- Manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the calendar year. Persistent, Bio-accumulative and Toxic (PBT) chemicals are subject to different thresholds of ten pounds, 100 pounds or 0.1 grams depending on the chemical.

Tier 2 data is a publicly available database from the Texas Department of State Health Services Tier 2 Chemical Reporting Program. Under EPCRA, all facilities which store significant quantities of hazardous chemicals must share this information with state and local emergency responders and planners. Facilities in Texas share this information by filing annual hazardous chemical inventories with the Texas Department of State Health Services (DSHS), Local Emergency Planning Committees (LEPCs), and local fire departments. The Texas Tier 2 Report contains facility identification information and detailed chemical data about hazardous chemicals stored at the facility.

A facility must report if it meets the following criteria:

- Any company using chemicals that could present a physical or health hazard must report them, according to Tier 2 requirements.
- If an industry has an Occupational Safety and Health Administration (OSHA) deemed hazardous chemical that exceeds the appropriate threshold at a certain point in time, then the chemical must be reported. These chemicals may be on the list of 356 Extremely Hazardous Substances (EHS) or could be one of the 650,000 reportable hazardous substances (not on the EHS list). This reporting format is for a "snapshot in time." EHS chemicals have to be reported if the quantity is either greater than 500 pounds, or if the Threshold Planning Quantity (TPQ) amount is less than 500 pounds.

Location

Under the Community Right-to-Know program laws upheld at the state and federal level, all facilities which store significant quantities of hazardous chemicals must share this information with state and local emergency responders and planners. Facilities in Texas share this information by filing annual hazardous chemical inventories with the state, with Local Emergency Planning Committees (LEPCs), and with local fire departments.

Figure 16-1 shows the locations of available georeferenced TRI and Tier 2 toxic sites in and around the Council of Cities planning area. Only toxic sites that have georeferenced data available were analyzed and the circle buffers are drawn around each hazardous material site. Two size buffers, 500 and 2,500 meters are assumed in respect to the different levels of effect – immediate (primary) and secondary.

