

Brownsville Public Utilities Board

2022 Hazard Mitigation Action Plan

Participating Planning Partner: City of Brownsville



Public Review Draft

Volume 2

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SECTION 8. PLANNING TEAM

This section provides a description of the Brownsville Public Utilities Board (BPUB) HMP update Planning Team, their responsibilities throughout the planning process, and the jurisdictional annexes developed as a result of their plan update 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 Team 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 Team 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 BPUB HMP update, a Planning Team 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 Team 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 a jurisdictional 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

Brownsville Public Utilities Board and the City of Brownsville participated in the update process and have met the minimum requirements of participation as established by BPUB and the Planning Team.

8.3 Planning Partner Expectations

The Planning Partners agreed to the following planning partner expectations, which were outlined in the letter sent by the Brownsville Public Utilities Board on July 26, 2021 and confirmed at the kick-off meeting held on August 12, 2021 (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 by 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 TDEM and FEMA.

As described in Section 7 (Plan Maintenance), the Planning Team is intended to remain active beyond the regulatory update to support plan maintenance. Regarding the composition of the Planning Team, 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 2022 HMP, jurisdictional annexes were used to provide a unique, stand-alone guide to mitigation planning for each participating jurisdiction. The BPUB HMP Update is organized so that there is an annex for BPUB and the City of Brownsville. Section 9 (Jurisdictional Annexes) includes an annex for both participants.

8.4.1 Data Collection

Each jurisdiction was paired with a contract consultant mitigation planner to work with the mitigation team to update their annexes. Each jurisdiction was asked to participate in a municipal kick-off meeting, held on August 18, 2021 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 any and 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 December 8, 2021. 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 for 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 Strengths Weaknesses Obstacles and Opportunities (SWOO) Exercise

A Strengths, Weakness, Obstacles and Opportunities exercise (SWOO) was completed by the planning partnerships. Participants were asked to fill out the SWOO for each of the hazards of concern for the 2022 HMP update. The Planning Team was asked to begin the exercise by identifying county, local, and stakeholder strengths to mitigate the risk and potential future impacts of the hazards. Next, the weaknesses, challenges and obstacles the planning area faces to reduce each hazard’s risk were identified. To conclude the discussion of each high-ranked hazard, the meeting attendees were asked to identify potential opportunities for enhanced mitigation. The results were compiled and presented to the planning partnership at the risk assessment presentation. The results were also used by the participants to help identify capabilities and potential mitigation actions. The following summarizes the general categories of potential opportunities identified during the exercise:

- Unified public information and outreach for BPUB and the City of Brownsville.
- The need for training for municipal staff.
- Updated flood hazard maps needed.
- Continue to pursue municipal participation in CRS.
- Mutual aid agreements needed between BPUB and the City of Brownsville.

8.4.4 Mitigation Strategy Workshop

A mitigation strategy workshop was conducted by the contracted planning consultant on January 26, 2021, for all participants 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 Team 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 Team focused on developing problem statements based on the impacts of hazards in the Planning Area. The results of the updated risk assessment, challenges and opportunities identified during the capability assessment update and SWOO sessions, 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 the Planning Team. 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 municipality to identify additional problem statements and draft action worksheets were developed.

8.4.5 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 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.
- Identify mitigation initiatives that have reasonable potential to be accomplished within the lifespan of the multi-jurisdictional HMP (five years), including both FEMA-eligible projects and those projects using funds from non-FEMA sources.

8.4.6 Jurisdictional Annexes

While the jurisdictional annex format is designed to document and assure 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 an 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 and technical, and fiscal, capabilities, respectively. 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 mitigations actions and status, describes proposed hazard mitigation initiatives, and 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 on-going mitigation activities that were not specifically part of a prior local mitigation strategy may be included in this sub-section as well.
- **Additional Mitigation Efforts:** Other completed or on-going 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-15 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-16 provides a summary of the local mitigation strategy prioritization process discussed in Section 6 (Mitigation Strategy).

8.4.7 Annex Review

Workshops and additional meetings (via email and/or teleconference) to complete the jurisdictional annexes were held with the Planning Team 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 B PUB HMP website (<https://www.brownsvillepub-hmp.com/>).

In summary, B PUB and the City 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 (Jurisdictional Annexes).

8.5 Coverage Under the Plan

B PUB and the City met the participation requirements specified by the Planning Team. Any non-participating local jurisdiction within the Planning Area can “dock” to this plan in the future following the linkage procedures defined in Appendix H (Linkage Procedures).

Table 8-1 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 8-1. 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)
Brownsville Public Utilities Board	X	X	X	X
Brownsville (C)	X	X	X	X

9.1 Brownsville Public Utilities Board

This section presents the jurisdictional annex for the Brownsville Public Utilities Board (BPUB) and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Utilities Board participated in the planning process, an assessment of the Brownsville Public Utilities Board’s risk and vulnerability, the different capabilities used in the Utilities Board, and an action plan that will be implemented to achieve a more resilient jurisdiction.

9.1.1 Hazard Mitigation Planning Team

The Brownsville Public Utilities Board followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Utilities Board departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Team 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 coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

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

Table 9.1-1. Hazard Mitigation Planning Team

Name	Title	Method of Participation
George Rangel	Fiscal Manager	Attended meetings
Conrad Taylor	Grants Coordinator	Attended meetings; updated hazard event history; provided information on capabilities; identified mitigation actions
Lina Alvarez	Area Manager	Attended meetings
Jose Armando Garza	Chief W/WW Operator	Attended meetings
Hazael Becerra	GIS Manager	Attended meetings
Jaime Estrada	Director of Operational Support Services	Attended meetings
Ryan Greenfield	Communications and Public Relations Manager	Attended meetings
Jacob Galvan	Chief W/WW Operator	Attended meetings

9.1.2 Jurisdictional Profile

For more than a century, Brownsville utilities have been part of Brownsville's growth and future. In 1904, the utility that would become BPUB was created by a unanimous vote under the city's Home Rule Charter.

The Brownsville Public Utilities Board (BPUB) was formally chartered by the city of Brownsville in 1960 to provide electrical, water and wastewater services to its customers in the southernmost part of Texas.

Under the charter, management, operation and control of the city's combined water, wastewater and electric utility systems were delegated to the BPUB Board of Directors. The Board is composed of seven members: six appointed by the City Commission to four-year terms and the city's mayor serves as the seventh member (ex-officio).

By delivering exceptional electric, water and wastewater services to the Brownsville area, BPUB has set the standard as a customer-focused, municipally owned utility (MOU) offering reliable services the community can depend on. Today, BPUB is ranked as one of the largest MOUs in the state and country.

In this leadership role, BPUB has built its reputation on providing quality electric, water and wastewater services for a community with an estimated population of 176,000 and some customers outside city limits. BPUB provides 46,000 industrial, commercial and residential customers with electric service, about 47,000 with water service, and about 47,000 with sewer service both inside and outside the city's corporate boundaries and to the Port of Brownsville and its industries.

9.2.1 Jurisdictional Capability Assessment and Integration

The Brownsville Public Utilities Board performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of planning, 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.

9.2.1.1 Planning, Legal, and Regulatory Capability

BPUB has several planning, legal, and regulatory capabilities to protect the public health, safety, and welfare of those their utilities serve. A majority of the planning, legal, and regulatory capabilities are performed at the municipal level. Refer to the City of Brownsville’s annex (Section 9.2). BPUB has the following capabilities:

- BPUB Water Master Plan
- 2021 - 2022 BPUB General Emergency Plan (May 28, 2021) - This manual of organization, plans and procedures, to be followed in the event of a major emergency, was prepared to provide key personnel with as much information as practical for their general direction in case of a major emergency in Brownsville.

9.2.1.2 Development and Permitting Capability

The table below summarizes the capabilities of the Brownsville Public Utilities Board to oversee and track development.

Table 9.1-2. 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? -If no, what is your process for development?	N/A	Performed at the municipal level (City of Brownsville)
Are permits tracked by hazard area? (For example, floodplain development permits.)	N/A	-
Do you have a buildable land inventory? -If yes, describe. -If no, quantitatively describe the level of buildout in the jurisdiction.	N/A	-

9.2.1.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Brownsville Public Utilities Board and their current responsibilities which contribute to hazard mitigation.

Table 9.1-3. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	N/A	-
Zoning Board of Adjustments	N/A	-
Planning Department	N/A	-
Mitigation Planning Committee	Yes	Hazard Mitigation Planning Team for the HMP updates
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/Highway Department	N/A	-
Construction/Building/Code Enforcement/Engineering Department	No	-
Emergency Management/Public Safety Department	No	-
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Outage notifications
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Ongoing by staff
Mutual aid agreements	Yes	Not Currently
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	Yes	HR
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	Yes	On staff
Staff with expertise or training in benefit/cost analysis	Yes	On staff
Professionals trained in conducting damage assessments	No	Only available to conduct vehicle assessments following hazard events. (Fleet)
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Available staff: Trained in GIS only.
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	No	-
Grant writer(s)	Yes	BPUB uses data and maps from the current HMP to support documentation when developing grant applications.
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

9.2.1.4 Fiscal Capability

The table below summarizes financial resources available to the Brownsville Public Utilities Board.

Table 9.1-4. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	Yes, BPUB has applied for CDBG funding in the past.
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, Bonds Outstanding
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, through Texas Water Development Board
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	N/A

9.2.1.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Brownsville Public Utilities Board.

Table 9.1-5. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/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.
Public information officer or communications office	Yes	BPUB has an officer of public information
Personnel skilled or trained in website development	Yes	BPUB maintains a website (https://www.brownsville-pub.com/)
Hazard mitigation information available on your website	Yes	The website has a 'newsroom' where information is posted related to outages, weather events, etc.
Social media for hazard mitigation education and outreach	Yes	Facebook, Twitter, and YouTube
Citizen boards or commissions that address issues related to hazard mitigation	N/A	-
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	No	-
Natural disaster/safety programs in place for schools	N/A	-
Other	No	-

9.2.1.6 Community Classifications

The table below summarizes classifications for community programs available to the Brownsville Public Utilities Board.

Table 9.1-6. Community Classifications

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

Note:

- N/A Not applicable
- NP Not participating
- Unavailable

9.2.1.7 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). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.1-7. Adaptive Capacity

Hazard	Preliminary Ranking
Dam and Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Erosion	Moderate
Extreme Heat	Moderate
Flood	Moderate
Hail	Moderate
Hurricane/Tropical Storm	Moderate
Lightning	Moderate
Thunderstorm Wind	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Storm	Moderate

*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

9.2.2 National Flood Insurance Program (NFIP) Compliance

NFIP compliance is performed at the municipal level. Refer to the City of Brownsville's annex (Section 9.2) for details on the NFIP in the City.

9.2.3 Growth/Development Trends

BPUB has a Capital Budget Plan reflecting general and administrative utility projects, along with design, updates, and implementation of future projects based on proposed economic growth and an expanded population. Projects will include identifying land for new construction of utility systems and rehabilitation of outdated facilities in order to meet future economic development needs in a fast-growing area.

9.2.4 Jurisdictional Risk Assessment

The hazard profiles in Section 5 (Risk Assessment) provide detailed information regarding each plan participant's vulnerability to the identified hazards. Section 5.1 (Hazards of Concern), Section 5.2 (Methodology and Tools), and Section 5.3 (Hazard Ranking) provide a detailed summary for the Brownsville Public Utilities Board's risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

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

Figure 9.1-1. Brownsville Public Utilities Board Area Extent and Location Map – Flood

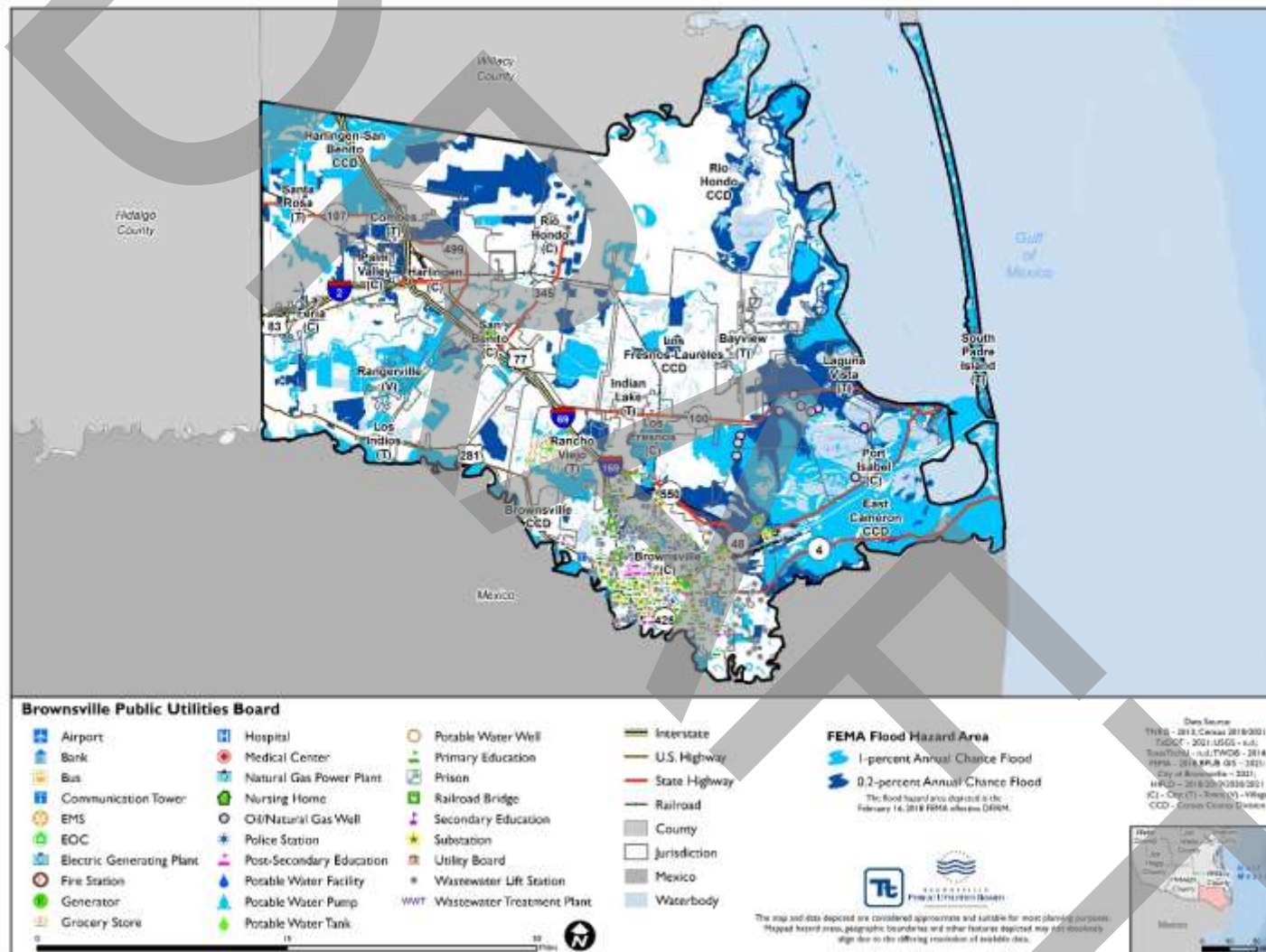


Figure 9.1-2. Brownsville Public Utilities Board Area Extent and Location Map – SLOSH

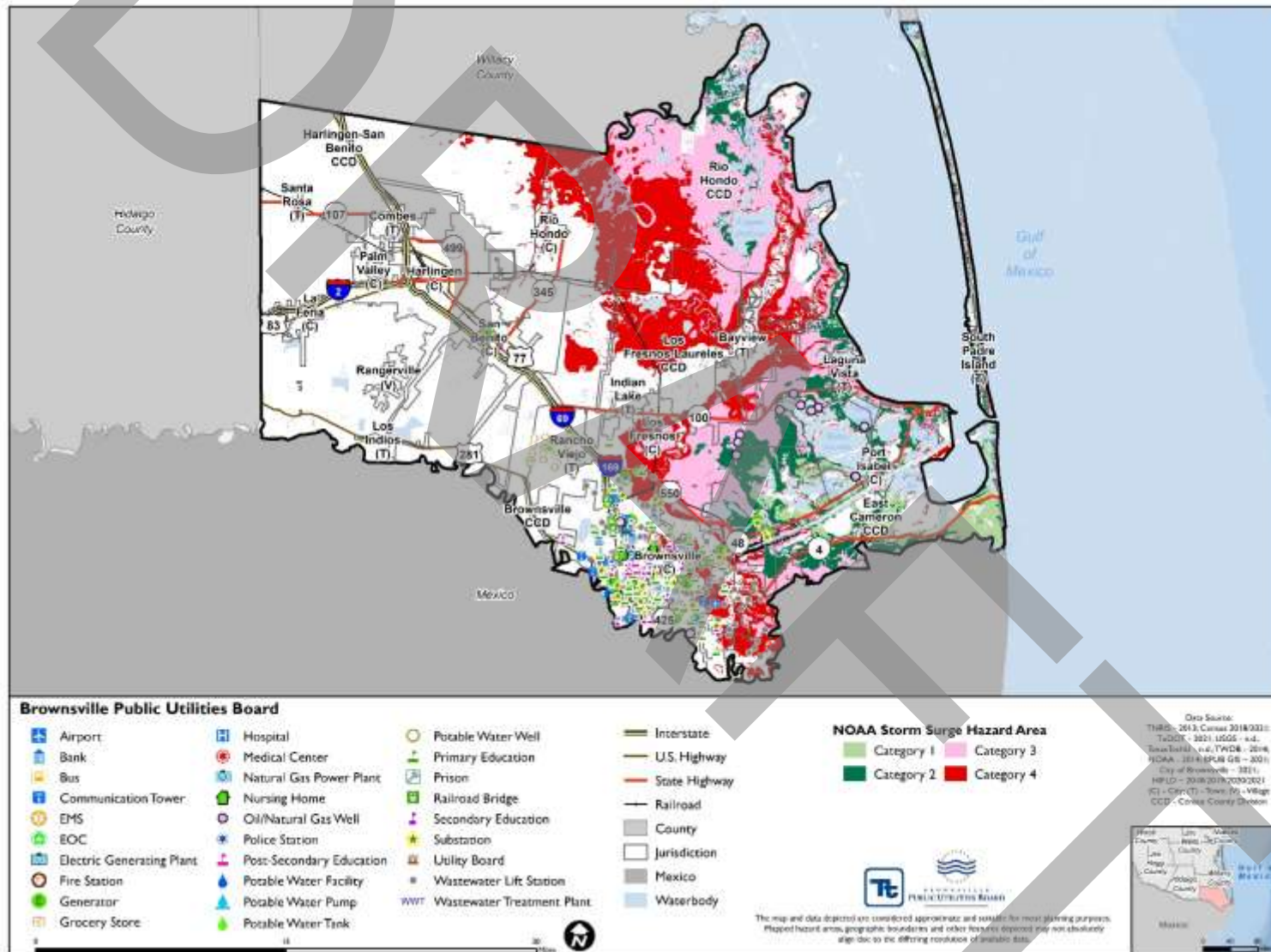


Figure 9.1-3. Brownsville Public Utilities Board Area Extent and Location Map – Sea Level Rise

