



9.7 JAMAICA BEACH

This section presents the jurisdictional annex for the City of Jamaica Beach 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 of Jamaica Beach participated in the planning process, an assessment of the City of Jamaica Beach’s risk and vulnerability, the different capabilities used in the City of Jamaica Beach, and an action plan that will be implemented to achieve a more resilient jurisdiction.

9.7.1 Hazard Mitigation Planning Team

The City of Jamaica Beach 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 of Jamaica Beach departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

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

Table 9.7-1. Hazard Mitigation Planning Team

Name	Title	Method of Participation
Brad Heiman	Police Chief	Designated point of contact for planning process; attended meetings; provided information on capabilities, past event history, past action statuses; identified mitigation actions; reviewed annex and provided feedback
Ana Mondragon	Director of Operations	Provided information on capabilities, past event history, past action statuses; identified mitigation actions; reviewed annex and provided feedback

9.7.2 Jurisdictional Profile

Jamaica Beach is a city in Galveston County located on Galveston Island. It is bordered to the east and west by the City of Galveston, the east bay to the north, and the Gulf of Mexico to the south. The City of Jamaica Beach is governed by a mayor and five councilpersons. According to the U.S. Census, the 2010 population for the City was 983. The estimated 2019 population was 1,078, a 9.7-percent increase from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 1.9-percent of the population is 5 years of age or younger and 16.2-percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.7.3 Jurisdictional Capability Assessment and Integration

The City of Jamaica Beach 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. The updated mitigation strategy includes opportunities the City of Jamaica Beach identified for integration of mitigation concepts to be incorporated into municipal procedures.

Planning, Legal, and Regulatory Capability

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

Table 9.7-2. 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	International Building Code 2019-8	State and Local	David Ewalt – Building Official
<i>How does this reduce risk?</i>					
Zoning/Land Use Code	Yes	No	City Ordinance 2019-7 Effective Date 10/21/2019	Local	Ana Mondragon / Director of Operations
<i>How does this reduce risk?</i>					
Subdivision Ordinance	Yes	No	City Ordinance 2019-7 Effective Date 10/21/2019	Local	Ana Mondragon / Director of Operations
<i>How does this reduce risk?</i>					
Site Plan Ordinance	Yes	No	City Ordinance 93-5 effective 12/6/1993	Local and County	Ana Mondragon / Director of Operations
<i>How does this reduce risk?</i>					
Stormwater Management Ordinance	Yes	Yes	City Ordinance 93-5 effective 12/6/1993	Local	Ana Mondragon / Director of Operations
<i>How does this reduce risk?</i>					
Post-Disaster Recovery/ Reconstruction Ordinance	No	No	-	-	-
<i>How does this reduce risk?</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
Real Estate Disclosure	Yes	Yes	Texas Property Code Section § 5.008	State	Texas Real Estate Commission
<p><i>How does this reduce risk?</i> The law requires disclosures of the seller of a single family dwelling by answering Yes or No to being aware of any of the following conditions:</p> <ul style="list-style-type: none"> • Present flood insurance coverage • Previous flooding due to a failure or breach of a reservoir or a controlled or emergency release of water from a reservoir • Previous water penetration into a structure on the property due to a natural flood event • Located () wholly () partly in a 100-year floodplain (Special Flood Hazard Area-Zone A, V, A99, AE, AO, AH, VE, or AR) • Located () wholly () partly in a 500-year floodplain (Moderate Flood Hazard Area-Zone X (shaded)) • Located () wholly () partly in a floodway • Located () wholly () partly in a flood pool • Located () wholly () partly in a reservoir 					
Growth Management	Yes	No	City Ordinance 2019-7 effective 10/21/2019	Local	Ana Mondragon / Director of Operations
<p><i>How does this reduce risk?</i></p>					
Environmental Protection Ordinance	Yes	Yes	City Ordinance 2019-7 effective 10/21/2019	Local	Ana Mondragon / Director of Operations
<p><i>How does this reduce risk?</i></p>					
Flood Damage Prevention Ordinance	Yes	Yes	City Ordinance 2020-06 effective 11/16/2020	Federal, State, County and Local	Ana Mondragon / Director of Operations
<p><i>How does this reduce risk?</i></p>					
Wellhead Protection	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
Emergency Management Ordinance	Yes	No	City Ordinance 94-2 established 3/21/1994	Local	Ana Mondragon / Director of Operations
<p><i>How does this reduce risk?</i></p>					
Climate Change Ordinance	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
Other		-			
Planning Documents					
Comprehensive Plan	Yes	No	City Ordinance 2017-1 established 4/17/2017	Local	Ana Mondragon / Director of Operations
<p><i>How does this reduce risk?</i></p>					
Capital Improvement Plan	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
Disaster Debris Management Plan	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
Floodplain Management or Watershed Plan	No	No	-	-	-
<p><i>How does this reduce risk?</i></p>					
Stormwater Management Plan	Yes	No	City Ordinance 93-5 effective 12/6/1993	Local	Ana Mondragon / Director of Operations



