITY OF STAFFORD

9.15 City of Stafford

This section presents the jurisdictional annex for the City of Stafford that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Stafford representatives who participated in the planning process, an assessment of the City of Stafford's risk and vulnerability, the different capabilities used in the City of Stafford, and an action plan that will be implemented to achieve a more resilient community.

9.15.1 Hazard Mitigation Planning Team

The City of Stafford identified primary and alternate points of contact and developed this plan over the course of several months with input from many City of Stafford departments, including the Fire Chief and Mayor. The Fire Chief represented the community on the Fort Bend County Hazard Mitigation Plan (HMP) Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.15-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Larry Di Camillo - Fire Chief	Name/Title:	AJ Honore – Mayor
Address:	10210A Mula Road, Stafford, TX 77477	Address:	2610 South Main Street, Stafford, TX 77477
Phone Number:	212-208-6983	Phone Number:	281-261-3900
Email:	ldcamillo@staffordtx.gov	Email:	Mayor@staffordtx.gov
NFIP Floodplain Administrator			
Name/Title:			
Address:			
Phone Number:			
Email:			
Additional Contributors:			
Name/Title: Method of Participation:	Larry Di Camillo - Fire Chief Provided key input in the planning process		
Name/Title: Method of Participation:	AJ Honore – Mayor Provided key input in the planning process		
Name/Title: Method of Participation:			
Name/Title: Method of Participation:			

9.15.2 Municipal Profile

The City of Stafford is in the southwest corner of Fort Bend County and borders the southern shore of Lake Lyndon B. Johnson. Located 50 miles northwest of downtown Austin, the City of Stafford is known for its scenic golf courses, resorts, and hotels. The City of Stafford has a total area of 11.6 square miles, 11.4 square miles of land and 0.23 square miles of water.

According to the 2021 American Community Survey the population for the City of Stafford was 17,170. Data from the 2021 American Community Survey indicate that 6.1 percent of the population is 5 years of age or younger and 9.8 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.15.3 Jurisdictional Capability Assessment and Integration

The City of Stafford performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Stafford to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Stafford. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.15-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code	Local	Code Enforcement
How does this reduce risk? The City of Stafford adopted the 2015 International Building Code				
Zoning/Land Use Code	Yes	Chapter 102 - Zoning	Local	Mayor
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
The City Zoning Ordinance established have been made for the purpose of promoting the public health, safety, morals, and general welfare within the city. They have been designed to lessen the congestion in the streets; to secure safety from fire, panic, and other dangers; to ensure adequate light and air; to prevent the overcrowding of land and thus avoid undue concentration of population; and to facilitate the adequate provision of transportation, water, wastewater treatment, schools, parks, and other public requirements.				
Subdivision Ordinance	Yes	Chapter 82 – Subdivision – Ordinance No. 1123	Local	Development Services
How does this reduce risk? Subdivision Ordinance establishes all requirements needed in order to develop any subdivisions within the City limits and its extraterritorial jurisdictions.				
Site Plan Ordinance	Yes	Article V. – Applications and Amendments – Sec. 102-101- Site Plan Review Process	Local	Code Compliance
How does this reduce risk? Site Plan Ordinance establishes a process for proposed nonresidential, mixed use, and multi-family residential developments. The purpose of the review is to ensure efficient and safe land development, harmonious use of land, compliance with appropriate design standards, safe and efficient vehicular and pedestrian circulation, adequate parking and loading, and adequate water supply, drainage and storm water management, sanitary facilities, coverage, and other utilities and services.				
Stormwater Management Ordinance	Yes	Stormwater Pollution Protection	Local, State	TCEQ
How does this reduce risk? Stormwater Pollution Protection Ordinance – Subdivision Ordinance Chapter 35 Section 205-208; TCEQ				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	Yes	-	County	Fort Bend
How does this reduce risk? Real Estate Disclosure is implemented by Fort Bend County				
Growth Management	Yes	Code of Ordinances – Article III Section 62	Local	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Chapter 26 – Drainage and Flood Control – Article IV – Flood Damage Prevention	Local	Department of Emergency Management
How does this reduce risk? It is the purpose of this Ordinance to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed: • To protect human life and health • To minimize expenditure of public money for costly flood control projects • To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public • To minimize prolonged business interruptions • To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazard • To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas • To ensure that potential buyers are notified that property is in an area of special flood hazard • To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.				
Wellhead Protection	No	-	-	-

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk?				
Emergency Management Ordinance	Yes	Code of Ordinance Article II Section 22	Local	Department of Emergency Management
How does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Planning Documents				
Comprehensive/Master Plan	Yes	City of Stafford Comprehensive Plan	Local	Planning & Zoning
How does this reduce risk? The City Comprehensive Plan creates a blueprint for future development within the City by prioritizing goals, objectives, and strategies in regard to land use, transportation, infrastructure, housing, economic development, parks, and open space.				
Capital Improvement Plan	Yes	City of Stafford Capital Improvement Plan	Local	Planning & Zoning
How does this reduce risk? The Capital Improvement Plan was revised in 2018				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk?				
Stormwater Management Plan	Yes	Stormwater Management Program	Local	Dept. Public Works
How does this reduce risk? TCEQ requires all small Municipal Separate Storm Sewer System (MS4) owners and operators to follow the rules and regulations established in General Permit TXR040000. This permit requires the City of Stafford to establish a program that: • Reduces the discharge of pollutants to the maximum extent practicable (MEP) • Protects water quality • Satisfies the appropriate water quality requirements of the CWA • Manages Stormwater quality activities through the SWMP				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	Yes	City of Stafford Comprehensive Plan	Local	Planning & Zoning
How does this reduce risk? The City Comprehensive Plan includes a section for Economic Development.				
Shoreline Management Plan	No	-	-	-

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	Fort Bend County Emergency Management Plan	County	Fort Bend County
How does this reduce risk? The City of Stafford utilizes the Fort Bend County Emergency Action Plan for guidance during and post hazard events.				
Continuity of Operations Plan	Yes	City of Stafford Continuity of Operations Plan	Local	Planning & Zoning
How does this reduce risk? The City Continuity of Operations Plan outlines the procedure and responsible parties for maintaining operations during a hazard event.				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the city. FBHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
FBHHS has plans in place to prevent public health issues through regular inspections of regulated facilities, as well as prepare for and respond to public health emergencies.				
Other	-	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Stafford to oversee and track development.

Table 9.15-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	Department of Public Works – Development Services
If you do not issue development permits, what is your process for tracking new development?	N/A	-
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? • If yes, please describe	No	-
Describe the level of build-out in your jurisdiction.	N/A	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Stafford and their current responsibilities that contribute to hazard mitigation.

Table 9.15-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	Planning and Zoning reviews all submitted plats, site plans, and zoning cases for ordinance compliance and to ensure they meet all technical requirements. The Commission is also responsible for ensuring that development and redevelopment comply with all approved plans such as the City Comprehensive Plan and the Major Thoroughfare Plan.
Zoning Board of Adjustment	Yes	Zoning Board of Adjustment is a five-member committee appointed by the Mayor. The ZBA has the authority to grant variances, special exceptions, administrative review.
Planning Department	Yes	The City Planning and Zoning Division oversees current and long-range planning functions. This includes site plan applications, specific use permits, variances, re-zonings and zoning, and comprehensive plan amendments. The Division coordinates with various public reviewing agencies such as

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		Engineering, Public Works, Building, Fire, Utilities, and Health Department.
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	Stafford Economic Development Corporation
Public Works/Highway Department	Yes	The Public Works Department is responsible for maintaining the streets, drainage, parks, buildings, vehicles, landscaped and non-landscaped rights-of-way, and properties owned by the City of Stafford and the Stafford Municipal School District. The rights-of-way typically encompass the area from sidewalk to sidewalk, including the roadway.
Construction/Building/Code Enforcement Department	Yes	Development Services provide orderly growth, development, and redevelopment by enforcing adopted codes and ordinances. The department includes Building and Inspection Services, Civil Engineering, and Planning and Zoning.
Emergency Management/Public Safety Department	Yes	The City of Stafford Department of Emergency Management (DEM) serves the citizens of Stafford by directing and coordinating emergency management and homeland security programs to prevent/mitigate, prepare for, respond to, and recover from emergencies and disasters.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Stormwater Management Program
Mutual aid agreements	No	-
Human Resources Manual	No	-
Other	-	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Public Works – City Planner
Engineers or professionals trained in building or infrastructure construction practices	Yes	Contract Support
Planners or engineers with an understanding of natural hazards	Yes	City Engineer approves all planned work within the City
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Public Works – GIS Applications Specialist
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	The City Fire Chief
Grant writer(s)	Yes	Grant Manager
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	-	-
How do your administrative/technical capabilities contribute to risk reduction in your community?		

Fiscal Capability

The table below summarizes financial resources available to the City of Stafford.

Table 9.15-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas, or electric service	No
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	Yes
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Texas Water Development Fund, TWDB Clean Water State Revolving Fund (CWSRF), TWDB Flood Protection Planning Grant (FPP)

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Stafford.

Table 9.15-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	Yes	Human Resources Department
Personnel skilled or trained in website development	Yes	Human Resources Department
Hazard mitigation information available on your website	Yes	Emergency Management Page, occasionally information will be posted on the flash screen of the City home page.
Social media for hazard mitigation education and outreach	Yes	Information posted through Facebook, Twitter, and NextDoor.
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	Yes	Warnings are posted on electronic billboards in the City and broadcast over an AM radio station.
Natural disaster/safety programs in place for schools	Yes	Stafford Municipal Education Television
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the City of Stafford.

Table 9.15-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other			

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.15-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Weak
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Weak
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Strong
Winter Weather	Strong

9.15.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Stafford.

Table 9.15-9. NFIP Summary

Municipality	Policies in Force [a]	Number of Paid Claims [a]	Amount of Paid Claims [a]	Number of NFIP RL Properties [b]	Number of NFIP SRL Properties [b]
Stafford (C)	511	91	$1,188,509.92	9	N/A

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP

Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Stafford.

Table 9.15-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	No
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	N/A
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	N/A
NFIP Compliance	
What local department is responsible for floodplain management?	Public Works
Are any certified floodplain managers on staff in your jurisdiction?	No
Do you have access to resources to determine possible future flooding conditions from climate change?	No
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Yes. Basic Training
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	Only organic services as provided by Public Works by staff engineer

NFIP Topic	Comments
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	N/A
What are the barriers to running an effective NFIP program in the community, if any?	None
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	N/A
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	N/A
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	N/A
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Meets floodplain requirements
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	N/A
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	No

9.15.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.15-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single Family	39	0	4	0	6	0				
Multi-Family	0	0	0	0	7	0				
Other (commercial, mixed use, etc.)	15	0	13	0	11	0				
Total Permits Issued	54	0	17	0	24	0				

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.15-12. Recent and Expected Future Development

Property or Development Name	Type (e.g., Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
Not Applicable					
Known or Anticipated Major Development in the Next Five (5) Years					
Not Applicable					

9.15.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Stafford's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Stafford has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.15-1. City of Stafford Hazard Area Extent and Location Map-Flood

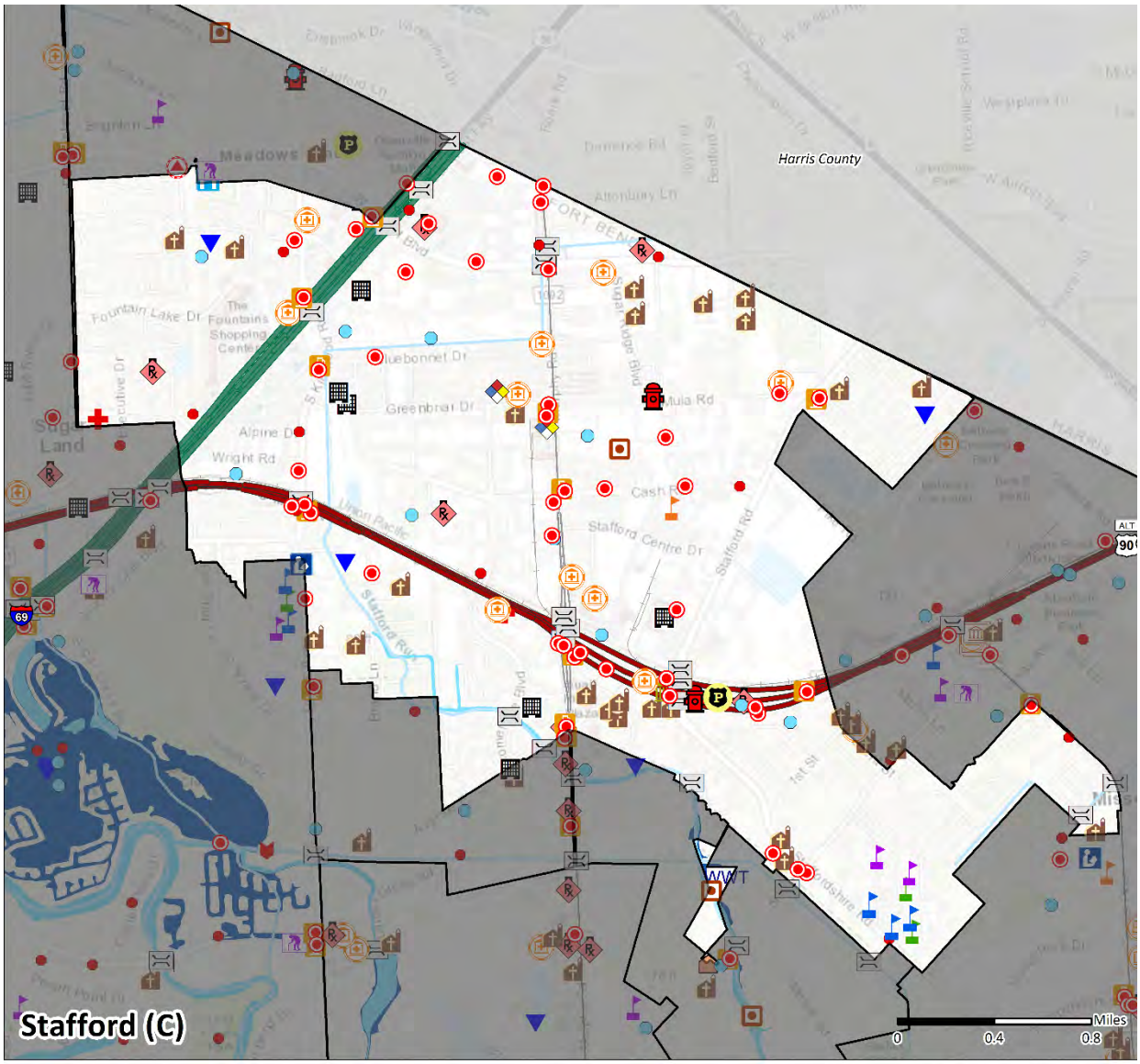


Figure 9.15-2. City of Stafford Hazard Area Extent and Location Map-Dam Inundation

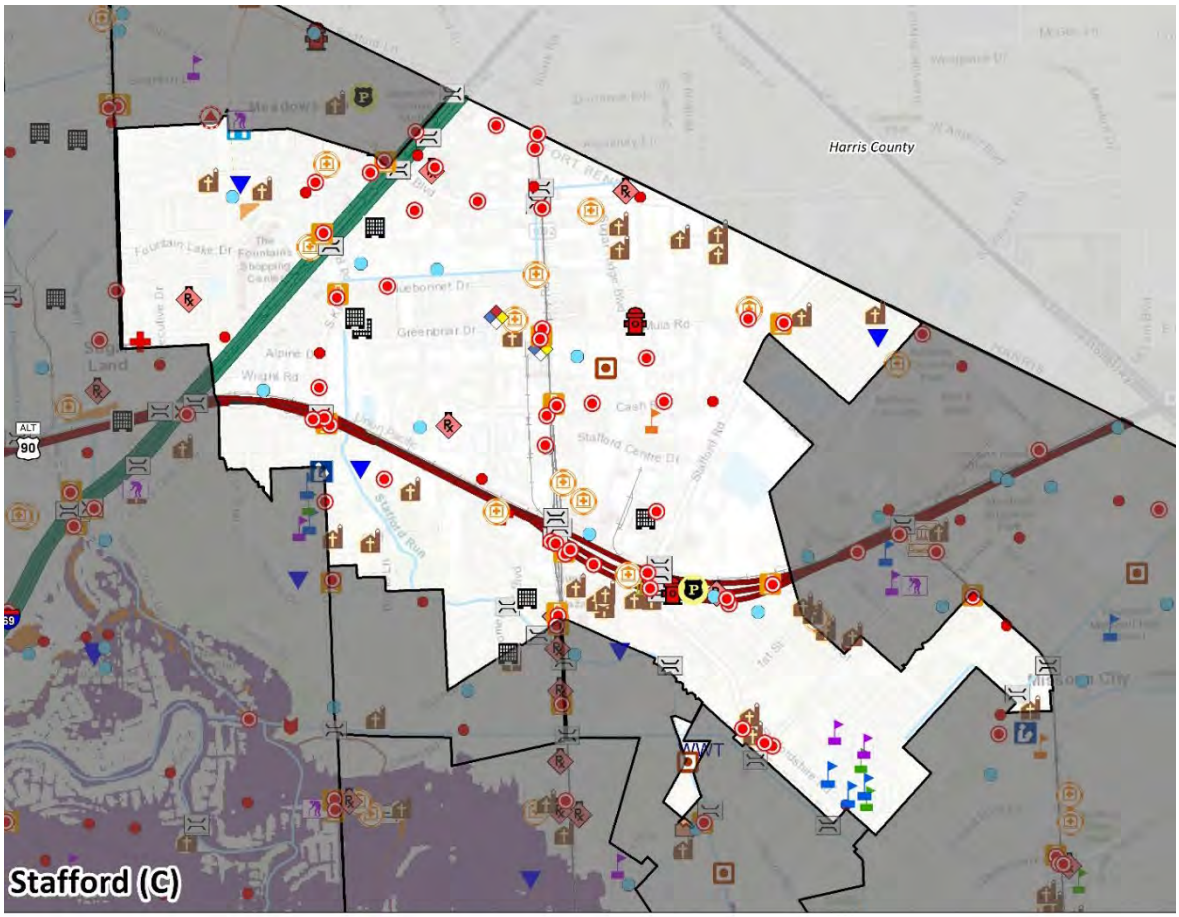
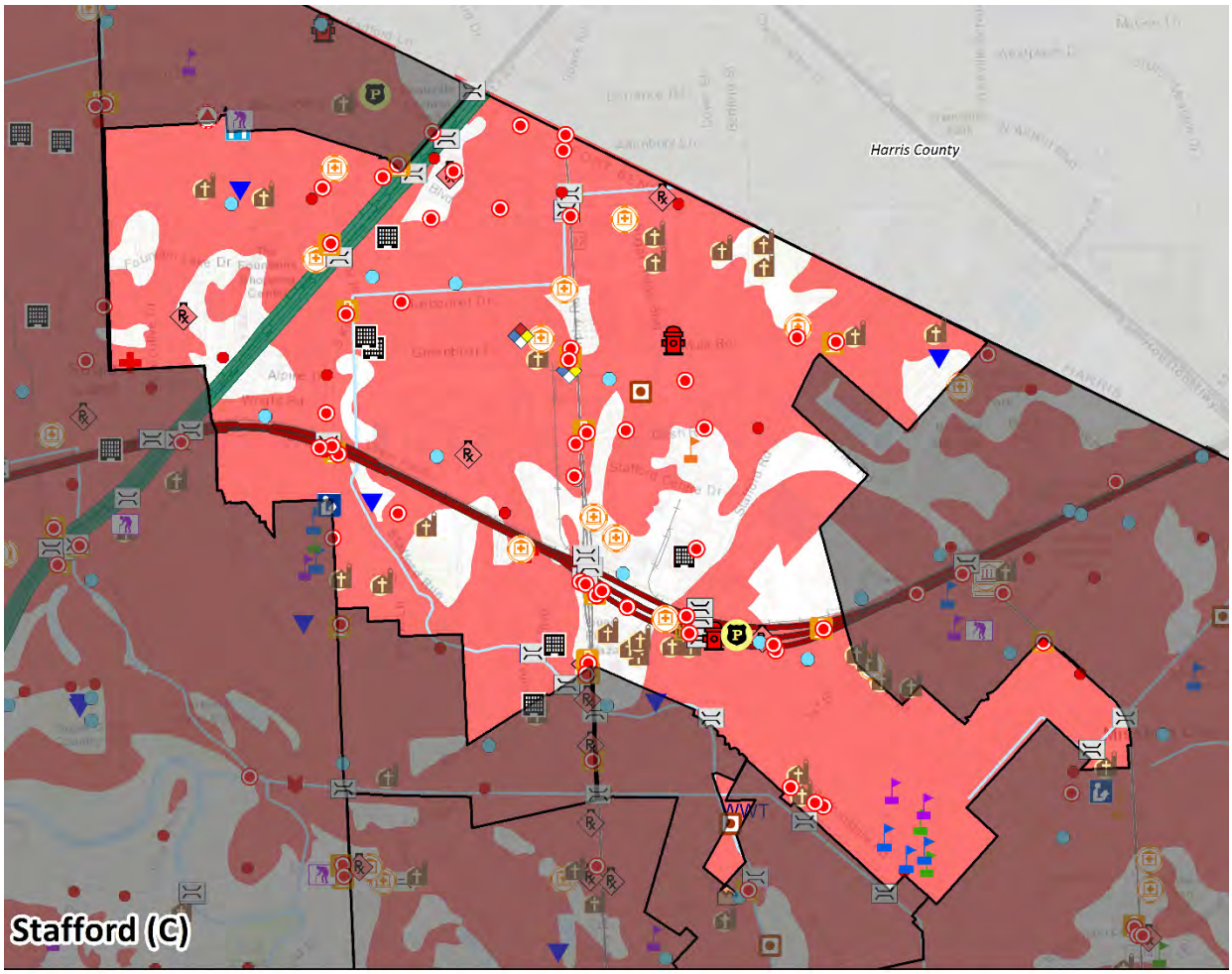


Figure 9.15-3. City of Stafford Hazard Area Extent and Location Map-Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 0.35 0.7

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.15-4. City of Stafford Hazard Area Extent and Location Map-Inland Erosion

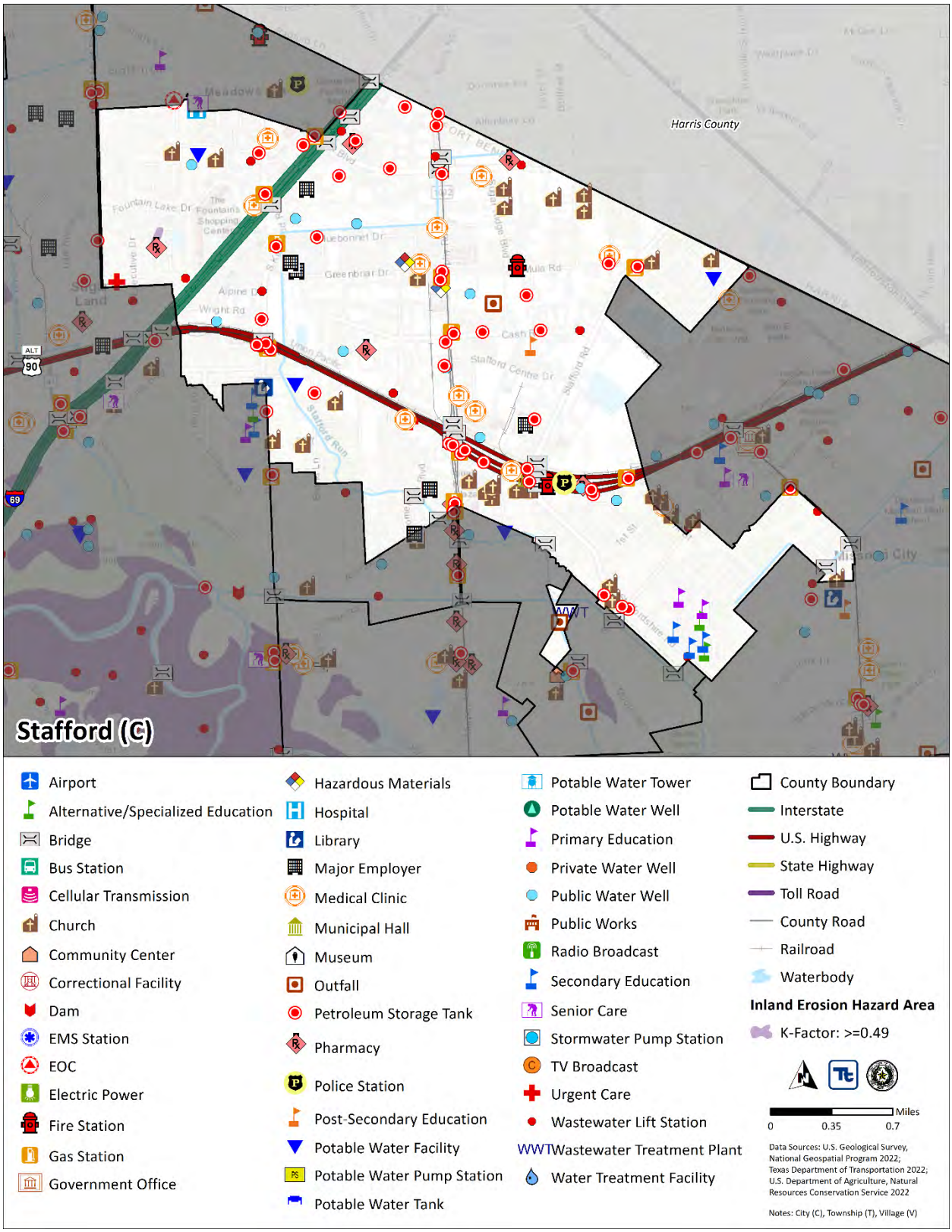
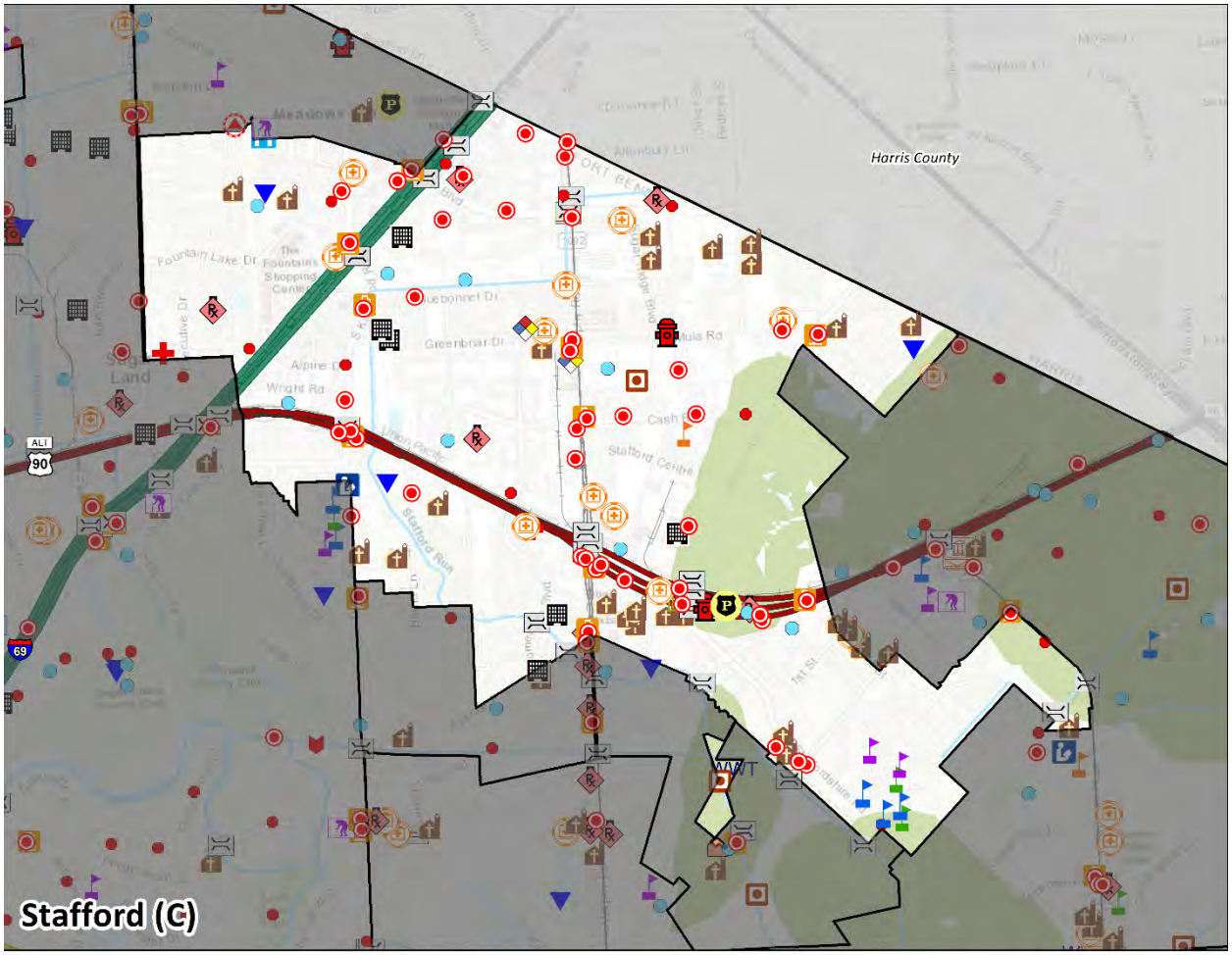