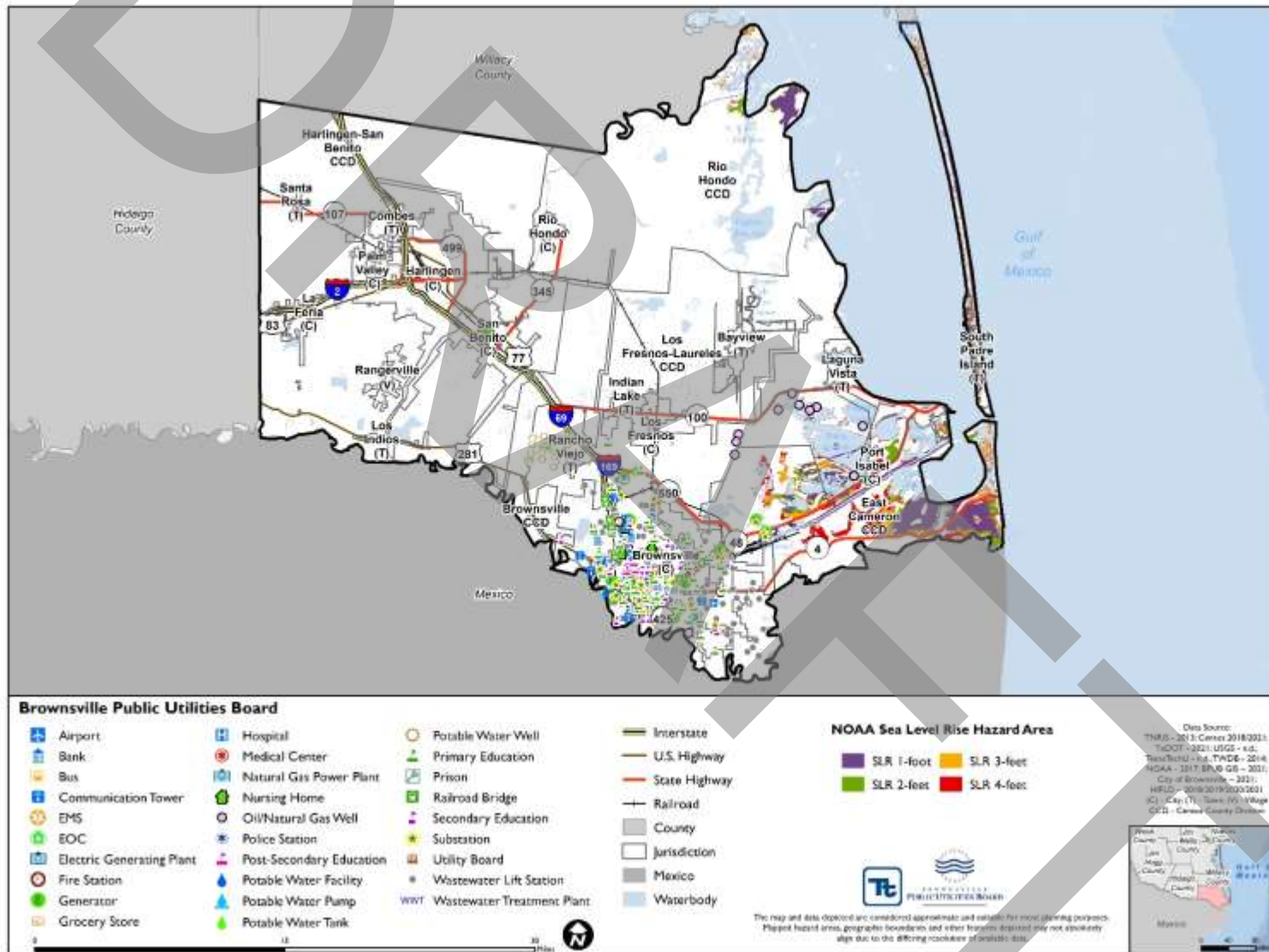
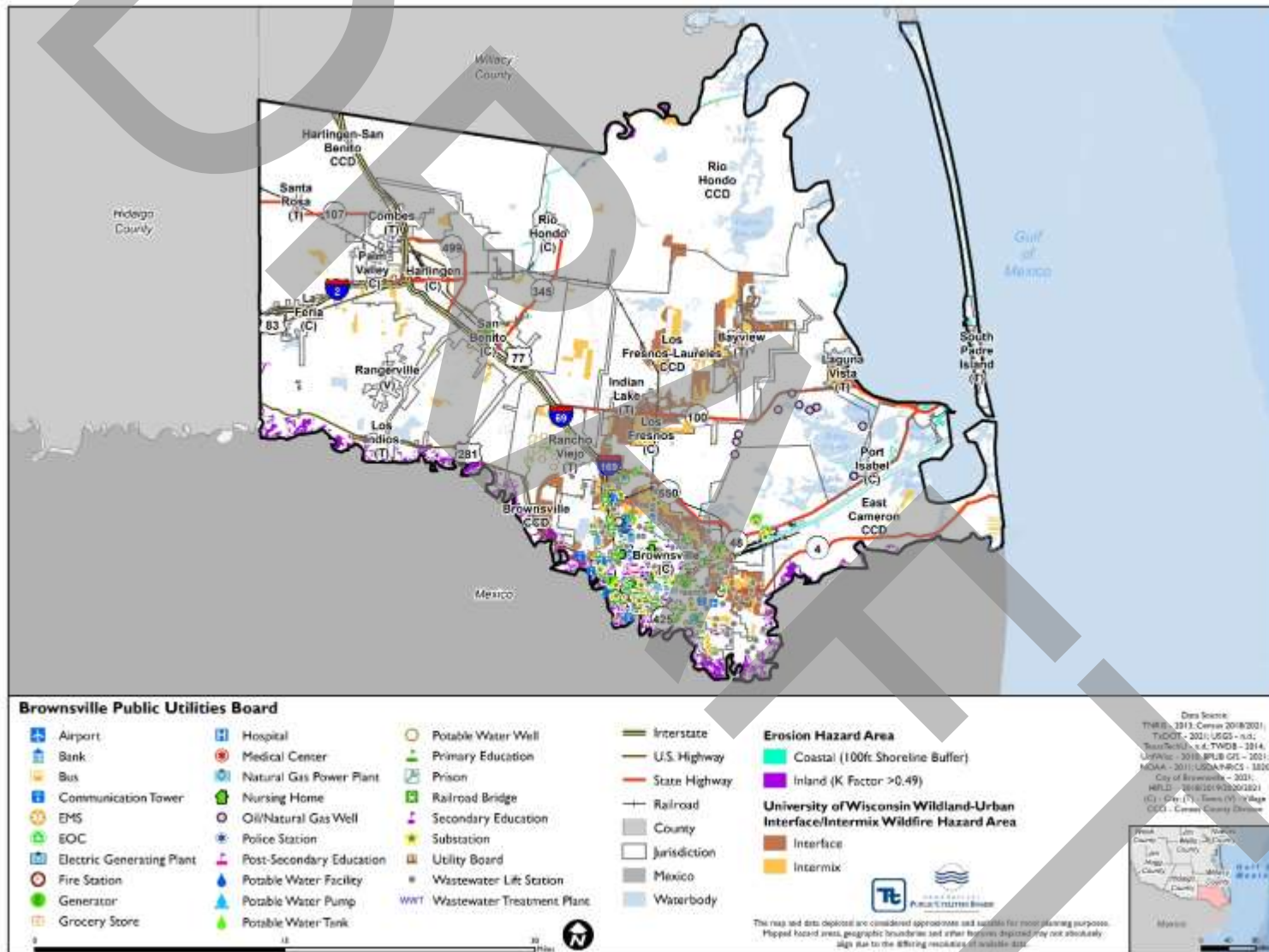


Figure 9.1-4. Brownsville Public Utilities Board Area Extent and Location Map – Wildfire and Erosion



9.2.4.1 Hazard Event History

The planning area has a history of natural hazard events as detailed in Section 5 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the planning area.

The Brownsville Public Utilities Board’s history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of the planning area. The table below provides details regarding municipal-specific loss and damages the Utilities Board 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 9.1-8. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Summary of Damages and Losses
October 30, 2015	Flash Flood / Heavy Rain (DR-4245)	Yes	Heavy and persistent rain fell across the City of Brownsville, mainly from downtown east towards the Port of Brownsville, and including all of the neighborhoods in Southmost, which took the brunt of the heavy rainfall. Within an hour, feet of water were inundating some roads and by three hours later up to 5 feet of water covered one of the most prone areas of town the Four Corners area where State Road 4 (International Blvd.) intersects State Road 48 (Boca Chica Blvd./Padre Island Highway). Neighborhood roads in Southmost were inundated with two to three feet of water, and dozens of homes and businesses flooded due to a combination of high water that filtered into homes and vehicles that created waves of water which surged into them. At Brownsville/South Padre Island International Airport, the 6.55 inches of rainfall was reported.	An estimated \$100,000 in property damages was reported in the area.
January 11, 2018	Strong Wind	No	A surge of strong winds behind the dry front late on January 11th produced peak gusts between 44 and 54 mph during the mid-evening. The gusty winds at Brownsville/ South Padre Island International Airport (50 mph at 8:40 PM) sparked a brief fire on the airport grounds when a transformer blew near Iowa Avenue.	An estimated \$15,000 in property damages was reported.
June 20, 2018	Flash Flood / Heavy Rain (DR-4377)	Yes	In Cameron County, between 12 and 18 inches of rainfall fell, inundating several thousands of homes and businesses with 18 inches to three feet of water, and hundreds of rescues of persons and pets were common.	An estimated \$20 million in damages in Cameron County alone was reported.
August 12, 2018	Thunderstorm Wind	No	A rapidly developing line of thunderstorms raced northward through Cameron County east of US 77, creating gusts over 40 mph and causing minor damage to a few tree limbs, unfastened lawn furniture, and a few power lines.	An estimated \$500,000 in property damages was reported.

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Summary of Damages and Losses
July 25, 2020	Tropical Storm / Hurricane Hanna (EM-3530)	Yes	Hurricane Hanna, the 2020 Atlantic season's first Hurricane, made landfall along the unpopulated Padre Island National Seashore on the mid-Kennedy County coastline as a Category 1 storm at around 5 PM Central Time Saturday, July 25th, carrying sustained 90 mph winds with gusts over 100 mph in a small portion of the inner eye wall. At the storm's peak, an estimated 50 thousand electric customers were without power. An EF0 tornado was also reported, touching down 2.3 miles south of the Brownsville Airport, moving north. Crop damage was also significant, with sugar cane snapped in many fields and young fruit being blown off citrus trees, which also sustained damage.	Estimated property damages in Cameron County were upwards of \$1.88 million. Tornado damages were estimated at \$250,000 in property damages. Estimated crop dollar value loss based on reports from Texas AgriLife in late summer was \$25.9 million in Cameron County.
February 14, 2021	Front/Freeze (EM-3554)	Yes	A strong cold front moved through Deep South Texas and the Rio Grande Valley on February 12th, followed then by a strong Arctic High building into the area on February 13th. The Arctic High ushered in very cold air, with subsequent cold air damming leading to an extended period of anomalously cold temperatures. Cameron County sustained heavy crop losses. Soon after temperatures fell below freezing, light rain turned to a mix of light freezing rain and sleet, which created a thin coating of ice on trees and plants. Icing was also noted along elevated roads, requiring some closures.	Estimated property damages in Cameron County were over \$32,000. Cameron County crop losses estimated at \$46 million.

9.2.4.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 5.1 (Hazards of Concern) of this plan have detailed information regarding each plan participant's vulnerability to the identified hazards. The following summarizes the Brownsville Public Utilities Board'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 Section 5 (Risk Assessment) of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 5.3 (Hazard Ranking), each participating jurisdiction can have differing degrees of risk exposure and vulnerability. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Brownsville Public Utilities Board. The Brownsville Public Utilities Board reviewed the hazard risk/vulnerability risk ranking table to reflect the relative risk of the hazards of concern to the jurisdiction.

During the review of the hazard/vulnerability risk ranking, the Utilities Board agreed with all the calculated rankings, except for Earthquake which had a low ranking. BPUB chose to remove the earthquake hazard from this update as there is no exposure to population or building stock.

Table 9.1-9. Hazard Ranking Input

Dam & Levee Failure	Disease Outbreak	Drought	Erosion	Extreme Heat	Flood	Hail
Low	Medium	Medium	Low	High	Medium	Medium
Hurricane & Tropical Storm	Lightning	Thunderstorm Wind	Tornado	Wildfire	Winter Weather	
High	Medium	Medium	Medium	Low	Medium	

Note: The scale is based on the hazard rankings established in Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

9.2.4.3 Identified Issues

After review of the Brownsville Public Utilities Board’s hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Brownsville Public Utilities Board has not identified additional vulnerabilities within their community.

Specific areas of concern based on resident response to the citizen survey include:

- Flooding in the following areas:
 - Stagecoach Trail and Dennet Road
 - Price Road, Bernard Road, Tropical Drive, Frontage Road, FM 802
 - Boca China Boulevard
 - Dana Avenue north of FM 802
 - Quail Hollow Drive
 - Los Ebanos Boulevard and Price Road
 - Parkwood Place
 - Harvard Avenue and alleys
 - Harvard Avenue and Woodruff Avenue
 - Ruben Torres Boulevard between Quail Trail and Military Highway
 - Elma Street, Central Avenue, Austin Road
 - Paredes Line Road, Robindale Road, Old Port Isabel Road, Ruben Torres Boulevard
 - Draper Drive
 - Morrison Street near Valley Baptist

9.2.5 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.2.5.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2017 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and are discussed in the 'Capability Assessment' presented previously in this annex.