Figure 16-1. Fixed HazMat Analysis Locations and Buffers

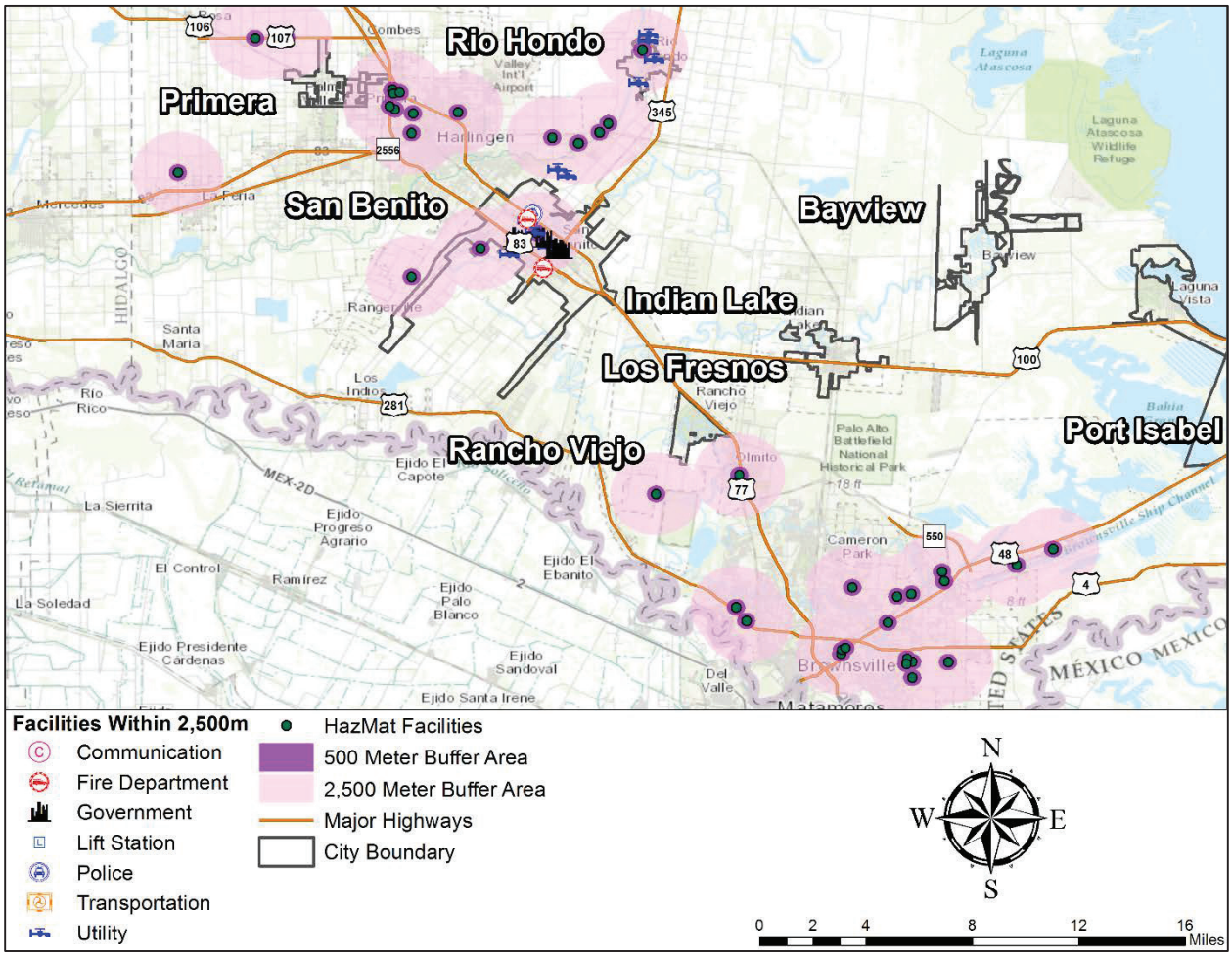


Table 16-1. TRI HazMat Facilities in or near Council of Cities Planning Area

JURISDICTION	FACILITY NAME	ADDRESS
HARLINGEN	FRUIT OF THE LOOM TEXAS INC	5810 E HARRISON
BROWNSVILLE	SAINT-GOBAIN ABRASIVES INC	1505 MORNINGSIDE RD
HARLINGEN	VALLEY SOLVENTS & CHEMICALS	15281 STATE HIGHWAY 107
BROWNSVILLE	JEFFERSON ELECTRIC INC	300 MAGNETEK DR
BROWNSVILLE	NATIONAL ELECTRIC COIL CO LP	3330 E 14TH ST
HARLINGEN	SOUTHWESTERN ICE INC	FAIR PARK ADDITION END OF MEMPHIS ST
SAN BENITO	BETACO	ZILLOCK & RATLIFF RD

JURISDICTION	FACILITY NAME	ADDRESS
HARLINGEN	WIL-RON MANUFACTURING FACILITY	3901 N EXPRESSWAY 77
BROWNSVILLE	DELCO ELECTRONICS WAREHOUSE LEASEWAY TRANSFER POOL	601 S VERMILLION AVE
LA FERIA	HANSON PIPE & PRECAST	1300 N RABB RD
BROWNSVILLE	EAGLE BUS MANUFACTURING INC	2045 LES MAULDIN BLVD
HARLINGEN	ASPHALT PRODUCTS INC	5809 PROGRESS DR
BROWNSVILLE	AKZO NOBEL TRANSPORTATION COATINGS INC	200 YARD RD
BROWNSVILLE	M-I DRILLING FLUIDS COMPANY BROWNSVILLE	S SIDE RD PORT OF BROWNSVILLE
BROWNSVILLE	RTW TERMINALS	1005 W ANCHOR RD
SAN BENITO	THOMAS PETROLEUM LLC SAN BENITO	2050 UTEX
BROWNSVILLE	MARATHON ELECTRIC MANUFACTURING CORP	2240 N CEBTRAL AVE
BROWNSVILLE	TRICO PRODUCTS CORP	1995 BILLY MITCHELL BLVD
BROWNSVILLE	BASIC INC	5771 E 14TH ST
BROWNSVILLE	CHEM PRUF DOOR	5224 FM 802
HARLINGEN	HYGEIA DAIRY CO	720 S F
SAN BENITO	CEMEX CONSTRUCTION MATERIALS SOUTH LLC - HARLINGEN	30450 FM-801
BROWNSVILLE	PREMIER TRIM LLC	3300 NAFTA PKWY SUITE A
HARLINGEN	VALLEY CO-OP OIL MILL	1901 N EXPRESSWAY 77
BROWNSVILLE	ITT SWF BROWNSVILLE PLANT	1900 BILLY MITCHELL BLVD BUILDING A
HARLINGEN	QUIK-TO-FIX FOODS INC	1130 N EXPRESSWAY 77
RIO HONDO	WILBUR-ELLIS CO	1 MILE N REYNOLDS RD
COMBES	VALLEY SOLVENTS CO INC	25 MILES W HWY 107
BROWNSVILLE	KEPPEL AMFELS LLC	20000 STATE HWY 48
HARLINGEN	TYSON FOODS INC	514 N L ST
BROWNSVILLE	GENERAL PACKAGING	605 S VERMILLION SUITE #F
SAN BENITO	AMERICAN ELECTRIC POWER LA PALMA POWER STATION	3/4 MILE LA PALMA RD
HARLINGEN	RIO GRANDE OIL MILL	1617 WILSON RD