Figure 9.15-5. City of Stafford Hazard Area Extent and Location Map-Wildfire



Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Stafford's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Stafford experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.15-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	Covid-19 pandemic	The City was subject to closures and masking/social distancing requirements.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane-force winds resulted in significant number of downed trees and utility lines.	Minor damage, tree limbs.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County	The City did not experience any damages or losses that were documented.
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm-force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	Minor wind damage, down fences and trees and limbs, and minor power outages.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Moderate infrastructure damage, moderate damage to citizen's homes. Main damage was damage to pipes. Estimated damage over $500k.
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	Covid-19 pandemic	The City was subject to closures and masking/social distancing requirements.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Stafford's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts, and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Stafford. The City of Stafford reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

Table 9.15-14. Hazard Ranking Input

Hazard	Hazard Ranking
Dam/Levee Failure	**Low**
Disease Outbreak	**Low**
Drought	**Medium**
Extreme Temperature	**Medium**
Flood	**Low**
Geologic Hazards	**Low**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**Low**
Winter Weather	**Low**

Critical Facilities and Community Lifelines

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.15-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area	
	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines
Stafford (C)	3	3	0	0	0	0	125	106	0	0	0	0	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Identified Issues

After review of the City of Stafford's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Stafford identified the following vulnerabilities within their community:

- The City of Stafford does not regularly update floodplain management programs.
- The City of Stafford does not have up-to-date FEMA flood maps.
- The City of Stafford stormwater systems will overflow during heavy rain fall events causing roadway flooding, residential flooding. Heavy rain and winter weather events also increase the chances of erosion.
- The City of Stafford public buildings and critical facilities are at risk of damage from hurricane/tropical storms and severe wind events.
- The City of Stafford does not have a Debris Management Plan.
- The City does not have resources developed to evaluate future conditions of hazards from the effects of climate change, including storm and hazard frequency and intensity.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.15.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.15-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Where appropriate, support retrofitting, purchase or relocation of structures located in hazard areas, prioritizing those that have experienced repetitive losses and/or are located in high- or medium-risk hazard areas	Stafford Public Works	No submitted properties	N/A		
Integrate the hazard mitigation plan into other plans, ordinances and programs that dictate land use decisions in the community, including Zoning Ordinance, Capital Improvement projects, and Economic Development Corporation planning.	Planning and Zoning	Proposed for review in future	No		
Actively participate in the plan maintenance protocols outlined in Volume 1 of this hazard mitigation plan	City of Stafford OEM	In progress	Yes	To maintain viability	COS OEM
Continue to maintain good standing and compliance under the NFIP through implementation of floodplain management programs that, at a minimum, meet the NFIP requirements: • Enforce the flood damage prevention ordinance. • Participate in floodplain identification and mapping updates. • Provide public assistance/information on floodplain requirements and impacts.	Stafford Public Works	In progress	Yes	Localized flooding in subdivisions	COS Public Works
Install generators/emergency power at the Stafford Centre for use as an emergency shelter	Economic Development Corporation	Completed	No		
Expand city's emergency warning system to increase coverage within the community's population.	City of Stafford OEM	Completed	No		
Improve drainage channels to increase flow rate and increased retention areas	Stafford Public Works	In progress	Yes	Localized street flooding	COS Public Works

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)? Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Implement drainage improvements in Missouri City Estates- replace open ditches by installing storm sewers and level ground to reduce overland and sheet flow flooding within neighborhoods.	Stafford Public Works	In progress	Yes	Localized street flooding	COS Public Works
Harden air infiltration system and critical infrastructure/public buildings to support high efficiency particulate air resistance filters in order to minimize health risks and property damage due to air particulate hazards and minimize equipment damage due to smoke.	Stafford Public Works	No progress	No		
Hardening of critical infrastructure facilities for hurricane wind hazards.	Stafford Public Works	In progress	Yes	Wind damage survivability improvement	COS OEM
Purchase generator for Fire/EMS Station 1	Stafford Public Works	Completed	No		
Purchase/install generators at critical facilities and infrastructure that lack adequate back-up power or are in need of replacement.	Stafford Public Work	Completed	No		

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Stafford identified the following mitigation efforts completed since the last HMP:

- None Identified

Since the adoption of the County's first HMP, the City of Stafford has made significant mitigation progress in the following areas:

- None Identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013) and FEMA 'Mitigation Assistance Resource Guide for Texas' (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

Table 9.15-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	X	-	X	X	X	-	-	-	X
Disease Outbreak	X	-	-	-	X	-	-	-	-	X
Drought	X	-	-	-	X	-	-	-	-	X
Extreme Temperature	X	-	-	-	X	-	-	-	-	X
Flood	X	X	-	X	X	X	X	X	-	X
Geologic Hazards	X	X	-	-	X	-	-	X	-	X
Hurricane/Tropical Storm	X	X	-	-	X	X	-	-	-	X
Severe Weather	X	X	-	-	X	X	-	-	-	X
Tornado	X	-	-	-	X	-	-	-	-	X
Wildfire	X	-	-	-	X	-	-	-	-	X
Winter Weather	X	-	-	-	X	-	-	-	-	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Stafford would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.15-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Stafford-001	Improve Compliance with NFIP	**Problem:** The City of Stafford does not regularly update floodplain management programs. **Solution:** The City of Stafford Public Works will designate a local floodplain manager who will maintain and achieve Certified Floodplain Manager certification.	Dam/Levee Failure, Flood	1,2	1 to 2 years	City of Stafford Public Works	City Budget	Reduce the loss of life and property		High	EAP, LPR	PR
2023-City of Stafford-002	Update FEMA Flood Maps	**Problem:** The City of Stafford does not have up-to-date FEMA flood maps. **Solution:** The City of Stafford Public Works will work with FEMA to update the current flood maps.	Flood	1,2	1 to 3 years	City of Stafford Public Works, FEMA	HMGP, FMA, City Budget	Reduce the loss of life and property		High	EAP	PR, PI
2023-City of Stafford-003	Improve Stormwater Drainage System Capacity	**Problem:** The City of Stafford stormwater systems will overflow during heavy rain fall events causing roadway flooding, residential flooding. Heavy rain and winter weather events	Geologic Hazards, Flood	2	1 to 2 years	City of Stafford Public Works	BRIC, HMGP, FMA, City Budget	Reduce the loss of life and property		High	SIP	NR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		also increase the chances of erosion. **Solution:** The City Public Works will increase the capacity of the stormwater drainage system to reduce flooding and provide grassy swales along the roadsides to combat erosion.										
2023-City of Stafford-004	Retrofit Critical Facilities and Infrastructure	**Problem:** The City of Stafford public buildings and critical facilities are at risk of damage from hurricane/tropical storms and severe wind events. **Solution:** The City Office of Emergency Management will work with the City Public Works to improve roof coverings and retrofitting buildings with load-path connectors to strengthen structural frames.	Dam/Levee Failure, Flood, Hurricane/Tropical Storm, Severe Weather	2,3,5	1 to 3 years	City of Stafford Office of Emergency Management, City Public Works	HMGP, BRIC, FMA, City Budget	Reduce the loss of property, maintain continuity of operations		High	SIP	PP
2023-City of Stafford-005	Debris Management Plan	**Problem:** The City of Stafford does not have a Debris Management Plan. **Solution:** The City will develop a Debris Management Plan.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado,	1,2	1 year	City of Stafford Public Works	City Budget	Increase disaster response capabilities		High	LPR	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
			Wildfire, Winter Weather									
2023-City of Stafford-006	Future Conditions Resources	**Problem:** The City does not have resources developed to evaluate future conditions of hazards from the effects of climate change, including storm and hazard frequency and intensity. **Solution:** The City will work with FEMA and the County to develop future condition maps and resources so that the City may keep plans and regulations up to code with projected conditions of population and building stock exposed to increasing hazard events.	Dam/Levee Failure, Disease Outbreak Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,2	3 years	City, County, FEMA	BRIC, HMGP, FMA, County, and City Budget	The City will be better equipped to handle hazards that have been intensified due to Climate Change		High	LPR	PR

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS Community Rating System
FEMA Federal Emergency Management Agency
HMA Hazard Mitigation Assistance
N/A Not applicable
NFIP National Flood Insurance Program

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program
BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies, or codes that influence the way land and buildings are being developed and built.*

- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.15-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Stafford-001	Improve Compliance with NFIP	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Stafford-002	Update FEMA Flood Maps	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023-City of Stafford-003	Improve Stormwater Drainage System Capacity	1	1	1	1	0	1	1	1	1	1	1	1	1	1	13	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Stafford-004	Retrofit Critical Facilities and Infrastructure	1	1	0	1	1	1	1	0	1	1	1	1	1	1	12	High
2023-City of Stafford-005	Debris Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Stafford-006	Future Conditions Resources	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.16 City of Sugar Land

This section presents the jurisdictional annex for the City of Sugar Land that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Sugar Land representatives who participated in the planning process, an assessment of the City of Sugar Land's risk and vulnerability, the different capabilities used in the City of Sugar Land, and an action plan that will be implemented to achieve a more resilient community.

9.16.1 Hazard Mitigation Planning Team

The City of Sugar Land identified primary and alternate points of contact and developed this plan over the course of several months with input from many City of Sugar Land departments, including Office of Emergency Management. The Emergency Management Administrator represented the community on the Fort Bend County Hazard Mitigation Plan (HMP) Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.16-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Caroline Egan/Interim Emergency Management Coordinator	Name/Title:	Joe R. Zimmerman/ Mayor
Address:	2700 Town Center Blvd N, Sugar Land TX 77479	Address:	2700 Town Center Blvd N, Sugar Land, TX 77479
Phone Number:	281-690-8812	Phone Number:	281-275-2313
Email:	cegan@Sugar Landtx.gov	Email:	JZIMMERMAN@Sugar Landtx.gov
NFIP Floodplain Administrator			
Name/Title:	-		
Address:	-		
Phone Number:	-		
Email:	-		
Additional Contributors:			
Name/Title: Method of Participation:	Gabe Lavine/EMC Provided input in the planning process		
Name/Title: Method of Participation:	Robert Wilson/CFM Provided input in the planning process		
Name/Title: Method of Participation:	Caroline Egan Provided input in the planning process		

9.16.2 Municipal Profile

The City of Sugar Land is the largest city in Fort Bend County and is located in the southwestern part of the Houston-The Woodlands-Sugar Land metropolitan area. Sugar Land is a populous suburban municipality centered around Texas State Highway 6 and Interstate 69. Sugar Land got its name by being home to a large sugar plantation near the Brazos River. Sugar Land covers a total of 42.90 square miles, 2.44 of which are water.

According to the American Community Survey, the 2021 population for the City of Sugar Land was 110,272, a 40 percent increase from the 2010 Census. Data from the 2021 American Community Survey indicates that 4.4 percent of the population is 5 years of age or younger and 16.5 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.16.3 Jurisdictional Capability Assessment and Integration

The City of Sugar Land performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Sugar Land to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Sugar Land. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.16-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	Chapter 7 – Building Regulations	Local	City Code Department
How does this reduce risk? City of Sugar Land, Texas Land Development Code, Chapter 7 – Building Regulations amended by Ordinance No. 2027, effective 9/2015, which adopted by reference the 2015 International Codes and 2014 National Electrical Code.				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Zoning/Land Use Code	Yes	Chapter 2 – Zoning Regulations	Local	City Code Department
How does this reduce risk? City of Sugar Land, Texas Land Development Code, Chapter 2 – Zoning Regulations; amended by Ordinance No. 2149, effective 10/2018. Sugar Land is adopting the Atlas 14 rainfall frequency estimates for Texas. This will result in modifications to the City's Development Code and Design Standards. Expected changes include higher finish floor elevations and new road standards				
Subdivision Ordinance	Yes	Chapter 5 – Subdivision Regulations	Local	City Code Department
How does this reduce risk? Article V Section 5-36 provides design standards to mitigate flood damage to buildings through the subdivision review process. Sugar Land recently adopted the Atlas 14 rainfall frequency estimates for Texas. This will result in modifications to the City-adopted guidelines for the review of requests to alter or develop new property within the City. Recent changes include new drainage standards and design standards that elevate buildings 2' above the 500-year floodplain.				
Site Plan Ordinance	Yes	Chapter 2- Zoning Regulations, Article 1 Part 1 Section 2-7	Local	City Code Department
How does this reduce risk? Multimodal connections are recommended by Comprehensive Plan to be required in site plans as a tool to limit the amount of automobile traffic and thereby limit amount of greenhouse gas emissions produced within the City of Sugar Land.				
Stormwater Management Ordinance	Yes	Chapter 11- Stormwater Quality Management and Discharge control	Local	City Code Department
How does this reduce risk? The purpose of this Chapter is to ensure the health, safety, and general welfare of the City's citizens and to protect and enhance the water quality of watercourses and water bodies in the City pursuant to and consistent with the City's TPDES General Permit issued by the TCEQ. The objectives of this Chapter include: 1. Establishing methods to prevent and reduce the introduction of pollutants into the municipal separate storm sewer system; 2. Prohibiting illicit connections and discharges to the municipal separate storm sewer system; 3. Facilitating compliance with federal and State laws, rules and regulations by owners and operators of construction sites and commercial and industrial facilities within the City; and 4. Establishing legal authority to carry out inspections, surveillance, monitoring, and enforcement necessary to ensure compliance with this Article.				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	No	-	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Chapter 8 – Flood Damage reduction Regulations	Local	City Code Department
How does this reduce risk? It is the purpose of this Chapter to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
1. Protect human life and health; 2. Minimize expenditures of public money for costly flood control projects; 3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; 4. Minimize prolonged business interruptions; 5. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains; 6. Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; 7. Ensure that potential buyers are notified that property is in a flood area; 8. Require new development and construction to result in no adverse impact to surrounding or nearby properties, which prohibits the action of 1 property owner from adversely impacting the rights of other property owners, as measured by increased flood peaks, flood stage, flood velocity, and erosion and sedimentation; and 9. Ensure that all new construction and substantial improvements must be elevated sufficiently so that the minimum finished floor elevation is at least 2 feet above the BFE as established by Atlas 14, Vol. 11, Texas, 1.5 feet above adjacent natural ground, or 1 foot above top of curb, whichever is the higher elevation. Provided, however: a. If the Atlas 14, Vol. 11, Texas Base Flood Elevation is not available, the minimum elevation will be 2 feet above the effective 500-year floodplain elevation provided in the then effective FEMA Flood Insurance Study (FIS) or best available data; and b. For new construction and substantial improvements located inside Levee protected areas (i.e., levee improvement districts), the minimum finished floor elevation is at least 2 feet above maximum ponding elevations (established using Atlas 14, Vol. 11, Texas), 1.5 feet above adjacent natural ground, or 1 foot above top of curb, whichever is the higher elevation			
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	Yes	Chapter 3 – Health and Safety, Article III – Emergency Management	Local	City Code Department
How does this reduce risk? City of Sugar Land, Texas Code of Ordinances Chapter 3 Article III- Emergency Management enacted by Ordinance 1371 10/2002 and Ordinance 1577 8/2006 grants the City Manager authority to appoint one or more persons to administer the City's Emergency Management Plan (required by state law) and stipulates duties. The City of Sugar Land Emergency Management Division is an integral part of the multi-agency emergency operations organization described in the Emergency Management Plan and is the lead department for developing this hazard mitigation plan				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Planning Documents				
Comprehensive/Master Plan	Yes	Sugar Land Comprehensive Plan	Local	City Council
How does this reduce risk? Consists of a framework last adopted in 2012 and 11 City-wide elements. Related goals in the Comprehensive Plan focus on safety, hazard preparation and post-disaster recovery, water quality, and stormwater management/drainage to enhance quality of surface water and protect neighborhoods. Specific hazards referenced in the plan include dwindling groundwater resources and plans to diversify drinking water sources in the near future, as well as flooding along Brazos River, Oyster Creek, and Ditch "H" (Bullhead Slough). Nine levee improvement districts (LIDs) exist in Sugar Land provide flood protection and storm water management services. Based on directives from the plan's Goal A: Safe Community Objective 5, the City will fully integrate this mitigation plan by preparing for all hazards, disaster and post-disaster recovery including coordination with local, regional and state resources. The City has secured contracts to shift from ground water to surface water through the Plan's Groundwater Reduction strategy, thereby reducing hazards associated with drought.				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Capital Improvement Plan	Yes	Capital Improvement Plan	Local	City Council
How does this reduce risk? Recent capital improvement program projects that relate to hazard mitigation include Oyster Creek Maintenance Bridge Replacement, US90A Drainage improvement for Airport Taxiway, Covington Woods Drainage Improvements – Jess Pirtle Side Streets, Covington Woods Drainage Improvements – Sugar Land MS/Sugar Mill, Outfall Structure Improvements with FBC LID No. 2, Riverbend Weir Structure Modifications at Dulles Ave., Riverbend Inlets and Pipes Replacement (2019 GO), Settlers Park Drainage Improvements, Emergency Generators, Emergency Operations Center/Public Safety Dispatch Building (2019 GO), Brazos River Park PH II (Mid-Lake), Wastewater Treatment Plants Improvements, Lift Station Assessment, Oyster Creek Siphon Replacement, Easement Acquisition - FM from North WWTP to West WWTP, Lift Station Rehabilitation, Utility Security - PH III, Distribution System Water Main Rehabilitation Program, Well Rehabilitation, Distribution System Water Main Rehabilitation Program, Ground Storage Tank Rehabilitation, Ground Water Plant Rehabilitation, SH99 and US90A Waterline Relocation and other Capital Improvement Program Projects. City of Sugar Land Capital Improvement Program has estimated prior funding of $61.5 million worth of projects completed through 2019. New funding ($263.8 million) for projects are on schedule to be completed by 2024. Future projects are categorized by project type: airport, drainage, municipal, parks, streets, surface water, traffic, wastewater, and water. Specific project types that relate to hazard mitigation include drainage improvements, emergency generators and other emergency equipment, and surface water conversion infrastructure. In the development of the action plan for this planning process, the City reviewed its capital improvement plan to identify actions that are eligible for FEMA grant funding. All future revisions to the City's capital improvement plans will look to this plan to potentially leverage FEMA grant funding for implementation.				
Disaster Debris Management Plan	No	-	-	-
How does this reduce risk?				
Floodplain Management or Watershed Plan	Yes	Floodplain Management Plan	Local	City Council
How does this reduce risk? City of Sugar Land Flood Management Plan works with Levee Improvement Districts (LID) located within the City and neighboring communities to improve flood response capabilities. The document includes response and operation plans for flooding events, identifying areas of concern, identifying critical river elevations, and utilizing the National Management System (NIMS). Within the NIMS System, the City of Sugar Land enforces their own incident command system (ICS) for each LID, so that in an event of flooding, the City can work to return normal operating conditions and preserve property and business operations. When the Brazos River United States Geological Survey (USGS) Richmond gauge is at 48 feet or above, patrolling of levees commences and continues throughout the course of flood events. Throughout the course of flood events, the City of Sugar Land Public Works and Engineering provides local organization, operations, responsibilities, and procedures to coordinate activities during flooding events.				
Stormwater Management Plan	Yes	Master Drainage Plan	Local	City Council
How does this reduce risk? The 2015 Master Drainage Plan (MDP) is one of the City's eight official master plans and is a component of the Comprehensive Plan. The Master Drainage Plan identifies a work plan to achieve drainage-related goals and objectives identified in the Comprehensive Plan. Projects are prioritized by annual, high priority (1-2 years), medium priority (3-5 years), and low priority (6-10 years).				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Economic Development Plan	Yes	Economic Development Plan	Local	City Council
How does this reduce risk? The 2011 Economic Development Plan 5-Year Strategic Road Map serves to strengthen Sugar Land as a business center of excellence through the attraction and expansion of targeted businesses that provide high quality jobs for residents.				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	Yes	Sugar Land Major Thoroughfare Plan	Local	Engineering Department
How does this reduce risk? The Thoroughfare Plan identifies an ultimate roadway network to accommodate future growth and expansion of the City and its extraterritorial jurisdiction (ETJ). The Major Roadway Plan map is a component of the Thoroughfare Master Plan and identifies all existing and future roadways within the City. The Thoroughfare Plan identifies an ultimate roadway network to accommodate future growth and expansion of the City and its ETJ. As a separate but concurrent effort to the update, analyses and recommendations of implementing Complete Streets policies are included.				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	No	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	Emergency Operations Plan	Local	Planning & Response Department
How does this reduce risk? In partnership with the Texas Division of Emergency Management, the Emergency Operations Plan provides general guidance for Emergency Management activities and an overview of methods of mitigation, preparedness, response, and recovery. This plan describes emergency response organization and assigns responsibilities for various emergency tasks. This plan is intended to provide a framework for more specific functional responses. This plan applies to all local officials, departments, and agencies.				
Continuity of Operations Plan	Yes	Sugar Land Continuity of Operations Basic Plan	Local	Planning & Response Department
How does this reduce risk? The purpose of the City of Sugar Land COOP Basic Plan (Basic Plan) is to provide the framework for departments within the City to restore mission essential functions to their employees and citizens in the event of an emergency that affects their operations. It also				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
provides policy and guidance to implement actions to continue mission essential functions within the recovery priority time frames established by the COOP steering committee and establishes procedures that City leadership can use to strategically minimize risk to its employees, operations, and facilities. This COOP plan will facilitate the department's ability to perform its essential functions despite incidents that may impact operations, including IT system outages, reduced staffing, or any incident that requires the department to relocate.				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	-	State, Federal	-
How does this reduce risk? The City of Sugar Land is profiled in the 2015 FEMA Lower Brazos Watershed Flood Risk Report (FRR). This summary presents flood risk data for the City of Sugar Land, which host the First Colony LID, the Fort Bend LID #2, and the Fort Bend LID #7. Special Flood Hazard Area (SFHA) boundaries within the Lower Brazos Watershed were updated due to new engineering analysis performed within the Flood Risk Project; however new or revised modeling was not completed for streams within this community. The FRR is not intended to be regulatory or the final authoritative source of all flood risk data in the project area. Rather, it should be used in conjunction with other data sources to provide a comprehensive picture of flood risk within the project area.				
Post-Disaster Recovery Plan	Yes	Emergency Operations Plan – Annex J	Local	Planning & Response
How does this reduce risk? The purpose of this annex within the Emergency Operations Plan is to define the operational concepts, organizational arrangements, responsibilities, and procedures to accomplish the tasks required for the local government and its citizens and businesses to recover from a major emergency or disaster				
Public Health Plan	Yes	Disease Control and Response Annex	Local	Planning & Response
How does this reduce risk? This recently updated (December 2018) plan features security sensitive information that is confidential in nature and restricted from public access in accordance with the provisions of the Texas Government Code, Chapter 418 Emergency Management (Sections §418.177 and §418.181). It serves to outline methods to prevent and/or control the spread of infectious disease through the community. It identifies the facilities, personnel, and defines the procedures necessary to successfully distribute services to the general population. It also examines the use of isolation and quarantine measures to prevent or control the spread of disease. This plan was developed in a partnership between Fort Bend County Department of Health and Human Services (HHS), Texas Department of State Health Services (DSHS).				
Other	No	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Sugar Land to oversee and track development.

Table 9.16-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	Building Safety Department

Indicate if your jurisdiction implements the following	Yes/No	Comment:
If you do not issue development permits, what is your process for tracking new development?	N/A	
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Flood Hazard Area
Do you have a buildable land inventory? • If yes, please describe	Yes	Development Permits are reviewed through Site Plan review
Describe the level of build-out in your jurisdiction.	N/A	

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Sugar Land and their current responsibilities that contribute to hazard mitigation.

Table 9.16-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	Planning and Zoning Commission – the purpose of this commission is to make recommendations to City Council concerning the use of land and other planning functions pursuant to state law and to promote orderly development; to serve as advisory concerning master plans and changes to the zoning plan; and to protect the general welfare and interest of the people concerning physical changes in the City and in the extraterritorial jurisdiction.
Zoning Board of Adjustment	Yes	The Zoning Board of Adjustments is a five-member board that is responsible for the decision of appeals from administrative decisions, hear and decide special exceptions and variances, and to interpret the intent of the zoning district ordinance.
Planning Department	Yes	The Planning Department is responsible for development planning, long-range planning, transit services.
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	Parks, Art, Recreation, Culture, and Streetscapes (PARCS) Board – provides input, feedback and advice on projects and programs to enrich the visual and aesthetic environment of the City and to advise on other matters relating to long-term goals and objectives for parks, recreation and cultural activities, streetscape and urban forestry programs, to ensure an environment where all citizens could share and enjoy the full diversity and vitality.

Open Space Board/Committee	Yes	See Environmental Board/committee
Economic Development Commission/Committee	Yes	The Sugar Land Development Corporation is a "Type A" economic development corporation governed by a Board of Directors and authorized under Texas law to levy an economic development sales tax to promote, assist and enhance economic development activities for the benefit of the City. As part of these responsibilities, the Board of Directors is charged with overseeing the SLDC's Direct Incentive policy and program, as well as making recommendations on the City Economic Development Strategic Plan. The corporation utilized a.25 cent sales tax approved by voters for the purpose of funding economic development activities. Sugar Land 4B Corporation is managed by a Board of Directors responsible for developing and preparing an Economic Development Plan in accordance with policies or directives established by the City Council. The plan, which is submitted to City Council for approval, includes short- and long-term objectives of the corporation and guidelines on the use of sales tax funds received, which may include municipal facilities, parks, museums, stadiums, parking facilities, and other facilities both private and public.
Public Works/Highway Department	Yes	The Public Works Department is responsible for Ensuring efficient operation and maintenance of the City's public streets, traffic control devices, sidewalks, bridges, and drainage system.
Construction/Building/Code Enforcement Department	Yes	Department of Building Safety is responsible for Permits and Inspections aids with all issues relating to permitting of construction and building code compliance.
Emergency Management/Public Safety Department	Yes	The Department of Emergency Management is responsible for the Coordination of preparedness, response and recovery efforts between City departments, citizens and surrounding communities.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Office of Intergovernmental Relations
Mutual aid agreements	No	-
Human Resources Manual	Yes	Human Resources Department
Other	No	-
Technical/Staffing Capability		

Planners or engineers with knowledge of land development and land management practices	Yes	Planning Department, Engineering Department, Environmental and Neighborhood Services, Public Works Department, Fire-EMS Department
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works Department, Engineering Department, Environmental and Neighborhood Services, Building Safety Department,
Planners or engineers with an understanding of natural hazards	Yes	Department of Public Works, Engineering Department, Environmental and Neighborhood Services, Fire- Emergency Management Services Department
Staff with expertise or training in benefit/cost analysis	Yes	Finance Department
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	GIS Division of Information Technology; Engineering Department, Public Works Department, Fire Department, Planning Department
Environmental scientist familiar with natural hazards	Yes	Engineering Department and hired consultants
Surveyor(s)	No	-
Emergency Manager	Yes	Fire- Emergency Management Services Department; Emergency Management Coordinator
Grant writer(s)	Yes	Public Works; Grants Officer
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-
How do your administrative/technical capabilities contribute to risk reduction in your community?		

Fiscal Capability

The table below summarizes financial resources available to the City of Sugar Land.

Table 9.16-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	Yes
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	Yes
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	No

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Sugar Land.