Table 9.1-10. 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 2022 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.
BPUB – 1	Improve information technology including replicating software in conjunction with Disaster Recovery objectives	Information Technology	Ongoing Capability Funding Source: Capital Budget/Grants	Yes (as 2022-BPUB-012)	Hazards: Dam Failure, Drought, Extreme Heat, Flood, Hail, Hurricane Wind, Earthquake Location: BPUB Service Area	Information Technology
BPUB – 2	Install emergency generators on all critical facilities	Facilities Maintenance	Ongoing Capability Funding Source: Capital Budget/HMA Grants	Yes (as 2022-BPUB-013)	Reduced damage to critical infrastructure reduced risk to public health, safety, and welfare; continue essential utility operations. Hazards: Flood, Thunderstorm, Hurricane Wind, Earthquake, Winter Storm, Extreme Heat Location: BPUB service area	Facilities Maintenance
BPUB – 3	Replace sub-standard or outdated fire hydrants	Water/WW Operations & Construction	Completed Cost: \$599,734.46	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 2022 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.
BPUB – 4	Construct dome shelter in the event of tornado or hurricane wind in Brownsville planning area	Emergency Management, Grants coordinator	Completed by City of Brownsville	No	-	-
BPUB – 5	Install hail guards for HVAC systems on critical facilities	Energy Risk Management	No Progress	Yes (as 2022-BPUB-014)	Location: BPUB service area Hazards: Hail	Energy Maintenance
BPUB – 6	Install quick connect systems on all critical facilities with emergency generators	Engineering	No Progress	Yes (as 2022-BPUB-015)	Location: BPUB service area Hazards: Tornado, Thunderstorm, Flood, Extreme Heat, Hail, Winter Storm, Hurricane Wind, Dam Failure, Earthquake	Engineering
BPUB – 7	Conduct analysis of BPUB utilities located in SFHAs and elevate utilities to prevent flooding in the event of upstream dam failure	Engineering	No Progress	Yes (as 2022-BPUB-016)	Locations: BPUB service area Hazards: Flood, Dam Failure	Engineering
BPUB – 8	Develop program to annually remove buildup of silt in area Resacas that become cutoff from the river and contribute to flooding during severe flood or hurricane event	Engineering	Ongoing Capability	Yes (as 2022-BPUB-017)	Location: BPUB service area Hazards: Flood, Drought	BPUB: Resaca Maintenance

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 2022 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.
BPUB – 9	Install cooling stations at BPUB facilities to aid residents during extreme heat events	Engineering	No Progress	No		
BPUB – 10	Install xeriscape plantings at all BPUB utility locations	Maintenance	Ongoing Capability (Internal)	No	-	-
BPUB and City of Brownsville – 1	Secure Memorandum of Understanding (MOU) with Lower Rio Grande Flood Control agency to implement structural drainage measures to mitigate potential dam and levee failure of upstream flood control system	Lower Rio Grande Valley Flood Control	N/A – City of Brownsville	No	Hazards: Dam Failure, Flood Location: City of Brownsville, BPUB service area	Lower Rio Grande Valley Flood Control
BPUB and City of Brownsville – 2	Conduct a public education program for evacuating residents downstream of the Lower Rio Grande Flood Control system in the event of dam or levee failure	Lower Rio Grande Valley Flood Control	N/A – City of Brownsville	No	Hazards: Dam Failure, Flood Location: City of Brownsville	Lower Rio Grande Valley Flood Control
BPUB and City of Brownsville – 3	Implement the FIREWISE Program to minimize dangers of wildfire in extreme heat and drought conditions	Fire Department	N/A – City of Brownsville	No	Hazards: Wildfire, Extreme Heat, Drought Location: City of Brownsville, BPUB	Fire Department
BPUB and City of Brownsville – 4	Work with neighboring communities and South Padre Island to implement an evacuation plan for the proposed bridge connecting the mainland to South Padre Island	Emergency Management	N/A – City of South Padre Island	No	Hazards: Hurricane, Flood Location: City of Brownsville, BPUB	Emergency Management

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 2022 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.
BPUB and City of Brownsville – 5	Construct a second bridge connecting the mainland to South Padre Island	Emergency Management	Ongoing Capability – City of South Padre Island	No	Hazards: Hurricane, Flood Location: N/A	Emergency Management
BPUB and City of Brownsville – 6	Construct dome shelter in the event of tornado or hurricane wind in Brownsville planning area	Emergency Management, Grants coordinator	Completed by the City of Brownsville	No	-	-
BPUB and City of Brownsville – 7	Install system of weather stations	Emergency Management	N/A – City of Brownsville	No	Hazards: Dam Failure, Drought, Extreme Heat, Flood, Hail, Hurricane Wind, Thunderstorm, Tornado, Wildfire, Winter Storm, Earthquake Location: City of Brownsville	Emergency Management
BPUB and City of Brownsville – 8	Install emergency alert system such as I-Info that includes notification in real time alerts	Emergency Services	N/A – City of Brownsville	No	Hazards: Dam Failure, Drought, Extreme Heat, Flood, Hail, Hurricane Wind, Thunderstorm, Tornado, Wildfire, Winter Storm, Earthquake Location: City of Brownsville	Emergency Services

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 2022 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.
BPUB and City of Brownsville - 9	Conduct public education on tones and signals associated with area-wide emergency alert system	Emergency Services	N/A – City of Brownsville	No	Hazards: Dam Failure, Drought, Extreme Heat, Flood, Hail, Hurricane Wind, Thunderstorm, Tornado, Wildfire, Winter Storm, Earthquake Location: City of Brownsville	Emergency Services

9.2.5.2 Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Brownsville Public Utilities Board has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2015 HMP:

- Installation of underground fiber optic cable in a looped communication system between water wells and the process systems within the SRWA plant.
 - Location: Southmost Regional Water Authority (SRWA)
 - Est. Cost: \$1.4 million
 - Hazards Addressed: Winter Storm, Hurricane/Tropical Storm
 - Agency: Engineering (BPUB)
- Implementation of Advanced Metering Infrastructure (AMI)
 - Location: BPUB service area
 - Est Cost: \$26 million
 - Hazards Addressed: Winter Storm, Hurricane/Tropical Storm
 - Agency: Customer & Information Services (BPUB)
 - Hazards Addressed: Winter Storm, Extreme Heat, Hurricane/Tropical Storm
- Transformer replacement project
 - Location: BPUB service area
 - Est. Cost: \$1.5 million
 - Hazards Addressed: Winter Storm, Extreme Heat
 - Agency: Substations & Relaying (BPUB)

9.2.5.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Brownsville Public Utilities Board participated in a mitigation action workshop in August 2021 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 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013).

The table below indicates the range of proposed mitigation action categories.

Table 9.1-11. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA					CRS				
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam and Levee Failure		X		X		X	X			X
Disease Outbreak		X		X			X			X
Drought		X	X	X		X	X			X
Erosion		X	X	X		X	X			
Extreme Heat		X		X		X	X			X
Flood		X	X	X		X	X			X

Hazard	FEMA						CRS				
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES	
Hail		X		X		X	X			X	
Hurricane/Tropical Storm		X		X		X	X			X	
Lightning		X		X		X	X			X	
Thunderstorm Wind		X		X		X	X			X	
Tornado		X		X		X	X			X	
Wildfire		X		X		X	X			X	
Winter Storm		X		X		X	X			X	

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below (Table 9.1-12) summarizes the comprehensive range of specific mitigation initiatives the Brownsville Public Utilities Board would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 evaluation/prioritization criteria are used 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 your actions as 'High', 'Medium', or 'Low.' Table 9.1-13 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.1-12. Proposed Hazard Mitigation Initiatives and Associated Priority

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
2022-BPUB-001	HVAC Ionization Project	<p>Problem: As employees return to the workplace, the risk for disease/virus outbreak impacts productivity due to shared workspace.</p> <p>Solution: Installation of air ionization technology into HVAC systems at BPUB facilities reduces risk of disease/virus outbreak.</p>	Existing	Disease Outbreak	1	1-2 Years	Facilities Maintenance	Local Budget, Grants	Reduce risk of disease/virus outbreak; increase workplace productivity	\$50,000	Medium	SIP	ES
2022-BPUB-002	SRWA Backup Generator Project	<p>Problem: During inclement weather events, outages to the wellfield water pumps results in loss of treated water and reduced production capacity.</p> <p>Solution: Installation of local generation at SRWA pump stations will allow for continued production of water in the event of extended SRWA pump station outage.</p>	Existing	Drought, Hurricane/ Tropical Storm, Winter Storm	1, 2	1-2 Years	Engineering	Local Budget, FEMA Grant Funding (HMGP, BRIC)	Reduced outages; reduced treated water losses; increased production capacity	\$300,000	High	SIP	PP
2022-BPUB-003	SRWA Wellfield Expansion Project	<p>Problem: Short-term drought-related water shortages are often the result of both decreased water supply due to below normal rainfall and increased water demand, which can speed the depletion of water supplies. SRWA will make efforts to assist member entities with reducing projected surface water demands.</p> <p>Solution: Additional production could possibly be acquired by increasing pump capacities in existing wells, developing the Primary Zone or through the lateral expansion of the Secondary Zone well field.</p>	Existing	Drought	1, 2	2-3 Years	SRWA	BRIC, HMGP, BOR, Local Budget	Expanded production capacity	\$1,500,000	Medium	SIP	NRP
2022-BPUB-004	SRWA Underground Fiber Installation	<p>Problem: Currently, any loss of SCADA communication to the SRWA raw water wells causes disruption to the reverse osmosis (RO) treatment process, as</p>	Existing	Hurricane/ Tropical Storm, Thunderstorm Wind, Tornado,	2	2-3 Years	Electrical Engineering	HMGP	Mitigate communication lapses, reduction in	\$1,907,472	High	SIP	PP

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
		<p>operations is unable to view and control raw water pumps. Disruptions that can occur the inability to increase/decrease raw water flow, the inability to shut down all pumps in case of an emergency, undesired RO plant shutdown, and the Inability to restart the plant upon a shutdown.</p> <p>Solution: The installation of underground fiber in the looped communication route will mitigate loss of communication between the SRWA Water Treatment Facility and the Raw Water Wells as communication will no longer become reliant on maintained radio frequencies.</p>		Wildfire, Winter Storm					treated water losses				
2022-BPUB-005	Advanced Metering Infrastructure Procurement Project	<p>Problem: Aging and malfunctioning manual read meters result in communication lapses during outages. Current read times are conducted on an hourly basis leading to increased truck rolls in order to diagnose cause of outages/blackout.</p> <p>Solution: The replacement of manual read meters with new, reliable meters equipped with communication modules that will send data to gateways, communication networks and ultimately back to the utility. With this information, BPUB can identify leaks, metering tampering, spikes in demand, and trend consumption necessary for proactive improvement.</p>	Existing	Hurricane/ Tropical Storm, Thunderstorm Wind, Winter Storm	1, 2	2 Years	Customer Service and Information Technology	Grants, Local Budget	Increased reporting of consumption; theft identification; reduced truck rolls; reduction in outages/blackouts	\$25,547,445	High	SIP	PP
2022-BPUB-006	Transformer Replacement Project	<p>Problem: Existing single-faced transformers experience load management failure during extreme inclement weather events as power is restored causing subsequent outages/damages.</p>	Existing	Winter Storm, Thunderstorm Wind, Hurricane/ Tropical Storm	1, 2	Phased	Electrical Engineering	FEMA Grant Funding (HMGP, BRIC)	Reduced truck rolls; reduced outages/system overloads	\$11,410,000	Medium	SIP	PP

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
		Solution: The replacement of residential, single-faced transformers to allow for proper overload protection during inclement weather events.											
2022-BPUB-007	Variable Frequency Drive Installation	<p>Problem: Natural gas fuel must be compressed to a higher pressure to facilitate full load operation of a 50-megawatt generating unit at the BPUB, Silas Ray Power Plant. Without this compression equipment, generation is limited to less than 20% of full load capacity; furthermore, unless the compression equipment is in operation, reserve capacity cannot be assured when needed. Thus, gas compressor full load operation at part unit load dispatching frequently results in down time and a reduction in generating capacity.</p> <p>Solution: Variable frequency drive equipment can be used to control gas compressor motor speed and in so doing regulate fuel gas flow to the generating unit according to demand. Wear and tear cycling of the unit can then be reduced while keeping pace with the dispatching of generation load. Reduced operating and repair cost coupled with increased reliability and generating unit availability would be realized.</p>	Existing	Extreme Heat, Winter Storm	2	1-2 Years	Power Production	Local Budget, FEMA Grant Funding (HMGP, BRIC)	(\$375,000 - 425,000) / occurrence/year	\$175,000	High	SIP	PP
2022-BPUB-008	Natural Gas Infrastructure Improvement	<p>Problem: The hazard of completely losing or reducing generation capacity during an extreme weather event can; expose the public to the hardships of severe temperatures, threaten critical care facilities, cripple essential services and hinder disaster recovery efforts. Many of these affects were reported as</p>	Existing	Extreme Heat, Winter Storm	1, 2	2-4 years	Power Production	Local Budget, FEMA Grant Funding (HMGP, BRIC)	(\$5.7 Million) in a 24-Hour period.	\$3.5 Million (Highly Speculative)	High	SIP	PP

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
		<p>in the case of Winter Storm "Uri" which conversely impacted energy providers and their respective customers economically with the high cost of energy. This one event alone clearly illustrated an impact by weather on energy that left a vast majority of Texans with no escape. Availability and scheduling of firm natural gas to supply electric power generation has become increasingly more difficult in the advent of recent gas pipeline expansion and the development of a gas export market in Texas. Planning in this respect, especially for critical weather events, is exacerbated by price speculation, unreliable or unwilling supplier commitments and again, unabated gas exports. Without the ability to mitigate fuel costs, production and end user pricing of energy cannot be controlled.</p> <p>Solution: Locate, assess and potentially recover appropriately sized orphan gas wells for the development of reserve ground storage capacity of natural gas. Such well facilities would preferably be more local the point of use to better facilitate control and maintainability. Gas can then be stock piled at a lesser cost to mitigate extreme energy price fluctuations. Existing point-of use or new gas compression equipment can be re-tasked for charging and forwarding of fuel gas stock to generation facilities in sufficient volume and pressure to mitigate possible fuel curtailments which may occur during extreme weather emergencies.</p>											

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
2022-BPUB-009	Lift Station Rehabilitation Project (Various)	<p>Problem: Lift station is beyond its service life. Its structural, mechanical, and electrical condition is deteriorated and has made the lift station unsafe, unreliable, and inefficient. Lift Station discharge piping, pump base ells, and valves are corroded. Concrete structures such as its wet well are obsolete and in poor condition. Electrical components such as the pump controls are obsolete and unreliable. Other aspects of the lift station site also need safety, security, and accessibility improvements such as a new perimeter fence, entrance driveway, etc. to bring the lift station into compliance with current specifications and regulations.</p> <p>Solution: Complete lift station rehabilitation including: wet well rehabilitation/ replacement, replacement of corroded piping, fittings, valves, pumps, pump base ells, guide rails, wet well hatch, electrical controls, installation of new perimeter fence and concrete driveway.</p>	Existing	Flood	1, 2	4-5 Years	BPUB W/WW Engineering	Local Budget, FEMA Grant Funding (FMA, HMGP, BRIC)	O&M cost savings are expected after the project is complete. After the lift station is rehabilitated considerably less frequent equipment breakdowns are expected, as well as minimum repair costs would be normally required to bring the station back online after a break down.	\$5,797,178	Medium	SIP	PP
2022-BPUB-010	Brownsville North Regional Force Main	<p>Problem: Based on the Master Plan study, the predominance of future growth in the BPUB service area is expected in the northwest portion of the service area. Wastewater flow from this area is currently bottlenecked through a series of force mains and lift stations along major arterials that serve other areas and were not designed to serve the northwest area. These force mains and lift stations are overloaded and cannot accommodate flow from additional growth.</p>	Both	Flood	1, 2	6 Months	BPUB W/WW Engineering	Local Budget, FEMA Grant Funding (FMA, HMGP, BRIC)	This project will increase the efficiency of the existing lift stations, resulting in reduced maintenance and reduced SSOs.	\$25,423,037.25	High	SIP	PP

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
		Solution: The North Regional Lift Stations and Force Main System project includes construction of four regional lift stations and a major trunk force main across the north side of BPUB's service area connecting the system directly to the Robindale North Wastewater Treatment Plant.											
2022-BPUB-011	Robindale WWTP Road Upgrade	Problem: During adverse weather conditions, heavy equipment, (i.e., vacuum trucks, cranes, portable generators, etc.) cannot access treatment units to respond to equipment failures using the plant's existing caliche roads. Solution: Upgrading roads from caliche to concrete around plant will improve accessibility around treatment units during adverse weather.	Existing	Flood, Hurricane/ Tropical Storm	1	9 months	SRWA	FEMA Grant Funding (FMA, HMGP, BRIC)	Reduced outages and downtimes; reduced treated water losses	\$700,000	Medium	SIP	PP
2022-BPUB-012	IT Improvements	Problem: Outdated IT Solution: Improve information technology including replicating software in conjunction with Disaster Recovery objectives	Existing	Dam and Levee Failure, Drought, Extreme Heat, Flood, Hail, Hurricane/ Topical Storm, Earthquake, Wildfire	2	Ongoing	Information Technology	Capital Budget, FEMA Grant Funding (HMGP, BRIC)	Efficient disaster recovery organization	Medium	Medium	SIP	ES
2022-BPUB-013	Emergency Generators	Problem: Critical facilities lack backup power Solution: Install emergency generators on all critical facilities	Existing	Flood, Thunderstorm, Hurricane/ Tropical Storm, Earthquake, Hail, Lightning, Winter Storm, Extreme Heat, Tornado	2	Ongoing	Facilities Maintenance	Capital Budget, FEMA Grant Funding (HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	SIP	PP, ES
2022-BPUB-014	Hail Guard Installation	Problem: Hailstorms cause damage to HVAC systems Solution: Install hail guards for HVAC systems on critical facilities	Existing	Hail	2	1-5 Years	Energy Maintenance	Capital Budget, FEMA Grant Funding	Protection of structures and critical infrastructure	Medium	Medium	SIP	PP

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
								(HMGP, BRIC)					
2022-BPUB-015	Quick-connect system installation	Problem: Many critical facilities do not have an efficient way to connect to emergency generators. Solution: Install quick connect systems on all critical facilities with emergency generators	Existing	Tornado, Thunderstorm Wind, Flood, Extreme Heat, Hail, Winter Storm, Hurricane/ Tropical Storm, Lightning, Dam Failure, Earthquake	2	1-5 Years	Engineering	Capital Budget, FEMA Grant Funding (HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	Medium	SIP	PP, ES
2022-BPUB-016	Conduct Utility Study and Elevate Utilities	Problem: BPUB utilities may be located in the dam/levee inundation zone Solution: Conduct analysis of BPUB utilities located in SFHAs and elevate utilities to prevent flooding in the event of upstream dam failure	Existing	Flood, Dam and Levee Failure	2	1-5 Years	Engineering	Capital Budget, FEMA Grant Funding (FMA, HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	Medium	SIP	PP
2022-BPUB-017	Resaca Silt Removal Program (Coordinates with 2022-City of Brownsville-017)	Problem: Erosion and silt buildup in area Resacas contribute to flooding. Solution: Develop a program to annually remove buildup of silt in area Resacas that become cutoff from the river.	Both	Erosion, Flood, Drought	1, 2	Ongoing	BPUB: Resaca Maintenance	Capital Budget, FEMA Grant Funding (FMA, HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	SIP, NSP	PP
2022-BPUB-018	Public Information and Outreach (Coordinates with 2022-City of Brownsville-029)	Problem: Lack of hazard mitigation information and education for citizen preparedness. Solution: Add or increase website content and use other outreach methods such as mailers and flyers for suggested homeowner mitigation strategies and hazard preparedness information.	Both	Dam and Levee Failure, Disease Outbreak, Drought, Earthquake, Erosion, Extreme Heat, Flood, Hail, Hurricane/ Tropical Storm, Lightning, Thunderstorm Wind, Tornado,	1, 5	Ongoing	BPUB, City of Brownsville	FEMA Grant Funding (FMA, HMGP), Staff Time	Greater understanding of mitigation suggestions and awareness of hazards will enable citizens to protect their properties and prepare for hazard events. Critical information received at the right time will help	Medium	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
				Wildfire, Winter Storm					protect lives and property.				