JURISDICTION	FACILITY NAME	ADDRESS
OLMITO	KRUGERBRAND INC	HWY 77 AT S 1732
BROWNSVILLE	MUELLER CO - GAS PRODUCTS DIV	3351 FM 802
BROWNSVILLE	RICH-SEAPAK	3555 E 14TH ST
BROWNSVILLE	CHEM PRUF DOOR COMPANY LTD	BROWNSVILLE COMPRESS BLDG 1000
BROWNSVILLE	RANCO INC OF NA	1900 BILLY MITCHELL BLVD
HARLINGEN	TRANSIT MIX HARLINGEN PLANT PLANT 1435	30450 FM 801
HARLINGEN	PENTAIR VALVE & CONTROLS HARLINGEN	5801 E HARRISON
HARLINGEN	GIBBS-TEXAS DIE CASTING CORP	1209 INDUSTRIAL WAY
HARLINGEN	SOUTH TEXAS CHLORINE INC.	8600 E HARRISON BLDG.
HARLINGEN	CMC STEEL FABRICATORS INC DBA CMC VALLEY STEEL	2120 IND US TRIAL BLVD
HARLINGEN	HARLINGEN REFINED PRODUCTS TER MINAL	26306 F.M. 106

Extent

The extent of a hazardous material release will depend on whether it is from a mobile or fixed site and the size of impact. The range of intensity will vary greatly depending on the circumstances. These factors and conditions include the material, toxicity, duration of the release, and environmental conditions such as the wind and precipitation.

Hazardous materials or toxic releases can have substantial impact on communities. Such events can cause multiple deaths, completely shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. In a hazardous materials incident, solid, liquid and/or gaseous contaminants may be released from fixed or mobile containers. Weather conditions would directly affect how the hazard develops. The micro-meteorological effects on buildings and terrain can alter travel patterns and duration of agents. Shielding in the form of permanent shelter can protect people from harmful effects. Non-compliance with fire and building codes, as well as failure to maintain existing fire and containment features can substantially increase damage from a hazardous materials release. The duration of a hazardous materials incident can range from hours to days. Warning time is minimal to none.

The spatial extent of a hazardous material release is minimal or expected to affect less than 10% of people or property.

Historical Occurrences

Hazardous materials are substances which if released or misused can cause death, serious injury, long-lasting health effects, and damage to structure and other properties as well as to the environment. Many products containing hazardous chemicals are used and stored in homes routinely. These products are also shipped daily on the nation's highways, railroads, waterways, and pipelines.

A total of 18 transportation incidents have been reported in the Council of Cities planning area over the last 65 years. The data collected is from 1950 to 2015 and identifies the hazardous materials transportation incidents as in-transit, loading, and unloading of transport vehicles. The reported events are summarized by jurisdiction in Table 16-2 below.

Table 16-2. Hazardous Materials Incidents Event Summary

JURISDICTION	NUMBER OF EVENTS	INJURIES	FATALITIES	PROPERTY DAMAGE (2015 DOLLARS)	CROP DAMAGE (2015 DOLLARS)
Bayview	0	0	0	$0	$0
Indian Lake	0	0	0	$0	$0
Laguna Vista	0	0	0	$0	$0
Los Fresnos	1	0	0	$0	$0
Port Isabel	2	1	0	$0	$0
Primera	0	0	0	$0	$0
Rancho Viejo	0	0	0	$0	$0
Rio Hondo	2	0	0	$314,694	$0
San Benito	13	1	0	$21,822	$0
South Padre Island	0	0	0	$0	$0
Total Losses	**18**	**2**	**0**	**$336,517**	

Probability of Future Events

The likelihood or future probability of occurrence of a hazardous materials release in the Council of Cities planning area is low, with slightly more than a 25 percent chance of an event occurring in a given year.