Table 9.16-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	Yes	The City has a Communications and Community Engagement Office
Personnel skilled or trained in website development	Yes	Human Resources
Hazard mitigation information available on your website	Yes	The City has information on the website about area hazards, planning and response to hazards, and hazard mitigation plan updates.
Social media for hazard mitigation education and outreach	Yes	The City uses Facebook, Twitter, NextDoor, YouTube, LinkedIn, and Instagram for social media updates.
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Resident boards or commissions that address issues relating to hazard mitigation include the Planning and Zoning Commission, Building Standards Commission, the City/Home Owner Associations (HOA) Maintenance Responsibilities Citizens Task Force, and the Zoning Board of Adjustment.
Warning systems for hazard events	Yes	Through a partnership with Harris County, the City participates in a Flood Warning System, which sends out alerts via email or text for specific waterbodies.
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the City of Sugar Land.

Table 9.16-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	Yes	Class 7	November, 2019
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	Class 3 (commercial), Class 4 (residential)	July, 2018
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Rating 2	November 01, 2013
Storm Ready Certification	Yes	StormReady Site	FY2020
Firewise Communities classification	No	-	-
Other	No	-	-

Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and

changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.16-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.16.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Sugar Land.

Table 9.16-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Sugar Land (C)	3440	296	$3,008,495.48	20***	0***

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP

Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.

**Number of RL and SRL properties provided by the State of Texas*

***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*

****From the Sugar Land Plan 2021*

RL Repetitive Loss

SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Sugar Land.

Table 9.16-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	See attached HMP Flooding along the Brazos River
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No, desire to maintain tax base makes buy outs prohibitive.
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	Enhancements to City flood predictive model to include integration with river levels, LID response activities, and out of area rainfall accumulations.
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	City damage assessment teams using FEMA PDA criteria and data collection tools. Zero added in the last 5 years. Current list has 19.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	None
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	Yes
NFIP Compliance	
What local department is responsible for floodplain management?	Engineering
Are any certified floodplain managers on staff in your jurisdiction?	Yes
Do you have access to resources to determine possible future flooding conditions from climate change?	No, we need additional resources to better model and understanding impacts based on changes in redevelopment.
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	Regular CE and industry updates.
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Quarterly outreach and educational opportunities for the public. All new and remodel construction requires permit review and elevation certificates. GIS services and mapping. Permit inspections and building inspections. Full engineering department with active flood plain management division actively working to improve CRS designations.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	50% of value or more added to the structure based on permit submittal. Due to state restriction on valuation requests this is difficult to identify and would require legislative changes at the state level to change from voluntary to mandatory. Require any additions to meet new building codes and elevation requirements.

NFIP Topic	Comments
What are the barriers to running an effective NFIP program in the community, if any?	Time and personnel to increase efficiency.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	October 2022
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	2192 Adopted April 2019 and Amended in 2021
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceeds, CRS class 6
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Building Permit Review, Site Plan Review, Planning and Zoning Board Reviews
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	We are members of the CRS program and have a one year plan to improve our class 6 designator to class 5.

9.16.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.16-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single Family	-	0	-	0	-	0	-	0	-	0
Multi-Family	-	0	-	0	-	0	-	0	-	0
Other (commercial, mixed-use, etc.)	-	0	-	0	-	0	-	0	-	0
Total Permits Issued	-	0	-	0	-	0	-	0	-	0

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.16-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
None Identified					

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Known or Anticipated Major Development in the Next Five (5) Years					
None Identified					

9.16.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Sugar Land's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Sugar Land has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.16-1. City of Sugar Land Hazard Area Extent and Location Map- Dam Inundation

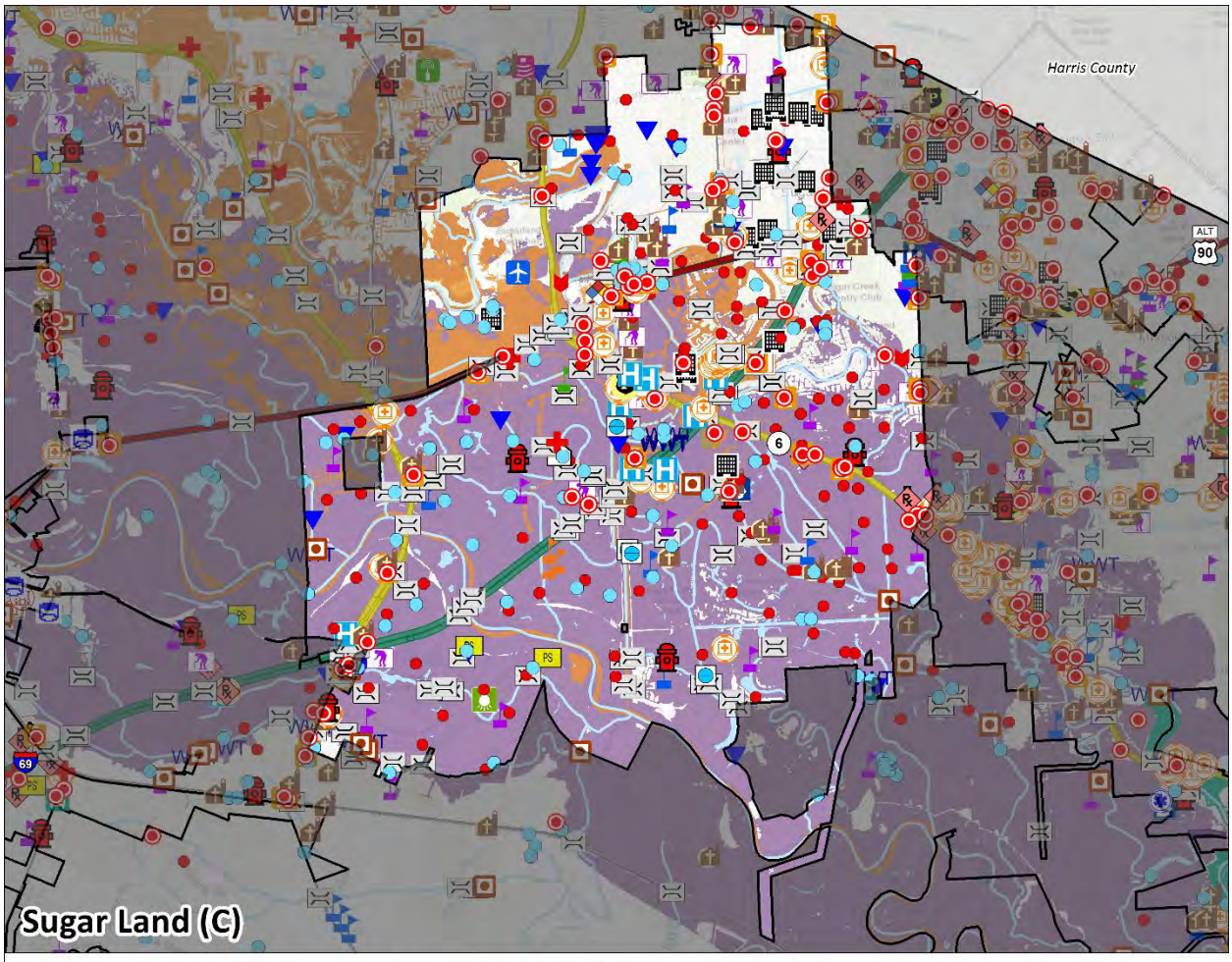
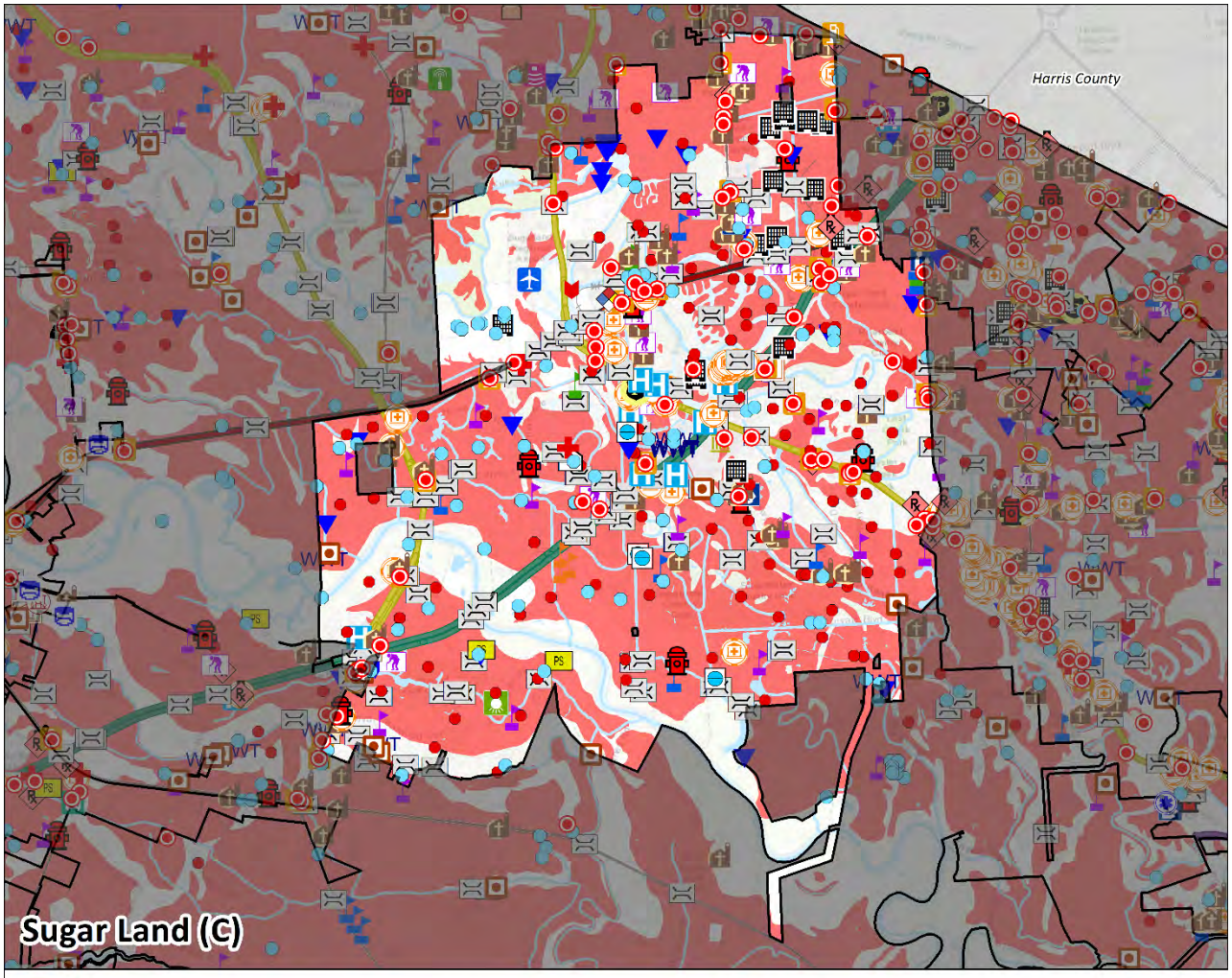


Figure 9.16-2. City of Sugar Land Hazard Area Extent and Location Map- Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 1 2

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.16-3. City of Sugar Land Hazard Area Extent and Location Map- Flood

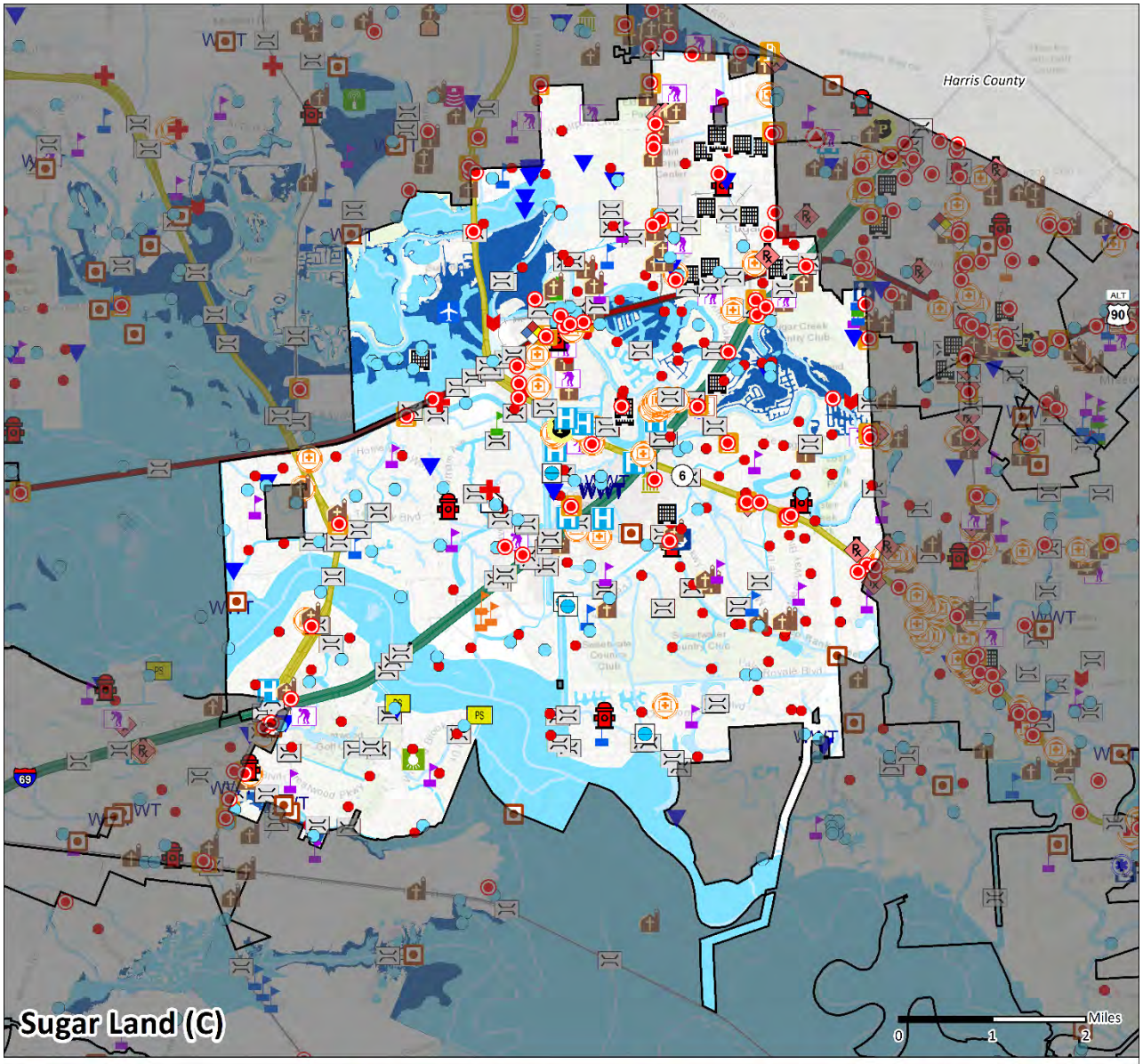


Figure 9.16-4. City of Sugar Land Hazard Area Extent and Location Map- Inland Erosion

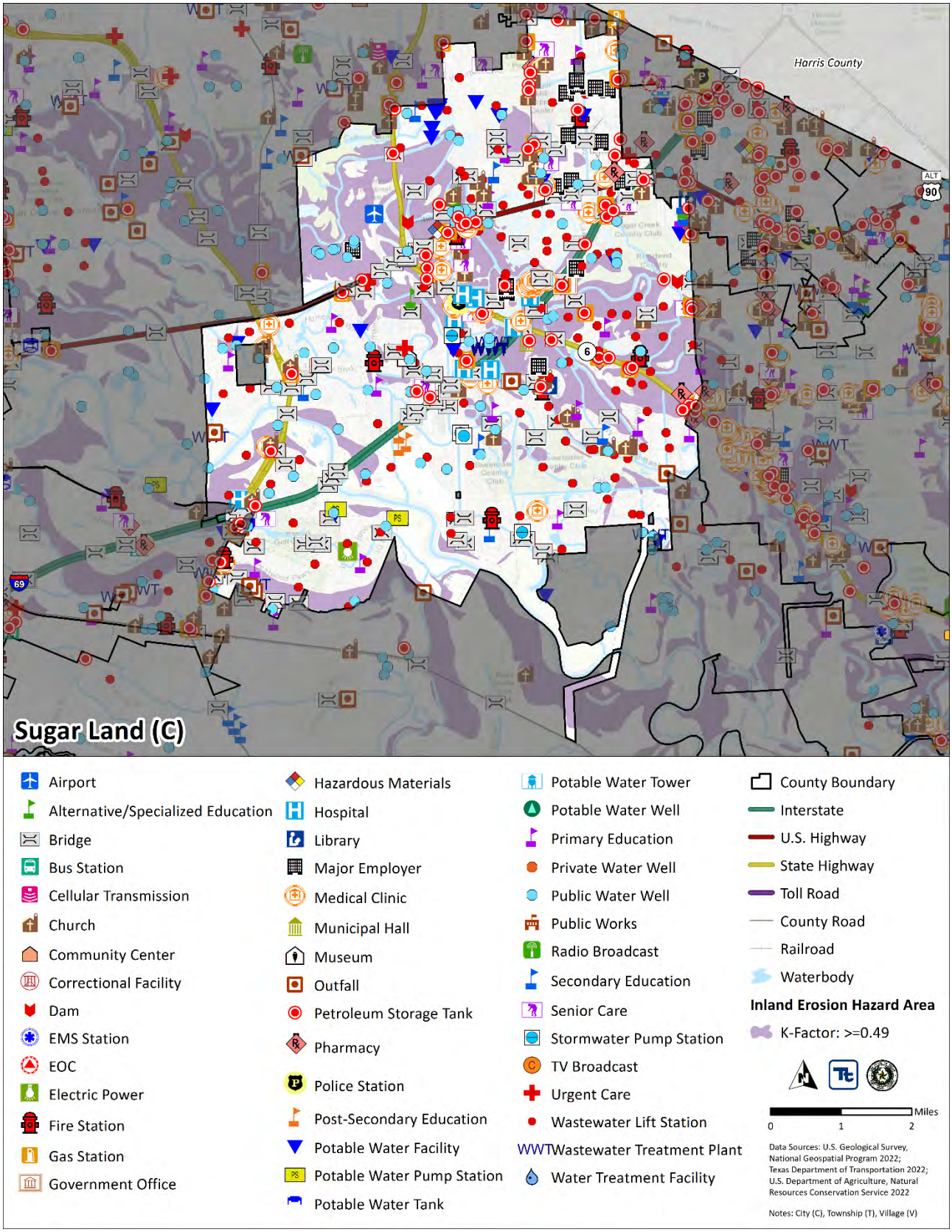
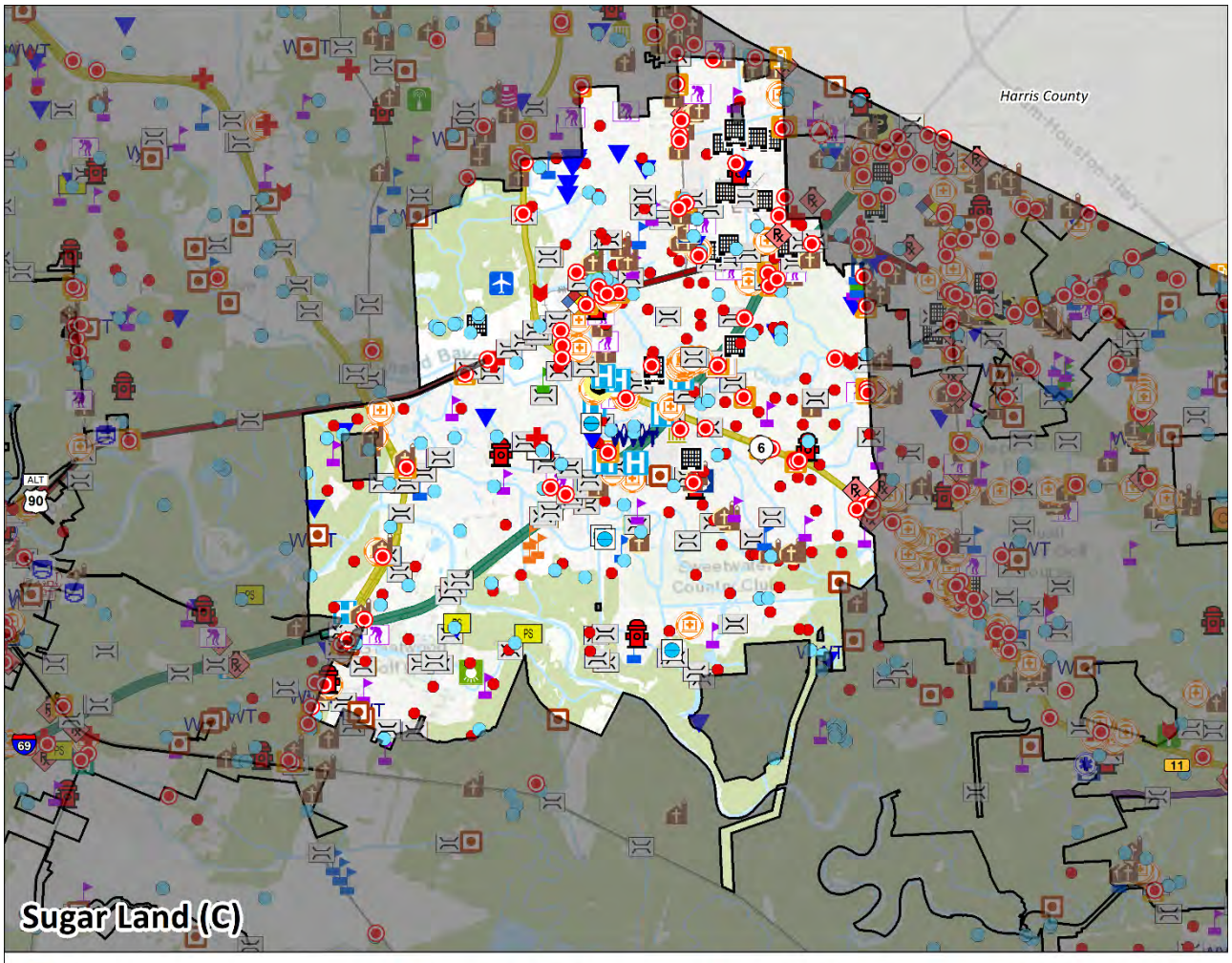


Figure 9.16-5. City of Sugar Land Hazard Area Extent and Location Map- Wildfire



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Wildfire Hazard Area

- Low Threat
- Moderate Threat

Miles
0 1 2

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022

Notes: City (C), Township (T), Village (V)

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Sugar Land's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Sugar Land experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.16-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
01/20/2020 – continuing	EM-3458 – Covid-19	Yes	Covid-19	Economic impacts to local business and revenue/sales tax losses. Increased response costs related to 25% increase in EMS calls for service and EOC / City staff response and coordination of protective measures.
01/20/2020 – continuing	DR-4485 – Covid-19 Pandemic	Yes	Covid-19 pandemic declared	Economic impacts to local business and revenue/sales tax losses. Increased response costs related to 25% increase in EMS calls for service and EOC / City staff response and coordination of protective measures.
07/25/2020 – 07/31/2020	EM-3530 – Hurricane Hanna	Yes	Hurricane force winds resulted in significant number of downed trees and utility lines.	Minor wind damage.
08/23/2020 – 08/27/2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Hurricane Marco and Laura	Minor wind damage and localized ponding.
02/11/2021 – 02/21/2021	EM-3554 – Severe Winter Storm	Yes	Severe Winter Storm	Infrastructure damage, and EOC activation for protective measures.

02/11/2021 – 02/21/2021	DR-4586 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Infrastructure damage, significant debris management required.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Sugar Land's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Sugar Land. The City of Sugar Land reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City of Sugar Land indicated the following:

- Changed disease outbreak from Low to High because the City continues to see subsequent disease outbreaks in the region that are increasing in frequency and severity over the last decade coupled with the national assessment that naturally occurring, unintentional, and intentional biological pathogen releases being a high risk.
- Changed Flood from Low to High because the City continues to see an increase in frequency and severity of flood events in the county and believe this should considered a medium to high risk.
- Changed Winter Weather from Low to High because of the damage that was caused by Winter Storm Uri and Mara in the past two years.

Table 9.16-14. Hazard Ranking Input

Hazard	Ranking
Dam/Levee Failure	**Medium**
Disease Outbreak	**High**
Drought	**Medium**
Extreme Temperature	**Medium**
Flood	**High**
Geologic Hazards	**High**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**

Wildfire	**Low**
Winter Weather	**High**

Critical Facilities

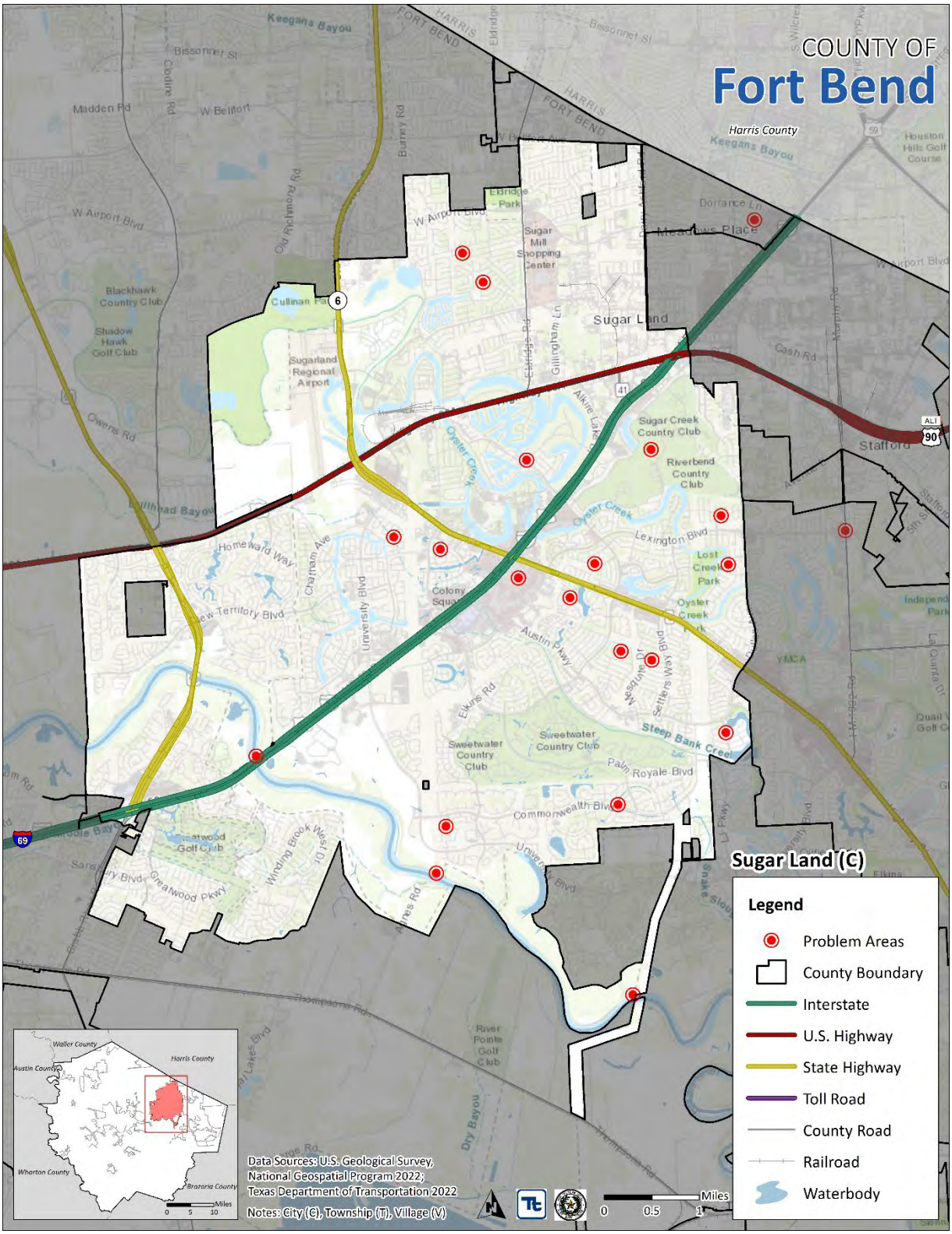
The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.16-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area	
	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines
Sugarland (C)	100	100	0	0	202	187	401	360	63	63	396	374	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

Figure 9.16-6. City of Sugar Land Hazard Area Extent and Location Map- Problem Areas



Identified Issues

After review of the City of Sugar Land's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Sugar Land identified the following vulnerabilities within their community:

- The Imperial Park Recreation Center does not have a generator and operates as a shelter.
- The TE Harman Center does not have a generator and operates as a shelter.
- Schools do not have emergency notification systems installed.
- The City does not have equipment to protect against power surges.
- Children are unsafe in schools during high wind events due to debris that could break windows and injure them.
- The City is currently a Category 7 member of the CRS Program and wants to reduce flood insurance cost.
- There is limited education opportunities for homeless/vulnerable populations.
- There are vulnerable members of the population without cooling systems to help protect them against extreme cold temperatures.
- There is limited guidance on information about lightning injuries.
- The public is not fully aware of the importance of water conservation during a drought event.
- The City has not informed the public on proper shelter-in-place procedures.
- The City does not have a severe winter storm outreach program.
- The City does not have a plan for vaccination and first responders training regarding disease outbreak.
- The City experiences erosion along the Brazos River that compromises the stability of the Levees.
- The City experiences flooding issues in Austin Park/Chimneystone.
- The City experiences drainage issues in the Covington Woods West area.
- The City experiences flooding relating to the Oyster Creek area which impacts critical facilities in the City.
- The City needs to survey/ install benchmarks and implement a flood protection plan.
- The City EOC and Dispatch Center is dated and the building is at risk of being impacted by hazards.
- The roads to the WWTP flood consistently and limit access to facilities.
- The chemical storage facility at the WWTP floods consistently.
- The City has flood issues relating to their RL properties in the SHFA.
- Some facilities in the SHFA consistently flood and need flood protection.
- The WWTP critical assets are at risk for flooding.
- The City experiences consistent flooding from backed up stormwater.
- The City has an increasing number of impervious services that lead to flooding.
- There are stormwater issues and water retention problems in the City.
- The City does not have high water rescue vehicles to deploy during emergencies.
- The City's LIDAR data does not include flooding and ponding models.
- The windows at critical facilities are vulnerable to hazards.
- Critical facilities are at risk for hazard events.
- Traffic lights throughout the City are vulnerable to hazards.
- The City Hurricane evacuation routes and Shelters of Last Resort - needs assessment to ensure it is updated and includes all the hazards of concern.