	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?</i>					
Open Space Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Urban Water Management Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Habitat Conservation Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Economic Development Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Shoreline Management Plan	Yes	No	City Ordinance 93-5 effective 12/6/1993	State, Local	Ana Mondragon / Director of Operations
<i>How does this reduce risk?</i>					
Community Wildfire Protection Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Community Forest Management Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Transportation Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Agriculture Plan	No	Yes	-	-	-
<i>How does this reduce risk?</i>					
Climate Action/ Resiliency/Sustainability Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Tourism Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Business/ Downtown Development Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Other	No	No	-	-	-
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	Yes	City Ordinance 94-2 established 3/21/1994	Local	Ana Mondragon / Director of Operations
<i>How does this reduce risk?</i>					
Continuity of Operations Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Strategic Recovery Planning Report	No	No	-	-	-
<i>How does this reduce risk?</i>					
Threat & Hazard Identification & Risk Assessment (THIRA)	No	Yes	-	-	-



	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?</i>					
Post-Disaster Recovery Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Public Health Plan	No	No	-	-	-
<i>How does this reduce risk?</i>					
Other	-	-	-	-	-

Development and Permitting Capability

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

Table 9.7-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? -If yes, what department is responsible? -If no, what is your process for development?	Yes	The Building department is responsible for issuing permits
Are permits tracked by hazard area? (For example, floodplain development permits.)	Yes	The City has certain regulations for beachfront permits
Do you have a buildable land inventory? -If yes, describe. -If no, quantitatively describe the level of buildout in the jurisdiction.	Yes	Most of the City has already been built out

Administrative and Technical Capability

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

Table 9.7-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board	Yes	Volunteer staff of 5, responsible for mapping in the city, they support hazard mitigation
Zoning Board of Adjustments	Yes	Volunteer staff of 5, responsible for mapping in the city, they support hazard mitigation
Planning Department	No	Not Applicable
Mitigation Planning Committee	No	Not Applicable
Environmental Board/Commission	No	Not Applicable
Open Space Board/Committee	No	Not Applicable
Economic Development Commission/Committee	No	Not Applicable
Public Works/Highway Department	Yes	Responsible for maintenance that decreased flood risks
Construction/Building/Code Enforcement Department	Yes	This department ensures that construction work is completed with mitigation hazards in mind
Emergency Management/Public Safety Department	No	Not Applicable
Warning Systems / Services (mass notification system, outdoor warning signals)	No	Not Applicable
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)	Yes	Tree trimming, clearing of the ditches, mowing and weed eating.



Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Mutual aid agreements	No	-
Human Resources Manual	Yes	<i>Consider the following:</i> Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?
Other	No	-
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices	Yes	Contracted engineers develop projects in accordance with our mitigation plan
Engineers or professionals trained in building or infrastructure construction practices	Yes	Contracted engineers develop projects in accordance with our mitigation plan
Planners or engineers with an understanding of natural hazards	Yes	Contracted engineers develop projects in accordance with our mitigation plan
Staff with expertise or training in benefit/cost analysis	No	Not Applicable
Professionals trained in conducting damage assessments	Yes	Contracted evaluators would be brought to the City in the event that they were needed
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	No	Not Applicable
Scientist familiar with natural hazards	No	Not Applicable
Surveyor(s)	No	Not Applicable
Emergency Manager	Yes	Leads the City team in case of an emergency
Grant writer(s)	No	-
Resilience Officer	No	-
Other (this could include stormwater engineer, environmental specialist, etc.)	No	Not Applicable

Fiscal Capability

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

Table 9.7-5. 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)	No
Capital improvements project funding	Yes, currently we have several projects including street improvement projects and lift station repairs
Authority to levy taxes for specific purposes	Yes, City Council may increase taxes in an event it is needed
User fees for water, sewer, gas or electric service	Yes – we are the City’s water distributors
Impact fees for homebuyers or developers of new development/homes	No
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes, they would have to be put out for bond elections
Incur debt through special tax bonds	Yes, they would have to be put out for bond elections
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	No
Other federal or state funding programs	Yes, The City can always apply for granting
Open Space Acquisition funding programs	No
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	Yes

Education and Outreach Capability

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





Table 9.7-6. 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	Our citizens can be informed through Facebook and our City website
Personnel skilled or trained in website development	No	Not Applicable
Hazard mitigation information available on your website	Yes	Our citizens can be informed through Facebook and our City website
Social media for hazard mitigation education and outreach	Yes	Our citizens can be informed through Facebook and our City website
Citizen boards or commissions that address issues related to hazard mitigation	Yes	Our citizens can be informed by attending open meetings of the different boards and commissions
Other programs already in place that could be used to communicate hazard-related information	No	Not Applicable
Warning systems for hazard events	No	Not Applicable
Natural disaster/safety programs in place for schools	No	Not Applicable
Other	No	-