Vulnerability and Impact

Based on the prevalence and geographic proximity of hazardous materials transportation routes and fixed locations, the majority of the Council of Cities planning area is vulnerable. The risk to the population depends on a variety of factors, including: type and amount of chemical released, weather conditions, prevailing winds, time of day, and season.

The environment is often vulnerable in a hazardous materials incident and can be heavily damaged by a hazardous materials incident. The particular transportation route and fixed site involved are significant factors in determining the risk to public health and safety, and will determine the number of people in proximity to the hazard. Depending on the nature of the hazardous materials incident, the public could be required to either evacuate the area or shelter in place, which will interrupt normal routines.

It is possible that a hazardous materials incident could involve a number of fatalities. It is likely that inhaled hazardous gasses may result in respiratory problems, including burning sensations in the lungs, nose, and throat. Releases that involve solids or liquids can be absorbed through the skin, and may cause burns on contact. In some instances, the threat to health and safety may not be evident for an extended period of time.

Impact of hazardous materials incidents experienced in the Council of Cities has resulted in 2 injuries and no fatalities supporting a possible limited severity of impact meaning injuries and/or illnesses are treatable with first aid, shutdown of facilities and services for 24 hours or less, and less than 10% of property is destroyed or with major damage.

Table 16-3. Critical Facilities Vulnerable to Hazardous Material Releases

JURISDICTION	NAME	TYPE
Rio Hondo	Dam	Utility
Rio Hondo	Water Plant	Utility
Rio Hondo	Sewer Plant	Utility
Rio Hondo	Fertilizer Plan/Gas Depot	Utility
San Benito	Water Plant 1	Utility
San Benito	Water Plant 2	Utility
San Benito	Waste Water Treatment 1	Utility
San Benito	Waste Water Wetlands	Utility
San Benito	Water Tower 1	Utility

JURISDICTION	NAME	TYPE
San Benito	Municipal Building	Government
San Benito	City Hall	Government
San Benito	Public Works	Government
San Benito	School Administration Building	Government
San Benito	Police Station	Police
San Benito	Fire Station 1	Fire Department
San Benito	Fire Station 2	Fire Department
San Benito	Cameron County Annex	Government
San Benito	Power Substation	Utility

Section 17: Terrorism

Hazard Description

The Federal Bureau of Investigation (FBI) categorizes terrorism in the United States as domestic terrorism, or international terrorism. Domestic terrorism, involves groups or individuals whose terrorist activities are directed at elements of our government or population without foreign direction. International terrorism, involves groups or individuals whose terrorist activities are foreign-based, and directed by countries or groups outside the United States, or whose activities transcend their national boundaries.

A terrorist attack event can take several forms depending on the technological means available to the terrorist, nature of the issue motivating the attack, and points of weakness of the terrorist's target. Bombings are the most frequently used terrorist method in the United States. A terrorist using a chemical or biological weapon is of particular concern to officials. Special training and equipment is necessary to safely manage a Weapons of Mass Destruction incident.

Biological agents, are infectious microbes or toxins used to produce illness or death in people, animals or plants. Biological agents can be dispersed as aerosols or airborne particles. Terrorists may use biological agents to contaminate food or water as they are extremely difficult to detect.

Chemical agents, kill or incapacitate people, destroy livestock, or ravage crops. Some chemical agents are odorless and tasteless and are therefore difficult to detect. Chemical agents can have an immediate effect, within a few seconds to a few minutes, or a delayed effect, within several hours to several days.

The U. S. Department of Defense estimates that 26 nations may possess chemical agents and weapons, and an additional 12 may be seeking to develop them. The Central Intelligence Agency reports that at least ten countries are believed to be in possession or conducting research on biological agents for weaponization.

Terrorist events involve the application of one or more modes of harmful force to the built environment. These modes include contamination, such as chemical, biological radiological, or nuclear hazards; energy, such as explosives, arson, and even electromagnetic waves; or denial of service, such as sabotage, infrastructure breakdown, and transportation service disruption.

Location

There is no distinct geographic boundary to the threat of terrorism. An event is possible throughout the Council of Cities planning area.

Terrorists most often search for highly visible targets that can be impacted while avoiding detection. However, the motivation behind at terrorist event can be varied and the target's surrounding area is considered at risk.

Extent

The Homeland Security Advisory System, issued by the U. S. Department of Homeland Security, is a color-coded terrorism warning system that identifies five threat levels. Terrorism Warning Threat Levels are described in Table 17-1.