- The City does not have updated lightning and severe weather protocols implemented for outside events.
- The City needs to update the lightning alert and storm monitoring system.
- Lightning prevention is not up to code and some facilities are not in compliance.
- The Brazos River Erosion Study has not been updated since 2017.
- The Brazos River does not have an erosion management plan.
- The Brazos River experiences annual erosion that is not monitored.
- Development standards are allowing for soil instability which leads to damaged property.
- The SCADA system does not include dams located within the City.
- Landscape ordinances do not currently address drought tolerant practices.
- The WWTP does not have a reclamation system installed.
- The City cannot track water management throughout the City in a timely fashion.
- The City does not have a significant amount of green space.
- The City has out-of-date data regarding critical facilities for vulnerable populations.
- There is no outreach program developed for homeowners regarding hazard risk and mitigation.
- The City does not have updated technology to perform regular assessments of impacted areas.
- The City does not have software to analyze collected drone data.
- There are no standards designed to address sloughing and repair of channels.
- The roadway between the Surface Water Treatment Plant and the forebay/intake area become flooded during heavy precipitation events.
- There is no back-up power for the Homeward Way Groundwater Production plant.
- The Surface Water Treatment plant is covered in windows that are not secure in protecting equipment.
- The City does not have consistent codes for development and building in the City and ETF.
- There is no surge protection at the SWTP, which affects continuity of operations during weather events.
- The City's warning system does not cover all hazards of concern and needs enhances alert capabilities to alert residents.
- The Brazos River suffers from stabilization and erosion issues.
- There is limited coordination with the Texas Water Development Board regarding the Brazos River.
- There are conservation issues surrounding native species in construction.
- There are no emergency interconnections between the main City and New Territory water systems, main City and Greatwood water systems, and River Park and New Territory water systems.
- There are generators with limited functions at all four WWTP in the City.
- The South Plant WWTP does not have a shelter for staff.
- Six remote well locations do not have right angle drives and generators installed to perform continuity of operations.
- There are no generators located at the surface water treatment plant.
- There are no generators installed at the 10 high sites around the City that support communications and IT during disaster events.
- The City does not have generators for traffic signals.
- The City does not have proper means to provide fuel service to generator sites located throughout the City.

- There are numerous streets and areas in the City that have ponding, stormwater and drainage issues due to not meeting City criteria and infrastructure problems including*:
    - Settlers Park
    - Riverbend North
    - Sugar Lakes
    - Sugar Creek
    - Lakes of Austin Park
    - Covington Woods
    - Telfair
    - Imperial Woods
    - Riverbend South
    - Grants Lake
    - Colony Bend Neighborhood
    - Highlands Neighborhood
    - Meadowlakes Subdivision
    - Commonwealth Neighborhood
    - FBC LID 14

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.16.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.16-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Imperial Park Generator	City Emergency Management	In Progress	Yes		City Emergency Management
T.E. Harman Center Generator	City Emergency Management	In Progress	Yes		City Emergency Management
Emergency Notification System for City Schools	Fort Bend ISD	No Progress	Yes		Fort Bend ISD
New Electric Equipment to Protect Against Power Surges	City Emergency Management	No Progress	Yes		City Emergency Management
Install Security Window Film in Fort Bend ISD City Schools	Fort Bend ISD	No Progress	Yes		Fort Bend ISD
CRS Program	City Emergency Management	In Progress	Yes		City Emergency Management
Participation in FBI JTTE	City Police Department	Ongoing	Yes		City Police Department
Terrorism Information to Fusion Center	City Police Department	In Progress	Yes		City Police Department
Training for Threat Assessments	City Police Department	In Progress	Yes		City Police Department
Police Department Training for Supervisors	City Police Department	In Progress	Yes		City Police Department
Design Threat Assessment	City Police Department	In Progress	Yes		City Police Department
Update City Policy for Threat Assessments	City Police Department	In Progress	Yes		City Police Department
Identify Top Targets for Terrorism Events	City Police Department	In Progress	Yes		City Police Department
Develop Terrorism Response Plans for Top Targets in City	City Police Department	In Progress	Yes		City Police Department
Develop Training and Planning for Top Terrorism Targets in City	City Police Department	In Progress	Yes		City Police Department
Extreme Heat Education and Outreach Program	Emergency Management	In Progress	Yes		Emergency Management
Fan and Air Conditioning Program	City Emergency Management	In Progress	Yes		City Emergency Management
Review and Update the Hazardous Materials and Oil Spill Response Annex	City Emergency Management with support from Fort Bend County OEM	In Progress	Yes		City Emergency Management with support from Fort Bend County OEM
Identify primary and alternate fuel sources and add them to the City Continuity of Operations Plan	City Emergency Management	In Progress	Yes		City Emergency Management
Purchase an airport fire truck	City Emergency Management	No Progress	Yes		City Emergency Management

Emergency Alert System for Aircrafts	City Emergency Management	In Progress	Yes		City Emergency Management
Outreach Materials for Lightning Injuries	City Emergency Management	No Progress	Yes		City Emergency Management
Water Conservation Public Outreach	City Emergency Management	Ongoing	Yes		City Emergency Management
Shelter-in-place procedures	City Emergency Management	In Progress	Yes		City Emergency Management
Winter Storm Outreach Program	City Emergency Management	In Progress	Yes		City Emergency Management
General Public and First Responders Planning	City Emergency Management	Ongoing	Yes		City Emergency Management
Project Brazos	Fort Bend County	In Progress	Yes		Fort Bend County
Austin Park/Chimneystone Drainage Project	City of Sugar Land	In Progress	Yes		City of Sugar Land
Covington Woods West	City of Sugar Land	In Progress	Yes		City of Sugar Land
Oyster Creek Diversion Channel and Storage Facility in Tract 2	City Engineering	In Progress	Yes		City Engineering
City-wide Benchmark System Update	City Engineering	In Progress	Yes		City Engineering
New Emergency Operations Center	City Engineering and Public Works	In Progress	Yes		City Engineering and Public Works
New Territory WWTP Road Elevation	City Engineering and Public Works	No Progress	Yes		City Engineering and Public Works
New Territory WWTP Flood Protection	City Engineering and Public Works	In Progress	Yes		City Engineering and Public Works
Structural Elevation & Acquisition Program	City Engineering/Emergency Management	No Progress	Yes		City Engineering/Emergency Management
Flood/Dry-proofing critical facilities	City Engineering/Emergency Management	No Progress	Yes		City Engineering/Emergency Management
Elevation of WWTP Critical Assets	City Engineering and Public Works	No Progress	Yes		City Engineering and Public Works
Stormwater Needs Assessment	City of Sugar Land Engineering and Public Works	Ongoing	Yes		City of Sugar Land Engineering and Public Works
Stormwater impact fee	City Engineering	Complete	No		City Engineering
Development Code Changes - Impervious Surface	City Engineering	In Progress	Yes		City Engineering
Development Code Changes - Water Retention	City Engineering	In Progress	Yes		City Engineering
High Water Rescue Vehicle	Emergency Management	No Progress	Yes		Emergency Management
Updated LIDAR Data	City Engineering	Ongoing	Yes		City Engineering
Waste Water Treatment Back-up Power Supply	City Engineering/Public Works	No Progress	No		City Engineering/Public Works
Power supply hardening to critical facilities	City Engineering	No Progress	No		City Engineering
Window Hardening	Public Works	No Progress	Yes		Public Works

Critical Facility Hardening	City Engineering/Emergency Management	In Progress	Yes		City Engineering/Emergency Management
Traffic Light Hardening	Public Works	In Progress	Yes		Public Works
Hurricane Sheltering and Evacuation Needs Assessment and Outreach Program	Emergency Management	In Progress	Yes		Emergency Management
Lightning/ Severe Weather protocols for outside events.	ISD/Parks Department	In Progress	Yes		ISD/Parks Department
Update Lightning Alert and Severe Storm Monitoring and warning capabilities	Public Works	In Progress	Yes		Public Works
Lightning Prevention Needs Assessment	City Engineering/ Environmental and Neighborhood Services	No Progress	Yes		City Engineering/ Environmental and Neighborhood Services
Update Erosion Study	City Engineering	Ongoing	Yes		City Engineering
Erosion Management Plan	City Engineering	In Progress	Yes		City Engineering
Project Brazos	City Engineering and Fort Bend County	In Progress	Yes		City Engineering and Fort Bend County
Design Standards Update for Soil Stabilization	City Engineering	In Progress	Yes		City Engineering
SCADA Update for Dams	Public Works	In Progress	Yes		Public Works
Drought Conservation Plan Update	Public Works	Complete	No		Public Works
Update Integrated Water Resource Plan	Public Works	Complete	No		Public Works
Update Landscape Ordinance	Public Works	No Progress	Yes		Public Works
WWTP Reclaim Systems	City Engineering/Public Works	In Progress	Yes		City Engineering/Public Works
Purchase Advanced Metering Infrastructure System	Public Works	In Progress	Yes		Public Works
Development Code Changes - Green Space Requirements	City Engineering	In Progress	Yes		City Engineering
Vulnerable Population/ Critical Facilities Database	Emergency Management	Ongoing	Yes		Emergency Management
Homeowner Outreach Program	Emergency Management	In Progress	Yes		Emergency Management
Drone Purchase	Communications	Complete	Yes		Communications
Software Purchase	Communications	Complete	Yes		Communications
Establish Design Standards for Channel Repair	City Engineering	In Progress	Yes		City Engineering
Surface Water Treatment Plant Access Road Elevation	City Engineering and Public Works	In Progress	Yes		City Engineering and Public Works
Back-up power for Homeward Way Production Plan	Public Works	In Progress	Yes		Public Works
SWTP Hurricane Shutters	Public Works	No Progress	Yes		Public Works
ETJ Code Update	Code Enforcement Division	In Progress	Yes		Code Enforcement Division
SWTP Surge Protection	Public Works	In Progress	Yes		Public Works
Update City's Warning System Update	Emergency Management/ 911-Dispatch	In Progress	Yes		Emergency Management/ 911-Dispatch
Implement Stone toe protection for Brazos River	City Engineering	In Progress	Yes		City Engineering

Brazos River Initiative	City Engineering and Fort Bend County	In Progress	Yes		City Engineering and Fort Bend County
Update Design Standards utilize native species in construction	City Engineering	In Progress	Yes		City Engineering
Water Systems Update	Public Works	In Progress	Yes		Public Works
Back-up Generators at New Territory (West); Greatwood; North Plant; South Plant WWTP	Public Works	In Progress	Yes		Public Works
South Plant WWTP Shelter	Public Works	No Progress	Yes		Public Works
Remote well right angle drive and generator	Public Works	In Progress	Yes		Public Works
Surface Water Plant Generator	Public Works	In Progress	Yes		Public Works
Generators for City's Wireless System	Public Works	In Progress	Yes		Public Works
Back-up Power supply for traffic signals.	Public Works	In Progress	Yes		Public Works
Fuel Trailer	Public Works	No Progress	Yes		Public Works

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Sugar Land identified the following mitigation efforts completed since the last HMP:

- None Identified

Since the adoption of the County's first HMP, the City of Sugar Land has made significant mitigation progress in the following areas:

- None Identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

Table 9.16-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	X		X	X		X		X	X
Disease Outbreak	X	X		X	X		X		X	X
Drought	X	X	X	X	X		X	X	X	X
Extreme Temperature	X	X	X	X	X		X	X	X	X
Flood	X	X	X	X	X		X	X	X	X
Geologic Hazards	X	X	X	X	X		X	X	X	X
Hurricane/Tropical Storm	X	X		X	X	X	X		X	X
Severe Weather	X	X		X	X	X	X		X	X
Tornado	X	X		X	X	X	X		X	X
Wildfire	X	X		X	X		X		X	X
Winter Weather	X	X		X	X		X		X	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Sugar Land would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.16-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Sugar Land-001	Imperial Park Generator	Problem: The Imperial Park recreation center does not have a generator and operates as a shelter. Solution: Purchase and install a generator for the Imperial Park Recreation Center. This center serves as an emergency shelter for residents.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2,3	Within 2 years	City Emergency Management	FEMA HMGP and PDM/BRIC; City Budget	Shelter will be able to be open during outages.	$250,000	High	SIP	SP, ES
2023-City of Sugar Land-002	T.E. Harman Center Generator	Problem: The TE Harman Center does not have a generator and operates as a shelter. Solution: Purchase and install a generator for the T.E. Harman Center. This center serves as an emergency shelter for residents.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2,3	Within 2 years	City Emergency Management	FEMA HMGP and PDM/BRIC; City Budget	Shelter will be able to be open during outages.	$250,000	High	SIP	SP, ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Sugar Land-003	Emergency Notification System for City Schools	Problem: Schools do not have emergency notification systems installed. Solution: Purchase and install emergency notification systems at all City of Sugar Land schools to ensure they have the newest technology, including integrated siren and strobes and alert beacons.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,3	One Year	Fort Bend ISD	Fort Bend ISD		$400,000	High	EAP	ES
2023-City of Sugar Land-004	New Electric Equipment to Protect Against Power Surges	Problem: The City does not have equipment to protect against power surges. Solution: Purchase and install new electric equipment to protect equipment against power surges.	Severe Weather	2	One Year	City Emergency Management	City Budget	Protects new equipment from power surges.	$25,000	High	SIP	PP
2023-City of Sugar Land-005	Install Security Window Film in Fort Bend ISD City Schools	Problem: Children are unsafe in schools during high wind events due to debris that could break windows and injure them. Solution: Apply security window film to existing windows in Fort Bend ISD City of Sugar Land schools to protect students from wind-borne debris during high winds situations such as	Hurricane/Tropical Storm, Severe Weather	2	One Year	Fort Bend ISD	Fort Bend ISD	Protects Children from hazards when in schools.	$500,000	High	SIP	PP, ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		thunderstorms and tornadoes.										
2023-City of Sugar Land-006	CRS Program	Problem: The City is currently a category 7 member of the CRS Program and wants to reduce flood insurance cost. Solution: Develop a program to lower the CRS number from 7 to 6.	Flood	1,2	Within 5 years	City Emergency Management	City Budget	Reduced flood insurance rate and better protection.	$10,000+	High	LPR	PI
2023-City of Sugar Land-007	Extreme Heat Education and Outreach Program	Problem: There is limited education opportunities for homeless/vulnerable populations. Solution: Education/outreach for homeless or vulnerable populations sensitive to extreme heat conditions on mitigation techniques to avoid heat related illness.	Extreme Temperature	1	Within 1 year	Emergency Management	FEMA HMGP, FMA/BRIC, CDBG	Better education regarding Extreme Temperatures.	$20,000	High	EAP	PI
2023-City of Sugar Land-008	Fan and Air Conditioning Program	Problem: There are vulnerable members of the population without cooling systems to help protect them against extreme cold temperatures. Solution: Create a program with non-profit organizations to distribution of fans and portable air conditioning	Extreme Temperature	1,2	Within 2 years	City Emergency Management	City Budget, Staff Time		<$10,000	High	EAP	PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		units to vulnerable Sugar Land residents.										
2023-City of Sugar Land-009	Outreach Materials for Lightning Injuries	Problem: There is limited guidance on information about lightning injuries. Solution: Provide guidance to the public regarding prevention of damage and injuries from lightning.	Severe Weather	1,2	1 year	City Emergency Management	City Budget, Staff Time	Residents will be more knowledgeable about lightning.	<$10,000	High	EAP	PR, PI
2023-City of Sugar Land-010	Water Conservation Public Outreach	Problem: The public is not fully aware of the importance of water conservation during a drought event. Solution: Educate the public on the importance of water conservation and steps the public can take to limit water waste.	Drought	1,2	1 year	City Emergency Management	City Budget, Staff Time		<$10,000	High	EAP	PI
2023-City of Sugar Land-011	Shelter-in-place procedures	Problem: The City has not informed the public on proper shelter-in-place procedures. Solution: The City will provide guidance to the public in shelter-in-place procedures.	Hurricane/Tropical Storm, Flood	1,2	1 year	City Emergency Management	City Budget, Staff Time	Residents will be more knowledgeable about shelter-in-place procedures.	<$10,000	High	EAP	PI
2023-City of Sugar Land-012	Winter Storm Outreach Program	Problem: The City does not have a severe winter storm outreach program. Develop a severe winter storm outreach program	Winter Weather	1,2	2 years	City Emergency Management	City Budget, Staff Time	Residents will be more knowledgeable about severe winter storms.	<10,000	High	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		for City of Sugar Land citizens.										
2023-City of Sugar Land-013	General Public and First Responders Planning	Problem: The City does not have a plan for vaccination and first responders training regarding disease outbreak. Solution: Coordinate with Fort Bend County Health and Human Services in planning and exercises for vaccination and prophylaxis of the general public and first responders.	Disease Outbreak	4	1 year	City Emergency Management	City Budget	The general public will be more protected from hazard events.	Staff Time	High	LPR	ES
2023-City of Sugar Land-014	Project Brazos	Problem: The City experiences erosion along the Brazos River that compromises the stability of the Levees. Solution: Project consists of 13 sites – 4 are in City of Sugar Land. Project includes design and construction to prevent additional erosion along the Brazos River that is compromising stability of the Levees.	Geologic Hazards, Flood	2	5+ years	Fort Bend County	CDBG-MIT; TWDB FIF; HMGP; PDM	The four sites located in the City will be more stable.	>$100,000	High	SIP	SP
2023-City of Sugar	Austin Park/Chimneystone Drainage Project	Problem: The City experiences flooding issues in Austin Park/Chimneystone.	Flood	2,3	Within 3 years	City of Sugar Land	HMGP; TWDB Loan; CDBG-MIT	Flooding issues will be reduced.	$60.5 million	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
Land-015		Solution: Design and construct a new channel to connect to LID#2. This will help reduce or eliminate flooding to 250+ homes in this area.										
2023-City of Sugar Land-016	Covington Woods West	Problem: The City experiences drainage issues in the Covington Woods West area. Solution: Improve and upgrade drainage in the Covington Woods West area of the City. This will help reduce street ponding.	Flood	2,3	Within 3 years	City of Sugar Land	CDBG-MIT	Flooding issues will be reduced.	$3 million	High	SIP	SP
2023-City of Sugar Land-017	Oyster Creek Diversion Channel and Storage Facility in Tract 2	Problem: The City experiences flooding relating to the Oyster Creek area which impacts critical facilities in the City. Solution: The proposed project includes the design and construction of a drainage solution (diversion channel and wet detention pond) to reduce the risk of flooding and associated damages to the Oyster Creek area and reduce the economic impact to critical facilities. The proposed project will remove the City of Sugar Land Airport, the Police Training Academy and	Flood, Severe Weather	2	5+ years	City Engineering	TWDB	Critical facilities experience less flooding and additional properties will also experience less flooding.	$27.4 million	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		the Central Unit Prison properties from the 100-year (Atlas 14) floodplain while minimizing any adverse downstream impacts. The project includes the construction of a 95 acres wet detention pond that will enhance and protect wetlands and park land in the project area.										
2023-City of Sugar Land-018	City-wide Benchmark System Update	Problem: The City needs to survey/ install benchmarks and implement a flood protection plan. Solution: Survey and installation of the benchmarks. Implement flood protection plan (describe additional benefits and applications) modeling to construction.	Flood	4,5	Within 3 years	City Engineering	HMGP	The community will be better protected from flood hazards.	$20,000	High	LPR	PP
2023-City of Sugar Land-019	New Emergency Operations Center	Problem: The City EOC and Dispatch Center is dated and the building is at risk of being impacted by hazards. Solution: Construct new EOC and Dispatch Center – The current EOC and Dispatch Center is over 25 Years old. Due to increased growth of the City and risk over the past 25 years, a larger	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire,	1,2	Within 5 years	City Engineering and Public Works	UASI, HSGP	The New EOC will be able to perform continuity of operations.	$11.5 million	High	SIP, EAP	PP, PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		facility is needed to address capacity needs. The new facility will be located on property directly behind the current Police Station within the flood plain.	Winter Weather									
2023-City of Sugar Land-020	New Territory WWTP Road Elevation	Problem: The roads to the WWTP flood consistently and limit access to facilities. Solution: During heavy rainfall events, the roads to the WWTP become flooded and access to the facility can only be obtained by boat. The projects propose is to elevate the access roads to the WWTP.	Flood	2,3	5+ years	City Engineering and Public Works	TWDB, HMGP	The City will experience less flooding on the roads once they are elevated.	$230,000	High	SIP	SP
2023-City of Sugar Land-021	New Territory WWTP Flood Protection	Problem: The chemical storage facility at the WWTP floods consistently. Solution: Purchase and install flood walls to protect chemical storage facilities at the WWTP that store hazardous materials utilized in the treatment process.	Flood	2,3	5+ years	City Engineering and Public Works	FEMA HMGP, FMA/BRIC, CDBG	The chemical storage facility will be better protected.	$250,000	High	SIP	SP
2023-City of Sugar Land-022	Structural Elevation & Acquisition Program	Problem: The City has flood issues relating to their RL properties in the SHFA. Solution: Develop a home elevation and/or	Flood	1,2	5+	City Engineering/Emergency Management	FEMA HMGP, FMA/BRIC, CDBG	The SRL and RL properties will be elevated, and flood will be reduces.	TBD	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		acquisition program to prioritize the reduction of flood risk for severe repetitive loss properties and those structures in the SHFA.										
2023-City of Sugar Land-023	Flood/Dry-proofing critical facilities	Problem: Some facilities in the SHFA consistently flood and need flood protection. Solution: Develop a program to prioritize the flood/dry-proofing of critical facilities in the SHFA.	Flood	2,3	5+	City Engineering/Emergency Management	FEMA HMGP, FMA/BRIC, CDBG	Properties located in the SHFA will be better protected from flooding.	TBD	High	SIP	SP
2023-City of Sugar Land-024	Elevation of WWTP Critical Assets	Problem: The WWTP critical assets are at risk for flooding. Solution: Elevate lift stations, critical assets and electrical components out of risk to flooding.	Flood	2,3	2+ years	City Engineering and Public Works	FEMA HMGP, FMA/BRIC, CDBG	The WWTP critical assets are better protected.	$1,000,000	High	SIP	SP
2023-City of Sugar Land-025	Stormwater Needs Assessment	Problem: The City experiences consistent flooding from backed up stormwater. Solution: City-wide Flood Prevention and Drainage Needs Assessment to identify drainage projects and additional flood mapping needs.	Flood	2,3	5+ years	City of Sugar Land Engineering and Public Works	HMGP, TWDB Loan	The City will not flood as much.	$600,000	High	SIP	SP
2023-City of Suga	Development Code Changes - Impervious Surface	Problem: The City has an increasing number of impervious services that lead to flooding.	Flood	1,4,5	5+ years	City Engineering	City Budget	The City will experience less flooding.	Staff Time	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
r Land -026		Solution: Limiting the percentage of allowable impervious surface for new development and re-developed sites City-wide.										
2023 -City of Sugar Land -027	Development Code Changes - Water Retention	Problem: There are stormwater issues and water retention problems in the City. Solution: Coordinating with developers to construct on-site retention basins for excessive stormwater and a firefighting water source.	Flood	1,4,5	5+ years	City Engineering	City Budget	The City will have improved water retention.	Staff Time	High	LPR	PP
2023 -City of Sugar Land -028	High Water Rescue Vehicle	Problem: The City does not have high water rescue vehicles to deploy during emergencies. Solution: High Water Rescue Vehicle to be deployed during emergency events to support first responder efforts and residents with rescue & evacuation.	Flood	2	Within 1 year	Emergency Management	FEMA HMGP, FMA/BRIC, CDBG	Increased rescue and response capabilities.	20,000	High	EAP	ES
2023 -City of Sugar Land -029	Updated LIDAR Data	Problem: The City's LIDAR data does not include flooding and ponding models. Solution: Update 2014 City-wide LIDAR to update the City's flooding and ponding models.	Flood	2	3+ years	City Engineering	FEMA, TWDB	Improved LIDAR capabilities.	50,000	High	LPR	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Sugar Land-030	Window Hardening	Problem: The windows at critical facilities are vulnerable to hazards. Solution: Obtain ballistic Resistant glass/Film for Critical Facilities.	Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2,3	2+ years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	Critical facilities will be better protected from hazards.	$25,000	High	SIP	SP, ES
2023-City of Sugar Land-031	Critical Facility Hardening	Problem: Critical facilities are at risk for hazard events. Solution: Installing hardening measures for Critical facilities – Emergency Operations Center, fire stations, police, City Hall, WWTP to be more resistant wind, hurricane and hail.	Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2,3	5+ years	City Engineering/Emergency Management	FEMA HMGP, FMA/BRIC, CDBG	Critical facilities will be better protected.	$10,000,000	High	SIP	SP
2023-City of Sugar Land-032	Traffic Light Hardening	Problem: Traffic lights throughout the City are vulnerable to hazards. Solution: Traffic Lights-stabilizer, minimize cracking in mast arms and increase damage resistance in high wind events.	Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	3+ years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	Traffic lights will not need as many repairs from hazard events.	$800,000	High	SIP	PP
2023-City of Sugar Land-033	Hurricane Sheltering and Evacuation Needs Assessment and Outreach Program	Problem: The City Hurricane evacuation routes and Shelters of Last Resort - needs assessment to ensure it is updated and includes all the hazards of concern.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood,	4,5	3+ years	Emergency Management	FEMA HMGP, FMA/BRIC, CDBG, UASI, HSGP,	An improved evacuation route.	$50,000	High	LPR	PI, PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Solution: Hurricanes evacuation routes and Shelters of Last Resort - needs assessment and education and outreach program to identify and accommodate sheltering people who are stalled in traffic on a main evacuation route from the coastal communities and to communicate designated shelters and evacuation routes as a result of the study.	Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather									
2023-City of Sugar Land-034	Lightning/ Severe Weather protocols for outside events.	Problem: The City does not have updated lightning and severe weather protocols implemented for outside events. Solution: Schools & parks- update and develop lightning protocols for all outdoor City events to ensure all attendees at outside events are aware of safety precautions.	Severe Weather	1	2+ years	ISD/Parks Department	FEMA HMGP, FMA/BRIC, CDBG, UASI, HSGP	City residents will be more knowledgeable of how hazards affect outside events.	$25,000	High	LPR	PR
2023-City of Sugar Land-035	Update Lightning Alert and Severe Storm Monitoring and warning capabilities	Problem: The City needs to update the lightning alert and storm monitoring system. Solution: Implement a service to detect lightning strikes within a certain mile radius. Warning for fires, and for	Severe Weather	1, 2,3	Within 1 year	Public Works	FEMA HMGP, FMA/BRIC, CDBG	The City residents will be more knowledgeable due to updated warning capabilities.	$50,000	High	EAP	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		any outdoor activities. Establish warning thresholds that indicate when not operate, utility preparation, and overall protection of public safety.										
2023-City of Sugar Land-036	Lightning Prevention Needs Assessment	Problem: Lightning prevention is not up to code and some facilities are not in compliance. Solution: Needs Assessment to evaluate if City's critical facilities are up to code on lightning and identify projects for facilities that are not in compliance.	Severe Weather	1,4,5	2+ years	City Engineering/ Environmental and Neighborhood Services	FEMA HMGP, FMA/BRIC, CDBG	Lightning prevention will be updated and in compliance.	$75,000	High	LPR	PR
2023-City of Sugar Land-037	Update Erosion Study	Problem: The Brazos River Erosion Study has not been updated since 2017. Solution: Update the 2017 Brazos River Erosion Study.	Geologic Hazards	1,4	3+ years	City Engineering	FEMA HMGP, FMA/BRIC, CDBG	The Erosion Study will include up to date information.	$100,000	Hihg	NSP	NR
2023-City of Sugar Land-038	Erosion Management Plan	Problem: The Brazos River does not have an erosion management plan. Solution: Develop an erosion management plan for the Brazos River.	Geologic Hazards	5	2+ years	City Engineering	FEMA HMGP, FMA/BRIC, CDBG	The Brazos River will experience reduces erosion.	$100,000	High	LPR	PP, PR
2023-City of Sugar	Project Brazos	Problem: The Brazos River experiences annual erosion that is not monitored.	Geologic Hazards	1,2	5+ years	City Engineering and Fort Bend County	FEMA HMGP, FMA/BRIC, CDBG	The City will have better resources relating to	$50,000	High	EAP	NR, PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
Land-039		Solution: Monitor annual erosion to the Brazos River (Drone/ LIDAR capability).						erosion of the Brazos River.				
2023-City of Sugar Land-040	Design Standards Update for Soil Stabilization	Problem: Development standards are allowing for soil instability which leads to damaged property. Solution: Update design standards for development and redevelopment projects to incorporate soil stabilization techniques.	Geologic Hazards	1,2	5+ years	City Engineering	City Budget	The City will experience less soil instability.	Staff Time	High	LPR	PR
2023-City of Sugar Land-041	SCADA Update for Dams	Problem: The SCADA system does not include dams located within the City. Solution: Update SCADA system to include data on dams located within the City.	Dam/Levee Failure, Drought, Flood	2,5	2+ years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	Data of Dams within the City will be documented.	$100,000	High	EAP	PI
2023-City of Sugar Land-042	Update Landscape Ordinance	Problem: Landscape ordinances do not currently address drought tolerant practices. Solution: Incorporating drought tolerant or xeriscape practices into landscape ordinances to reduce dependence on irrigation in City of rights-of-way.	Drought	2,5	Within 1 year	Public Works	City Budget	The City will have drought tolerant landscape.	Staff Time	High	LPR	PR, PP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Sugar Land-043	WWTP Reclaim Systems	Problem: The WWTP does not have a reclamation system installed. Solution: Expanding reclaim systems at south WWTP plant from 1/mgd to 2/mgd. For the North pant installing a new reclaim system for additional capacity up to 2/mgd.	Drought	2,3	5+ years	City Engineering/Public Works	FEMA HMGP, FMA/BRIC, CDBG	The City will have a reclamation from the WWTP to combat drought conditions.	$25,000,000	High	SIP	SP
2023-City of Sugar Land-044	Purchase Advanced Metering Infrastructure System	Problem: The City cannot track water management throughout the City in a timely fashion. Solution: Purchase and install Advanced Metering Infrastructure (AMI) which is an integrated system of customer water meters, communication networks and data management systems that provide real time water use information to the City and its residents.	Drought	4	3+ years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	Improve drought conditions.	$20,000,000	High	SIP	SP
2023-City of Sugar Land-045	Development Code Changes - Green Space Requirements	Problem: The City does not have a significant amount of green space. Solution: Establishing a "green infrastructure" program to link, manage, and expand existing parks, preserves,	Drought, Extreme Temperature, Flood, Geologic Hazards	2,5	5+ years	City Engineering	City Budget	The City will have increased green space.	Staff Time	High	NSP	NR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		greenways, etc. (easements).										
2023-City of Sugar Land-046	Vulnerable Population/ Critical Facilities Database	Problem: The City has out of date data regarding critical facilities for vulnerable populations. Solution: Update/ Develop data base to define and identify critical facilities for vulnerable populations such as Nursing homes and medical service providers.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,4	2+ years	Emergency Management	FEMA HMGP, FMA/BRIC, CDBG	The City will have more updated data.	$50,000	High	EAP	PI
2023-City of Sugar Land-047	Homeowner Outreach Program	Problem: There is no outreach program developed for homeowners regarding hazard risk and mitigation. Solution: Develop quarterly program to inform homeowners of hazard risk, hazard reducing materials, techniques, and funding opportunities [Water saving techniques (rain barrels, appliance/ rebate programs for smart meters) and Hail resistance materials and insurance incentives].	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1	2+ years	Emergency Management	FEMA HMGP, FMA/BRIC, CDBG	The City will be better prepared during hazard events.	$50,000	High	EAP	PI