Notes:

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

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- EHP Environmental Planning and Historic Preservation
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- 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.*

Table 9.1-13. Summary Evaluation and Action Priority

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
2022-BPUB-001	HVAC Ionization Project	1	0	1	1	1	1	1	0	1	0	-1	1	1	0	8	Medium
2022-BPUB-002	SRWA Backup Generator Project	0	0	1	1	1	1	1	1	0	1	1	1	1	0	10	High
2022-BPUB-003	SRWA Wellfield Expansion Project	0	0	0	1	0	1	0	1	1	1	0	1	1	1	8	Medium
2022-BPUB-004	SRWA Underground Fiber Installation	0	0	1	1	1	1	0	1	1	1	1	1	1	1	11	High
2022-BPUB-005	Advanced Metering Infrastructure Procurement Project	0	0	1	1	0	1	1	1	1	1	1	1	1	1	11	High
2022-BPUB-006	Transformer Replacement Project	0	1	0	0	0	1	0	0	1	1	1	1	0	1	7	Medium
2022-BPUB-007	Variable Frequency Drive Installation	0	0	1	1	1	1	1	1	1	1	1	1	1	1	12	High
2022-BPUB-008	Natural Gas Infrastructure Improvement	0	1	1	1	0	1	1	1	0	0	0	1	1	1	9	High
2022-BPUB-009	Lift Station Rehabilitation Project (Various)	0	0	1	1	0	1	0	1	1	1	-1	1	1	1	8	Medium
2022-BPUB-010	Brownsville North Regional Force Main	0	0	1	1	0	1	1	1	1	1	-1	1	1	1	9	High
2022-BPUB-011	Robindale WWTP Road Upgrade	0	1	1	1	0	1	-1	1	0	1	1	1	1	0	8	Medium
2022-BPUB-012	IT Improvements	0	0	0	1	0	1	1	0	1	1	1	1	0	0	7	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
2022-BPUB-013	Emergency Generators	0	1	1	1	0	1	1	1	1	1	1	1	1	0	11	High
2022-BPUB-014	Hail Guard Installation	0	1	1	1	0	1	1	1	1	1	-1	1	0	0	8	Medium
2022-BPUB-015	Quick-connect system installation	0	0	1	0	0	1	1	1	1	1	1	1	0	0	8	Medium
2022-BPUB-016	Conduct Utility Study and Elevate Utilities	0	1	0	1	0	1	0	1	1	1	1	1	0	0	8	Medium
2022-BPUB-017	Resaca Maintenance	0	1	1	1	0	1	1	1	1	1	1	1	1	1	12	High
2022-BPUB-018	Public Information and Outreach	1	1	0	1	1	0	0	1	1	0	1	1	1	0	9	High

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

9.2 City of Brownsville

This section presents the jurisdictional annex for the City of Brownsville (City) and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the City participated in the planning process, an assessment of the City of Brownsville’s risk and vulnerability, the different capabilities used in the City, and an action plan that will be implemented to achieve a more resilient jurisdiction.

9.2.1 Hazard Mitigation Planning Team

The City of Brownsville followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many City departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Team 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 coronavirus pandemic resulted in a strain on local resources that limited some participation, but every effort was made to connect with staff and stakeholders and gain diverse input. Due to safety precautions, all meetings were held virtually.

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

Table 9.2-1. Hazard Mitigation Planning Team

Name	Title	Method of Participation
Odee Ann Leal	Emergency Management Administrator	Attended meetings; coordinated mitigation actions
Noel Bernal	City Manager	Attended meetings
Rick Vasquez	Planning and Redevelopment Director	Attended meetings
Doroteo Garcia, Jr.	Engineering Manager	Attended meetings; provided information on capabilities; identified mitigation actions
Tina Garza	GIS Coordinator	Attended meetings
Olga Moya	Grant Manager	Attended meetings
Eryka Duberney	Grant Analyst	Attended meetings

9.2.2 Jurisdictional Profile

The City of Brownsville is located in and is the county seat of Cameron County. Located on the southernmost tip of Texas, on the northern bank of the Rio Grande, the City of Brownsville is a bustling area of international trade

and commerce. Across the Rio Grande lies Brownsville's sister city, Matamoros, Tamaulipas, Mexico. Brownsville has a rich history as it has served as a site for several battles in the American Civil War, the Mexican American War, and the Texas Revolution. Today, Brownsville acts as an important trade link between the United States and Mexico.

Brownsville has a council-manager government. The mayor and a six-member city commission are selected in nonpartisan elections. Four members are elected from geographic districts; the remaining two members are elected at-large.

According to the U.S. Census, the April 2020 population of Brownsville is 186,738 which represents a 6.7 percent population increase from the 2010 Census.

9.2.3 Jurisdictional Capability Assessment and Integration

The City of Brownsville performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of planning, 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. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.2.3). The updated mitigation strategy includes opportunities the City of Brownsville identified for integration of mitigation concepts to be incorporated into municipal procedures.

9.2.3.1 Planning, Legal, and Regulatory Capability

Section 9.2.3 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the City of Brownsville, what is present in the jurisdiction, and code citation and date.

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

	Jurisdiction has this? (Yes/No)	Required by State? (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	Yes	Chapter 18 – Buildings and Building Regulations	State and Local	Permitting Director/Building Official
<i>How does this reduce risk? By using the highest standards, City construction will reduce the risk of hazards and protect both lives and property.</i>					
Zoning/Land Use Code	Yes	No	Chapter 348 – Zoning	Local	Building Inspector
<i>How does this reduce risk?</i>					
Subdivision Ordinance	Yes	No	Chapter 332 – Subdivisions	Local	Plat Administrator
<i>How does this reduce risk?</i>					
Site Plan Ordinance	No	No	-	Local and County	-
<i>How does this reduce risk?</i>					
Stormwater Management Ordinance	Yes	Yes	Chapter 308 – Flood Damage and Prevention	Local	
<i>How does this reduce risk? Stormwater Management reduces the risk of pollutants that may have the potential to endanger local residents.</i>					
Post-Disaster Recovery/ Reconstruction Ordinance	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Real Estate Disclosure	Yes	Yes	-	State	-
<i>How does this reduce risk? Real Estate Disclosure ensures that property owners are aware of historical disaster impacts and gives them information necessary to plan for and mitigate future disasters.</i>					
Growth Management	No	No	-	Local	-
<i>How does this reduce risk?</i>					
Environmental Protection Ordinance	Yes	Yes	Chapter 46 – Environment	Local	-
<i>How does this reduce risk? Provides guidance to reduce risk to lives, property and the environment by setting standards for pollution control and impact mitigation.</i>					
Flood Damage Prevention Ordinance	Yes	Yes	Chapter 308 – Flood Damage and Prevention	Federal, State, County and Local	Planning and Redevelopment Services
<i>How does this reduce risk? Floodplain regulations reduce risk to lives and property by ensuring mitigation measures are put into place for repetitive loss properties and new construction.</i>					
Wellhead Protection	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Emergency Management Ordinance	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Climate Change Ordinance	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Other	No		-	-	-
Planning Documents					
Comprehensive Plan	Yes	No	Imagine Brownsville Comprehensive Plan – 2009	Local	Planning and Redevelopment Services
<i>How does this reduce risk? Risk reduction to new development.</i>					
Capital Improvement Plan	Yes	No	Consolidate Plan 2015-19	Local	Office of Strategic Initiatives
<i>How does this reduce risk? Presents mitigation projects to be funded.</i>					

	Jurisdiction has this? (Yes/No)	Required by State? (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	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Floodplain Management or Watershed Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Stormwater Management Plan	Yes	No	Stormwater Management Plan 2019-2024	Local	Engineering and Public Works – Stormwater & Environment
<i>How does this reduce risk? Stormwater Management reduces the risk of pollutants that may have the potential to endanger local residents.</i>					
Open Space Plan	Yes	No	Parks and Open Space Master Plan 2008	Local	Parks & Recreation
<i>How does this reduce risk?</i>					
Urban Water Management Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Habitat Conservation Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Economic Development Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Shoreline Management Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Community Wildfire Protection Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Community Forest Management Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Transportation Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Agriculture Plan	Yes	Yes	Texas Agri-Life Extension Service	County	Cameron County Agricultural Extension
<i>How does this reduce risk? Agricultural planning reduces the risk to the animals and community during times of disaster.</i>					
Climate Action/ Resiliency/Sustainability Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Tourism Plan	Yes	No	Lower Rio Grande Valley Active Transportation & Active Tourism Plan 2015	Local	Parks & Recreation
<i>How does this reduce risk? Informs visitors of risk.</i>					
Business/ Downtown Development Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Other	No	No	-	-	-
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	Yes	City of Brownsville Emergency Operations Plan November 2021	Local	Emergency Management
<i>How does this reduce risk? Details both short-term response and long-term recovery plans that address communications, evacuation, and housing necessary for a variety of hazards that impact the community.</i>					
Continuity of Operations Plan	No	No	-	-	-

	Jurisdiction has this? (Yes/No)	Required by State? (Yes/No)	Code Citation and Date (code chapter, name of plan, date of plan)	Authority (local, county, state, federal)	Individual / Department / Agency Responsible
<i>How does this reduce risk? Not applicable</i>					
Strategic Recovery Planning Report	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	Yes	Yes	2021 Threat and Hazard Identification and Risk Assessment (THIRA) Lower Rio Grande Valley Development council COG-1	Local	Emergency Management
<i>How does this reduce risk? By coordinating on a regional THIRA, the City reduces the risks of hazards and threats that potentially impact the entire region.</i>					
Post-Disaster Recovery Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Public Health Plan	No	No	-	-	-
<i>How does this reduce risk? Not applicable</i>					
Other	No	-	-	-	-

9.2.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the City of Brownsville 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? -If yes, what department is responsible? -If no, what is your process for development?	Yes	Building Permits and Inspections Division
Are permits tracked by hazard area? (For example, floodplain development permits.)	No	-
Do you have a buildable land inventory? -If yes, describe. -If no, quantitatively describe the level of buildout in the jurisdiction.	No	The City is 80 percent built-out.

9.2.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Brownsville and their current responsibilities which 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	Planning & Zoning Commission
Zoning Board of Adjustments	Yes	The City of Brownsville's Zoning Division is responsible for upholding the zoning and platting regulations

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		according to the local development code and state regulations. Zoning is a regulatory tool that cities use in order to ensure stable property value and an adequate mix of uses while protecting the health, safety, and welfare of the general public.
Planning Department	Yes	Planning and Redevelopment Services
Mitigation Planning Committee	No	-
Environmental Board/Commission	No	-
Open Space Board/Committee	No	-
Economic Development Commission/Committee	No	-
Public Works/Highway Department	Yes	<p>The Public Works Department is tasked with providing core community services and infrastructure maintenance that are key to the growth, health, safety and quality of life for the City of Brownsville. Divisions include:</p> <ul style="list-style-type: none"> • Building Maintenance • Concrete Construction (sidewalk, curb and gutter maintenance) • Greens (forestry, mowing, tree maintenance, resaca maintenance, BBC maintenance, curb maintenance, and emergency standby) • Landfill (solid waste handling and disposal, and waste minimization) • Administration • Street Maintenance (street pavement management and alleyway maintenance) • Drainage/Stormwater (City ditch maintenance, storm sewer system management, MS4 management).
Construction/Building/Code Enforcement Department	Yes	The Building Permits and Inspections Division's mission is to ensure compliance with adopted City building, zoning, fire, health and sanitation codes on all residential and commercial structures in order to protect the health, safety, and general welfare of the public. In order to facilitate this responsibility we provide a full range of plan review and construction inspection services to support enforcement of the International Building Codes.
Emergency Management/Public Safety Department	Yes	The Brownsville Office of Emergency Management and Homeland Security (OEMHS) is the City of Brownsville department responsible for overall emergency planning and preparedness within the City of Brownsville, and for maintenance of the City's comprehensive all-hazards preparedness program. Reporting directly to the City Manager's Office and the Mayor, the department oversees the Brownsville Emergency Operations Center (EOC) and coordinates local response and recovery efforts with appropriate local, county, regional, state, and federal agencies, as

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
		well as with the private sector and volunteer organizations. OEMHS staff continues working hard to continue its overall planning and preparedness efforts. From distributing preparedness information, to continuing to work with FEMA on recovery funds, to reviewing emergency plans for local businesses, the small department continues its tradition of working towards making Brownsville and its residents better prepared.
Warning Systems / Services (mass notification system, outdoor warning signals)	Yes	Emergency Alert Brownsville
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	See Public Works Department
Mutual aid agreements	No	-
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?	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	-
Scientist familiar with natural hazards	No	-
Surveyor(s)	No	-
Emergency Manager	Yes	Emergency Management Administrator
Grant writer(s)	Yes	
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	-

9.2.3.4 Fiscal Capability

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

Table 9.2-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
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	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

9.2.3.5 Education and Outreach Capability

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

Table 9.2-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/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.
Public information officer or communications office	Yes	Communications & Marketing Department
Personnel skilled or trained in website development	No	-
Hazard mitigation information available on your website	No	-
Social media for hazard mitigation education and outreach	Yes	Facebook, Twitter
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	No	-
Warning systems for hazard events	Yes	Emergency Alert Brownsville
Natural disaster/safety programs in place for schools	No	-
Other	No	-

9.2.3.6 Community Classifications

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

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)	Yes	2	2022
Storm Ready Certification	Yes	-	2009
Firewise Communities classification	No	-	-

Note:

N/A Not applicable

NP Not participating

- Unavailable

9.2.3.7 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). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.2-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Dam and Levee Failure	Moderate
Disease Outbreak	Moderate
Drought	Moderate
Erosion	Moderate
Extreme Heat	Moderate
Flood	Moderate
Hail	Moderate
Hurricane/Tropical Storm	Moderate
Lightning	Moderate
Thunderstorm Wind	Moderate
Tornado	Moderate
Wildfire	Moderate
Winter Storm	Moderate

*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

9.2.4 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.

Table 9.2-9. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. <ul style="list-style-type: none"> Do you maintain a list of properties that have been damaged by flooding? 	The most common type of flooding is stream flooding which is triggered by heavy rains. Occasionally the City may see effects of coastal flooding or River flooding, usually during hurricanes. Yes. Emergency Management Office maintains a list of properties.
Do you maintain a list of property owners interested in flood mitigation? <ul style="list-style-type: none"> How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)? 	At this time, the City does not have a list. In the past we have offered acquisitions for repetitive flood properties.
Are any RiskMAP projects currently underway in your jurisdiction? <ul style="list-style-type: none"> If so, state what projects are underway. 	Not at this time.
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> How many were declared for recent flood events in your jurisdiction? 	Not in the last year.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? <ul style="list-style-type: none"> If there are mitigation properties, how were the projects funded? 	None in the last year.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> If not, state why. 	No. Many of the maps don't accurately depict areas along special flood hazard areas.
NFIP Compliance	
What local department is responsible for floodplain management?	Engineering and Public Works
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, through the EPA Strategies for Climate Change Adaption.
Does your floodplain management staff need any assistance or training to support its floodplain management program? <ul style="list-style-type: none"> If so, what type of assistance/training is needed? 	Training is always needed. FEMA Floodplain management training opportunities currently in use.
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	Building permits provides the initial request or determination of sites needing a permit. Then they are transferred to the City's Engineering office for permit review.

NFIP Topic	Comments
	<p>For Land development (e.g., subdivisions), the City reviews during the plat review.</p> <p>The City utilizes GIS flood hazard layers almost daily; inspections are as needed.</p> <p>For outreach, the City has an annual meeting to reach out to the community during hurricane awareness week This is also included as part of the Stormwater Pollution Prevention Plan outreach.</p> <p>Prior to Covid, the City would attend various school career days.</p>
<p>How do you determine if proposed development on an existing structure would qualify as a substantial improvement?</p>	<p>Based on FEMA, it would be any improvement over 50% of the value. The City refers to appraisal district valuations for this.</p>
<p>What are the barriers to running an effective NFIP program in the community, if any?</p>	<p>Additional help to properly tract the paperwork and participate in the CRS program and gradually increase levels to provide additional discount benefits to residents.</p>
<p>Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed?</p> <ul style="list-style-type: none"> If so, state the violations. 	<p>None, the City is currently going through a Community Assistance Visit.</p>
<p>When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?</p>	<p>Currently going through a Community Assistance Visit.</p>
<p>What is the local law number or municipal code of your flood damage prevention ordinance?</p> <ul style="list-style-type: none"> What is the date that your flood damage prevention ordinance was last amended? 	<p>With New UDC 12/1/2020</p> <p>Link to our files</p> <p>https://twdb-my.sharepoint.com/:f/g/personal/luz_ballesterosgonzalez_twdb_texas_gov/EhHn9fb97y1DrZtbRxDXB1cBsYs0WURUtnD6Df0VeJPV1g?e=B9UJcN</p>
<p>Does your floodplain management program meet or exceed minimum requirements?</p> <ul style="list-style-type: none"> If exceeds, in what ways? 	<p>Exceed.</p> <p>The City indirectly requires 1' freeboard. Most subdivision roads are built to BFE (Base Flood Elevation) and the City ordinance requires buildings be built a minimum of 1' above curb, therefore the City indirectly has a 1' freeboard. On new developments for commercial over ½ acre, the City requires detention ponds, therefore reducing the existing runoff in most cases.</p>
<p>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?</p>	<p>Site plan review process for commercial developments.</p> <p>Subdivision review for land development and the building department oversees the residential development.</p>
<p>Does your jurisdiction participate in CRS?</p> <ul style="list-style-type: none"> If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program? 	<p>No. The City is in the process of beginning this once the CAV is complete. Meetings will be scheduled with a FEMA regional office to discuss this and then present a proposal to management.</p>

Note: RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

9.2.5 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 understanding 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 9.2-10. Recent and Expected Future Development

Type of Development	2015*		2016*		2017*		2018*		2019*		2020*	
Number of Building Permits for New Construction Issued Since the Previous HMP (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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
Other (commercial, mixed-use, etc.)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Permits Issued	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Property or Development Name	Type of Development		# of Units / Structures		Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development			
Recent Major Development and Infrastructure from 2015 to Present												
N/A	N/A		N/A		N/A		N/A		N/A			
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												
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		N/A		N/A		N/A		N/A			

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

* Note: The information for this table was unavailable for the planning effort.