Community Classifications

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

Table 9.7-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	Yes	8	10/1/2018
Building Code Effectiveness Grading Schedule (BCEGS)	No	Not Applicable	Not Applicable
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	Unknown	Unknown
Storm Ready Certification	Yes	Galveston County	Not Applicable
Firewise Communities classification	No	Not Applicable	Not Applicable
Other	No	-	-

Note:

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

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 9.7-8. Adaptive Capacity

Hazard	Preliminary Ranking
Erosion	Moderate





Hazard	Preliminary Ranking
Dam and Levee Failure	Moderate
Drought	Moderate
Expansive Soils	Moderate
Extreme Temperature	Moderate
Flood	Moderate
Hail	Moderate
Hurricane	Moderate
Land Subsidence	Moderate
Lightning	Moderate
Pandemic	Moderate
Severe Winter Storm	Moderate
Tornado	Moderate
Tsunami	Moderate
Utility Failure	Moderate
Wildfire	Moderate
Windstorm	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.*

9.7.4 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 9.7-9. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
Describe areas prone to flooding in your jurisdiction. Do you maintain a list of properties that have been damaged by flooding?	Beach Comber has moderate issues with drainage as well as the canal side of Jolly Roger. The Black Beard drainage canal could use some dredging
Do you maintain a list of property owners interested in flood mitigation? How many homeowners and/or business owners are interested in mitigation (elevation or acquisition)?	We do not have a current list.
Are any RiskMAP projects currently underway in your jurisdiction? If so, state what projects are underway.	To my knowledge there are no Risk MAP projects underway.
How do you make Substantial Damage determinations? How many were declared for recent flood events in your jurisdiction?	The determination is based on valuation of the property and assessed cost of damage. To my knowledge there have been no structures that have been assessed as having Substantial Damage.
How many properties have been mitigated (elevation or acquisition) in your jurisdiction? If there are mitigation properties, how were the projects funded?	To the best of my knowledge 6 structures have been mitigated and I am unsure of how the projects have been funded. It is my understanding that they were funded by the property owners.
Do your flood hazard maps adequately address the flood risk within your jurisdiction? If not, state why.	Yes, the flood hazard maps properly address the flood risk in my jurisdiction.
NFIP Compliance	
What local department is responsible for floodplain management?	Village of Jamaica Beach Building Department
Are any certified floodplain managers on staff in your jurisdiction?	Yes, our Building Official
Do you have access to resources to determine possible future flooding conditions from climate change?	I do not have access to those resources.



NFIP Topic	Comments
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	Yes the Director of Operations needs to re-certify as a flood plain manager.
Provide an explanation of NFIP administration services you provide (e.g. permit review, GIS, education/outreach, inspections, engineering capability)	We perform, permit review, outreach, inspections and have engineering capabilities.
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	We would determine this based on the valuation of the improvement in comparison to the valuation of the structure.
What are the barriers to running an effective NFIP program in the community, if any?	It is my opinion that there are no barriers to running the NFIP
Does your jurisdiction have any outstanding NFIP compliance violations that need to be addressed? If so, state the violations.	To my knowledge there are no outstanding
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	To the best of my knowledge we have never had a CAV or CAC.
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	City Ordinance 2020-6 dates 11/16/2020
Does your floodplain management program meet or exceed minimum requirements? If exceeds, in what ways?	Yes it exceeds minimum standards because it includes a one foot freeboard requirement.
Are there other local ordinances, plans or programs (e.g. site plan review) that support floodplain management and meeting the NFIP requirements? For instance, does the planning board or zoning board consider efforts to reduce flood risk when reviewing variances such as height restrictions?	Yes, staff presents to the Planning and Zoning Commission as well as to the Board of Adjustments and ensures that they are aware of the flood risks when allotting variances.
Does your jurisdiction participate in CRS? If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program?	Yes, we participate in CRS and are very interested in improving our CRS rating.

Source:

Notes:

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

9.7.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to 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 9.7-10. 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	-	-	16	16	20	20	7	7	4	4	8	8
Multi-Family	-	-	0	0	0	0	0	0	0	0	0	0
Other (commercial, mixed-use, etc.)	-	-	0	0	0	0	0	0	0	0	0	0
Total Permits Issued	-	-	16	16	20	20	7	7	4	4	8	8



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 2016 to Present					
None identified					
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years					
None identified					

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

* Only location-specific hazard zones or vulnerabilities identified.

9.7.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Section 4.1 (Hazards of Concern), Section 4.2 (Methodology and Tools), and Section 4.4 (Hazard Ranking) provide a detailed summary for the City of Jamaica Beach’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 Jamaica Beach has significant exposure. The maps also show the location of potential new development, where available.

Figure 9.7-1. City of Jamaica Beach Area Extent and Location Map

Hazard Event History

Galveston County has a history of natural hazard events as detailed in Section 4 (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 county and its municipalities.