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Sugar Land-048	Drone Purchase	Problem: The City does not have updated technology to perform regular assessments of impacted areas. Solution: Purchase a drone with the appropriate camera to perform regular assessments of impacted areas for data collection related to mitigation efforts.	Dam/Levee Failure, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	4	Within a year	Communications	FEMA HMGP, FMA/BRIC, CDBG	The City will be able to perform regular assessments of impacted areas.	$50,000	High	EAP	ES
2023-City of Sugar Land-049	Software Purchase	Problem: The City does not have software to analyze collected drone data. Solution: Purchase and install software to manage and analyze collected drone data in relation to mitigation efforts.	Dam/Levee Failure, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather Tornado, Wildfire, Winter Weather	4	Within a year	Communications	FEMA HMGP, FMA/BRIC, CDBG	The City will be able to analyze data.	$50,000	High	EAP	PP
2023-City of Sugar Land-050	Establish Design Standards for Channel Repair	Problem: There are no standards designed to address sloughing and repair of channels. Solution: All parties (county, City, LID's) to establish design standards to address sloughing and repair of the channel for Ditch H.	Flood	5	3+ years	City Engineering	FEMA, TWDB	Standards will be set for channel repair and redesign.	$500,000	High	LPR	PP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Sugar Land-051	Surface Water Treatment Plant Access Road Elevation	Problem: The roadway between the Surface Water Treatment Plant and the forebay/intake area become flooded during heavy precipitation events. Solution: During flooding events, the roadway between the Surface Water Treatment Plant and the fore bay/intake area become flooded, preventing access to the fore bays and intake for operations and maintenance. The City will elevate roadway between the SWTP main area and fore bays to deter flooding.	Flood	2,3	5+ years	City Engineering and Public Works	TWDB	The road will have limited flooding.	$1,000,000	High	SIP	SP
2023-City of Sugar Land-052	Back-up power for Homeward Way Production Plant	Problem: There is no back-up power for the Homeward Way Groundwater Production plant Solution: Upgrade/Replace generator with an appropriately sized generator at Homeward Way Groundwater Production Plant. Current generator capacity is insufficient to power plant during utility power loss.	Dam/Levee Failure, Drought, Extreme Temperature Flood Geologic Hazards Hurricane/Tropical Storm, Severe Weather Tornado, Wildfire, Winter Weather	2,3	2+ years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	There will be back-up power and continuity of operations.	$350,000	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Sugar Land-053	SWTP Hurricane Shutters	Problem: The Surface Water Treatment plant is covered in windows that are not secure in protecting equipment. Solution: Add hurricane shutters to Surface Water Treatment Plant control room because it has windows covering the South and East walls so this will protect personnel and critical equipment.	Hurricane/Tropical Storm	2,3	2+ years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	Personal and critical equipment will be better protected.	20,000	High	SIP	SP
2023-City of Sugar Land-054	ETJ Code Update	Problem: The City does not have consistent codes for development and building in the City and ETF. Solution: Develop and establish consistent code requirements and enforcement between the City's building codes and development in the ETJ.	Dam/Levee Failure, Drought, Extreme Temperature Flood Geologic Hazards Hurricane/Tropical Storm, Severe Weather Tornado, Wildfire, Winter Weather	5	3+ years	Code Enforcement Division	FEMA HMGP, FMA/BRIC, CDBG	Codes and regulations will align more.	Staff Time	High	LPR	PP
2023-City of Sugar Land-055	SWTP Surge Protection	Problem: There is no surge protection at the SWTP which affects continuity of operations during weather events. Solution: Install surge protection at the SWTP to incoming power supply due to power surges cause by severe weather events.	Severe Weather	2	2+ years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	The SWTP will be able to perform continuity of operations.	$200-500K	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Sugar Land-056	Update City's Warning System Update	Problem: The City's warning system does not cover all hazards of concern and needs enhances alert capabilities to alert residents. Solution: Enhance City warning system (Reverse 911) to include additional hazards and alert capabilities, especially tornado/ high winds with more City focus on informing public.	Severe Weather	5	Within 1 year	Emergency Management/ 911-Dispatch	FEMA HMGP, FMA/BRIC, CDBG, UASI, HSGP	The City's residents will be better prepared.	$100K	High	SIP	ES
2023-City of Sugar Land-057	Implement Stone toe protection for Brazos River	Problem: The Brazos River suffers from stabilization and erosion issues. Solution: Implement proposed USACE stone toe protection plans for sample area due to stabilize and reduce Brazos River erosion and encroachment to levees.	Dam/Levee Failure, Geologic Hazards	3	3+ years	City Engineering	FEMA HMGP, FMA/BRIC, CDBG	The Brazos River will become more stabilized.	$100M	High	SIP	SP
2023-City of Sugar Land-058	Brazos River Initiative	Problem: There is limited coordination with the Texas Water Development Board regarding the Brazos River. Solution: Increase coordination efforts with the Texas Water Development Board to update information on	Geologic Hazards	4	5+ years	City Engineering and Fort Bend County	FEMA HMGP, FMA/BRIC, CDBG	There will be more coordination regarding the Brazos River.	Staff Time	High	LPR	PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		the Brazos River and increase multi-agency coordination.										
2023-City of Sugar Land-059	Update Design Standards utilize native species in construction	Problem: There are conservation issues surrounding native species in construction. Solution: Further conservation efforts to encourage more natural and native grasses and plants in construction through increased design standards.	Drought	3, 4	5+ years	City Engineering	TWDB	Native species will be used more in construction.	$50,000	High	SIP	SP
2023-City of Sugar Land-060	Water Systems Update	Problem: There are no emergency interconnections between the main City and New Territory water systems, main City and Greatwood water systems, and RiverPark and New Territory water systems Solution: Construct emergency interconnections between the main City and New Territory water systems, main City and Greatwood water systems, and RiverPark and New Territory water systems due to lack of emergency interconnections	Drought	2	5+ years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	The City will have emergency interconnections between water systems.	$40,000,00	High	SIP	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		between City water systems.										
2023-City of Sugar Land-061	Back-up Generators at New Territory (West); Greatwood; North Plant; South Plant WWTP	Problem: There are generators with limited functions at all four WWTP in the City. Solution: Install and replace generators to increase capacity of available back-up power at all 4 WWTP that services the City.	Flood, Hurricane/Tropical Storm, Severe Weather, Winter Weather	2,3	1 years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	The WWTP will be able to perform continuity of operations.	$6,000,000	High	SIP	ES
2023-City of Sugar Land-062	South Plant WWTP Shelter	Problem: The South Plant WWTP does not have a shelter for staff. Solution: Purchase and construct shelter for WWTP staff who must remain at the facility during disaster events to ensure continuous operations at the facility.	Flood, Hurricane/Tropical Storm, Severe Weather, Winter Weather	2,3	2 years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	The WWTP staff will have a shelter during disaster events to perform continuity of operations.	$500,000	High	SIP	ES
2023-City of Sugar Land-063	Remote well right angle drive and generator	Problem: Six remote well locations do not have right angle drives and generators installed to perform continuity of operations. Solution: Purchase and install right angle drives and generators at 6 remote well locations that provide water supply, located throughout the City.	Flood, Hurricane/Tropical Storm, Severe Weather, Tornado, Winter Weather	2,3	1 years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	The remote well's will be able to perform continuity of operations.	$6,000,000	High	SIP	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Sugar Land-064	Surface Water Plant Generator	Problem: There are no generators located at the surface water treatment plant. Solution: Purchase and install (3) 750kw generators at the surface water treatment plant which provides water supply to the City.	Flood, Hurricane/Tropical Storm, Severe Weather, Tornado, Winter Weather	2,3	1 years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	The Surface Water Treatment Plant will be able to perform continuity of operations.	$10,000,000	High	SIP	ES
2023-City of Sugar Land-065	Generators for City's Wireless System	Problem: There are no generators installed at the 10 high sites around the City that support communications and IT during disaster events. Solution: Purchase and install generators at 10 high sites around the City to support communications and IT infrastructure during disaster events.	Flood, Hurricane/Tropical Storm, Severe Weather, Tornado, Winter Weather	1,5	1 years	Public Works	FEMA HMGP, FMA/BRIC, CDBG	Communication and IT help will be able to commence during hazard events.	$200,000	High	SIP	ES
2023-City of Sugar Land-066	Back-up Power supply for traffic signals.	Problem: The City does not have generators for traffic signals. Solution: Purchase 45 portable generators for traffic signals.	Flood, Hurricane/Tropical Storm, Severe Weather, Tornado, Winter Weather	2,3	1 year	Public Works	FEMA HMGP, FMA/BRIC, CDBG	Traffic signals will be able to operate during power outages.	$150,000	High	SIP	ES
2023-City of Sugar Land-067	Fuel Trailer	Problem: The City does not have proper means to provide fuel service to generator sites located throughout the City. Solution: Purchase 1000-gallon fuel trailer to	Flood, Hurricane/Tropical Storm, Severe Weather, Tornado, Winter Weather	2,5	1 year	Public Works	FEMA HMGP, BRIC, CDBG	The City will be able to safely and efficiently provide fuel service to generators.	$40,000	High	EAP	ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		provide fuel service to various generator sites located throughout the City.										
2023-City of Sugar Land-068	Stormwater, Ponding and Drainage Study	Problem: There are numerous streets and areas in the City that have ponding, stormwater and drainage issues due to not meeting City criteria and infrastructure problems including: • Settlers Park • Riverbend North • Sugar Lakes • Sugar Creek • Lakes of Austin Park • Covington Woods • Telfair • Imperial Woods • Riverbend South • Grants Lake • Colony Bend Neighborhood • Highlands Neighborhood • Meadowlakes Subdivision • Commonwealth Neighborhood • FBC LID 14	Flood, Hurricane/Tropical Storm, Severe Weather, Winter Weather	2	Less than 5 years	City Administration, Engineer	FMA, BRIC, HMGP	The City will experience less flooding.	TBD after engineering study	High	SIP	SP

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		Solution: The City will perform an engineering study throughout the City with a focus on the areas of concern listed above. Once a cost effective solution is identified, the City will implement that solution.										

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS Community Rating System
FEMA Federal Emergency Management Agency
HMA Hazard Mitigation Assistance
N/A Not applicable
NFIP National Flood Insurance Program

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program
BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.16-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Sugar Land-001	Imperial Park Generator	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-002	T.E. Harman Center Generator	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-003	Emergency Notification System for City Schools	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-004	New Electric Equipment to Protect Against Power Surges	1	1	1	1	1	1	1	0	1	1	1	1	1	0	12	High
2023-City of Sugar Land-005	Install Security Window Film in Fort Bend ISD City Schools	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-006	CRS Program	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Sugar Land-007	Extreme Heat Education and Outreach Program	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Sugar Land-008	Fan and Air Conditioning Program	1	1	1	1	1	1	0	0	1	1	1	1	1	0	11	High
2023-City of Sugar Land-009	Outreach Materials for Lightning Injuries	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Sugar Land-010	Water Conservation Public Outreach	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Sugar Land-011	Shelter-in-place procedures	1	1	1	1	1	1	1	0	1	1	1	1	1	0	12	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Sugar Land-012	Winter Storm Outreach Program	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Sugar Land-013	General Public and First Responders Planning	1	1	1	1	1	1	1	0	1	1	1	1	1	0	12	High
2023-City of Sugar Land-014	Project Brazos	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-015	Austin Park/Chimneystone Drainage Project	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-016	Covington Woods West	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-017	Oyster Creek Diversion Channel and Storage Facility in Tract 2	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-018	City-wide Benchmark System Update																
2023-City of Sugar Land-019	New Emergency Operations Center	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-020	New Territory WWTP Road Elevation	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-021	New Territory WWTP Flood Protection	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-022	Structural Elevation & Acquisition Program	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-023	Flood/Dry-proofing critical facilities	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-024	Elevation of WWTP Critical Assets	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-025	Stormwater Needs Assessment	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Sugar Land-026	Development Code Changes - Impervious Surface	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-027	Development Code Changes - Water Retention	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Sugar Land-028	High Water Rescue Vehicle	1	0	0	1	1	1	0	0	1	1	1	1	1	1	10	High
2023-City of Sugar Land-029	Updated LIDAR Data	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Sugar Land-030	Window Hardening	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-031	Critical Facility Hardening	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-032	Traffic Light Hardening	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-033	Hurricane Sheltering and Evacuation Needs Assessment and Outreach Program	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Sugar Land-034	Lightning/Severe Weather protocols for outside events	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Sugar Land-035	Update Lightning Alert and Severe Storm Monitoring and warning capabilities	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Sugar Land-036	Lightning Prevention Needs Assessment	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Sugar Land-037	Update Erosion Study	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-038	Erosion Management Plan	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-039	Project Brazos	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-040	Design Standards Update for Soil Stabilization	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-041	SCADA Update for Dams	1	1	1	1	1	1	0	1	1	1	0	0	1	0	10	High
2023-City of Sugar Land-042	Update Landscape Ordinance	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Sugar Land-043	WWTP Reclaim Systems	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Sugar Land-044	Purchase Advanced Metering Infrastructure System	1	1	1	1	1	1	1	0	1	1	1	1	1	0	12	High
2023-City of Sugar Land-045	Development Code Changes - Green Space Requirements	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Sugar Land-046	Vulnerable Population/ Critical Facilities Database	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High
2023-City of Sugar Land-047	Homeowner Outreach Program	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Sugar Land-048	Drone Purchase	1	1	1	1	1	1	0	1	1	1	1	1	0	0	11	High
2023-City of Sugar Land-049	Software Purchase	1	1	1	1	1	1	0	1	1	1	1	1	0	0	11	High
2023-City of Sugar Land-050	Establish Design Standards for Channel Repair	1	1	1	1	1	1	0	1	1	1	1	1	0	0	11	High
2023-City of Sugar Land-051	Surface Water Treatment Plant Access Road Elevation	1	1	0	1	1	1	1	0	1	1	1	1	1	1	12	High
2023-City of Sugar Land-052	Back-up power for Homeward Way Production Plant	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-053	SWTP Hurricane Shutters	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Sugar Land-054	ETJ Code Update	1	1	1	1	1	1	1	0	1	1	1	1	1	0	12	High
2023-City of Sugar Land-055	SWTP Surge Protection	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Sugar Land-056	Update City's Warning System Update	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-057	Implement Stone toe protection for Brazos River	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High
2023-City of Sugar Land-058	Brazos River Initiative	1	1	1	1	1	1	0	1	1	1	1	0	1	0	11	High

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Sugar Land-059	Update Design Standards Utilize Native Species in Construction	0	1	1	1	1	1	1	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-060	Water Systems Update	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-061	Back-up Generators at New Territory (West); Greatwood; North Plant; South Plant WWTP	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2023-City of Sugar Land-062	South Plant WWTP Shelter	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Sugar Land-063	Remote Well Right Angle Drive and Generator	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-064	Surface Water Plant Generator	1	1	1	1	1	1	0	1	1	1	1	1	1	0	12	High
2023-City of Sugar Land-065	Generators for City's Wireless System	1	1	1	1	1	1	0	0	1	1	1	1	1	1	12	High
2023-City of Sugar Land-066	Back-up Power Supply for Traffic Signals	1	1	0	1	1	1	0	1	1	1	1	1	1	1	12	High
2023-City of Sugar Land-067	Fuel Trailer	1	1	0	1	1	1	0	0	1	1	1	1	1	0	10	High
2023-City of Sugar Land-068	Stormwater, Ponding, and Drainage Study	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. TOWN OF THOMPSONS

9.17 Town of Thompsons

This section presents the jurisdictional annex for the Town of Thompsons that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the Town of Thompsons representative who participated in the planning process, an assessment of the Town of Thompsons's risk and vulnerability, the different capabilities used in the Town of Thompsons, and an action plan that will be implemented to achieve a more resilient community.

9.17.1 Hazard Mitigation Planning Team

The Town of Thompsons identified the primary and alternate points of contact and developed this plan over the course of several months with input from many Town of Thompsons departments, including the Mayor and Fire Department. The Mayor represented the community on the Fort Bend County Hazard Mitigation Plan (HMP) Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.17-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Freddie Newsome - Mayor	Name/Title:	Keelan Spaulding – Fire Department
Address:	-	Address:	-
Phone Number:	(281) 343-9929	Phone Number:	-
Email:	mamanna56@yahoo.com	Email:	thompsonsvfd@gmail.com
NFIP Floodplain Administrator			
Name/Title:	-		
Address:	-		
Phone Number:	-		
Email:	-		
Additional Contributors:			
Name/Title: Method of Participation:	No additional contributors		

9.17.2 Municipal Profile

Located 30 miles from Houston, Town of Thompsons closest neighbors are the City of Richmond and Rosenberg. Town of Thompsons is a farmland bedroom community of less than 200 residents. The northern

border of the City limits surround Smithers Lake, where an NRG coal plant operates. Calpine Electrical Plant also operates out of Thompsons. Both entities operate under industrial agreements that pay out once a year.

Thompsons incorporated in 1979 as an effort to avoid annexation from surrounding Cities. Town of Thompsons is a Type B General Law Town governed by a Mayor, Mayor Pro-Tem, and five Council Members. There is a paid City Secretary, part-time Clerk, Police Chief, and two maintenance workers. The Police Chief/Officer for the Police Chief is the sole member of the Town of Thompsons Police Department.

According to the 2021 American Community Survey the population for the Town of Thompsons was 235. Data from the 2021 American Community Survey indicate that 0 percent of the population is 5 years of age or younger, and 12.5 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.17.3 Jurisdictional Capability Assessment and Integration

The Town of Thompsons performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the Town of Thompsons to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the Town of Thompsons. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.17-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	Fort Bend County Building Codes	County	County
How does this reduce risk? The City has an interlocal agreement with the County to handle all the building codes for the City. The County also manages development for the City.				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Zoning/Land Use Code	No	-	-	-
How does this reduce risk?				
Subdivision Ordinance	No	-	-	-
How does this reduce risk?				
Site Plan Ordinance	No	-	-	-
How does this reduce risk?				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	Yes	The Private Real Property Rights Preservation Act - Subchapter B: Chapter 2007 of the General Government Code	State	-
How does this reduce risk? State-level code that authorizes a "taking"/Regulates construction in an area designated under law as a floodplain.				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Flood Damage Prevention Ordinance	Local	Town Council
How does this reduce risk? Dictates the minimum flood standards adopted by the City to meet the Federal standards of the National Flood Insurance Program (NFIP).				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	No	-	-	-
How does this reduce risk?				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	Yes	Septic Code	Local	Town Council
Planning Documents				
Comprehensive/Master Plan	No	-	-	-
How does this reduce risk?				
Capital Improvement Plan	No	-	-	-
How does this reduce risk?				
Disaster Debris Management Plan	No	-	-	-

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk?				
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How does this reduce risk?				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Response/Recovery Planning				
Comprehensive Emergency Management Plan	No	-	-	-
How does this reduce risk?				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	Yes	The Fort Bend County Health and Human Services Department (FBHHS) provides public health services for the City. FBHHS has public health plans as part of Annex H of the Fort Bend County Emergency Operations Plan.	County	FBHHS
How does this reduce risk? FBHHS has plans in place to prevent public health issues through regular inspections of regulated facilities, as well as prepare for and respond to public health emergencies.				
Other	No	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the Town of Thompsons to oversee and track development.

Table 9.17-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	No	-
If you do not issue development permits, what is your process for tracking new development?	N/A	
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? • If yes, please describe	Yes	Emergency Response District that is larger than the City limits – one lot and house in City limits that is supposed to be bought out by FEMA -
Describe the level of build-out in your jurisdiction.	N/A	

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Thompsons and their current responsibilities that contribute to hazard mitigation.

Table 9.17-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	No	-
Zoning Board of Adjustment	No	-
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	No	-
Construction/Building/Code Enforcement Department	No	-
Emergency Management/Public Safety Department	Yes	Fire Department assists with flood-related traffic control and evacuation planning.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	No	-
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	Yes	Mutual aid with County
Human Resources Manual	No	-
Other	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	No	-
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	The City Mayor is the Emergency Manager
Grant writer(s)	No	
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	-	-
How do your administrative/technical capabilities contribute to risk reduction in your community?		

Fiscal Capability

The table below summarizes financial resources available to the Town of Thompsons.

Table 9.17-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	No
Authority to levy taxes for specific purposes	No
User fees for water, sewer, gas, or electric service	No
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	No
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Franchise Tax, Industrial Agreements

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Town of Thompsons.

Table 9.17-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	No	-
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	No official Town website
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the Town of Thompsons.

Table 9.17-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	-	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.17-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.17.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the Town.

Table 9.17-9. NFIP Summary

Municipality	Policies in Force [a]	Number of Paid Claims [a]	Amount of Paid Claims [a]	Number of NFIP RL Properties [b]	Number of NFIP SRL Properties [b]
Thompsons (C)	17	22	$932,569.16	0	0

Sources: *a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)*
b 2018 Fort Bend County HMP
Notes: *Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.*
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the Town of Thompsons.

Table 9.17-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	Fort Bend County is the NFIP – City does not have certified Floodplain Administrator
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	May 2015 – flood evacuation and Harvey evacuation
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	N/A
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	City Hall and Fire Department are elevated and those are not privately owned.
NFIP Compliance	
What local department is responsible for floodplain management?	County
Are any certified floodplain managers on staff in your jurisdiction?	County
Do you have access to resources to determine possible future flooding conditions from climate change?	
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	N/A
Provide an explanation of NFIP administration services you provide (e.g., permit review, GIS, education/outreach, inspections, engineering capability)	The City does not have a Floodplain Administrator. The County is responsible for Floodplain Administration.

NFIP Topic	Comments
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	N/A
What are the barriers to running an effective NFIP program in the community, if any?	The City is small and does not participate in NFIP.
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	N/A
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	N/A
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	No
Are there other local ordinances, plans or programs (e.g., site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	No
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	Yes

9.17.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

The County is responsible for administering building permits to the City.