9.2.6 Jurisdictional Risk Assessment

The hazard profiles in Section 5 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Section 5.1 (Hazards of Concern), Section 5.2 (Methodology and Tools), and Section 5.3 (Hazard Ranking) provide a detailed summary for the City of Brownsville’s risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

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

Figure 9.2-1. City of Brownsville Northwest Area Extent and Location Map-Flood

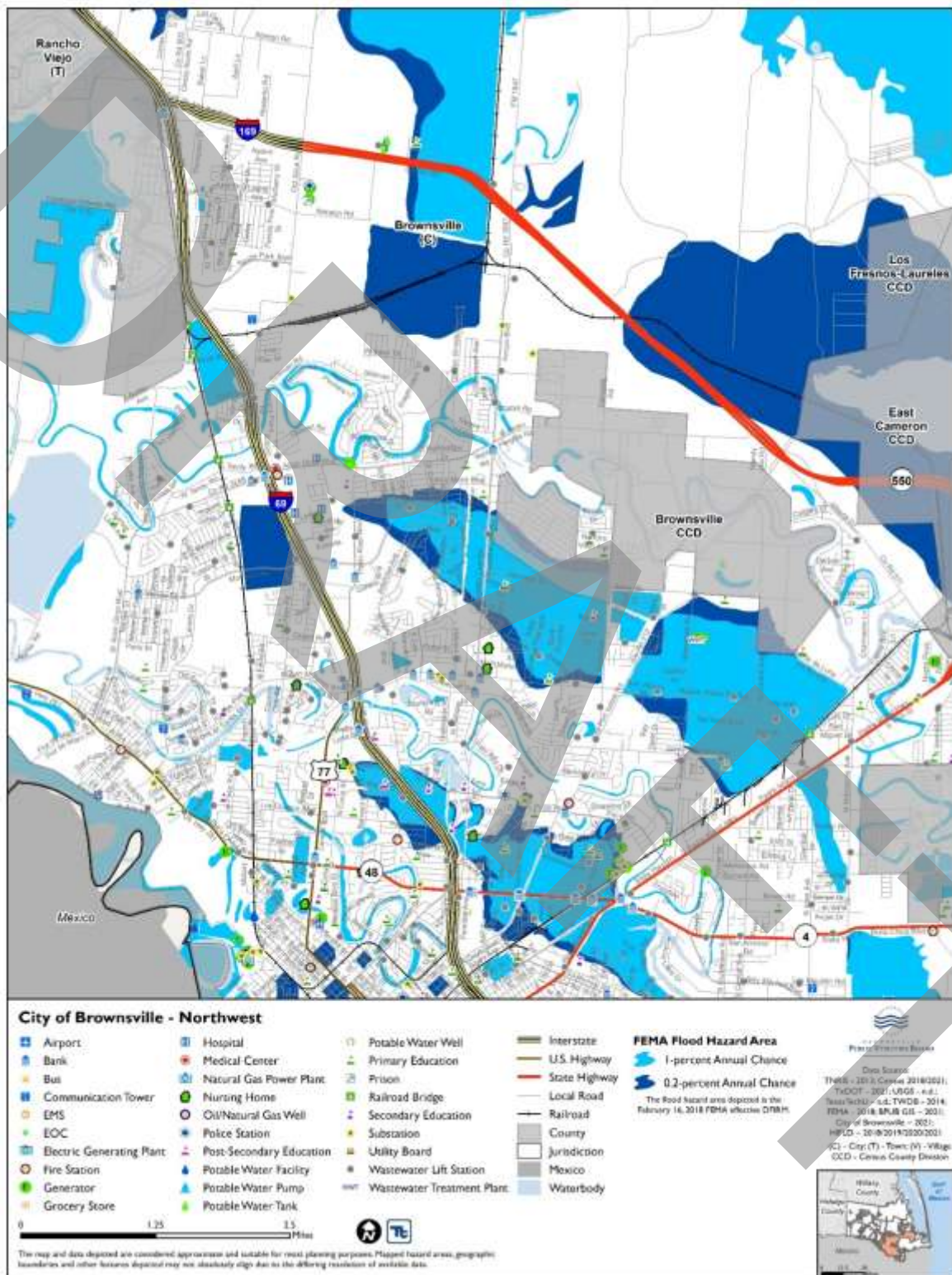




Figure 9.2-2. City of Brownsville Southeast Area Extent and Location Map-Flood

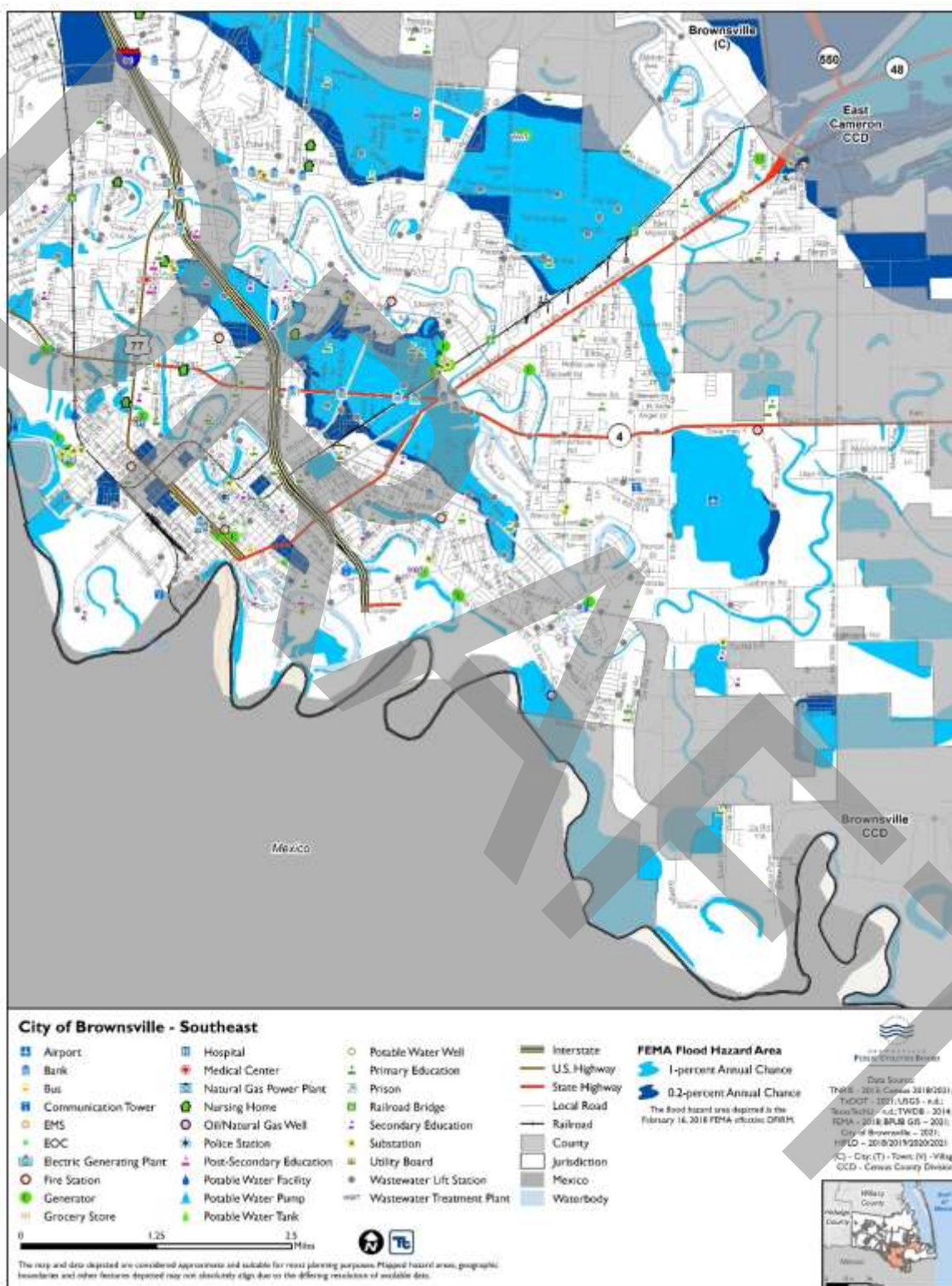




Figure 9.2-3. City of Brownsville Northwest Area Extent and Location Map-SLOSH

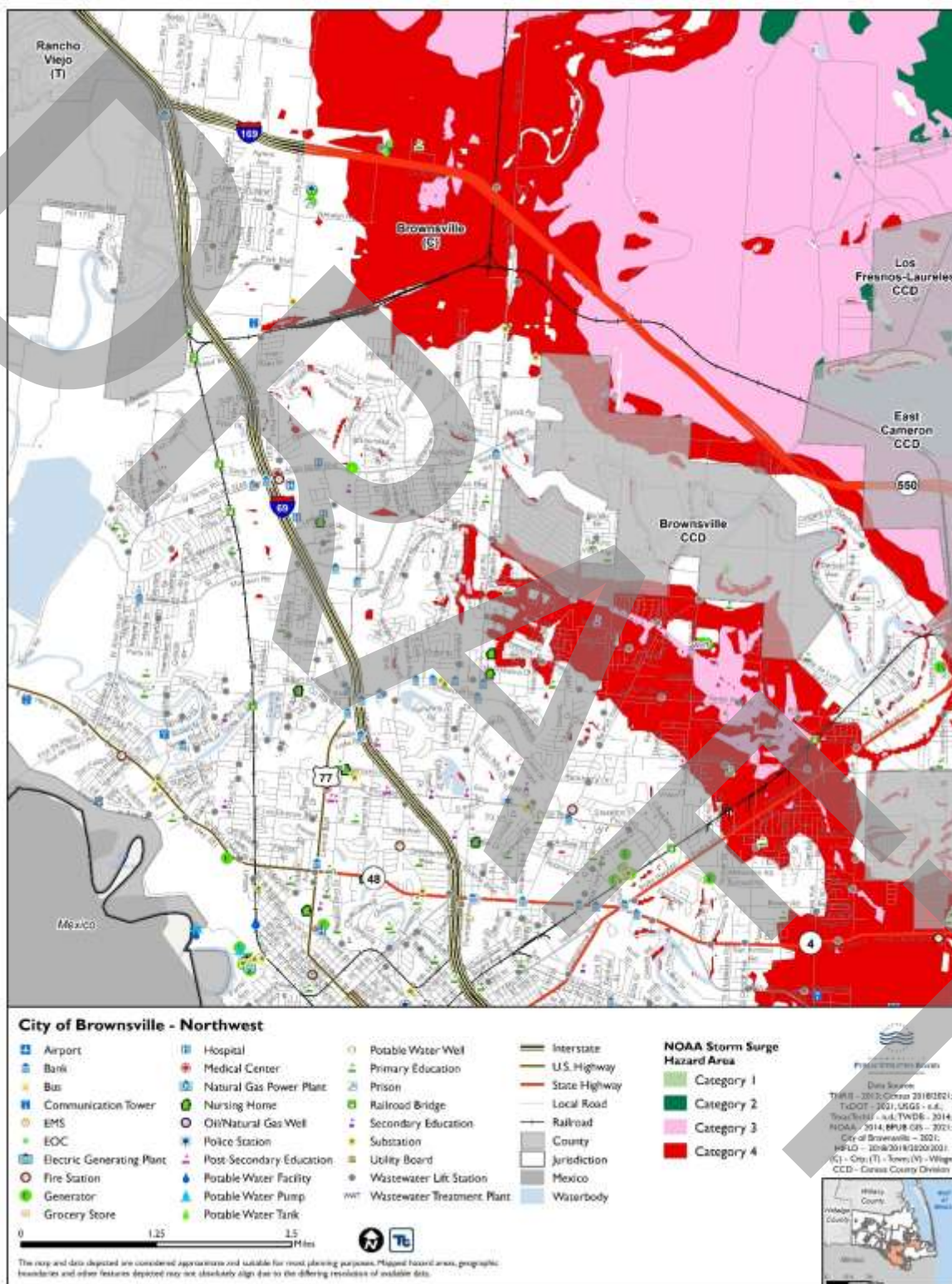




Figure 9.2-4. City of Brownsville Southeast Area Extent and Location Map-SLOSH

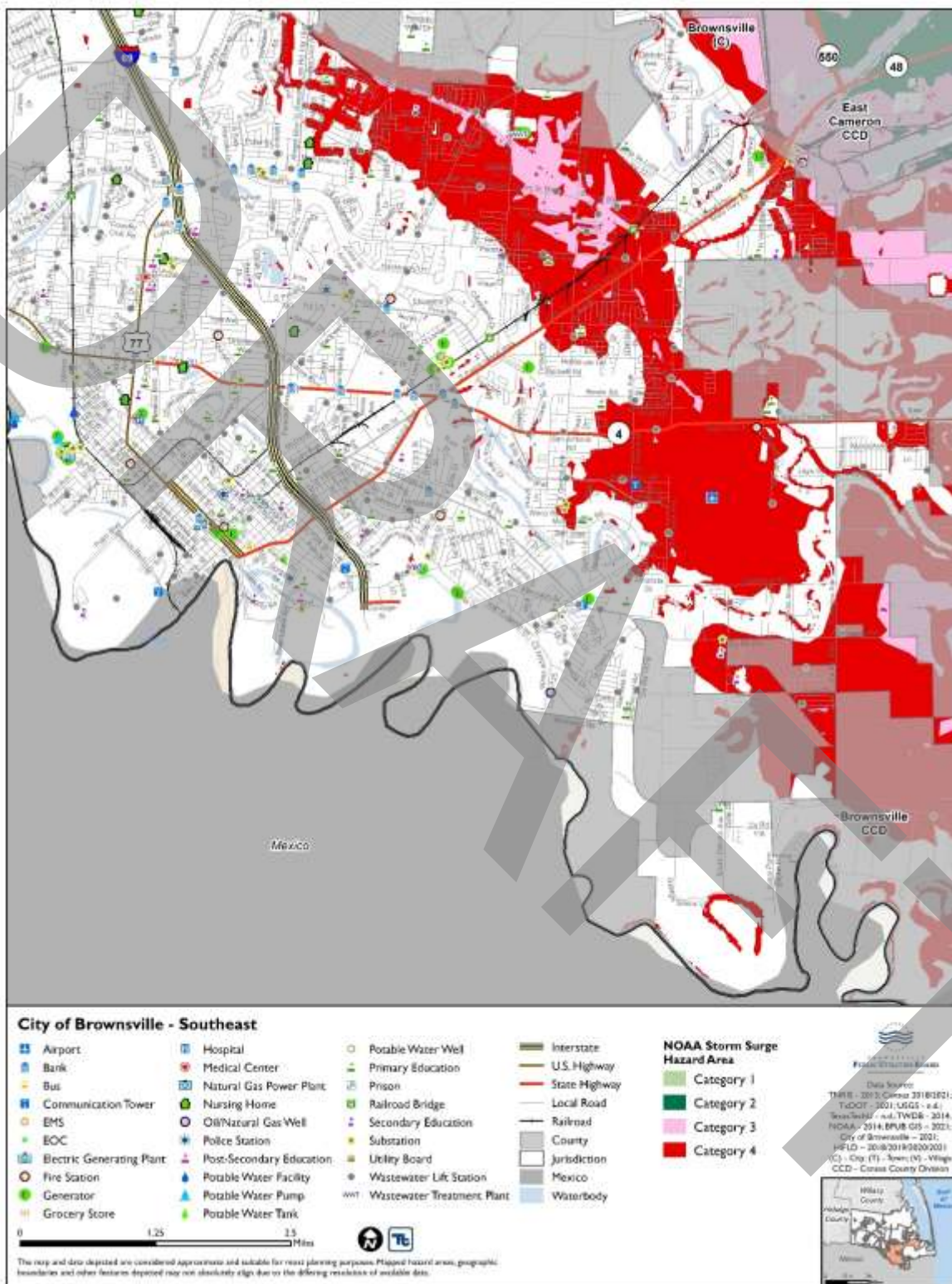




Figure 9.2-5. City of Brownsville Northwest Area Extent and Location Map-Sea Level Rise