The City of Jamaica Beach’s history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Galveston County. The table below provides details regarding municipal-specific loss and damages Jamaica Beach experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.7-11. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
October 22-31, 2015	Severe Storms, Tornadoes, Straight-Line Winds, and Flooding (DR-4245)	Yes	The EF-2 tornado touched down just east of Clover Field Airport (Brazoria County) and continued on a narrow northeast track into Galveston County. This tornado expanded in size and weakened in intensity as it approached FM 518 over the last half of its track. There was extensive tree damage along the entire track. Homes sustained partial roof loss and tree damage consistent with an EF-1 rating from east of the airport through Sunset Drive in Friendswood (Galveston County). Low-end EF-2 damage occurred on Chester Drive in Friendswood where there was complete loss of a residential home's roof. Estimated peak wind was 115 mph. Property damages were estimated at \$1 million.	Not Applicable



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
December 3, 2016	Flash Flood / Heavy Rain	No	Efficient low level convergence along a near coastal warm frontal boundary within a moist environment generated thunderstorms that produced extreme early day rainfall rates. This intense morning rainfall produced flash flooding. Numerous streets were inundated with flood waters nearing homes in Texas City. Impassable roads due to high water included the FM 1764 - Emmett Lowry Parkway and Highway 146 intersection.	Not Applicable
August 26 – 30, 2017	Flash Flood / Heavy Rain / Tropical System Hurricane Harvey (DR-4332)	Yes	Harvey made landfall as a category 4 hurricane near Rockport, Texas during the evening of August 25th. The storm then weakened to a tropical storm and slowed, looping back and tracking over SE Texas then back over the Gulf of Mexico making a second landfall along the Louisiana coast during the early morning hours of August 30th. Over that 5 day period over Southeast Texas TS Harvey produced catastrophic flooding with a large area of 30 to 60 inches of rain, 23 tornadoes, tropical storm force winds and a moderate storm surge near Matagorda Bay. There were numerous water rescues across western and central Galveston County. Flood waters completely inundated hundreds to thousands of homes and businesses in League City, Dickinson and Santa Fe. Approximately 7,000 homes and 125 businesses were impacted by flood waters across the county. Clear Creek measured record levels that lead to the widespread flooding throughout Friendswood and League City. Major flooding occurred along the Dickinson Bayou; from Cemetery Road to east of Highway 3 along FM 517. Flood waters inundated sections of Interstate 45, Bay Area Boulevard, FM 528, FM 518 and numerous primary and secondary county roads. Approximately 7,000 homes and 125 businesses were impacted by flood waters across the county. Clear Creek measured record levels that lead to the widespread flooding throughout Friendswood and League City. Major flooding occurred along the Dickinson Bayou; from Cemetery Road to east of Highway 3 along FM 517. Flood waters inundated sections of Interstate 45, Bay Area Boulevard, FM 528, FM 518 and numerous primary and secondary county roads. There were numerous water rescues and flooded homes within the Friendswood, Pearland and Dickinson areas. Three fatalities and 3 injuries in Galveston County were recorded as a result of the storm. An estimated \$10 Billion in property damages and \$10,000 in crop damages were recorded in the County.	No Damage was reported to our City
July 25 – 31, 2020	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.	There was no damage in our City
August 23 – 27, 2020	Tropical Storms Marco and Laura (EM-3540; DR-4572)	Yes (EM); No (DR)	Hurricane Laura made landfall along the southwest Louisiana coast. The hurricane brought high surf, elevated tides and some winds and wind gusts to tropical storm force along the SE Texas coast. Period of storm surge flooding and high surf from 8/26 to 8/27 leading to flooding of low lying areas and roads. Beach erosion on Gulf side. Tide gauges measured tides 3 to 4 feet above MHHW. Bolivar Peninsula and Galveston Island, including Jamaica Beach, with multiple roads closed.	There was no damage in our City
February 15, 2021	Severe Winter Storms	Yes	Record cold and windy conditions gripped Southeast Texas behind the passage of an Arctic front. The extreme	There were power outages in the City. There



Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
	(DR-4586)		cold and increased demand led to widespread power outages, loss of heat for many and led to the bursting of pipes with some losing water for many days. Numerous fatalities resulted both from hypothermia, carbon monoxide poisoning and other effects. Ten deaths and were reported in Galveston County, along with over \$12 million in property damages.	was extreme cold. Several pumps busted and had to be replaced.
September 14-17, 2021	Hurricane Nicholas	N/A	The storm brought gusty winds to most of coastal southeast Texas, causing power outages to nearly 500,000 people. Several inches of rain fell, resulting in flash flooding. Between six and nine inches of rain fell in the Galveston area.	There were power outages all thorough the City. There was damage to several structures due to the wind and there was a lot of debris that had to be cleared.

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 Jamaica Beach’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 4.4 (Hazard Ranking), each participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Galveston County as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the City of Jamaica Beach. The City of Jamaica Beach reviewed the county hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the City of Jamaica Beach agreed with the calculated rankings.