Table 9.17-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single Family	0	0	0	0	0	0	0	0	0	0
Multi-Family	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	0	0	0	0
Total Permits Issued	0	0	0	0	0	0	0	0	0	0

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.17-12. Recent and Expected Future Development

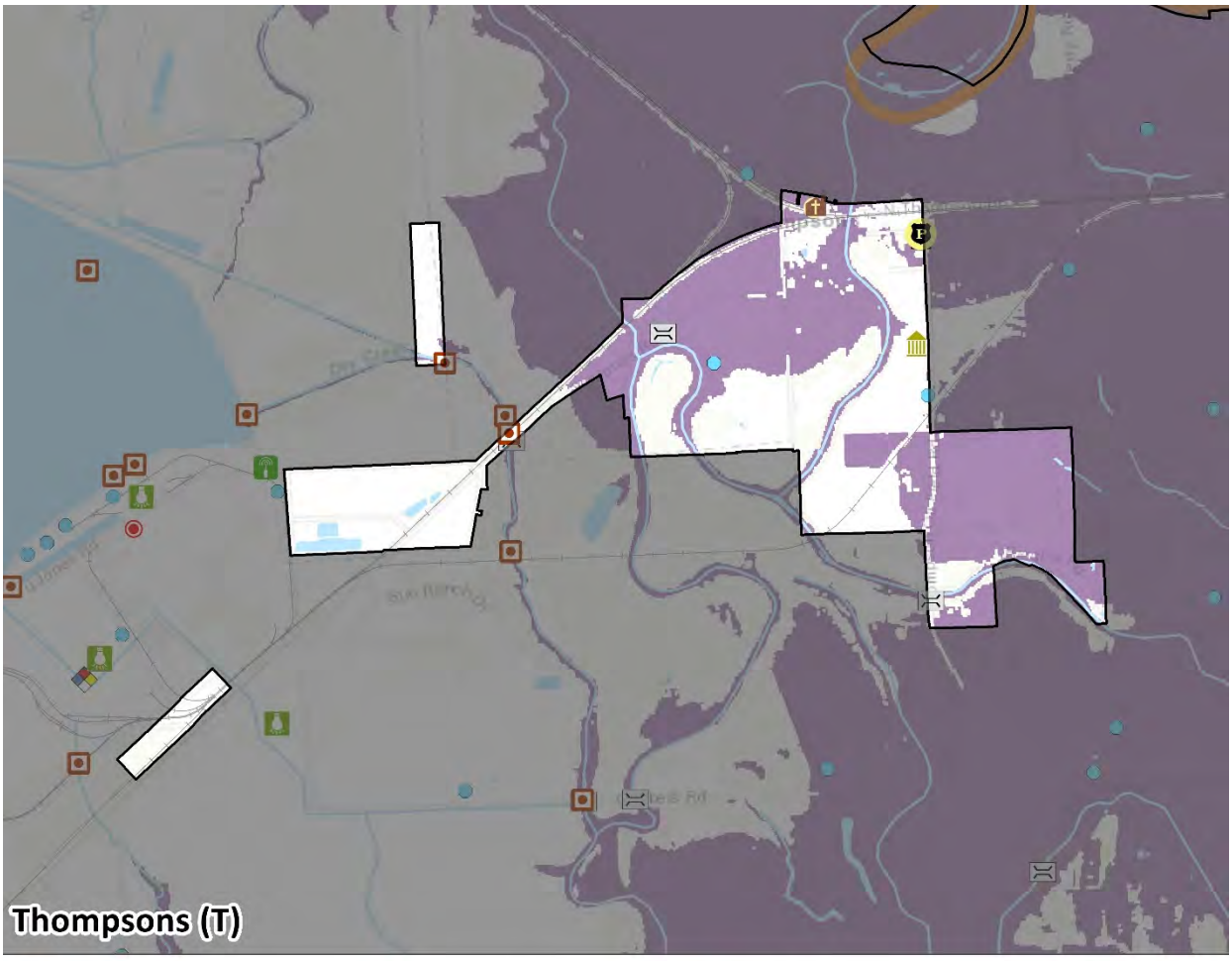
Property or Development Name	Type (e.g., Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
Fort Bend County is responsible for issuing all development permits within the Town of Thompson					
Known or Anticipated Major Development in the Next Five (5) Years					
Fort Bend County is responsible for issuing all development permits within the Town of Thompson					

9.17.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the Town of Thompsons's risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the Town of Thompsons has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.17-1. Town of Thompsons Hazard Area Extent and Location Map- Dam Inundation



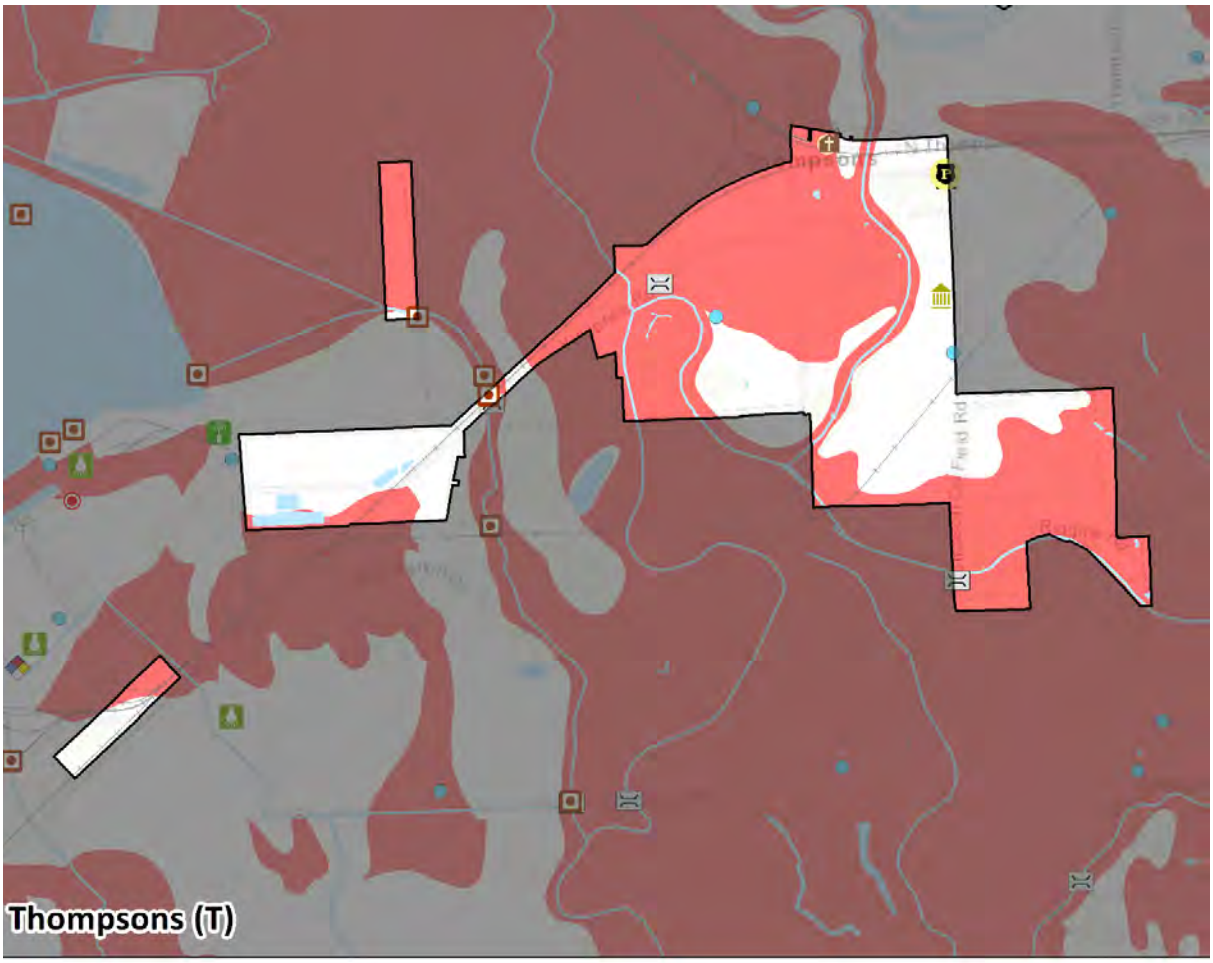
- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody
- Barker Reservoir
- Kitty Hollow Dam
- Lake Sommerville

Miles
0 0.275 0.55

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Army Corp of Engineers 2023

Notes: City (C), Township (T), Village (V)

Figure 9.17-2. Town of Thompsons Hazard Area Extent and Location Map- Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 0.25 0.5

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.17-3. Town of Thompsons Hazard Area Extent and Location Map- Flood

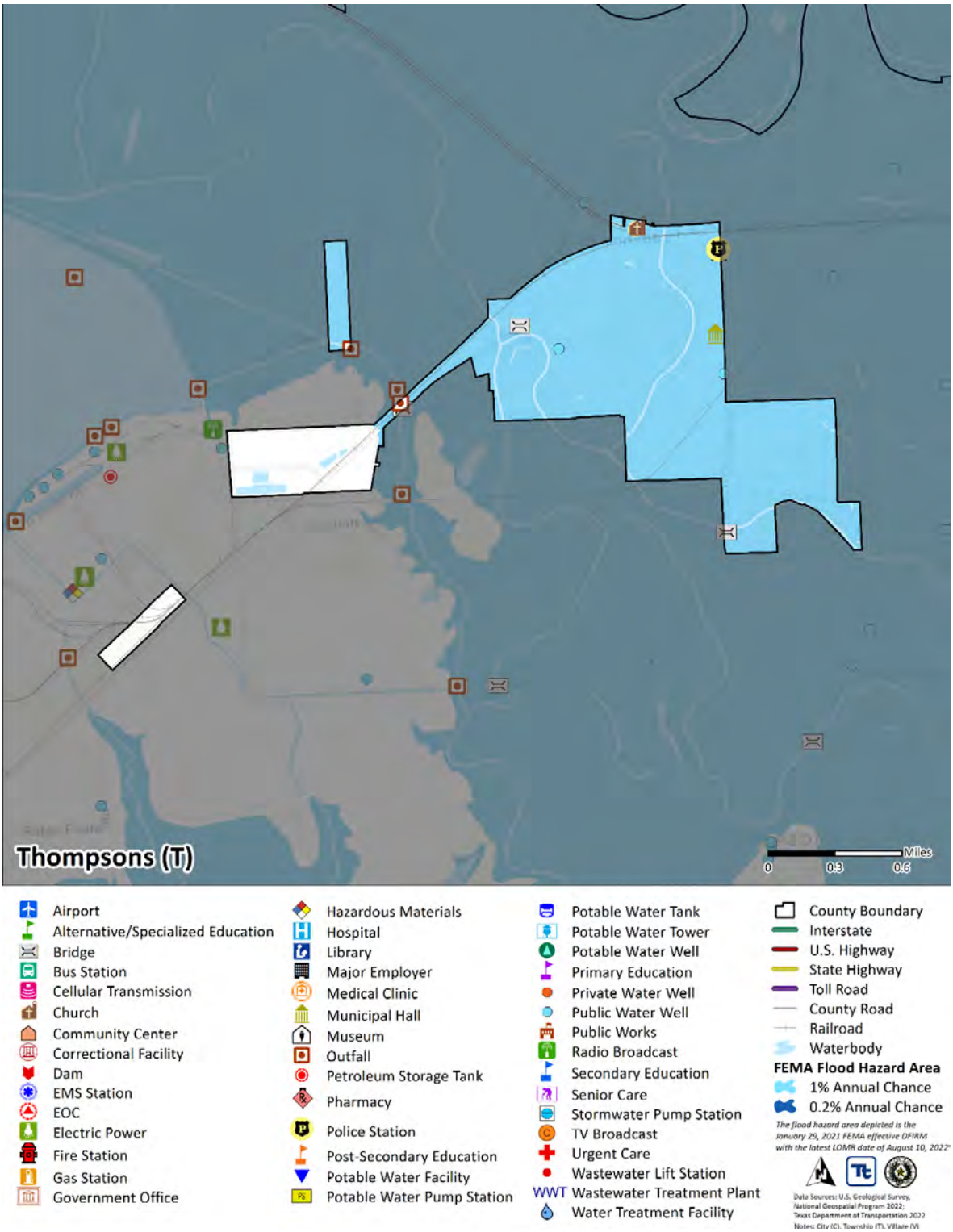


Figure 9.17-4. Town of Thompsons Hazard Area Extent and Location Map- Inland Erosion

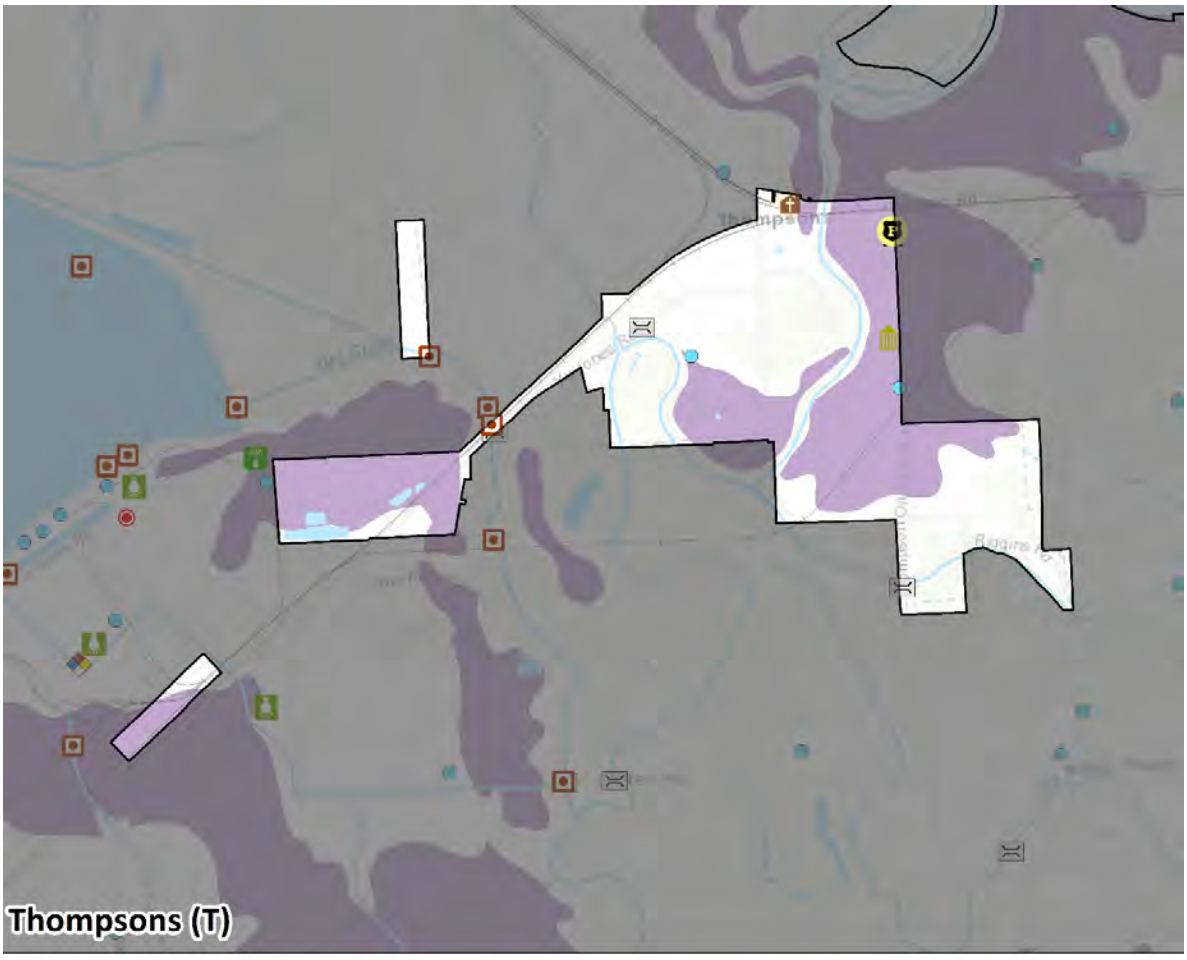
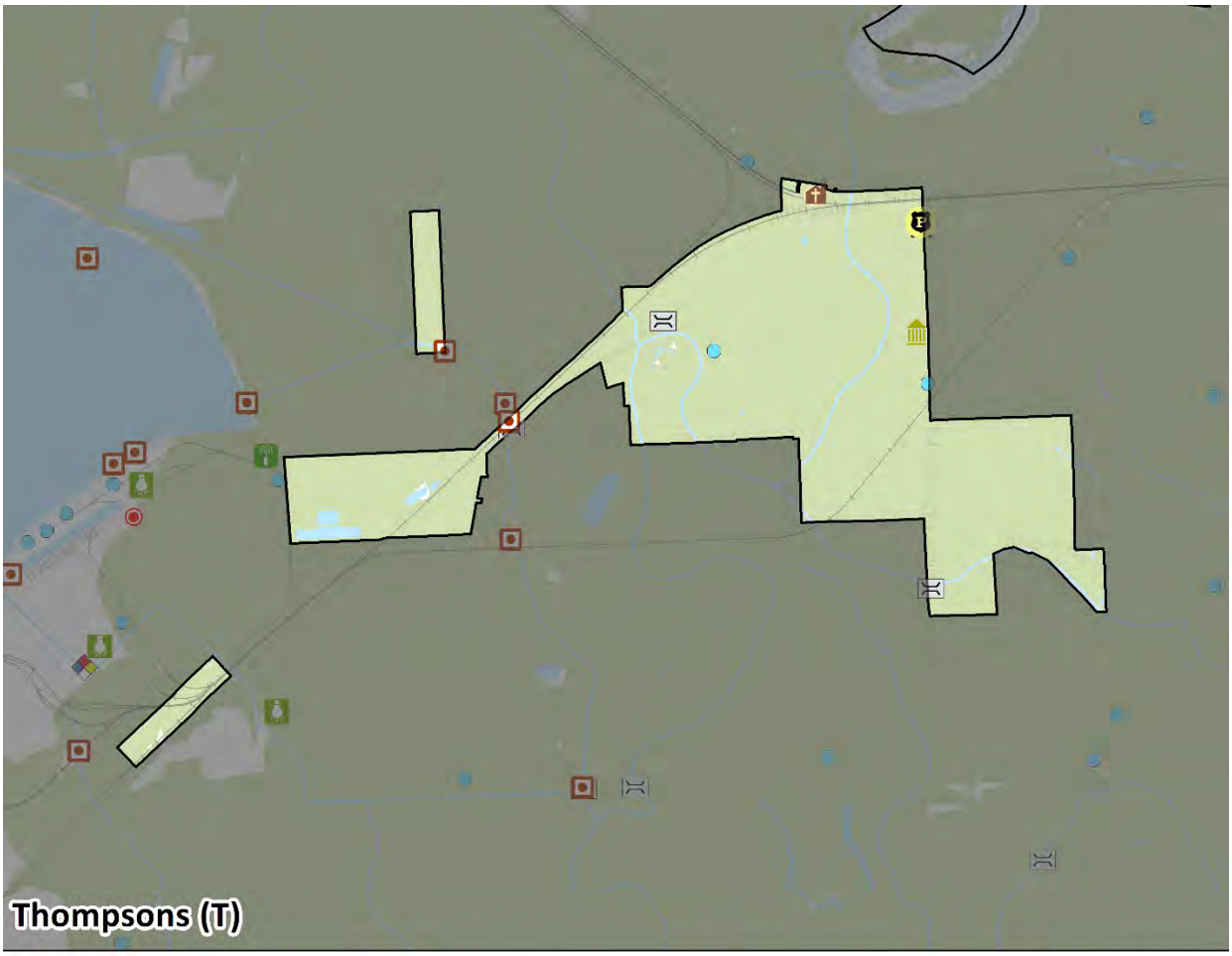


Figure 9.17-5. Town of Thompsons Hazard Area Extent and Location Map- Wildfire



Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The Town of Thompsons's history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the Town of Thompsons experienced during hazard events since the last HMP update. Information provided in the table below is based on reference material or local sources.

Table 9.17-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19	Yes	Covid-19	The Town did not incur any documented damages or losses.
January 20, 2020 – continuing	DR-4485 – Covid-19 Pandemic	Yes	Covid-19 pandemic declared	The Town did not incur any documented damages or losses.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane force winds resulted in significant number of downed trees and utility lines.	The Town did not incur any documented damages or losses.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Hurricane Marco and Laura	The Town did not incur any documented damages or losses.
February 11-21, 2020	EM-3554 – Severe Winter Storm	Yes	Severe Winter Storm	The Town did not incur any documented damages or losses.
February 11-21, 2020	DR-4586 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	The Town did not incur any documented damages or losses.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Town of Thompsons's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts, and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Thompsons. The Town of Thompsons reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

Table 9.17-14. Hazard Ranking Input

Hazard	Hazard Ranking
Dam/Levee Failure	**Medium**
Disease Outbreak	**Low**
Drought	**Low**
Extreme Temperature	**Low**
Flood	**High**
Geologic	**High**
Hurricane/Tropical Storm	**Medium**
Severe Weather	**High**
Tornado	**Medium**
Wildfire	**Low**
Winter Weather	**Low**

Critical Facilities and Community Lifelines

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.17-15. Number of Critical Facilities and Community Lifelines in Hazard Areas

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Moderate Wildfire Hazard Area		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Barker Reservoir Dam Inundation Area		Lake Sommerville Dam Inundation Area		Kitty Hollow Dam Inundation Area	
	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines
Thompsons (T)	10	9	0	0	4	4	6	5	0	0	3	2	0	0

Source: Source: Fort Bend County 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022; U.S. Army Corp of Engineers 2023

Identified Issues

After review of the Town of Thompsons's hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Town of Thompsons identified the following vulnerabilities within their community:

- The Town of Thompson does not have a Debris Management Plan.
- The Town of Thompson communication/internet services has frequent outages.
- The Town of Thompson critical facilities such as the Town Hall and Police station are susceptible to flooding and loss of power during storm events.
- The Town residents do not participate in flood insurance programs.
- The Town does not have an up-to-date evacuation plan.
- The Town weather radio system is out of date and does not reach all areas of the Town.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.17.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.17-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost, and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	**If Yes, please describe the original problem (i.e., hazard, location, historic losses)**	**If Yes, identify the responsible department/person to implement the project.**
Weather Radio Programming	Town of Thompsons City Council	No Progress	Yes		

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the Town of Thompsons identified the following mitigation efforts completed since the last HMP:

- None Identified

Since the adoption of the County's first HMP, the Town of Thompsons has made significant mitigation progress in the following areas:

- None Identified

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

Table 9.17-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	X	-	-	X	X	-	-	-	X
Disease Outbreak	X	X	-	-	X	X	-	-	-	X
Drought	X	X	-	-	X	X	-	-	-	X
Extreme Temperature	X	X	-	-	X	X	-	-	-	X
Flood	X	X	-	X	X	X	X	-	-	X
Geologic Hazards	X	X	-	-	X	X	-	-	-	X
Hurricane/Tropical Storm	X	X	-	-	X	X	-	-	-	X
Severe Weather	X	X	-	-	X	X	-	-	-	X
Tornado	X	X	-	-	X	X	-	-	-	X
Wildfire	X	X	-	-	X	X	-	-	-	X
Winter Weather	X	X	-	-	X	X	-	-	-	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the Town of Thompsons would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.17-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Town of Thompson-001	Debris Management Plan	**Problem:** The Town of Thompson does not have a Debris Management Plan. **Solution:** The Town will work with Fort Bend County to develop a Debris Management Plan.	Dam/Levee Failure, Disease Outbreak Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,2,3,4	1 year	Town of Thompson, Fort Bend County	Town budget	Increase disaster response capabilities		High	LPR	ES
2023-Town of Thompson-002	Protect Power Lines and Infrastructure	**Problem:** The Town of Thompson communication/internet services has frequent outages. **Solution:** The Town will work with the County to establish standards for all utilities regarding tree pruning around lines, inspecting utility poles to ensure they meet specifications and are wind resistant.	Dam/Levee Failure, Disease Outbreak Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,2,3,4	5 years	Town of Thompson, Fort Bend County	Town Budget	Increase communication and continuity of operations	High	High	LPR, SIP	PP
2023-Town of Thompson-003	Reinforce Critical Facilities	**Problem:** The Town of Thompson critical facilities such as the Town Hall and Police station are susceptible to flooding and loss of	Dam/Levee Failure, Extreme Temperature, Flood, Hurricane/Tropical Storm, Severe Weather	1,2,3	Within 2 years	Town of Thompson City Council, Fort Bend County	HMGP, BRIC, FMA, Local Budget	Increase continuity of operations	High	High	SIP	PP, ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		power during storm events. **Solution:** The Town will work with Fort Bend County to reinforce critical facility infrastructure with lightning safe materials and flood protection measure to maintain continuity of operations during storm events.										
2023-Town of Thompson-004	Promote Flood Insurance	**Problem:** The Town residents do not participate in flood insurance programs. **Solution:** The Town will work with residents and businesses owners to promote flood insurance and educate property owners of the benefits of having flood insurance.	Flood	1,2,3	1 to 2 years	Town of Thompson City Council	Local Budget	Reduce risk of property loss and loss of life in a flood events	Low	High	EAP	PI
20023-Town of Thompson-005	Evacuation Plan	**Problem:** The Town does not have an up-to-date evacuation plan. **Solution:** The Town Council will work with Fort Bend County to develop an evacuation plan.	Dam/Levee Failure, Disease Outbreak Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,2,3	1 to 2 years	Town of Thompson City Council, Fort Bend County	Local Budget, HMGP	Reduce risk of property loss and potential loss of life in hazard events	Medium	High	LPR	PR, ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-Town of Thompson-006	Weather Radio Programming	**Problem:** The Town weather radio system is out of date and does not reach all areas of the Town. **Solution:** The Town City Council will work with Fort Bend County to obtain new radio systems that will have enough broadband to reach the entire Town prior to hazard event.	Dam/Levee Failure, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1,2,4	Within 5 years	Town of Thompson City Council, Fort Bend County	Local Budget, HMGP	Reduce risk of property loss and potential loss of life in hazard events	High	High	LPR	ES

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS Community Rating System
FEMA Federal Emergency Management Agency
HMA Hazard Mitigation Assistance
N/A Not applicable
NFIP National Flood Insurance Program

Potential FEMA HMA Funding Sources:

FMA Flood Mitigation Assistance Grant Program
HMGP Hazard Mitigation Grant Program
BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies, or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*

- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.17-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-Town of Thompson-001	Debris Management Plan	1	1	1	1	1	1	1	1	1	1	1	1	1	0	14	High
2023-Town of Thompson-002	Protect Power Lines and Infrastructure	1	1	1	1	1	1	0	1	1	1	1	0	1	1	12	High
2023- Town of Thompson-003	Reinforce Critical Facilities	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023- Town of Thompson-004	Promote Flood Insurance	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
2023- Town of Thompson-005	Evacuation Plan	1	0	1	1	1	1	1	1	1	1	1	1	1	1	13	High
2023- Town of Thompson-006	Weather Radio Programming	1	1	1	1	1	1	1	0	1	1	1	0	1	1	12	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

SECTION 9. JURISDICTIONAL ANNEXES

9.18 City of Weston Lakes

This section presents the jurisdictional annex for the City of Weston Lakes that provides resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions to reduce or eliminate damage to property and people that can be implemented prior to a disaster. Information presented includes a general overview of the municipality, the City of Weston Lakes participants who participated in the planning process, an assessment of the City of Weston Lakes risk and vulnerability, the different capabilities used in the City of Weston Lakes, and an action plan that will be implemented to achieve a more resilient community.

9.18.1 Hazard Mitigation Planning Team

The City of Weston Lakes identified primary and alternate points of contact and developed this plan over the course of several months with input from many City of Weston Lakes departments, including City Emergency Management Coordinator. The City Emergency Management represented the community on the Fort Bend County Hazard Mitigation Plan (HMP) Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity. Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Volume 1, Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.18-1. Hazard Mitigation Planning Team

Primary Point of Contact		Alternate Point of Contact	
Name/Title:	Jeremy Barcomb – City Secretary/Emergency Management Assistant	Name/Title:	David Heslep – Emergency Management Coordinator
Address:	8045 FM 359, Suite 200, Fulshear, Texas 77441	Address:	8045 FM 359, Suite 200, Fulshear, Texas 77441
Phone Number:	281-533-0907	Phone Number:	281-505-8436
Email:	citysec@cityofwestonlakes-tx.gov	Email:	emcoordinator@cityofwestonlakes-tx.gov
NFIP Floodplain Administrator			
Name/Title:			
Address:			
Phone Number:			
Email:			
Additional Contributors:			
Name/Title: Method of Participation:	Jeremy Barcomb – City Secretary Provided key input in the planning process		
Name/Title: Method of Participation:	David Heslep – Emergency Management Coordinator Provided key input in the planning process		
Name/Title: Method of Participation:			

Name/Title: Method of Participation:	

9.18.2 Municipal Profile

The City of Weston Lakes is located West of Fulshear, and East of Simonton, Texas in Fort Bend County. The City of Weston Lakes is a small city and was established on the premise of small government providing minimal services as most of the standard municipal services are already provided. Future growth is limited by the boundaries and the fact that the population of Weston Lakes is not expected to grow beyond 4,000–5,000 people.

According to the American Community Survey the 2021 population for the City of Weston Lakes was 3,763. Data from the 2021 American Community Survey indicate that 4.6 percent of the population is 5 years of age or younger, and 24.6 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.18.3 Jurisdictional Capability Assessment and Integration

The City of Weston Lakes performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Volume 1, Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. The jurisdictional assessment includes the following analyses:

- An assessment of legal and regulatory capabilities
- Development and permitting capabilities
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities
- An assessment of education and outreach capabilities
- Classification under various community mitigation programs
- The community's adaptive capacity to withstand hazard events

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of the hazard mitigation analysis, planning/policy documents were reviewed, and each jurisdiction was surveyed to obtain a better understanding of their progress toward plan integration. The updated mitigation strategy provided an opportunity for the City of Weston Lakes to identify opportunities for integration of mitigation concepts that can be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability and Integration

The table below summarizes the regulatory tools that are available to the City of Weston Lakes. The comment field provides information as to how the capability integrates hazard mitigation and risk reduction.