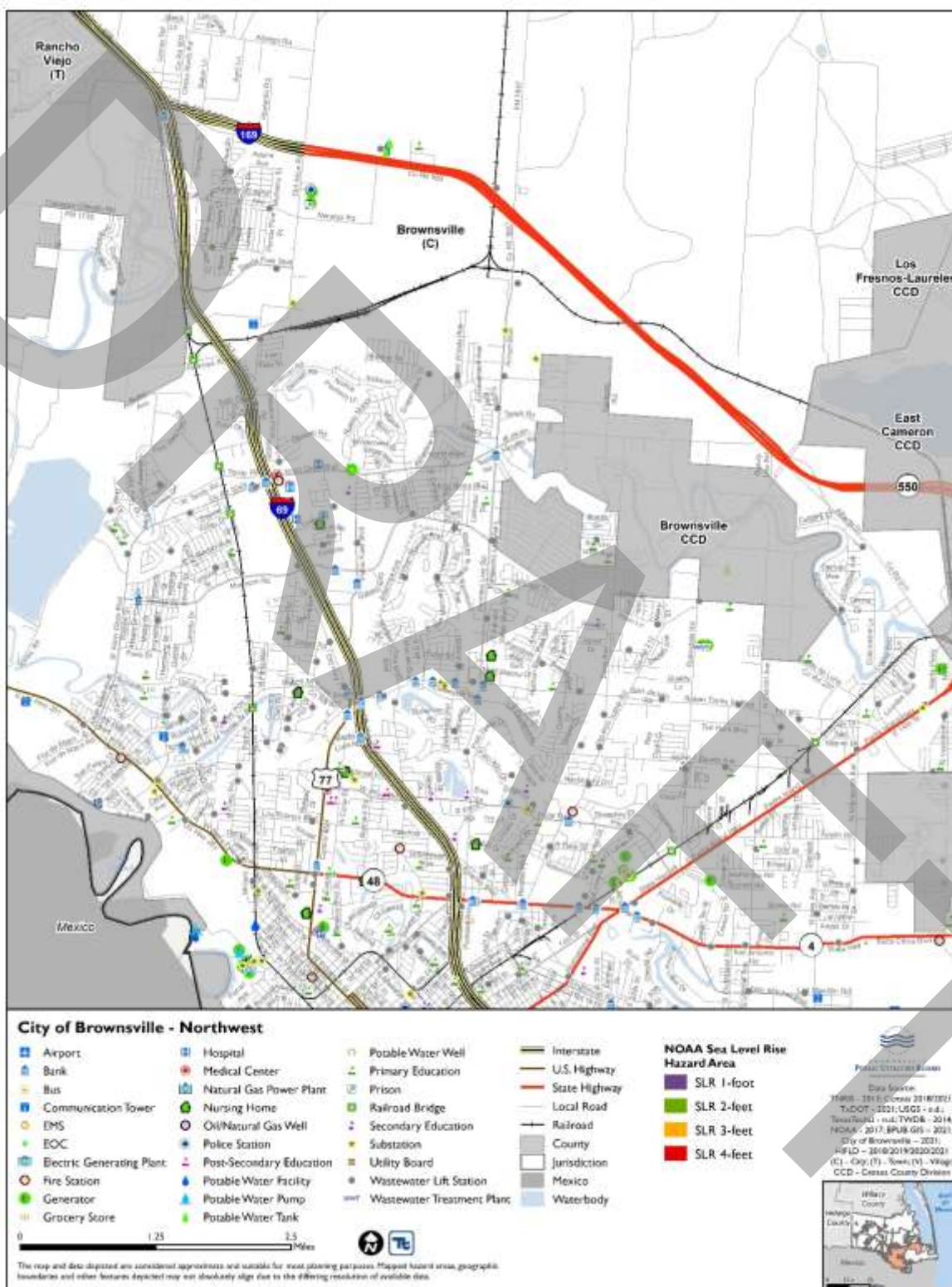




Figure 9.2-6. City of Brownsville Southeast Area Extent and Location Map-Sea Level Rise

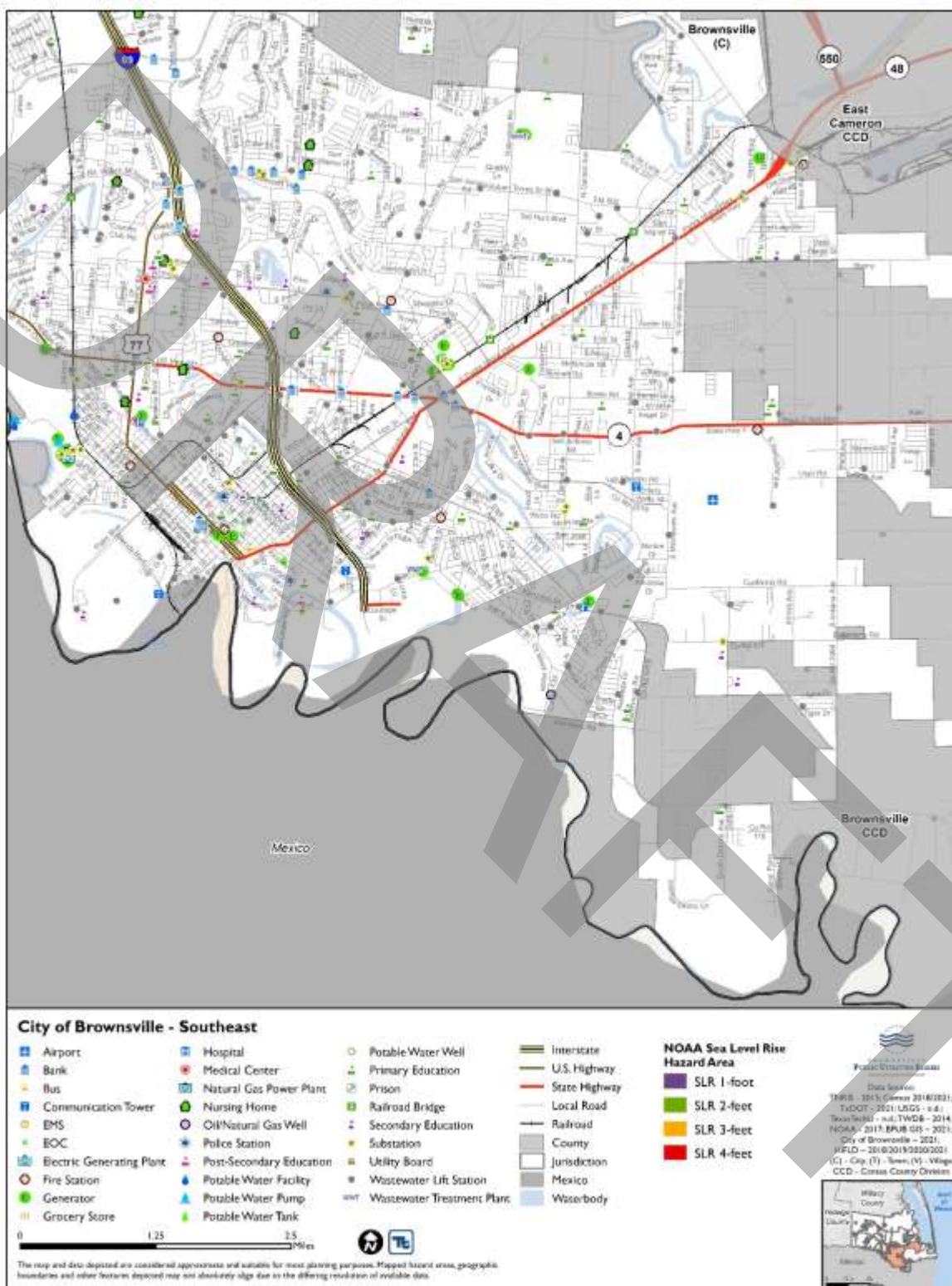
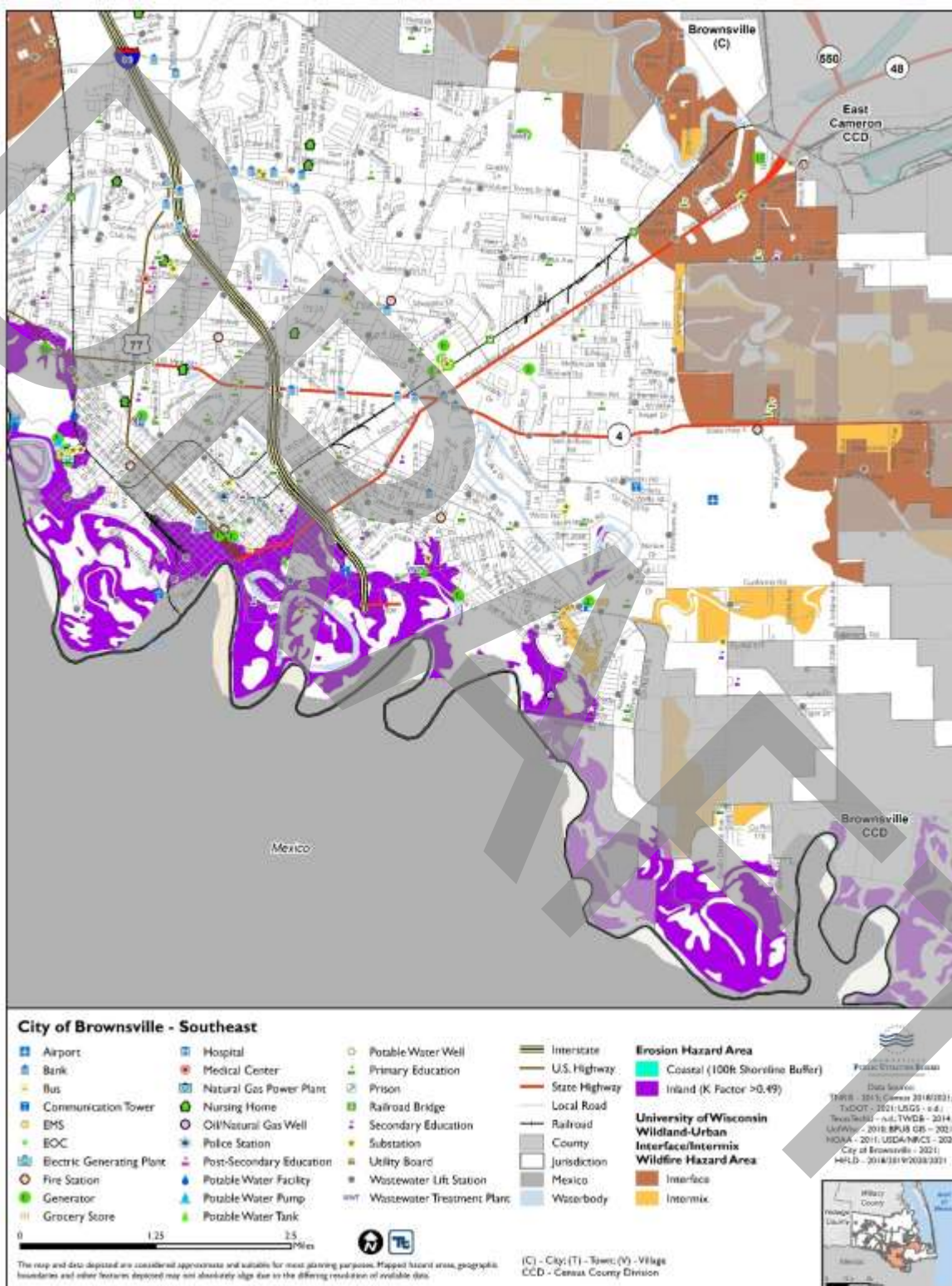




Figure 9.2-8. City of Brownsville Southeast Area Extent and Location Map-Wildfire and Erosion



9.2.6.1 Hazard Event History

The planning area has a history of natural hazard events as detailed in Section 5 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the planning area.

The City of Brownsville’s history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of the planning area. The table below provides details regarding municipal-specific loss and damages the City 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 9.2-11. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
October 30, 2015	Flash Flood / Heavy Rain (DR-4245)	Yes	Heavy and persistent rain fell across the City of Brownsville, mainly from downtown east towards the Port of Brownsville, and including all of the neighborhoods in Southmost, which took the brunt of the heavy rainfall. Within an hour, feet of water were inundating some roads and by three hours later up to 5 feet of water covered one of the most prone areas of town the Four Corners area where State Road 4 (International Blvd.) intersects State Road 48 (Boca Chica Blvd./Padre Island Highway). Neighborhood roads in Southmost were inundated with two to three feet of water, and dozens of homes and businesses flooded due to a combination of high water that filtered into homes and vehicles that created waves of water which surged into them. At Brownsville/South Padre Island International Airport, the 6.55 inches of rainfall was reported.	An estimated \$100,000 in property damages was reported.
January 11, 2018	Strong Wind	No	A surge of strong winds behind the dry front late on January 11th produced peak gusts between 44 and 54 mph during the mid-evening. The gusty winds at Brownsville/ South Padre Island International Airport (50 mph at 8:40 PM) sparked a brief fire on the airport grounds when a transformer blew near Iowa Avenue.	An estimated \$15,000 in property damages was reported.
June 20, 2018	Flash Flood / Heavy Rain (DR-4377)	Yes	In Cameron County, between 12 and 18 inches of rain fell, inundating several thousands of homes and businesses with 18 inches to three feet of flood water, and	An estimated \$20 million in damages in Cameron County was reported. City damage estimates are unavailable.

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			hundreds of rescues of persons and pets were common.	
August 12, 2018	Thunderstorm Wind	No	A rapidly developing line of thunderstorms raced northward through Cameron County east of US 77, creating gusts over 40 mph and causing minor damage to a few tree limbs, unfastened lawn furniture, and a few power lines. An estimated \$500,000 in property damages was reported.	An estimated \$500,000 in property damages in Cameron County was reported. City damage estimates are unavailable.
July 25, 2020	Tropical Storm / Hurricane Hanna (EM-3530)	Yes	Hurricane Hanna, the 2020 Atlantic season's first Hurricane, made landfall along the unpopulated Padre Island National Seashore on the mid-Kennedy County coastline as a Category 1 storm at around 5 PM Central Time Saturday, July 25th, carrying sustained 90 mph winds with gusts over 100 mph in a small portion of the inner eye wall. At the storm's peak, an estimated 50 thousand electric customers were without power. An EF0 tornado was also reported, touching down 2.3 miles south of the Brownsville Airport, moving north. Crop damage was also significant, with sugar cane snapped in many fields and young fruit being blown off citrus trees, which also sustained damage.	\$1.88 million in property damage countywide. Estimated dollar value loss based on reports from Texas AgriLife in late summer was \$25.9 million in Cameron County. The EF0 tornado resulted in \$250,000 in property damages. City damage estimates are unavailable.
February 14, 2021	Front/Freeze (EM-3554)	Yes	A strong cold front moved through Deep South Texas and the Rio Grande Valley on February 12th, followed then by a strong Arctic High building into the area on February 13th. The Arctic High ushered in very cold air, with subsequent cold air damming leading to an extended period of anomalously cold temperatures. Cameron County sustained heavy crop losses. Soon after temperatures fell below freezing, light rain turned to a mix of light freezing rain and sleet, which created a thin coating of ice on trees and plants. Icing was also noted along elevated roads, requiring some closures.	Countywide property damages were over \$32,000. The City on incurred payroll costs for this event. Cameron County crop losses were estimated at \$46 million

9.2.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.1 (Hazards of Concern) of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the City of Brownsville’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 Section 4 (Risk Assessment) of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.3 (Hazard Ranking), each participating jurisdiction can have differing degrees of risk exposure and vulnerability. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Brownsville. The City of Brownsville reviewed the hazard risk/vulnerability risk ranking table to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City agreed with all the calculated rankings, except for Earthquake which had a low ranking. The City chose to remove the earthquake hazard from this update as there is no exposure to population or building stock.

Table 9.2-12. Hazard Ranking Input

Dam & Levee Failure	Disease Outbreak	Drought	Erosion	Extreme Heat	Flood	Hail
Low	Low	Low	Low	Medium	Low	Medium
Hurricane & Tropical Storm	Lightning	Thunderstorm Wind	Tornado	Wildfire	Winter Weather	
Low	Medium	Medium	Medium	Medium	Medium	Medium

Note: The scale is based on the hazard rankings established in Section 5.3 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

9.2.6.3 Identified Issues

After review of the City of Brownsville’s hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the City of Brownsville has not identified additional vulnerabilities within their community.

Specific areas of concern based on resident response to the citizen survey include:

- Flooding in the following areas:
 - Stagecoach Trail and Dennet Road
 - Price Road, Bernard Road, Tropical Drive, Frontage Road, FM 802

- Boca China Boulevard
- Dana Avenue north of FM 802
- Quail Hollow Drive
- Los Ebanos Boulevard and Price Road
- Parkwood Place
- Harvard Avenue and alleys
- Harvard Avenue and Woodruff Avenue
- Ruben Torres Boulevard between Quail Trail and Military Highway
- Elma Street, Central Avenue, Austin Road
- Paredes Line Road, Robindale Road, Old Port Isabel Road, Ruben Torres Boulevard
- Draper Drive
- Morrison Street near Valley Baptist

9.2.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.2.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community's mitigation strategy identified in the 2015 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and are discussed in the 'Capability Assessment' presented previously in this annex.