Table 9.7-12. Hazard Ranking Input

Coastal & Inland Erosion	Dam & Levee Failure	Drought	Expansive Soils	Extreme Temperatures	Flood	Hail	Hurricane & Tropical Storm	Land Subsidence
Low	Low	Low	Low	Medium	High	Low	High	Low
Lightning	Pandemic	Severe Winter Storm	Thunderstorm Wind	Tornadoes	Tsunami	Utility Failure	Wildfire	
Low	Low	Low	Medium	Medium	Low	Medium	Low	

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.



Identified Issues

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

9.7.7 Mitigation Strategy and Prioritization

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

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.

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Table 9.7-13. 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.
JB 2006-1:	Implement beach and dune restoration program	City staff and council	In Progress, this is funded through a TDEM grant	Yes (as 2022-Jamaica Beach-001)		
JB 2006-4:	Conduct annual hurricane town hall meetings	City staff	Completed	No	The Village of Jamaica Beach conducts a yearly Hurricane preparedness meeting	This is a joined effort between City Hall, The Fire Department and TWIA
JB 2011-5:	Prepare a Drought and Extreme Heat Contingency Plan	City Administrator	No	No	N/A	N/A
JB 2016-1:	Jamaica Cove Rd. Survey	City Administrator	No	No	N/A	N/A
JB 2016-2:	Purchase and install generators for existing and new critical facilities and infrastructure	City Administration	In Progress. The only generator that we are waiting on is the one for the Fire Department which is back ordered at this time.	No	N/A	N/A
JB 2016-3:	Mitigate (elevate, reconstruct, acquisition, demolition) Repetitive Flood Claim / Severe Repetitive Loss (RFC/SRL) properties	City Administration and applicable state and county agencies	In progress at this time	Yes (as 2022-Jamaica Beach-011)	One home is being elevated at this time on the beach front	The Building Department and Director of Operations are overseeing the project.
JB 2016-4:	Improve regulations and permit requirements to promote hazard mitigation strategies	City Administration and applicable departments	In progress at this time	Yes (as 2022-Jamaica Beach-012)	We are consulting with Debbie Vascik at this time to tighten our flood ordinance and increase our CRS rating	The Building Department and Director of Operations are overseeing the project.
JB 2016-5:	Develop and provide public awareness campaigns for natural hazards	City Administration and applicable departments	IN progress	Yes (as 2022-Jamaica Beach-013)	The Village of Jamaica Beach conducts a yearly Hurricane preparedness meeting In addition there is information on the City's website which is in the process of being updated to assist our citizens in preparing for a natural hazard.	This is a joined effort between City Hall, The Fire Department and TWIA



Additional Mitigation Efforts

Other than routine maintenance activities and progress noted in Table 9.7-14, the City did not undertake any additional mitigation efforts in the last five years.

Proposed Hazard Mitigation Initiatives for the HMP Update

The City of Jamaica Beach participated in a mitigation action workshop in December 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 9.7-14. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA			CRS						
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal & Inland Erosion	X	X		X	X	X		X	X	X
Dam & Levee Failure	X	X		X	X	X	X		X	X
Drought	X			X	X	X				X
Expansive Soils	X	X		X	X	X			X	X
Extreme Temperatures	X	X		X	X	X	X		X	X
Flood	X	X		X	X	X	X	X	X	X
Hail	X	X		X	X	X			X	X
Hurricane & Tropical Storm	X	X		X	X	X	X	X	X	X
Land Subsidence	X	X		X	X	X		X	X	X
Lightning	X	X		X	X	X			X	X
Pandemic	X			X	X	X				X
Severe Winter Storm	X	X		X	X	X	X		X	X
Thunderstorm Wind	X	X		X	X	X			X	X
Tornadoes	X	X		X	X	X			X	X
Tsunami	X	X		X	X	X	X	X	X	X
Utility Failure	X	X		X	X	X	X		X	X
Wildfire	X	X		X	X	X			X	X

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

The table below (Table 9.7-15) summarizes the comprehensive range of specific mitigation initiatives the City of Jamaica Beach 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.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.7-16 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.