Table 9.18-2. Planning, Legal, and Regulatory Capability and Integration

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations				
Building Code	Yes	International Building Code	Local	City Council
How does this reduce risk? The City of Weston Lakes Adopted the International Building Code.				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
Zoning/Land Use Code	No	-	-	-
How does this reduce risk?				
Subdivision Ordinance	No	-	-	-
How does this reduce risk?				
Site Plan Ordinance	Yes	Ord 02-22	Local	City Council
How does this reduce risk?				
Stormwater Management Ordinance	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery/ Reconstruction Ordinance	No	-	-	-
How does this reduce risk?				
Real Estate Disclosure	-	The Private Real Property Rights Preservation Act - Subchapter B: Chapter 2007 of the General Government Code	-	-
How does this reduce risk?				
Growth Management	No	-	-	-
How does this reduce risk?				
Environmental Protection Ordinance	No	-	-	-
How does this reduce risk?				
Flood Damage Prevention Ordinance	Yes	Ordinance 02-22– Flood Damage Prevention	Local	City Council
How does this reduce risk? City of Weston Lakes floodplain management program and regulations to minimize flood losses, to promote the public health and safety' of the citizens of the City, to establish procedures for the permitting of construction within the flood plain, and to make eligible the citizens residing within the floodplain for the FEMA managed National Flood Insurance Program.				
Wellhead Protection	No	-	-	-
How does this reduce risk?				
Emergency Management Ordinance	Yes		Local	City Council
How does this reduce risk? Provides guidance to the emergency manager on protocol during declared emergencies				
Climate Change Ordinance	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
Planning Documents				
Comprehensive/Master Plan	No	-	-	-
How does this reduce risk?				
Capital Improvement Plan	No	-	-	-
How does this reduce risk?				
Disaster Debris Management Plan	No	-	-	-

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
How does this reduce risk?				
Floodplain Management or Watershed Plan	No	-	-	-
How does this reduce risk?				
Stormwater Management Plan	No	-	-	-
How does this reduce risk?				
Open Space Plan	No	-	-	-
How does this reduce risk?				
Urban Water Management Plan	No	-	-	-
How does this reduce risk?				
Habitat Conservation Plan	No	-	-	-
How does this reduce risk?				
Economic Development Plan	No	-	-	-
How does this reduce risk?				
Shoreline Management Plan	No	-	-	-
How does this reduce risk?				
Community Wildfire Protection Plan	No	-	-	-
How does this reduce risk?				
Community Forest Management Plan	No	-	-	-
How does this reduce risk?				
Transportation Plan	No	-	-	-
How does this reduce risk?				
Agriculture Plan	No	-	-	-
How does this reduce risk?				
Climate Action/ Resiliency/Sustainability Plan	No	-	-	-
How does this reduce risk?				
Tourism Plan	No	-	-	-
How does this reduce risk?				
Business/ Downtown Development Plan	No	-	-	-
How does this reduce risk?				
Other				
Response/Recovery Planning				
Comprehensive Emergency Management Plan	Yes	City of Weston Lakes Emergency Preparedness Implementation Plan -2009	Local	Emergency Management, City Council
How does this reduce risk? City of Weston Lakes Emergency Management Plan describes the responsibilities and actions of the City in response to all hazards threats to the City's citizens and property as a result of natural and manmade occurrences. The plan establishes the structure for of				

	Jurisdiction has this? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
the emergency management process and addresses the phases involved in warning, mitigation, planning, response and recovery in emergency management. The plan serves to provide implementing guidance to the basic Fort Bend County Emergency Operations Plan and defines the responsible agencies, individuals and citizens of Weston Lakes who have emergency management responsibilities within the City of Weston Lakes. While the City is subject to many hazard events, this plan provides planning for the following most likely scenarios: Anticipated Weather event; unanticipated Weather event; a catastrophic medical event, (food poisoning, pandemic influenza); a chlorine gas leak, road blockage; and an area grass fire.				
Continuity of Operations Plan	No	-	-	-
How does this reduce risk?				
Strategic Recovery Planning Report	No	-	-	-
How does this reduce risk?				
Threat & Hazard Identification & Risk Assessment (THIRA)	No	-	-	-
How does this reduce risk?				
Post-Disaster Recovery Plan	No	-	-	-
How does this reduce risk?				
Public Health Plan	No	-	-	-
How does this reduce risk?				
Other	-	-	-	-
How does this reduce risk?				

Development and Permitting Capability

The table below summarizes the capabilities of the City of Weston Lakes to oversee and track development.

Table 9.18-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment:
Do you issue development permits? • If yes, what department is responsible?	Yes	City Secretary's Office
If you do not issue development permits, what is your process for tracking new development?	N/A	
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	Flood Hazard
Do you have a buildable land inventory? • If yes, please describe	No	
Describe the level of build-out in your jurisdiction.	N/A	

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Weston Lakes and their current responsibilities that contribute to hazard mitigation.

Table 9.18-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	No	-
Zoning Board of Adjustment	No	-
Planning Department	No	-
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	No	-
Construction/Building/Code Enforcement Department	No	-
Emergency Management/Public Safety Department	Yes	Emergency Management Coordinator is responsible for the management of City-level HMP updates and oversight of HMP projects. Participate in MPC.
Warning Systems / Services (mass notification system, outdoor warning signals, etc.)	Yes	Mass Notification System
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	No	-
Mutual aid agreements	Yes	Mutual Aid with the County Emergency Services
Human Resources Manual	Yes	Consider the following: Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?
Other	Yes	Public Information Office
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	No	-
Engineers or professionals trained in building or infrastructure construction practices	Yes	City Engineer
Planners or engineers with an understanding of natural hazards	No	-
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	No	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	-
Environmental scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Volunteer/Staff
Grant writer(s)	No	
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	-	-
How do your administrative/technical capabilities contribute to risk reduction in your community?		

Fiscal Capability

The table below summarizes financial resources available to the City of Weston Lakes.

Table 9.18-5. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use? (Yes/No)
Community Development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	No
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	No
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes
Open space acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	TWDB Clean Water State Revolving Fund (CWSRF), Texas Water Development Fund (DFund), TWDB Flood Protection Planning (FPP) Grant

Education and Outreach Capability

The table below summarizes the education and outreach resources available to the City of Weston Lakes.

Table 9.18-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Comment:
Public information officer or communications office	Yes	Public Information Officer (PIO)
Personnel skilled or trained in website development	Yes	
Hazard mitigation information available on your website	Yes	-
Social media for hazard mitigation education and outreach	No	-
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Warning systems for hazard events	Yes	Fort Bend County
Natural disaster/safety programs in place for schools	No	-
Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? • If yes, please describe.	No	-

Community Classifications

The table below summarizes classifications for community programs available to the City of Weston Lakes.

Table 9.18-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Other	-	-	-

Adaptive Capacity

Adaptive capacity is defined as "the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences" (IPCC 2014). Each jurisdiction has a unique combination of capabilities to adjust to, protect from, and withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each identified hazard of concern and the jurisdiction's capability to address related actions using the following classifications:

- Strong: Capacity exists and is in use.
- Moderate: Capacity might exist; but is not used or could use some improvement.
- Weak: Capacity does not exist or could use substantial improvement.

Table 9.18-8. Adaptive Capacity

Hazard	Adaptive Capacity – Strong/Moderate/Weak
Dam/Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Geologic Hazards	Moderate
Hurricane/Tropical Storm	Moderate
Severe Weather	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Weather	Moderate

9.18.4 National Flood Insurance Program (NFIP) Compliance

This section provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP. The Floodplain Administrator is responsible for maintaining this information and is listed in the Hazard Mitigation Planning Team table at the beginning of this annex.

NFIP Summary

The following table summarizes the NFIP statistics for the City of Weston Lakes.

Table 9.18-9. NFIP Summary

Municipality	Policies in Force[a]	Number of Paid Claims[a]	Amount of Paid Claims[a]	Number of NFIP RL Properties[b]	Number of NFIP SRL Properties[b]
Weston Lakes (C)	684	52	$7,426,026.12	0	0

Sources: a BureauNet 2022 (https://nfipservices.floodsmart.gov/reports-flood-insurance-data)
b 2018 Fort Bend County HMP
Notes: Due to a contractual agreement with FEMA, detailed information at the municipal level was not available to incorporate into the 2023 HMP Update. The information presented here was collected from data provided by the State of Texas and from FEMA's HUDEX Report.
**Number of RL and SRL properties provided by the State of Texas*
***Total policies in force and paid claims collected from FEMA's OpenFEMA Dataset: FIMA NFIP Redacted Claims*
RL Repetitive Loss
SRL Severe Repetitive Loss

Flood Vulnerability Summary

The following table provides a summary of the NFIP program in the City of Weston Lakes.

Table 9.18-10. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. • Do you maintain a list of properties that have been damaged by flooding?	No
• Do you maintain a list of property owners interested in flood mitigation? • How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	No/Unknown
Are any RiskMAP projects currently underway in your jurisdiction? • If so, state what projects are underway.	No
• How do you make Substantial Damage determinations? • How many were declared for recent flood events in your jurisdiction?	Ordinance 02-22 Defines Substantial Damage as damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? • If there are mitigated properties, how were the projects funded?	N/A
Do your flood hazard maps adequately address the flood risk within your jurisdiction? • If not, state why.	-
NFIP Compliance	
What local department is responsible for floodplain management?	City Secretary's Office/City Engineer
Are any certified floodplain managers on staff in your jurisdiction?	Yes
Do you have access to resources to determine possible future flooding conditions from climate change?	Yes

NFIP Topic	Comments
Does your floodplain management staff need any assistance or training to support its floodplain management program? • If so, what type of assistance/training is needed?	The City would like to additional certified personnel as floodplain managers.
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Permit Review
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	In ordinance 02-22 significant improvement is defined as: any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term does not, however, include either: (1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or (2) Any alteration of a "historic structure", provided that the alteration will not preclude the structure's continued designation as a "historic structure."
What are the barriers to running an effective NFIP program in the community, if any?	N/A
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? • If so, state the violations.	No
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	The City had contact with the TWDB in early November to discuss current program status and additional training desired.
• What is the local law number or municipal code of your flood damage prevention ordinance? • What is the date that your flood damage prevention ordinance was last amended?	Ordinance 02-22- Passed & Effective June 28, 2022
Does your floodplain management program meet or exceed minimum requirements? • If exceeds, in what ways?	Exceed. The current ordinance requires all slabs to be constructed at minimum of 24-inches above the SFHA (1% BFE) or natural ground, whichever is higher. This is above the minimum 12-inches recommended by FEMA.
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Yes, as part of the Ordinance 02-22 Floodplain Development Permits must be submitted and approved before work may begin. Part of the permit approval process includes site plan review.
Does your community plan to join the CRS program or is your community interested in improving your CRS classification?	The City is interested in joining and is determining feasibility of joining.

9.18.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to appreciating a jurisdiction's overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.18-11. Number of Building Permits for New Construction

Type of Development	2018		2019		2020		2021		2022	
Number of Building Permits for New Construction Issued Since the previous HMP* (total/within regulatory floodplain)										
	Total	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**	**Total**	**Within SFHA**
Single-Family	11		26		33		32		39	5
Multi-Family	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	0	0	0	0	0	0	0	0	0	0
Total Permits Issued	11	0	26	0	33	0	32	0	39	5

SFHA Special Flood Hazard Area (1% annual chance flood event)

** Only location-specific hazard zones or vulnerabilities identified.*

Table 9.18-12. Recent and Expected Future Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Address and Parcel ID	Known Hazard Zone(s)	Description/Status of Development
Recent Major Development from 2018 to Present					
Not Applicable					
Known or Anticipated Major Development in the Next Five (5) Years					
No known or anticipated major development in the next five years					

9.18.6 Jurisdictional Risk Assessment

The hazard profiles in Volume 1, Section 4 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 4.1 (Methodology and Tools) and Section 4.4 (Hazard Ranking) provide detailed summaries for the City of Weston Lakes' risk assessment results and data used to determine the hazard ranking discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were generated only for those hazards that can be identified clearly using mapping techniques and technologies and for which the City of Weston Lakes has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.18-1. City of Weston Lakes Hazard Area Extent and Location Map-Dam Inundation

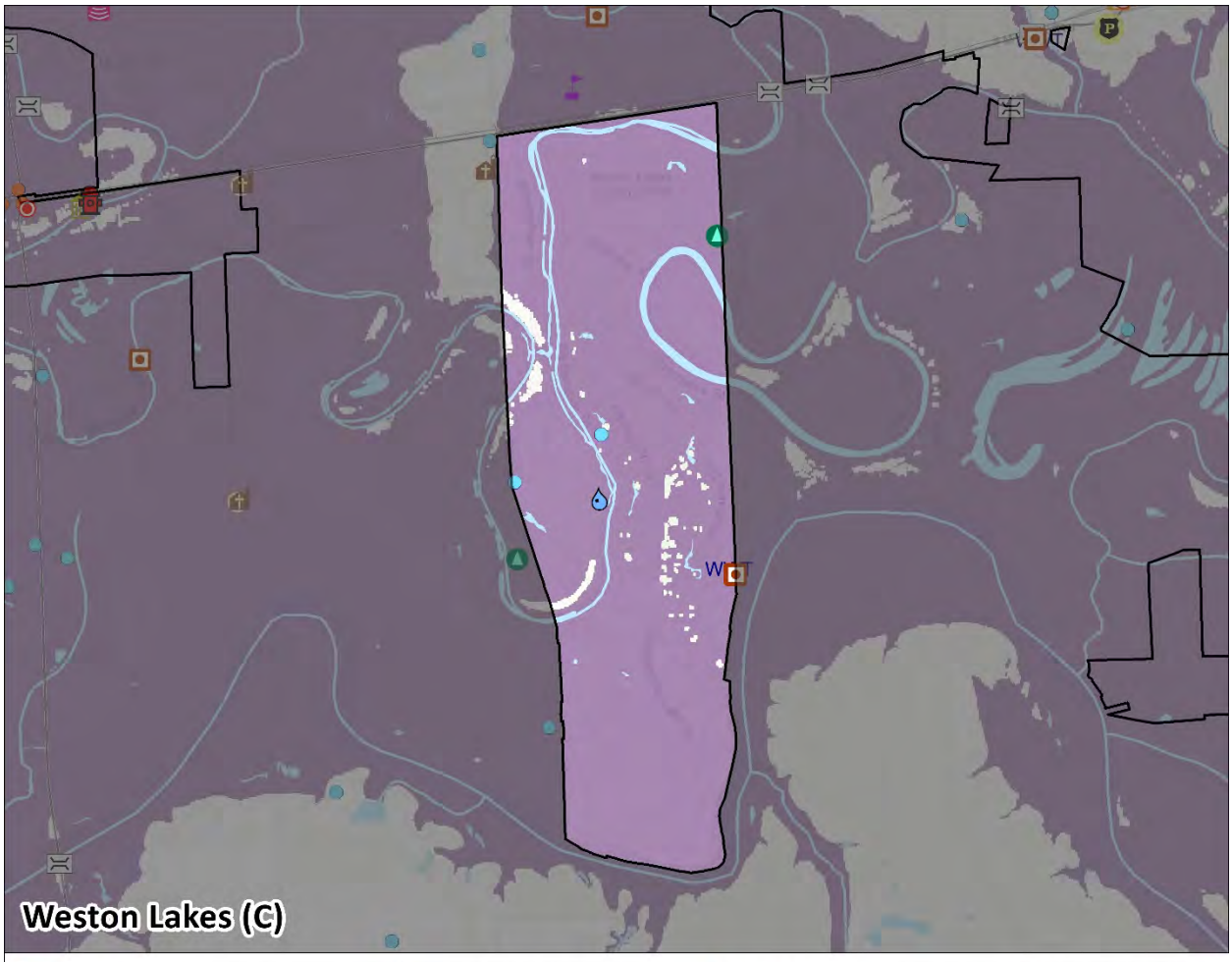
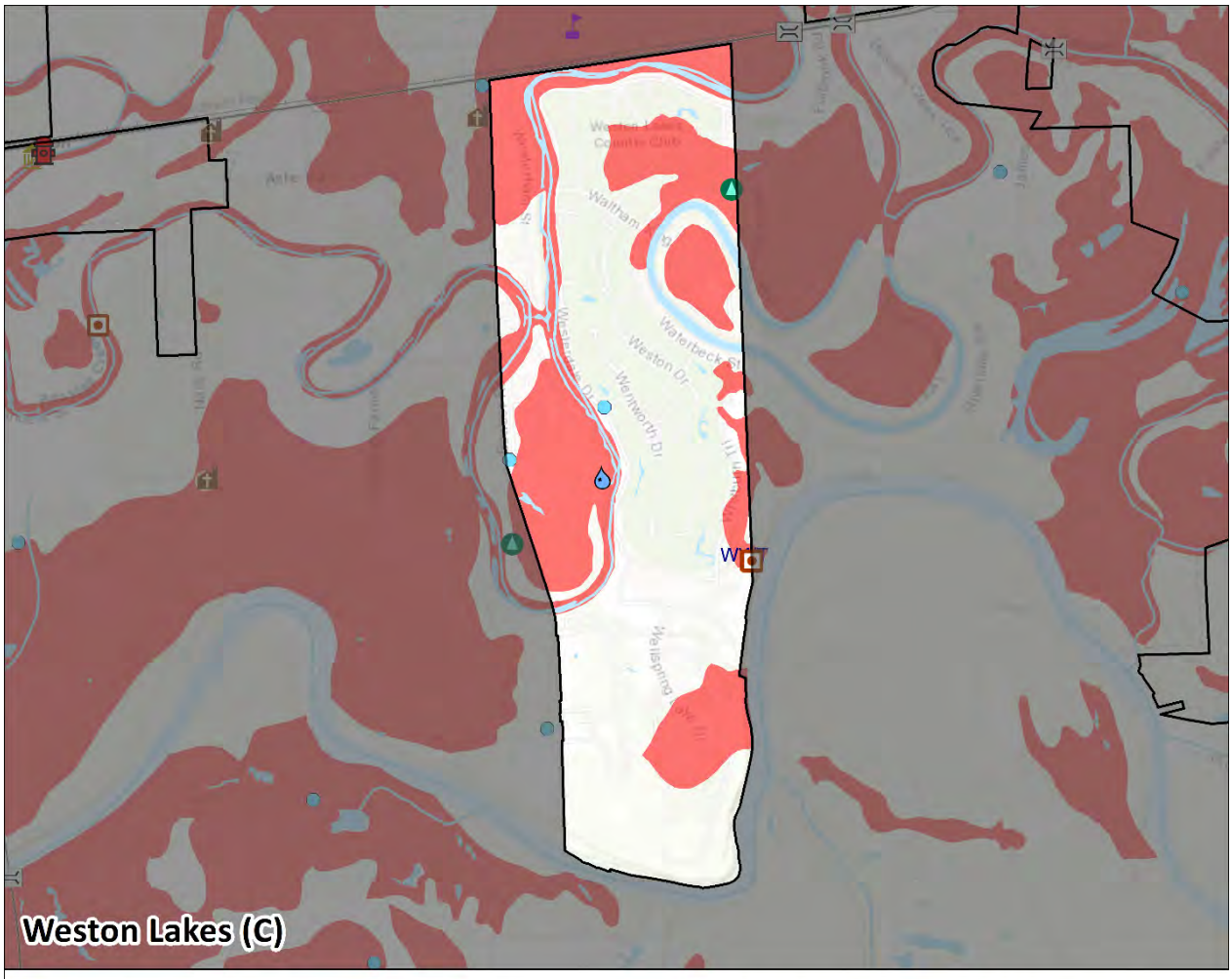


Figure 9.18-2. City of Weston Lakes Hazard Area Extent and Location Map-Expansive Soils



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Expansive Soils Hazard Area

- Linear Extensibility >6%

Miles
0 0.35 0.7

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; U.S. Department of Agriculture, Natural Resources Conservation Service 2022

Notes: City (C), Township (T), Village (V)

Figure 9.18-3. City of Weston Lakes Hazard Area Extent and Location Map-Flood

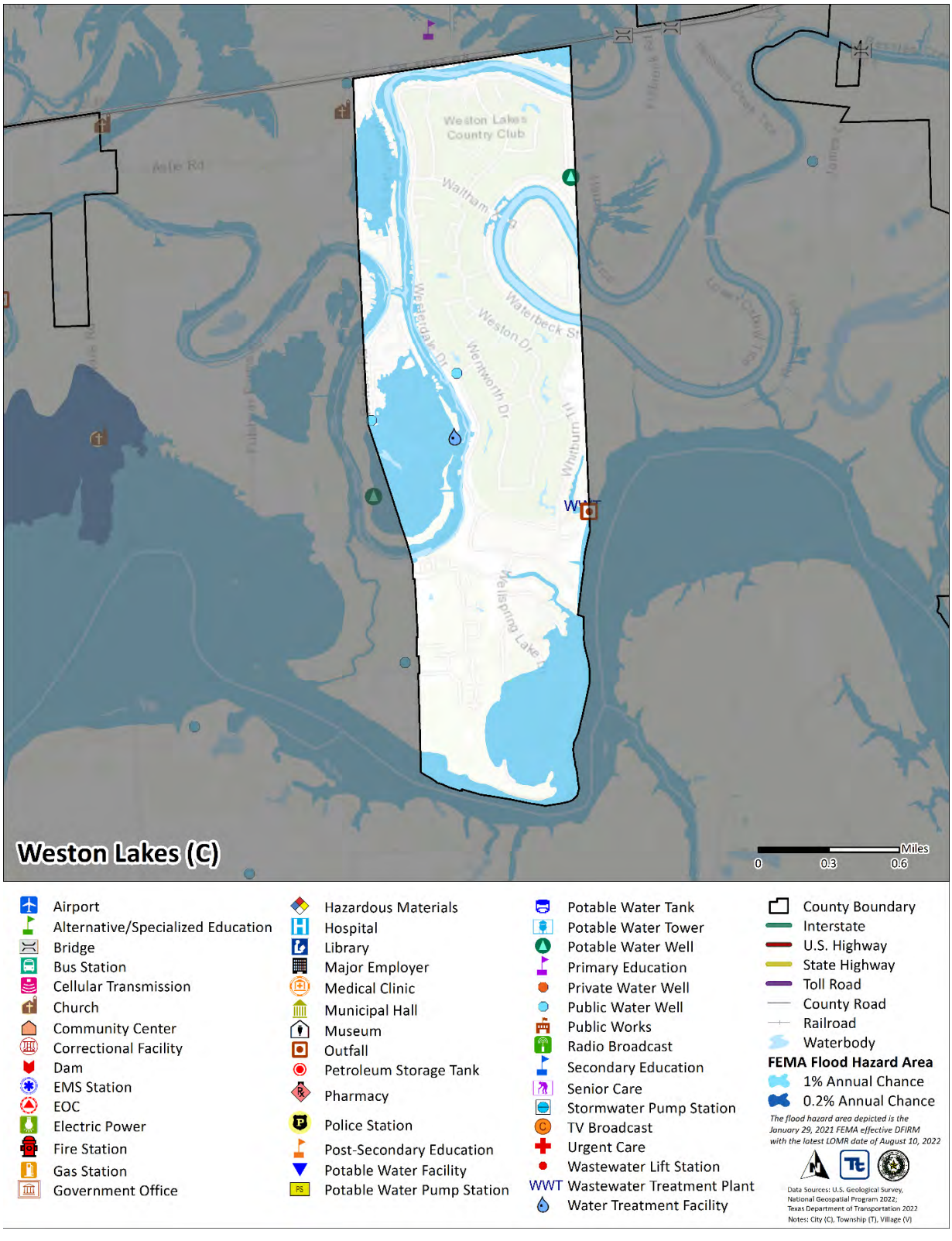


Figure 9.18-4. City of Weston Lakes Hazard Area Extent and Location Map-Inland Erosion

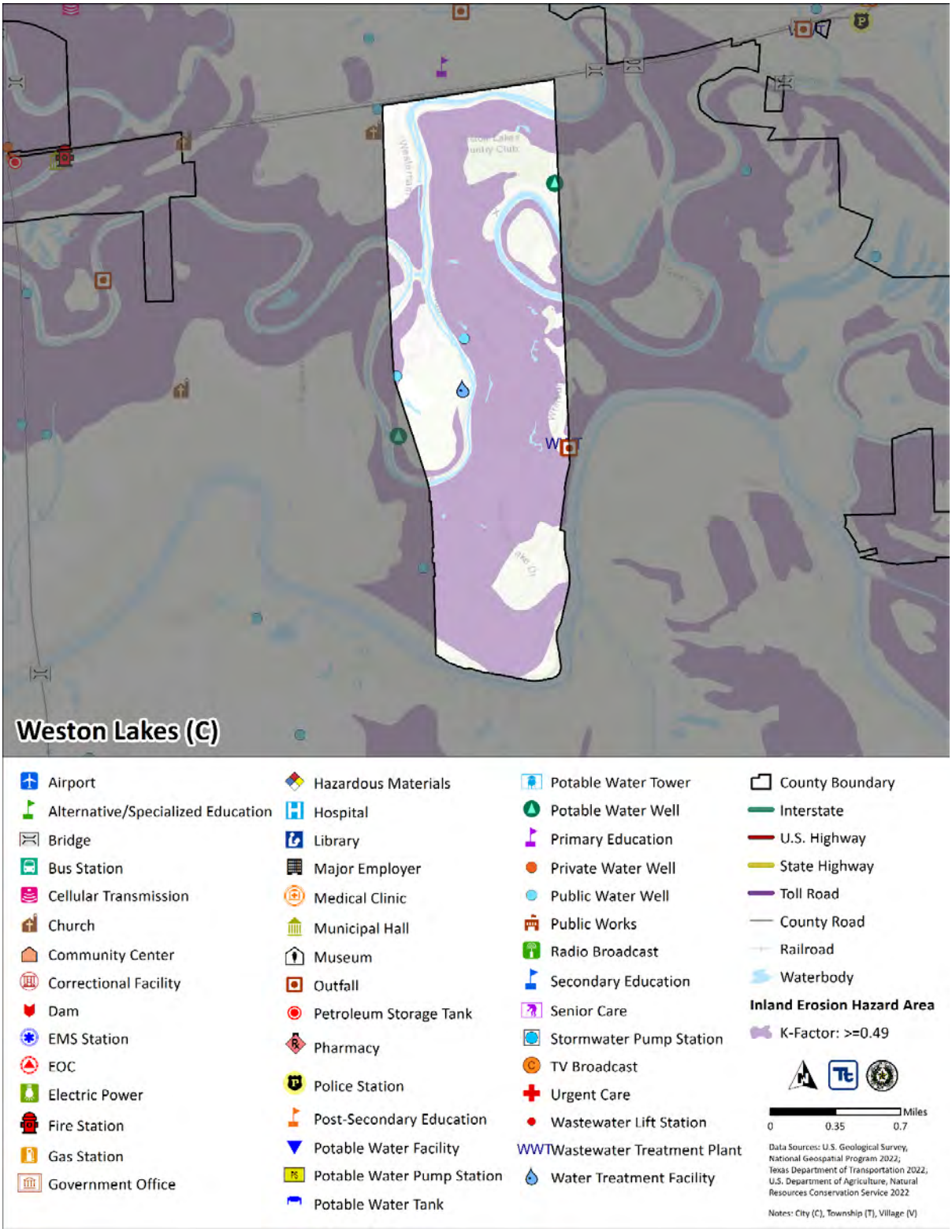
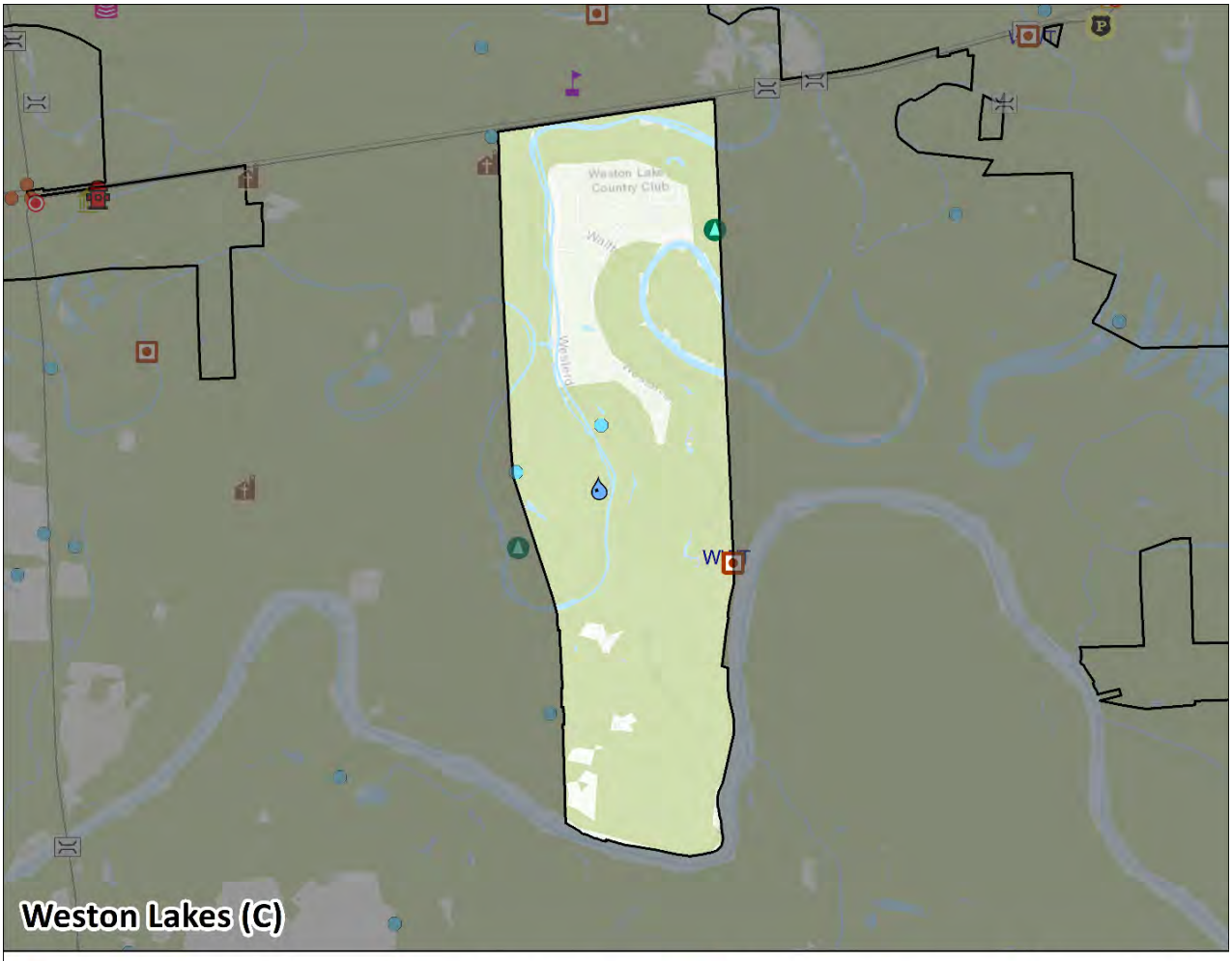