Table 9.2-13. 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 2022 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.
City of Brownsville – 1	Upgrade and increase culverts at specific locations in City in order to adequately convey storm water	Public Works	No Progress	Yes (as 2022-City of Brownsville-001)	Undersized culverts located throughout the City and lead to roadway flooding	Engineering and Public Works
City of Brownsville – 2	Join the Community Rating System program to reduce risk and flood insurance premiums to residents	City	No Progress	Yes (as 2022-City of Brownsville-024)	History of flooding and properties damaged during flood events.	Engineering and Public Works
City of Brownsville – 3	Implement an NFIP public education program to increase the number of flood insurance policies by promoting availability of flood insurance including the Preferred Risk Policy for non-SFHA's	City	No Progress	Yes (as 2022-City of Brownsville-026)	NFIP insurance policies could be increased.	Office of Emergency Management
City of Brownsville – 4	Identify existing flood-prone structures and repetitive flood loss properties for FEMA Buyout Program	City Engineer	No Progress	Yes (as 2022-City of Brownsville-002)	Floodprone properties throughout the City; many need to be mitigated to provide further protection	Planning and Redevelopment
City of Brownsville – 5	Remove downed trees to decrease fire fuels in undeveloped and remote areas	Parks & Recreation	No Progress	Yes (as 2022-City of Brownsville-007)	No tree management master plan	Engineering and Public Works
City of Brownsville – 6	Construct dual-purpose animal shelter	Health Dept.	No Progress. No longer feasible.	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 2022 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.
City of Brownsville – 7	Install hail guards for HVAC systems on critical facilities including nursing homes, hospitals, courthouse, and fire stations	City	In Progress. The majority of HVAC units have hail guards. The City will continue to evaluate the units and the need for more hail guards.	Yes (as 2022-City of Brownsville-003)	Hail damage to critical facilities due to lack of hail guards	Internal Services
City of Brownsville – 8	Conduct a Public Education Campaign to address dangers associated with extreme heat and preventative measures for working outdoors	Emergency Management Office	Ongoing Capability	No	-	-
City of Brownsville – 9	Conduct a public education campaign in the event of a necessary evacuation due to dam failure from upstream flood control system	Emergency Management Office	No Progress Lacked capacity to do a specific dam failure education campaign for the previous plan	Yes (as 2022-City of Brownsville-019)	Need evacuation education for dam and levee failure	Office of Emergency Management
City of Brownsville – 10	Conduct a public education campaign to educate residents on reducing water consumption during drought conditions	BPUB	No Progress.	Yes (as 2022-City of Brownsville-004)	The City currently does not have an education campaign that focuses on water consumption during drought conditions.	Communications
City of Brownsville – 11	Install quick connect systems on all critical facilities with emergency generators	Engineering	No Progress. No longer needed.	No	-	-
City of Brownsville – 12	Install emergency generators on all critical facilities	Engineering	Complete. Critical facilities have permanent generators. City Hall, both libraries, pump stations, and PD buildings.	No	-	-
City of Brownsville – 13	Install temporary cooling stations at City park facilities to aid low income and elderly residents during extreme heat conditions	Engineering	No Progress.	Yes (as 2022-City of Brownsville-005)	During periods of extreme heat, not all residents have proper air	Engineering and Public Works

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 2022 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.
					conditioning in their homes.	
City of Brownsville – 14	Develop a Drought Protection Plan to include adoption of Firewise community actions for water conservation and xeriscaping program	Fire Dept.	No Progress	Yes (as 2022-City of Brownsville-006)	No drought protection plan	Fire Department
City of Brownsville – 15	Develop and implement a Tree Management Master Plan to remove downed trees due to winter storm and ice	Public Works	No Progress	Yes (as 2022-City of Brownsville-007)	No tree management master plan	Engineering and Public Works
City of Brownsville – 16	Construct a weir to prevent flood risk from the overflow of canals located on the North side of Brownsville	Engineering	No Progress	Yes (as 2022-City of Brownsville-031)	Flooding of canals on the north side of the City	Engineering and Public Works
City of Brownsville – 17	Construct and/or expand culverts on rural roads and main stream outlets 1) Central Ave to Martinelle 2) Robindale to Old Place 3) Dana 802 to High Emerson 4) Pablo Kisel from Morrison to Alton Gloor	Public Works	No Progress	Yes (as 2022-City of Brownsville-001)	Undersized culverts along the rural roads and main stream outlets	Engineering and Public Works
City of Brownsville – 18	Purchase and install portable pumps as back-up during severe weather and flood events	Public Works		Yes (as 2022-City of Brownsville-008)	Lack of backup pumps to use during severe weather and flood events	
City of Brownsville – 19	Purchase 5 generators and quick connects for Emergency service buildings and city facilities to support	Public Works, Emergency	In Progress. Internal Services COB.	Yes (as 2022-City of	Emergency service buildings and other facilities require	Public Works, Emergency

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 2022 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.
	power outage. 1) West 5th and Saint Charles 2) Cottonwood and Old Alice 3) El Tapiz Building 4) City Hall 5) City Plaza	Management, Fire, Internal Services		Brownsville-030)	mobile generators and quick connects to preserve continuity of services during power outages	Management, Fire, Internal Services
City of Brownsville – 20	Construct alternate Emergency Operations Center to protect critical system operations	MIS	No Progress	Yes (as 2022-City of Brownsville-009)	Need an alternate location for an EOC in the event of flooding or power outages	Office of Emergency Management
City of Brownsville – 21	Implement a GIS (geographical information system) model of the Brownsville Storm Sewer System to create a chronological list of common activities associated with the development of a storm water GIS	Public Works and Engineering	No Progress. Capabilities do not exist to implement this action	No	-	-
City of Brownsville – 22	Revise the structural standards in the International Building Code to strengthen codes for new construction	Building Inspection	Complete	No	-	-
City of Brownsville – 23	Conduct annual training for Code Enforcement Officers in order to effectively enforce revised structural Building Code standards	Building Inspection	In Progress	No	-	-
City of Brownsville – 24	Improve drainage and replace or upgrade gutters at City Plaza buildings	Public Works	In Progress. All facilities are going through a facility assessment. The city will evaluate at that time the need for improved drainage and gutters.	Yes (as 2022-City of Brownsville-010)	Drainage in the area of City Plaza buildings is inadequate and tends to flood during heavy rain events	Internal Services

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 2022 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.
City of Brownsville – 25	Integrate stand pipes into existing drain structures	Fire Department	No Progress	No	-	-
City of Brownsville – 26	Purchase generator for City Fuel Station System	Public Works, Brownsville Police Department, Brownsville Fire Department. Multi-modal department	No Progress	Yes (as 2022-City of Brownsville-011)	No backup power at the City fuel station	Engineering and Public Works
City of Brownsville – 27	Conduct public education for residents pertaining to flood and hurricane disasters by distributing brochures and other materials at city-wide events	Fire department, Emergency Management, health, public works	In Progress	Yes (as 2022-City of Brownsville-029)	Lack of hazard mitigation information and education for citizen preparedness.	Office of Emergency Management, BPUB
City of Brownsville – 28	Conduct public education for residents pertaining to the City's participation in the National Flood Insurance Program and flood insurance availability	Fire department, Emergency Management, health, public works	Ongoing Capability	No	-	-
City of Brownsville – 29	Improve drainage by constructing new culverts, levees, and drainage features into the Port of Brownsville from the north Brownsville area to mitigate potential major flooding during severe weather event	Public Works	No Progress	Yes (as 2022-City of Brownsville-001)	Inadequate drainage in the Port of Brownsville from the north Brownsville area.	Engineering, Public Works
City of Brownsville – 30	Conduct large-scale Firewise education program for safe burning	Fire Department	No Progress.	Yes (as 2022-City of Brownsville-020)	Need a program to help mitigate fire hazards	Fire Department
City of Brownsville – 31	Construct retaining walls to alleviate flooding problems – City of Brownsville Golf Course	Public Works	No Progress	Yes (as 2022-City of	Flooding in and around the City's golf course	Parks & Recreation

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 2022 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.
				Brownsville-012)		
City of Brownsville – 32	Install shutters on City critical facility buildings	Public Works	In Progress. All facilities are going through a facility assessment. The City will evaluate at that time the need for storm shutters.	Yes (as 2022-City of Brownsville-013)	Crews board up the critical facilities before severe storm events. Facility assessment is not yet complete to determine which buildings need storm shutters.	Internal Services
City of Brownsville – 33	Install 24" drainage pipes to improve conveyance of storm waters	Public Works	No Progress	No. Other actions more specifically address this issue	-	-
City of Brownsville – 34	Construct Gate Valve and attach to the crossbar at IWC Levee	Public Works	No Progress	Yes (as 2022-City of Brownsville-014)	A Gate Valve is needed at the IWC Levee	Engineering and Public Works
City of Brownsville – 35	Dredge Rotary Park Resacas to expand and improve storage of storm water	Public Works	No Progress	Yes (as 2022-City of Brownsville-015)	Rotary Park Resacas is in need of sediment removal and dredging to increase capacity	Engineering and Public Works, BPUB: Resaca Maintenance
City of Brownsville – 36	Construct Detention Pond to reduce flooding - Price Road	Engineering	No Progress	Yes (as 2022-City of	Price Road is prone to flooding and leads to road closures	Engineering and Public Works

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 2022 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.
				Brownsville-001)		
City of Brownsville – 37	Construct detention pond to reduce flooding - Old Port Isabel Rd	Engineering	No Progress	Yes (as 2022-City of Brownsville-001)	Old Port Isabel Road is prone to flooding and leads to road closures	Yes (as 2022-City of Brownsville-001)
City of Brownsville – 38	Construct detention pond to reduce flooding	Engineering	In Progress	Yes (as 2022-City of Brownsville-001)	Lack of detention ponds leads to flooding	Yes (as 2022-City of Brownsville-001)
City of Brownsville – 39	Conduct analysis of critical facility locations relative to SFHAs and elevate critical structure(s) to prevent flooding in the event of upstream dam failure	Engineering, Public Works	No Progress	Yes (as 2022-City of Brownsville-016)	Need to identify facilities vulnerable to flooding in the event of a dam failure	Engineering and Public Works
City of Brownsville – 40	Buildup of silt in area Resacas can lead to flooding	Engineering	No Progress	Yes (as 2022-City of Brownsville-017)	Buildup of silt in area Resacas can lead to flooding	Engineering and Public Works, BPUB: Resaca Maintenance
BPUB and City of Brownsville – 1	Secure Memorandum of Understanding (MOU) with Lower Rio Grande Flood Control agency to implement structural drainage measures to mitigate potential dam and levee failure of upstream flood control system	Lower Rio Grande Valley Flood Control	No Progress	Yes (as 2022-City of Brownsville-018)	Need structural measures to mitigate dam and levee failure	Engineering and Public Works

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 2022 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.
BPUB and City of Brownsville – 2	Conduct a public education program for evacuating residents downstream of the Lower Rio Grande Flood Control system in the event of dam or levee failure	Lower Rio Grande Valley Flood Control	No Progress	Yes (as 2022-City of Brownsville-019)	Need evacuation education for dam and levee failure.	Office of Emergency Management
BPUB and City of Brownsville – 3	Implement the Firewise Program to minimize dangers of wildfire in extreme heat and drought conditions	Fire Department	No Progress	Yes (as 2022-City of Brownsville-020)	Need a program to help mitigate fire hazards.	Fire Department
BPUB and City of Brownsville – 4	Work with neighboring communities and South Padre Island to implement an evacuation plan for the proposed bridge connecting the mainland to South Padre Island	Emergency Management	No Progress	No. Not within the City's jurisdiction.	-	-
BPUB and City of Brownsville – 5	Construct a second bridge connecting the mainland to South Padre Island	Emergency Management	No Progress	No. Not within the City's jurisdiction.	-	-
BPUB and City of Brownsville – 6	Construct dome shelter in the event of tornado or hurricane wind in Brownsville planning area	Emergency Management, Grants coordinator	Completed	No	-	-
BPUB and City of Brownsville – 7	Install system of weather stations	Emergency Management	No progress	Yes (as 2022-City of Brownsville-021)	Slow notifications of impending severe weather events	Office of Emergency Management
BPUB and City of Brownsville – 8	Install emergency alert system such as I-Info that includes notification in real time alerts	Emergency Management	In Progress	Yes (as 2022-City of Brownsville-022)	Coordinated emergency alerts are needed	Office of Emergency Management

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 2022 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.
BPUB and City of Brownsville – 9	Conduct public education on tones and signals associated with area-wide emergency alert system	Emergency Management	In Progress	Yes (as 2022-City of Brownsville-023)	Public does not know what the alerts mean and how to react to them	Office of Emergency Management

9.2.7.2 Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The City of Brownsville has not identified additional mitigation projects/activities that may have been completed but were not identified in the previous mitigation strategy in the 2015 HMP.

9.2.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The City of Brownsville participated in a mitigation action workshop in August 2021 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 551 ‘Selecting Appropriate Mitigation Measures for Floodprone Structures’ (March 2007) and FEMA ‘Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards’ (January 2013).

The table below indicates the range of proposed mitigation action categories.

Table 9.2-14. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA						CRS			
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Dam and Levee Failure	X	X		X	X	X	X		X	X
Disease Outbreak	X			X	X		X			
Drought	X	X	X	X	X		X	X		
Erosion	X	X	X	X	X		X	X	X	
Extreme Heat	X	X		X	X		X			X
Flood	X	X	X	X	X	X	X	X	X	X
Hail	X	X		X	X	X	X	X		X
Hurricane/Tropical Storm	X	X	X	X	X	X	X	X	X	X
Lightning	X	X		X	X		X	X		X
Thunderstorm Wind	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 Storm	X	X		X	X	X	X	X		X

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

Table 9.2-15 summarizes the comprehensive range of specific mitigation initiatives the City of Brownsville would like to pursue to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These 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. The four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6 (Mitigation Strategy), 14 evaluation/prioritization criteria are used 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 your actions as ‘High’, ‘Medium’, or ‘Low.’

Table 9.2-16 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

Table 9.2-15. Proposed Hazard Mitigation Initiatives and Associated Priority

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
2022-City of Brownsville-001	Culvert Upgrades and Detention Ponds	<p>Problem: Undersized culverts located throughout the City and lack of detention ponds lead to roadway flooding.</p> <p>Solution: Upgrade and increase culverts and build detention ponds at specific locations in City in order to adequately convey storm water and reduce flooding.</p>	Both	Dam and Levee Failure, Flood, Hurricane/ Tropical Storm	1, 2	1-5 Years	Engineering, Public Works	CIP Funds, TDOT, TWDB, GLO, FEMA Grant Funding (FMA, HMGP, BRIC)	Improve drainage to alleviate flooding; protection of structures and critical infrastructure	Medium	High	SIP	SP
2022-City of Brownsville-002	RL Property Identification	<p>Problem: Flood-prone properties throughout the City; many need to be mitigated to provide further protection.</p> <p>Solution: Identify existing flood-prone structures and repetitive flood loss properties for FEMA Buyout Program.</p>	Existing	Dam and Levee Failure, Flood, Hurricane/ Tropical Storm	1, 2	Ongoing	Planning and Redevelopment	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	SIP	PP
2022-City of Brownsville-003	Hail Guard Installation	<p>Problem: Hail damage to critical facilities due to lack of hail guards.</p> <p>Solution: Install hail guards for HVAC systems on critical facilities including nursing homes, hospitals, courthouse, and fire stations.</p>	Existing	Hail	2	1-5 Years	Internal Services	General Funds, FEMA Grant Funding (HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	SIP	PP
2022-City of Brownsville-004	Water Conservation Campaign	<p>Problem: The City currently does not have an education campaign that focuses on water consumption during drought conditions.</p>	Both	Drought	1, 5	Ongoing	Communications	General Funds, FEMA Grant Funding	Protect natural resources	Medium	High	NSP, 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
		Solution: Conduct a public education campaign to educate residents on reducing water consumption during drought conditions.						(HMGP, BRIC)					
2022-City of Brownsville-005	Cooling Stations	<p>Problem: During periods of extreme heat, not all residents have proper air conditioning in their homes.</p> <p>Solution: Install temporary cooling stations at City park facilities to aid low income and elderly residents during extreme heat conditions.</p>	Both	Extreme Heat	1	1-5 Years	Engineering and Public Works	General Funds, FEMA Grant Funding (HMGP, BRIC)	Life safety and protection	Medium	High	SIP	ES
2022-City of Brownsville-006	Develop a Drought Protection Plan	<p>Problem: No drought protection plan.</p> <p>Solution: Develop a Drought Protection Plan to include adoption of Firewise community actions for water conservation and xeriscaping program.</p>	Both	Drought	1, 5	Ongoing	Fire Department	General Funds, FEMA Grant Funding (HMGP, BRIC)	Protect natural resources	Medium	High	LPR	NR
2022-City of Brownsville-007	Develop a Tree Management Master Plan	<p>Problem: No tree management master plan.</p> <p>Solution: Develop and implement a Tree Management Master Plan to remove downed trees due to severe weather events.</p>	Both	Hail, Hurricane/ Tropical Storm, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm	1, 2	Ongoing	Engineering and Public Works	General Funds, FEMA Grant Funding (HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	LPR	NR