Table 9.7-15. 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-Jamaica Beach-001	Dune Protection Study	<p>Problem: With the wearing away of the shoreline residents along Beachcomber Road, Jamaica Beach Road, West Beach Road, and Buccaneer Road and Boardwalk subdivision become prone to flooding. The loss of Dune protection as well as the increased flooding issues and erosion of drainage ditches puts our residents in danger of flooding hazards. In the past elderly residents (70+ years old) have had to pump water from their residences onto the shoreline to minimize flood damage to their structures.</p> <p>Solution: Restoration of the dunes. There needs to be an engineering study to determine the proper drainage. A beach construction certificate must be obtained from the General Land Office. Dunes need to be restored with in-kind materials. Acceptable grass must be planted on these dunes to minimize the hazards.</p>	Both	Coastal & Inland Erosion, Flood, Hurricane & Tropical Storm, Land Subsidence, Tsunami	1, 2, 3	5 years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Protection of residential structures. Protection to elderly residents in these homes	Low	High	SIP, EAP	PR, NR, SP
2022-Jamaica Beach-002	Extreme Temperature Protection Emergency Winter storm, Water Pipe /	Problem: The City of Jamaica Beach has an aging infrastructure. During the 2021 Winter Storm, there were approximately 100 water lines/water meter that was damaged due to the	Both	Extreme Temperatures, Severe Winter Storm	1, 2, 3	1 year	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Protection of life. Allowing citizens to take refuge from extreme heat	Approximately \$80,000 for the reroof of the complex. Approximately \$14,000 for the generator	High	SIP, EAP	PP, 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
	Water meter protection	freezing temperatures. Currently, the city is operating at a 30-40 p.s.i. water pressure to minimize the damage to our water lines. This is in comparison with the city of Galveston's 100 p.s.i. working water pressure. Solution: Restoration and enlargement of water lines in the city. This also includes the replacement of faulty water meters.								including installation			
2022-Jamaica Beach-003	Flood Hazard Mitigation	Problem: The City of Jamaica Beach has an aging infrastructure. Our water treatment plant operates at 50% due to damage that has been sustained throughout the years. Many of our drainage ditches are either clogged or overgrown compounding problems to the aging infrastructure that taxes the pumps in our lift stations and the workload in our water treatment facility. The Jamaica Beach Volunteer Fire Department is in dire need of a generator. Our water boxes float away when the water levels get high. We need to replace them with boxes that will not float away. Solution: Evaluate the water treatment plant and ensure that all areas are operational.	Both	Dam & Levee Failure, Flood, Hurricane & Tropical Storm, Tsunami, Utility Failure	1, 2, 3	Five years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Protection of life. Elimination of loss of equipment and damage to buildings. Increase resiliency from our first responders in the event of an emergency.	Water treatment Plant \$2,000,000; Generator \$5,000; Lift Stations \$700,000; Drainage Ditches \$200,000 Storage Facility \$500,000 Water Meter Boxes \$100,000	High	SIP, EAP	SP, PI, 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>Purchase and install a generator at the Fire Department Building.</p> <p>Update and rehab lift stations throughout the city.</p> <p>Engineer drainage ditches throughout the city and ensures that proper drainage is achieved.</p> <p>Complete the engineering project throughout the City, including installing culverts, establishing drainage ditches, and clearing the existing drainage ditches.</p> <p>Building a storage facility for critical equipment that will be needed and used in the event of a storm. This is to include boats used for search and rescue, and materials and equipment used to protect the citizens from catastrophic flood damage.</p> <p>Replace water meter boxes throughout the city with those that will not float away.</p> <p>Adoption of a post disaster recovery ordinance.</p>											
2022-Jamaica Beach-004	Critical Facility Upgrades to Withstand Hail and Wind	Problem: The City of Jamaica Beach has equipment that is not protected from the environment. There are also aging roof structures to our water treatment plant as well as to our emergency building complex. We are in dire need of a facility that can store boats, equipment, and supplies that are needed to respond to emergencies. The	Existing	Hail, Hurricane & Tropical Storm, Severe Winter Storm, Thunderstorm Wind, Tornadoes	1, 2, 3	Two years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Protection of life by having equipment ready to respond in the event of an emergency. Elimination of loss of equipment and damage to buildings. Increase	Equipment and supplies Storage Facility \$500,000 Re-Roof \$100,000 Shutters	Medium	SIP, LPR	SP, PP, PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>emergency complex is in dire need of shutters that will eliminate hail and wind damage.</p> <p>Solution: Replace the roof at the emergency complex with a hail and wind-resistant roof. Install emergency shutters at our emergency complex, build a storage facility for our equipment and supplies that are not protected from hail and wind at this time.</p>							resiliency from our first responders in the event of an emergency				
2022-Jamaica Beach-005	Implement Results of Dune Protection Study and Sea Level Rise Planning	<p>Problem: The City of Jamaica Beach has multiple beachfront properties that are vulnerable to Sea Level raises and high tides. The city has lost much of its dune protection due to losses of these dunes from prior storms.</p> <p>Solution: Replacement and restoration to beach dunes will protect our beachfront community from further loss of life and property.</p>	Both	Coastal & Inland Erosion, Flood, Hurricane & Tropical Storm, Tsunami	1, 2, 3	Five years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Protection of life by the rebuilding, replacement and restoration of dunes. There will also be the protection of property by restoring our dunes.	Restoration of dunes has a projected cost of \$2,000,000 including engineering	High	SIP, EAP	SP, NR, PI
2022-Jamaica Beach-006	Tree Trimming Program	<p>Problem: Severe winds in our city present threats to lives, property, and utilities. This is due to downed power lines, trees, damage and to structures.</p> <p>Solution: Implement a tree trimming and removal program</p>	Both	Hurricane & Tropical Storm, Severe Winter Storm, Thunderstorm Wind, Tornadoes, Utility Failure, Wildfire	1, 2, 3	Five years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Protection of life and critical infrastructure	Low	High	NSP	PP, NR, 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
2022-Jamaica Beach-007	Harden Infrastructure and Prepare Community for Severe Weather	<p>Problem: The City of Jamaica Beach has multiple hazards when severe weather reaches us. Our aging infrastructure and the water and sewer lines that are not designed to be below a freezing line suffer the greatest damage. This poses a threat to lives, property, and vital utilities, primarily because of flying debris downed trees and power lines. Severe winter temperatures cause damage to structures and infrastructure in the City of Jamaica Beach.</p> <p>Solution: Adding insulation to our emergency complex both to our attic areas and to our exposed piping will protect our utilities. Adding generators to our water and sewer treatment facilities with generators that enable us to install heaters into our lift stations will ensure that we do not have damage from liquid expansion in our pipes. Building a storage building that will house equipment and supplies will ensure that we have salt available to maintain adequate road and clearing capabilities, therefore, mitigating traffic accidents. Informing our citizens about severe weather impacts and distributing family and traveling emergencies about severe</p>	Both	Extreme Temperatures, Flood, Hail, Hurricane & Tropical Storm, Lightning, Severe Winter Storm, Thunderstorm Wind, Tornadoes, Utility Failure	1, 2, 3	Five years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Protection of life by improving building a new building to protect our equipment and supplies. Creating a warming center and minimizing the damages to our infrastructure as well as to our facilities by improving insulation practices. Educating our citizens on the dangers of Severe Winter storms and burning of fuel-burning equipment.	Building a new structure has a price of \$500,000. Replacing generators to lift stations \$35,000. Generator for the fire station area of the emergency complex \$15,000. Education programs \$3,000 Warming station maintenance and \$20,000 Water and Sewer infrastructure \$2,000,000. Winterization of affected structures \$40,000	High	SIP, EAP	SP, 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
		weather hazards will allow mitigation to be successful. Encouraging homeowners to install carbon monoxide monitors and providing driver education and materials will also decrease the hazards of severe winter storm weather. Educating citizens about the dangers of fuel-burning equipment and the importance of adequate ventilation. Reaching out to our vulnerable population and ensuring that they are safe. Establishing a heating center for the community.											
2022-Jamaica Beach-008	Beach Management Plan	<p>Problem: The City of Jamaica Beach has a true hazard from storm surges. The city needs to develop a phased beach management plan. The city also needs to be able to protect its equipment and supplies in the event of a storm surge.</p> <p>Solution: Developing and maintaining a beach management plan. Building a critical facility in accordance with Executive Order 11988. Construct groins to capture material along the shoreline to trap and retain sand. Installing geotextile sand tubes to trap sand or protect beachfront properties. Building coastal berms to absorb waves and protect the shoreline from erosion. Building a storm berm to keep rock protection in place</p>	Both	Coastal & Inland Erosion, Expansive Soils, Flood, Hurricane & Tropical Storm, Land Subsidence, Tsunami	1, 2, 3	Five years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Protection of life by building a new building to protect our equipment and supplies. Minimizing the damages to our facilities and to our residents by creating a more resilient community. Educating our citizens on the dangers of storm surge. Protecting and restoring natural buffers to minimize the impacts of storm surges.	Building a new structure has a price of \$500,000. Education programs \$3,000. Development of a beach management plan and implementing safety features like geotextile tubes \$2,000,000	High	SIP, LPR	SP, PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		and provide a slow supply of sediment to the coastal system. Examining the appropriate use of beach nourishment, sand scraping dune-gap plugs, etcetera for coastal hazards. Implementing dune restoration, plantings, and use of natural materials. Planting sediment -trapping vegetation, sediment mounds, etc., for coastal hazards. Performing sand-scraping-using bulldozers to deposit the top foot of sand above the high tide line -to reinforce the beach without adding new sand. Using sediment mounds to act as artificial dunes or plugs for natural dune gaps to slow the inland progress of storm-related wind and water. Educate residents about unanticipated storm surge risks. Educating property owners in high-risk areas about mitigation options. Educating the public about risks, preparedness measures, and evacuation procedures.											
2022-Jamaica Beach-009	Subsidence Study and Implementation	Problem: The City of Jamaica Beach has a true hazard from subsidence. The city needs to develop a drainage solution throughout the beachside as well as the bayside of the city. We currently have the destruction of streets and collapses of bulkheads in areas that the city is	Both	Expansive Soils, Flood, Hurricane & Tropical Storm, Land Subsidence	1, 2, 3	Five years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Replacing water lines and sewer lines will allow us to maintain subsidence at a minimum in the city. Sinkholes that create damage to our streets and	Bulkhead at the Water treatment plant \$150,000. Bulkheads at the Marina \$150,000. Replacement of Water Lines \$800,000. Replacement of Sewer Lines	High	SIP, LPR	SP, PR



Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Estimated Timeline	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Priority	Mitigation Category	CRS Category
		<p>responsible for due to shifting soils.</p> <p>Solution: Developing a study to evaluate breakage in the infrastructure of our sewer lines and water lines will allow us to pinpoint problem areas. Once the areas that create soil shift by erosion through water and sewer leaks those lines can be replaced. Bulkheads can be repaired and filling as well as erosion protection can be installed in these areas. Educating the public about risks, preparedness measures, subsidence risk, and measures.</p>							rights of way will be mitigated. Repairing the bulkheads will prevent further damage to the marina as well as to the sewer treatment plant.	\$1,500,000 Repair to damage from sinkholes due to subsidence \$100,000			
2022-Jamaica Beach-010	Increase Fire Fighting Capacity	<p>Problem: The City of Jamaica Beach has a true hazard from wildfires due to our proximity to the state park. The fire department has equipment that is outdated and there is a need for training in our fire department. There is a need for a building that stores our equipment and our supplies.</p> <p>Solution: Upgrading our fire equipment will enable us to respond better and protect the lives and property of our citizens in a more effective manner. We need to replace bunker gear. Update the air compressor to increase storage in the air cascade system and establish a mobile cascade to support</p>	Both	Wildfire	1, 2, 3	Five years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Improved fire-fighting capabilities and safety for fire fighters	Bunker gear \$250,000. Air packs \$270,000. Bottler for air packs \$72,000. Air cascade system \$50,000. Mobile cascade system \$100,000. Monitor-Defibrillators \$90,000. Lucas Chest Compression devices \$54,000. Ladder Fire Truck \$1,200,000. Fire Engine \$500,000. Storage Building \$500,000.	High	SIP, EAP	SP, PP, 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
		higher pressure air tanks. We need cardiac monitors – Defibrillators and chest compression devices. Out ladder truck needs replacement as well as our Engine. Having a “burn” building and training tower will allow us to train better and more effectively without having to go off Galveston Island for training. We also need monitoring equipment for Carbon Monoxide, Hydrogen Sulfide, and Chlorine detection to minimize Haz-Mat situations when the wildfires reach our city. Our fire hose is old and worn out. Citizens need to be educated about the risks of wildfires.								Training Facility \$800,000. Air monitoring equipment \$20,000. Fire Hoses \$30,000			
2022-Jamaica Beach-011	Mitigation RFC/SRL properties	Problem: Flood waters damaged facilities. Solution: Mitigate (elevate, reconstruct, acquisition, demolition) Repetitive Flood Claim / Severe Repetitive Loss (RFC/SRL) properties	Existing	Flood, Hurricane & Tropical Storm	1, 2	1 to 5 years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Protection of structures and critical infrastructure.	High	High	SIP	SP, PP
2022-Jamaica Beach-012	Integrate mitigation measures in regulations and permits	Problem: Hazard mitigation is an ongoing need. Solution: Improve and enforce regulations and permit requirements to promote hazard mitigation strategies	Both	All Hazards	1, 2, 3, 4	1 to 5 years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Prevention of loss of life and protection of critical infrastructure.	Low	High	LPR	PR, PP
2022-Jamaica Beach-013	Develop and provide public information and awareness for hazards	Problem: Methods and operational equipment needed to inform the public of immediate danger from an impending hazard or	Both	All Hazards	1, 2	1-5 years	City of Jamaica Beach	TDEM grants and grants awarded by FEMA	Prevention of loss of life and protection of critical infrastructure.	Low	High	EAP	PR, 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
		<p>updating the public with an ongoing controlled hazard.</p> <p>Solution: Public outreach program will be designed to notify public of immediate hazard threats or updated supplemental information of ongoing hazards through numerous methods that could include text messages, automated “robo calls”, emails, media outlet press releases, internet websites and social media accounts from city departments. Equipment would include social monitoring or crowd source programs, cameras and hard-shell cases, laptop, and a dedicated vehicle.</p>											