Figure 9.18-5. City of Weston Lakes Hazard Area Extent and Location Map-Wildfire



- Airport
- Alternative/Specialized Education
- Bridge
- Bus Station
- Cellular Transmission
- Church
- Community Center
- Correctional Facility
- Dam
- EMS Station
- EOC
- Electric Power
- Fire Station
- Gas Station
- Government Office
- Hazardous Materials
- Hospital
- Library
- Major Employer
- Medical Clinic
- Municipal Hall
- Museum
- Outfall
- Petroleum Storage Tank
- Pharmacy
- Police Station
- Post-Secondary Education
- Potable Water Facility
- Potable Water Pump Station
- Potable Water Tank
- Potable Water Tower
- Potable Water Well
- Primary Education
- Private Water Well
- Public Water Well
- Public Works
- Radio Broadcast
- Secondary Education
- Senior Care
- Stormwater Pump Station
- TV Broadcast
- Urgent Care
- Wastewater Lift Station
- WWT Wastewater Treatment Plant
- Water Treatment Facility
- County Boundary
- Interstate
- U.S. Highway
- State Highway
- Toll Road
- County Road
- Railroad
- Waterbody

Wildfire Hazard Area

- Low Threat
- Moderate Threat

Miles
0 0.3 0.6

Data Sources: U.S. Geological Survey, National Geospatial Program 2022; Texas Department of Transportation 2022; Texas A&M Forest Service 2022

Notes: City (C), Township (T), Village (V)

Hazard Event History

Fort Bend County has a history of natural and non-natural hazard events, as detailed in Volume I, Section 4 (Risk Assessment). A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities.

The City of Weston Lakes' history of federally declared (as presented by FEMA) and significant hazard events [as presented in NOAA-National Centers for Environmental Information (NCEI)] is consistent with that of the County. The table below provides details regarding municipal-specific loss and damages the City of Weston Lakes experienced during hazard events since the last HMP update. Information provided in the table below is based on reference material or local sources.

Table 9.18-13. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
January 20, 2020 – continuing	EM-3458 – Covid-19; DR-4485 – Covid-19 Pandemic	Yes	Covid-19 pandemic.	The City was subject to closures and masking/social distancing requirements.
July 25-31, 2020	EM-3530 – Hurricane Hanna	Yes	Hurricane force winds resulted in significant number of downed trees and utility lines.	Minor damage, tree limbs.
August 23-27, 2020	EM-3540 – Tropical Storms Marco and Laura	Yes	Fort Bend County activated their emergency operations center as fringe impacts of Tropical Storms Marco and Laura impacted the County	
September 12-18, 2021	EM-3572 Hurricane Nicholas	No	Hurricane Nicholas produced several hours of tropical storm force sustained winds and gusts. There were numerous power outages and minor to moderate damage to some structures and roofs. Trees down in areas.	Minor wind damage, down fences and trees and limbs and minor power outages.
February 11-21, 2021	DR-4586; EM 3554 – Severe Winter Storms	Yes	Winter Storm Uri distributed a record amount of snow throughout Texas. Snow, ice, and ultra-low temperatures caused widespread road closures.	Moderate infrastructure damage, moderate damage to citizen's homes. Main damage was damage to pipes. Estimated damage over $500k.

Source: FEMA 2023; NOAA 2023

Hazard Ranking and Vulnerabilities

The hazard profiles in Volume 1, Section 4 (Risk Assessment) have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the City of Weston Lakes's risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Volume 1, Section 4 (Risk Assessment). The ranking process involves an assessment of the likelihood of occurrence for each hazard; the potential impacts of the hazard on people, property, and the economy; and community capabilities to address the hazard and changing future climate conditions. Mitigation action development uses the inputs from the evaluation to target those hazards with highest level of concern.

As discussed in Volume 1, Section 4.4 (Hazard Ranking), each participating jurisdiction has differing degrees of risk exposure and vulnerability compared with the County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Weston Lakes. The City of Weston Lakes reviewed the County hazard risk/vulnerability risk ranking table and individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City of Weston Lakes indicated the following:

- The City lowered wildfire from high to medium due to fewer wildfire incidents.
- The City changed flood from low to medium due to increased flooding concerns from residents.

Table 9.18-14. Hazard Ranking Input

Hazard	Rankings
Dam/Levee Failure	Low
Disease Outbreak	Low
Drought	Medium
Extreme Temperature	Medium
Flood	Low
Geologic Hazards	High
Hurricane/Tropical Storm	Medium
Severe Weather	High
Tornado	Medium
Wildfire	Medium
Winter Weather	Medium

Critical Facilities

The table below identifies the number of critical facilities and community lifelines in the community located in hazard areas. The community reviewed the list of facilities and lifelines to determine appropriate mitigation measures for the facilities, where appropriate. Refer to Section 4.3 (Hazard Profiles) for details on the risk assessment and the facilities and lifelines exposed to each hazard of concern.

Table 9.18-15. Potential Flood Losses to Critical Facilities

Jurisdiction	1-Percent Annual Chance Flood Event Hazard Area		Wildfire Hazard Area – Moderate Risk		Inland Erosion (K-Factor: >= 0.49) Hazard Area		Expansive Soils (Linear Extensibility >6%) Hazard Area		Dam Inundation Hazard Area - Barker Reservoir Dam Inundation Area		Dam Inundation Hazard Area - Lake Sommerville Dam Inundation Area		Dam Inundation Hazard Area - Kitty Hollow Dam Inundation Area	
	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines	Critical Facilities	Lifelines
Weston Lakes (C)	2	2	0	0	2	2	5	5	0	0	7	7	0	0

Source: Fort Bend County; Hazus v5.1; FEMA 2022; Fort Bend Drainage District 2023

In addition to critical facilities that are exposed to flooding, the following high hazard dams are located in or could impact the City of Weston Lakes:

- Lake Sommerville Dam Inundation Area

Identified Issues

After review of the City of Weston Lakes' hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Weston Lakes identified the following vulnerabilities within their community:

- The Fort Bend County MUD #81 Station 2 is located within the 1% and.2% flood hazard area.
- City residents are unaware of certain hazard related issues that may affect them, their properties, or a neighboring property.
- The City evacuation plan is out of date.
- The City does not incorporate wildfire mitigation in the comprehensive plan.
- The City is not equipped to properly handle winter weather.

**This issue was identified as a specific area of concern based on resident response to the Fort Bend County Hazard Mitigation public survey.*

9.18.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and prioritizes actions to address over the next five years.

Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2018 HMP. Actions that are in progress are carried forward and combined with new actions as part of this plan update and are included in the tables with prioritization. Previous actions that are now ongoing programs and capabilities are indicated as such and previously presented in the Capability Assessment earlier in this annex.

Table 9.18-16. Status of Previous Mitigation Actions

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Building Standards – Hurricane Tie Downs and Soil Compaction	City of Weston Lakes Emergency Management Coordinator (EMC)	No Progress	No		
Citizens Warning Plan	City of Weston Lake EMC	In Progress	Yes		City Council, City Secretary, EMC
Drainage Channel Assessment	City of Weston Lakes EMC, Property Owners Association and City Engineer	Completed	No		
Educate Public About Emergency Preparedness	Public Information Office, EMC	Ongoing	Yes		
Improvements to Floodplain Permit Process	Weston Lakes EMC, City Engineer	In Progress	Yes		
Conduct flood study along Bessie's Creek from the Waller County line to the full course of the Creek in and through Fort Bend County. The purpose of the study would be to establish the runoff flows, channel depths, and water surface elevations to establish base flood elevations (BFEs) for this area. Once studied flooding mitigation options could be developed to lower the BFE elevations.	Weston Lakes EMC, City Engineer, County Engineer	In Progress (Ties into project 3, might be completed)			
Warning Notification System	City of Weston Lakes EMC	In Progress (Ties into Project 2)			
Promote Flood Insurance	City of Weston Lakes EMC	In Progress			
Increase Public Awareness of Hazard Mitigation	Public Information Office, EMC	Ongoing			
Evacuation Plans	City of Weston Lakes EMC	Ongoing			
Wildfire Hazard Area Study	City of Weston Lakes EMC	No Progress			
Develop and Adopt Drought Contingency Program	City of Weston Lakes	Refer to MUD 81 & Aqua Texas			
Public Information Campaigns	City of Weston Lakes Public Information Office (PIO)	In Progress			

Project	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2023 HMP (i.e., there is still a need, this is still a priority)?		
			Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
Evaluate Excess Heat Risks	City of Weston Lakes EMC	In Progress			
Address High Risk Populations (Excessive Heat)	City of Weston Lakes EMC	In Progress			
Review Plans and Resources to Address Risk Posed by Snow and Ice Hazards During Winter Storms	City of Weston Lakes EMC	In Progress			
Various Mitigation Actions to Reduce Wildfire Risks	Fire Dept/EMC/ESD	In Progress			
Structural/Engineering Study of Weston Lakes Country Club	City of Weston Lakes EMC	No Progress			

Additional Mitigation Efforts

In addition to the mitigation initiatives completed in the table above, the City of Weston Lakes identified the following mitigation efforts completed since the last HMP:

- Drainage Channel Assessments

Since the adoption of the County's first HMP, the City of Weston Lakes has made significant mitigation progress in the following areas:

- Evaluating excess heat risks.
- Addressing high risk populations.
- Updating evacuation plans.
- Increasing public awareness of hazard mitigation.
- Promoting flood insurance policy to residents and business owners.
- Updating the City warning systems for advanced warning of hazard events.
- Conducting a flood study along Bessie's Creek from the Waller County line to the full course of the Creek in and through Fort Bend County. The study establishes the runoff flows, channel depths, and water surface elevations in order to establish the BFEs for the surrounding areas.
- Increased public education about emergency preparedness.
- Completed drainage channel assessments.

Proposed Hazard Mitigation Initiatives for the HMP Update

Fort Bend County participated in a mitigation action workshop in March 2023 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards (January 2013) and FEMA Mitigation Assistance Resource Guide for Texas (2020).

The table below indicates the range of proposed mitigation action categories. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table to further demonstrate the wide-range of activities and mitigation measures selected.

Table 9.18-17. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam/Levee Failure	X	-	-	X	X	X	X	-	-	X
Disease Outbreak	X	-	-	X	X	X	X	-	-	X
Drought	X	-	-	X	X	X	X	-	-	X
Extreme Temperature	X	-	-	X	X	X	X	-	-	X
Flood	X	X	-	X	X	X	X	-	-	X
Geologic	X	-	-	X	X	X	X	-	-	X
Hurricane/Tropical Storm	X	-	-	X	X	X	X	-	-	X
Severe Weather	X	-	-	X	X	X	X	-	-	X
Tornado	X	-	-	X	X	X	X	-	-	X
Wildfire	X	-	-	X	X	X	X	-	-	X
Winter Weather	X	-	-	X	X	X	X	-	-	X

Note: Mitigation categories are described below the Mitigation Initiatives.

The table below summarizes the specific mitigation initiatives the City of Weston Lakes would like to pursue in the future to reduce the effects of hazards. The initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities.

Table 9.18-18. Proposed Hazard Mitigation Initiatives

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Weston Lakes-001	Water Treatment Facility	**Problem:** The Fort Bend County MUD #81 Station 2 is located within the 1% and.2% Flood hazard area **Solution:** The City Office of Emergency Management will work with Fort Bend County to improve waste water capacity.	Flood	2,3,4	Within 5 years	City of Weston Lakes OEM, Fort Bend County	HMGP, FMA	Reduce risk to loss of property and continuity of operations	High	High	SIP	PP
2023-City of Weston Lakes-002	Mitigation Education	**Problem:** City residents are unaware of certain hazard related issues that may affect them, their properties, or a neighboring property. **Solution:** The City will provide classes for home/business owners that provides them with Do-It-Yourself options for performing mitigation measures for the hazards of concern in their own homes and properties. The City will schedule these classes on their website and will record and post the classes online.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	1	1 year	City of Weston Lakes Emergency Management Coordinator	City Budget	City residents will be more knowledgeable about hazards that affect their properties	Low	High	EAP	PI, PP, PR, ES

Project Number	Mitigation Initiative Name	Description of Problem and Solution	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
2023-City of Weston Lakes-003	Update Evacuation Plans	**Problem:** The City evacuation plan is out of date. **Solution:** The City Emergency Management Coordinator will work with Fort Bend County to update the City Evacuation Plan.	Dam/Levee Failure, Disease Outbreak, Drought, Extreme Temperature, Flood, Geologic Hazards, Hurricane/Tropical Storm, Severe Weather, Tornado, Wildfire, Winter Weather	2	1 year	City of Weston Lakes Emergency Management Coordinator, Fort Bend County	City Budget	Reduce the potential loss of life and property	Low	High	LPR	PR
2023-City of Weston Lakes-004	Reduce Wildfire Risk	**Problem:** The City does not incorporate wildfire mitigation in the comprehensive plan. **Solution:** The City Fire Department and Emergency Management Coordinator will work with the City to update guidance regarding wildfire risks in the City Comprehensive Plan.	Wildfire, Drought	2,3,5	1 to 2 years	City of Weston Lakes Emergency Management Coordinator, City of Weston Lakes Fire Department	City Budget	Reduce the potential loss of life and property	Low	High	LPR	PR
2023-City of Weston Lakes-005	Reduce Winter Weather Risk	**Problem:** The City is not equipped to properly handle winter weather. **Solution:** The City Emergency Management Coordinator will work with Fort Bend County to review plans and resources that address winter weather events. The City will implement recommendations for snow removal.	Winter Weather	2	1 to 2 years	City of Weston Lakes Emergency Management Coordinator, Fort Bend County	City Budget	Reduce loss of life and property, increase preparedness for winter weather events	Low	High	LPR	PR, PP

**Mitigation initiative is related to a critical facility and/or community lifeline*

Notes: Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

CRS	*Community Rating System*
FEMA	*Federal Emergency Management Agency*
HMA	*Hazard Mitigation Assistance*
N/A	*Not applicable*
NFIP	*National Flood Insurance Program*

Potential FEMA HMA Funding Sources:

FMA	*Flood Mitigation Assistance Grant Program*
HMGP	*Hazard Mitigation Grant Program*
BRIC	*Building Resilient Infrastructure and Communities Program*

Timeline:

The time required for completion of the project upon implementation.

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)—These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP)—These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures, as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP)—These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP)—These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

- *Preventative Measures (PR)—Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP)—These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI)—Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR)—Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP)—Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES)—Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

The prioritization criteria provided in Volume 1, Section 6 (Mitigation Strategy) identify 14 evaluation/prioritization criteria to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14 evaluation criteria to assist with prioritizing actions as High, Medium, or Low. The table below provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.18-19. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2023-City of Weston Lakes-001	Water Treatment Facility	1	1	1	1	1	1	1	1	1	1	0	0	1	1	12	High
2023-City of Weston Lakes-002	Mitigation Education	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Weston Lakes-003	Update Evacuation Plans	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
2023-City of Weston Lakes-004	Reduce Wildfire Risk	1	1	1	1	1	1	1	1	1	1	1	1	1	0	13	High
2023-City of Weston Lakes-005	Reduce Winter Weather Risk	1	1	1	1	1	1	1	1	1	1	0	1	1	0	12	High

Note: Volume 1, Section 6 (Mitigation Strategy) conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

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None

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None

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Acronyms and Abbreviations

A

ACS: American Community Survey

ADA: Americans with Disabilities Act

AICP: American Institute of Certified Planners

ARPA: American Rescue Plan Act

B

BCA: Benefit Cost Analysis

BCEGS: Building Code Effectiveness Grading Schedule

BCGCD: Brazoria County Groundwater Conservation District

BFE: Base Flood Elevation

BOA: Board of Adjustments

BRIC: Building Resilient Infrastructure and Communities

C

CAC: Community Assistance Contacts

CAPER: Consolidated Annual Performance and Evaluation Report

CAV: Community Assistance Visits

CDBG: Community Development Block Grant

CDBG-DR: Community Development Block Grant – Disaster Recovery

CDBG-MIT: Community Development Block Grant Mitigation

CDC: Center for Disease Control

CDMS: Comprehensive Data Management System

CELCP: Coastal and Estuarine Land Conservation Program

CEMP: Comprehensive Emergency Management Plan

CERT: Community Emergency Response Team

CEO: Chief Executive Officer

CEPRA: Coastal Erosion Planning and Response Act

CFM: Certified Floodplain Manager

CFR: Code of Federal Regulations

CRS: Community Rating System

CHAMPS: Community Hazard Analysis and Mitigation Planning Support

CHARM: Community Health and Resource Management

CIP: Capital Improvements Program

CMP: Coastal Management Program

COOP: Continuity of Operations Plan

COS: City of Stafford

COVID: Coronavirus Disease

CR: County Road

CRS: Community Rating System

CSV: Comma Separated Values

CTP: Cooperation Technical Partners

CWSRF: Clean Water State Revolving Fund

D

DEM: Digital Elevation Model

DFIRM: Digital Flood Insurance Rate Map

DHS: Department of Homeland Security

DMA: Disaster Mitigation Act

DOT: Department of Transportation

DPW: Department of Public Works

DR: Major Disaster Declaration

DSHS: Department of State Health Services

E

EAP: Education and Awareness Programs

EAP: Event Action Plan

EDC: Economic Development Commission/Committee

EF Scale: Enhanced Fujita Tornado Intensity Scale

EHP: Environmental Planning and Historical Preservation

EI: Erodibility Index

EM: Emergency Declaration

EM: Emergency Management

EMC: Emergency Management Coordinator

EMPG: Emergency Management Performance Grant

EMS: Emergency Medical Service

ENS: Emergency Notification System

EOC: Emergency Operations Center

EPA: Environmental Protection Agency

ERC: Emergency Response Committee

ES: Emergency Services

ESG: Emergency Shelter Grant

ESG: Emergency Solutions Grant

ESD: Emergency Services District

ETC: Etcetera

ETJ: Extraterritorial Jurisdiction

EWP: Emergency Watershed Protection

F

FBC: Fort Bend County

FBCDD: Fort Bend County Drainage District

FBCPTD: Fort Bend County Public Transportation Department

FBHHS: Fort Bend County Health & Human Services

FBCSO: Fort Bend County Sheriff's Office

FBT: Fort Bend Transit

FEMA: Federal Emergency Management Agency

FHWA: Federal Highway Administration

FIF: Flood Infrastructure Fund

FIRM: Flood Insurance Rate Map

FIS: Fire Intensity Scale

FM: Farm to Market Road

FMA: Flood Mitigation Assistance

FPA: Floodplain Administrator

FPP: Flood Protection Planning Grant

FRR: Flood Risk Report

FSA: Farm Service Agency

FTA: Federal Transit Authority

FY: Fiscal Year

G

GAC: Granular Activated Carbon

GCWA: Gulf Coast Water Authority

GIS: Geographic Information System

GLO: General Land Office

GOMESA: Gulf of Mexico Energy Security Act

GPS: Global Positioning Station

H

HAZMAT: Hazardous Materials

HAZUS: Hazards United States

HGSD: Harris-Galveston Subsidence District

HMA: Hazard Mitigation Assistance

HMAP: Hazard Mitigation Action Plan

HMGP: Hazard Mitigation Grant Program

HMP: Hazard Mitigation Plan

HOA: Home Owners Association

HOPWA: Housing Opportunities for Persons With AIDS Program

HR: Human Resources

HS&EM: Homeland Security and Emergency Management

HHS: Health and Human Services

HSGP: Homeland Security Grant Program

HUD: U.S. Department of Housing and Urban Development

HVAC: Heating, Ventilation, and Air Conditioning

I

IA: Individual Assistance

IBC: International Residential Code

ICC: Increased Cost of Compliance

ICS: Incident Command System

ID: Identification

IPAWS: Integrated Public Alert and Warning System

IPCC: Intergovernmental Panel on Climate Change

IRC: Internal Revenue Code

ISAA: Information Sharing Access Agreement

ISD: Independent School District

ISO: International Organization for Standardization

IT: Information Technology

J

None

K

KBDI: Keetch-Byram Drought Index

L

LAL: Lightning Activity Level

LED: Light-Emitting Diode

LID: Levee Improvement District

LIDAR: Light Detection and Ranging

LJA: Lichliter/Jameson & Associates

LLC: Limited Liability Company

LMI: Low-To- Moderate Income

LPR: Local Plans and Regulations

LSGCD: Lone Star Groundwater Conservation District

LUE: Land Use Elements

M

MCM: Minimal Control Measures

MDP: Master Drainage Plan

MH: Multi-Hazard

MIT: Mitigation

MPC: Mitigation Planning Committee

MRP: Mean Return Period

MTA: Metropolitan Transit Authority

MUD: Municipal Utility District

N

N/A: Not Applicable

NASA: National Aeronautics and Space Administration

NCC: Network Control Center

NCDC: National Climatic Data Center

NCEI: National Centers for Environmental Information

NCHH: National Center for Healthy Housing

NDMC: National Drought Mitigation Center

NFIP: National Flood Insurance Program

NFPA: National Fire Prevention Association

NHC: National Hurricane Center

NIC: National Influenza Centers

NIDIS: National Integrated Drought Information System

NLDN: National Lightning Detection Network

NOAA: National Oceanic and Atmospheric Administration

NP: Not Participating

NPL: National Priorities List

NR: Natural Resource Protection

NRG: Natural Resources Group

NRI: National Resources Inventory

NRCD: National Resource Defense Council

NRCS: Natural Resources Conservation Service

NRDA: Natural Resources Damage Assessment

NSIDC: National Snow and Ice Data Center

NSP: Natural Systems Protection

NSSL: National Severe Storms Laboratory

NTIA: National Telecommunications Information Administration

NWCG: National Wildfire Coordinating Group

NWS: National Weather Service

O

OEM: Office of Emergency Management

OT: Overtime

P

PA: Public Assistance

PA System: Public Address System

PARCS: Parks, Art, Recreation, Culture and Streetscapes

PD: Police Department

PDM: Pre-Disaster Mitigation

PDSI: Palmer Drought Severity Index

PE: Professional Engineer

PI: Public Information

PIO: Public Information Officer

PJ: Participating Jurisdictions

POA: Property Owners' Association

PP: Property Protection

PPE: Personal Protective Equipment

PR: Preventative Measures

PRP: Preferred Risk Policy

PUD: Planned Unit Development

Q

None

R

RCBAP: Residential Condominium Building Association Policy

RCV: Replacement Cost Value

RL: Repetitive Loss

RSI: Regional Snowfall Index

RSV: Replacement Cost Value

S

SBA: Small Business Administration

SCADA: Supervisory Control and Data Acquisition

SE: Southeast

SFHA: Special Flood Hazard Area

SFIP: Standard Flood Insurance Policy

SGIA: Smart Growth Implementation Assistance

SH: State Highway

SHMP: State Hazard Mitigation Plan

SIP: Structure and Infrastructure Project

SP: Structural Flood Control Projects

SPC: Storm Prediction Center

SRL: Severe Repetitive Loss

STAPLEE: Social, Technical, Administrative, Political, Legal, Economic, and Environmental

SUD: Special Utility District

SUV: Sport Utility Vehicle

SWCD: Soil and Water Conservation District

SWMP: Storm Water Management Program

SWOO: Strengths, Weaknesses, Obstacles, and Opportunities

SWTP: Surface Water Treatment Plant

T

TAMU: Texas A&M University

TBD: To Be Determined

TCELCP: Texas Coastal and Estuarine Land Conservation Program

TCEQ: Texas Commission on Environmental Quality

TDEM: Texas Department of Emergency Management

TDHCA: Texas Department of Housing and Community Affairs

TDLR: Texas Department of Licensing and Regulation

TEA: Texas Education Agency

TEXSAR: Texas Search and Rescue

TFFC: Texas Flash Flood Coalition

TFMA: Texas Floodplain Management Association

TFRLCP: Texas Farm and Ranch Lands Conservation Program

TFS: Texas Forest Service

THIRA: Threat & Hazard Identification and Risk Assessment

TIGER: Transportation Investment Generating Economic Recovery

TML: Texas Municipal League

TMP: Traffic Management Plan

TMUTCD: Texas Manual on Uniform Traffic Control Devices

TNRIS: Texas Natural Resources Information System

TOD: Transit- Oriented Development

TORRO: Tornado and Storm Research Organization

TPDES: Texas Pollutant Discharge Elimination System

TS: Tropical Storm

TV: Television

TWDB: Texas Water Development Board

TX: Texas

TXDOT: Texas Department of Transportation

TXWARN: Texas Water/Wastewater Agency Response Network

U

UASI: Urban Areas Security Initiative

UCAR: University Corporation for Atmospheric Research

UD: Utility District

UDC: Unified Development Code

UH: University of Houston

US: United States

USA: United States of America

USACE: United States Army Corp of Engineers

USC: United States Code

USDA: U.S. Department of Agriculture

USDM: United States Drought Monitor

USEPA: U.S. Environmental Protection Agency

USFS: United States Forest Service

USGCRP: U.S. Global Change Research Program

USGS: U.S. Geological Survey

USFS: United States Forest Service

V

VFD: Volunteer Fire Department

W

WCID: Water Control and Improvement District

WFSI: Wildland Fire Susceptibility Index

WFU: Wildland Fire Use

WHO: World Health Organization

WNV: West Nile Virus

WRN: Weather Ready Nation

WUI: Wildland Urban Interface

WWTP: Wastewater Treatment Plant

X

None

Y

None

Z

ZBA: Zoning Board of Adjustment