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
2022-City of Brownsville-008	Backup Pumps	<p>Problem: Lack of backup pumps to use during severe weather and flood events.</p> <p>Solution: Purchase and install six portable pumps as back-up during severe weather and flood events.</p>	Both	Flood, Hail, Hurricane/ Tropical Storm, Lightning, Thunderstorm Wind, Winter Storm	1, 2	1-5 Years	Engineering and Public Works	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	SIP	ES
2022-City of Brownsville-009	Alternate EOC	<p>Problem: Need an alternate location for an EOC in the event of flooding or power outages.</p> <p>Solution: Construct alternate Emergency Operations Center to protect critical system operations.</p>	Existing	Dam and Levee Failure, Extreme Heat, Flood, Hail, Hurricane/ Tropical Storm, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm	1, 2	1-5 Years	Office of Emergency Management	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Life safety and protection of structures and critical infrastructure	Medium	High	SIP	ES
2022-City of Brownsville-010	City Plaza Drainage Upgrades	<p>Problem: Drainage in the area of City Plaza buildings is inadequate and tends to flood during heavy rain events.</p> <p>Solution: After facilities assessment is complete, improve drainage and replace or upgrade gutters at identified City Plaza buildings.</p>	Both	Flood, Hurricane/ Tropical Storm	1, 2	1-5 Years	Internal Services	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	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
2022-City of Brownsville-011	City Fuel Station Backup Power	Problem: No backup power at the City Fuel Station. Solution: Purchase generator for City Fuel Station System.	Existing	Dam and Levee Failure, Extreme Heat, Flood, Hail, Hurricane/ Tropical Storm, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm	1, 2	1-5 Years	Engineering and Public Works	General Funds, FEMA Grant Funding (HMGP, BRIC)	Life safety and protection of structures and critical infrastructure	Medium	High	SIP	ES
2022-City of Brownsville-012	Golf Course Retaining Walls	Problem: Flooding and erosion in and around the City's golf course. Solution: Construct retaining walls to alleviate erosion and flooding problems – City of Brownsville Golf Course.	Existing	Erosion, Flood, Hurricane/ Tropical Storm	1, 2	1-5 Years	Parks & Recreation	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	SIP	SP
2022-City of Brownsville-013	Storm Shutter Installation	Problem: Crews board up the critical facilities before severe storm events. Facility assessment is not yet complete to determine which buildings need storm shutters. Solution: Install shutters on identified City critical facility buildings.	Existing	Hail, Hurricane/ Tropical Storm, Thunderstorm Wind, Tornado, Winter Storm	1, 2	1-5 Years	Internal Services	General Funds, FEMA Grant Funding (HMGP, BRIC)	Life safety and protection of structures and critical infrastructure	Medium	High	SIP	PP
2022-City of Brownsville-014	Levee Gate Valve Construction	Problem: A Gate Valve is needed at the IWC Levee.	Existing	Dam and Levee Failure, Flood,	1, 2	1-5 Years	Engineering and Public Works	General Funds, FEMA Grant	Life safety and protection of structures and	Medium	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
		Solution: Construct Gate Valve and attach to the crossbar at IWC Levee according to the Drainage Master Plan.		Hurricane/ Tropical Storm				Funding (FMA, HMGP, BRIC)	critical infrastructure				
2022-City of Brownsville-015	Rotary Park Resaca Dredging	Problem: Rotary Park Resaca is in need of sediment removal and dredging to increase capacity. Solution: Dredge Rotary Park Resacas to expand and improve storage of storm water.	Existing	Erosion, Flood, Hurricane/ Tropical Storm	1, 2	Ongoing	Engineering and Public Works, BPUB: Resaca Maintenance	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	NSP, SIP	NR
2022-City of Brownsville-016	Conduct Critical Facility Study and Elevate Structures	Problem: Need to identify facilities vulnerable to flooding in the event of a dam failure. Solution: Conduct analysis of critical facility locations relative to SFHAs and elevate critical structure(s) to prevent flooding in the event of upstream dam failure.	Existing	Flood, Dam and Levee Failure	1, 2	1-5 Years	Engineering and Public Works	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	SIP	PP
2022-City of Brownsville-017	Resaca Silt Removal Program (Coordinates with 2022-BPUB-017)	Problem: Erosion and silt buildup in area Resacas contribute to flooding. Solution: Develop a program to annually remove buildup of silt in area Resacas that become cutoff from the river.	Both	Erosion, Flood, Drought	1, 2	Ongoing	Engineering and Public Works, BPUB: Resaca Maintenance	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	SIP, NSP	NR
2022-City of Brownsville-018	MOU with Lower Rio Grande Flood Control Agency	Problem: Need structural measures to mitigate dam and levee failure. Solution: Secure Memorandum of Understanding (MOU) with Lower Rio Grande Flood Control	Both	Dam and Levee Failure, Flood	1, 3	1-5 Years	Engineering and Public Works	General Funds, FEMA Grant Funding (FMA,	Life safety and protection of structures and critical infrastructure	Medium	High	LPR	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
		agency to implement structural drainage measures to mitigate potential dam and levee failure of upstream flood control system.						HMGP, BRIC)					
2022-City of Brownsville-019	Evacuation Outreach Program for Dam and Levee Failure	Problem: Need evacuation education for dam and levee failure. Solution: Conduct a public education program for evacuating residents downstream of the Lower Rio Grande Flood Control system in the event of dam or levee failure.	Both	Dam and Levee Failure, Flood	1, 5	Ongoing	Office of Emergency Management	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Life safety and protection	Medium	High	EAP	PI, ES
2022-City of Brownsville-020	Firewise Program Implementation	Problem: Need a program to help mitigate fire hazards. Solution: Implement the Firewise Program to minimize dangers of wildfire in extreme heat and drought conditions.	Both	Wildfire	1, 2	1-5 Years	Fire Department	General Funds, FEMA Grant Funding (HMGP, BRIC)	Life safety and protection of structures and critical infrastructure	Medium	High	LPR	NR
2022-City of Brownsville-021	Weather Station Installation	Problem: Slow notifications of impending severe weather events. Solution: Install system of weather stations.	Both	Extreme Heat, Flood, Hail, Hurricane/ Tropical Storm, Lightning, Thunderstorm Wind, Tornado, Winter Storm	1, 2	1-5 Years	Office of Emergency Management	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Life safety and protection of structures and critical infrastructure	Medium	High	SIP	
2022-City of Brownsville-022	Emergency Alert System	Problem: Coordinated emergency alerts are needed.	Both	Dam and Levee Failure, Extreme Heat,	1, 5	1-5 Years	Office of Emergency Management	General Funds, FEMA Grant	Life safety and protection	Medium	High	EAP	PI, ES

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
		Solution: Install emergency alert system such as I-Info that includes notification in real time alerts.		Flood, Hail, Hurricane/ Tropical Storm, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm				Funding (FMA, HMGP, BRIC)					
2022-City of Brownsville-023	Emergency Alert System Education and Outreach	Problem: Public does not know what the alerts mean and how to react to them. Solution: Conduct public education on tones and signals associated with area-wide emergency alert system.	Both	Dam and Levee Failure, Extreme Heat, Flood, Hail, Hurricane/ Tropical Storm, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm	1, 5	Ongoing	Office of Emergency Management	General Funds, FEMA Grant Funding (FMA, HMGP)	Life safety and protection	Medium	High	EAP	PI
2022-City of Brownsville-024	Become a CRS Community	Problem: History of flooding and properties damaged during flood events. Solution: The City will begin the process of joining the Community Rating System program to reduce risk and flood insurance premiums to residents.	Both	Flood, Hurricane/ Tropical Storm	1, 2	1-5 Years	Engineering and Public Works	General Funds, FEMA Grant Funding (FMA, HMGP)	Life safety and protection of structures and critical infrastructure	Medium	High	LPR	PR, PP



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
2022-City of Brownsville-025	Integration With the Comprehensive Plan and other City plans and programs	<p>Problem: Better integration is needed between the HMP and other City plans.</p> <p>Solution: As the Comprehensive Plan and other City plans are updated, integration portions of the HMP to include hazard areas, etc.</p>	Both	Dam and Levee Failure, Disease Outbreak, Drought, Erosion, Extreme Heat, Flood, Hail, Hurricane/ Tropical Storm, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm	1, 2, 3	Ongoing	Planning and Redevelopment Services	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Life safety and protection of structures and critical infrastructure	Medium	High	LPR	PR
2022-City of Brownsville-026	NFIP Education and Outreach	<p>Problem: The number of NFIP insurance policies in the City could be increased.</p> <p>Solution: Implement an NFIP public education program to increase the number of flood insurance policies by promoting availability of flood insurance including the Preferred Risk Policy for non-SFHA's.</p>	Both	Flood, Hurricane/ Tropical Storm	1, 5	1-5 Years	Office of Emergency Management	General Funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Protection of structures and critical infrastructure	Medium	High	EAP	PI
2022-City of Brownsville-027	Implement Drainage Improvements in the 2012 Flood Protection Plan	<p>Problem: Flood-prone areas throughout the City.</p> <p>Solution: Provide drainage improvements based on our</p>	Both	Flood, Hurricane/ Tropical Storm	1, 2	1-5 Years	Engineering and Public Works	CIP funds, TDOT, TWDB, GLO, FEMA Grant Funding	Reduce flood risk in flood-prone areas; protection of structures and critical infrastructure	\$150 million	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
	and Drainage Study Findings	flood studies or flood protection plans.						(FMA, HMGP, BRIC)					
2022-City of Brownsville-028	Asset Management Software Updates	<p>Problem: Software needs continual updates to track and manage infrastructure.</p> <p>Solution: Continue to update Asset Management software (GIS, VUEWorks) to include pipe size, slopes, and depths. Currently only have X,Y coordinates of infrastructure is visible from the ground.</p>	Existing	Flood, Hurricane/Tropical Storm	1, 2	1-5 Years	Engineering and Public Works	CIP funds, TDOT, TWDB, GLO, FEMA Grant Funding (FMA, HMGP, BRIC)	Better preparation for storm events and better control of our water flows; protection of structures and critical infrastructure	\$2-5 million	High	SIP	PI
2022-City of Brownsville-029	Public Information and Outreach (Coordinates with 2022-BPUB-018)	<p>Problem: Lack of hazard mitigation information and education for citizen preparedness.</p> <p>Solution: Add or increase website content and use other outreach methods such as mailers and flyers for suggested homeowner mitigation strategies and hazard preparedness information.</p>	Both	Dam and Levee Failure, Disease Outbreak, Drought, Earthquake, Erosion, Extreme Heat, Flood, Hail, Hurricane/Tropical Storm, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm	1, 5	Ongoing	Office of Emergency Management, BPUB	FEMA Grant Funding (FMA, HMGP), Staff Time	Greater understanding of mitigation suggestions and awareness of hazards will enable citizens to prepare for hazard events. Critical information received at the right time will help protect lives and property.	Medium	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
2022-City of Brownsville-030	Generators and Quick Connects for Emergency Service Buildings	<p>Problem: Emergency service buildings and other facilities require mobile generators and quick connects to preserve continuity of services during power outages</p> <p>Solution: Purchase mobile generators and install quick connects at the following sites: 1) West 5th and Saint Charles 2) Cottonwood and Old Alice 3) El Tapiz Building 4) City Hall 5) City Plaza.</p>	Existing	Extreme Heat, Hurricane/Tropical Storm, Lightning, Thunderstorm Wind, Tornado, Winter Storm	1, 2	1-5 years	Public Works, Emergency Management, Fire, Internal Services	General Funds, FEMA Grant Funding (HMGP, BRIC)	Continuity of operations during power outages	Medium	High	SIP	ES
2022-City of Brownsville-031	North Brownsville Weir Construction	<p>Problem: Flood risk from canal overflows</p> <p>Solution: Construct a weir to prevent flood risk from the overflow of canals located on the North side of Brownsville</p>	Both	Flood, Hurricane/Tropical Storm	1, 2	1-5 Years	Engineering and Public Works	CIP funds, FEMA Grant Funding (FMA, HMGP, BRIC)	Flood risk reduction; protection of structures and critical infrastructure	Medium	High	SIP	SP
2022-City of Brownsville-032	Weir Restoration & Seawall Construction	<p>Problem: Erosion has deteriorated the water overflow structure and the gate valve has deteriorated for emergence water release from the 300 acre-foot storm water retention system as a critical part of the Cameron County Drainage District No 1, Main No 1 Drain (and Paseo de la Resaca Park System City of Brownsville) water level control to the point of risking complete failure of the system. Shoreline is eroding into the reservoir</p>	Both	Dam and Levee Failure, Erosion, Flood	1, 2, 3, 4	1-5 Years	Weir: Cameron County Drainage District No 1 Seawall: City of Brownsville and Paseo de la Resaca Lighting and Landscape Maintenance District, and Paseo de la Resaca Municipal Utility District No.3	Entity funds, MUD, Loans, USACE, FEMA, HMGP, FMA, CDBG-DR	Storm water management is crucial to public safety and protection of public and private property. Dollar amounts are outside the scope of this writer's skill set, but imagine flooding a 700 acre area with 3,000 homes, and you can begin to	The weir construction project was just under \$200,000. There is a concurrent \$5.1 million seawall construction project underwa	High	LPR, SIP, EAP	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
		Solution: Restore the storm water detention weir and build a seawall to prevent further shoreline erosion into the reservoir							embrace the scope of potential damage.	y to prevent further shoreline erosion into the reservoir (City & Public Improvement District).			

Notes:

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

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CIP Capital Improvement Plan
- CRS Community Rating System
- DPW Department of Public Works
- EHP Environmental Planning and Historic Preservation
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- GLO Texas General Land Office
- HMA Hazard Mitigation Assistance
- MUD Municipal Utility District
- N/A Not applicable
- NFIP National Flood Insurance Program
- OEM Office of Emergency Management
- TDOT Texas Department of Transportation
- TWDB Texas Water Development Board

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.*

Table 9.2-16. Summary Evaluation and Action Priority

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
2022-City of Brownsville-001	Culvert Upgrades and Detention Ponds	1	1	0	1	1	0	0	1	1	0	1	1	1	1	10	High
2022-City of Brownsville-002	RL Property Identification	0	1	1	1	0	1	0	1	-1	1	1	1	1	1	9	High
2022-City of Brownsville-003	Hail Guard Installation	-1	1	1	1	0	1	0	0	1	1	-1	1	1	1	7	Medium
2022-City of Brownsville-004	Water Conservation Campaign	-1	-1	1	1	0	1	0	1	1	1	-1	1	1	1	6	Medium
2022-City of Brownsville-005	Cooling Stations	1	1	1	1	0	1	0	0	1	1	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 Objectives	Total	High / Medium / Low
2022-City of Brownsville-006	Develop a Drought Protection Plan	-1	-1	1	1	0	1	0	1	1	0	-1	1	1	1	5	Medium
2022-City of Brownsville-007	Develop a Tree Management Master Plan	1	1	1	1	0	1	0	1	1	0	1	1	1	1	11	High
2022-City of Brownsville-008	Backup Pumps	0	1	1	1	0	1	0	1	1	1	1	1	1	1	11	High
2022-City of Brownsville-009	Alternate EOC	1	1	1	1	0	1	0	1	1	0	1	1	1	1	11	High
2022-City of Brownsville-010	City Plaza Drainage Upgrades	0	1	1	1	0	1	0	1	1	1	1	1	1	1	11	High
2022-City of Brownsville-011	City Fuel Station Backup Power	0	1	1	1	0	1	0	1	1	1	1	1	1	1	11	High
2022-City of Brownsville-012	Golf Course Retaining Walls	0	1	1	1	0	1	0	1	1	1	1	1	1	1	11	High
2022-City of Brownsville-013	Storm Shutter Installation	1	1	1	1	0	1	0	1	1	1	1	1	1	1	12	High
2022-City of Brownsville-014	Levee Gate Valve Construction	0	1	1	1	0	1	0	1	1	1	1	1	1	1	11	High
2022-City of Brownsville-015	Rotary Park Resaca Dredging	0	1	1	1	0	1	0	1	1	1	1	1	1	1	11	High
2022-City of Brownsville-016	Conduct Critical Facility Study and Elevate Structures	0	1	1	1	0	1	0	1	1	0	1	1	1	1	10	High
2022-City of Brownsville-017	Resaca Silt Removal Program	0	1	1	1	0	1	0	1	1	1	1	1	1	1	11	High
2022-City of Brownsville-018	MOU with Lower Rio Grande Flood Control Agency	1	1	1	1	0	1	0	1	1	1	1	1	1	1	12	High
2022-City of Brownsville-019	Evacuation Outreach Program for Dam and Levee Failure	1	1	1	1	0	1	0	1	1	1	1	1	1	1	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
2022-City of Brownsville-020	Firewise Program Implementation	1	1	1	1	0	1	0	1	1	1	1	1	1	1	12	High
2022-City of Brownsville-021	Weather Station Installation	1	1	1	1	0	1	0	1	1	1	1	1	1	1	12	High
2022-City of Brownsville-022	Emergency Alert System	1	1	1	1	0	1	0	1	1	1	1	1	1	1	12	High
2022-City of Brownsville-023	Emergency Alert System Education and Outreach	1	1	1	1	0	1	0	1	1	1	1	1	1	1	12	High
2022-City of Brownsville-024	Become a CRS Community	1	1	1	1	0	1	0	1	1	0	1	1	1	1	11	High
2022-City of Brownsville-025	Integration With the Comprehensive Plan and other City plans and programs	1	1	1	1	0	1	0	1	1	1	1	1	1	1	12	High
2022-City of Brownsville-026	NFIP Education and Outreach	0	1	1	1	0	1	0	1	1	1	1	1	1	1	11	High
2022-City of Brownsville-027	Implement Drainage Improvements in the 2012 Flood Protection plan and Drainage Study Findings	1	1	1	1	1	0	1	0	0	1	1	1	1	1	11	High
2022-City of Brownsville-028	Asset Management Software Updates	1	1	1	1	1	0	1	0	0	1	1	1	1	1	11	High
2022-City of Brownsville-029	Public Information and Outreach	1	1	0	1	1	0	0	1	1	0	1	1	1	0	9	High
2022-City of Brownsville-030	Generators and Quick Connects for Emergency Service Buildings	1	1	0	1	1	0	0	1	1	0	1	1	1	0	9	High
2022-City of Brownsville-031	North Brownsville Weir Construction	1	1	0	1	1	0	0	1	1	0	1	1	1	0	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
2022-City of Brownsville-032	Weir Restoration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High

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