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 9.7-16. 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-Jamaica Beach-001	Dune Protection Program	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High
2022-Jamaica Beach-002	Extreme Temperature Protection Emergency Winter storm, Water Pipe / Water meter protection	1	1	1	1	1	1	1	0	-1	-1	1	1	1	1	9	High
2022-Jamaica Beach-003	Flood Hazard Mitigation	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High
2022-Jamaica Beach-004	Critical Facility Upgrades to Withstand Hail	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High
2022-Jamaica Beach-005	Implement Results of Dune Protection Study and Sea Level Rise Planning	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High
2022-Jamaica Beach-006	Tree Trimming Program	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High
2022-Jamaica Beach-007	Harden Infrastructure and Prepare Community for Severe Weather	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High
2022-Jamaica Beach-008	Beach Management Plan	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	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-Jamaica Beach-009	Subsidence Study and Implementation	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High
2022-Jamaica Beach-010	Increase Fire Fighting Capacity	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High
2022-Jamaica Beach-011	Mitigation RFC/SRL properties	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High
2022-Jamaica Beach-012	Integrate mitigation measures in regulations and permits	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High
2022-Jamaica Beach-013	Develop and provide public information and awareness for hazards	1	1	1	1	1	1	1	1	-1	-1	1	1	1	1	10	High

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

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