Table 17-1. Terrorism Warning System Threat Levels[1]

Color	Threat Level[2]	Governmental actions to be taken
Green	Low: Low risk of attacks.	Requires "protective measures" such as regularly assessing facilities for weaknesses and finding ways to reduce them, and making sure State and local government employees are trained to handle terrorism situations.
Blue	Guarded: General risk of attacks.	Requires government agencies to review and update emergency response procedures and communications systems, as well as provide the public with necessary information.

[1] *Department of Homeland Security*

[2] *Current threat levels can be found at:*
http://www.dhs.gov/xinfoshare/programs/Copy_of_press_release_0046.shtm

Color	Threat Level[2]	Governmental actions to be taken
Yellow	Elevated: Significant risk of attacks.	Includes increasing surveillance of critical locations, coordinating emergency plans with nearby jurisdictions and implementing contingency and emergency response plans.
Orange	High: High risk of attacks.	Requires coordinating necessary security efforts with armed forces or law enforcement agencies, taking additional precautions at public events, preparing to work at an alternative site or with a dispersed workforce and restricting access to essential personnel.
Red	Severe: Severe risk of attacks.	Includes assigning emergency response personnel and setting up specially trained teams; monitoring, redirecting, or constraining transportation systems; closing public and government facilities; and increasing or redirecting personnel to address emergency needs.

The Red Cross also issues Advisory System Recommendations for individuals, families, neighborhoods, schools and businesses for each alert level. These may be found at: *www.redcross.org.*

Heightened periods for terrorism risk are based on intelligence and other information. A potential terrorist event could devastate the community physically, economically and psychologically for many years to come. Warning time for terrorism is minimal to none.

Historical Occurrences

In 2007, the Texas Department of Public Safety, which is responsible for Homeland Security in Texas, reported that individuals with ties to Hezbollah, Hamas, and al-Qaida were arrested crossing the border from Mexico. From March 2006 to September 2007, almost 350 individuals “from terrorism-related countries" were arrested at the border. While there have been no terrorism events for the planning area, the United States border is considered vulnerable to terrorist infiltration.

Probability of Future Events

The type, frequency, and location of many natural hazards are identifiable and somewhat predictable because natural hazards are governed by the laws of physics and nature. However, malevolence cannot be forecast with any accuracy. Therefore, there is potential for intentional terrorist acts to occur anywhere and at any time. According to the historical incident data, a terrorism incident for the Council of Cities planning area is unlikely, with an event occurring on average once every ten years.

Vulnerability and Impact

There is no defined geographic boundary for a terrorist event. All of the population, buildings, critical facilities, infrastructure and lifelines and hazardous materials facilities are considered exposed to the hazards of terrorism and could potentially be affected.

There are no past local terrorist events. Therefore, all assets and facilities are potentially at risk to damages that may for the most part be secondary.

Terrorist events can have a "Major" severity of impact. They can cause injuries, illnesses, or both and result in permanent disability, complete shutdown of City area facilities for at least two weeks, and cause more than 25 percent of affected properties to be destroyed or suffer major damage.

Assessment of Impacts

Terrorism poses a potentially significant risk to public health and safety. Persons in the area at the time of a terrorist attack are at risk for injury or death from a variety of threats.

The chance for death, injury, and financial loss increases as population density increases. Therefore, locations in the planning area with high population density should be considered to have the most risk.

Response personnel face similar potential impacts as the general public. Response personnel can be at increased risk of physical injury because the nature of their responsibilities may bring them closer to the hazard and secondary incendiary devices are often directed at response personnel. Response personnel can be subjected to more long-term impacts resulting from prolonged exposure to chemicals or biological weapons.

Depending on the characteristics and location of the event, it is possible that operations and service delivery could be impacted by a terrorist attack. While each participating jurisdiction has emergency management staff and operating procedures, local government facilities may not be accessible in the event of a terrorist attack near the facility. If local government facilities become inaccessible, then staff members would be limited to performing work with the resources that were accessible to them from their remote location.

Government facilities and departments within the jurisdictions that have not been hardened or retrofitted for terrorist events will be more vulnerable to interruptions as a result of damages from a terrorist attack. If hard or electronic files are damaged, destroyed or otherwise inaccessible, a department may be unable to perform its assigned tasks and deliver its designated services. This interruption could have significant impacts throughout the jurisdictions, and could negatively impact its ability to respond to and recover

from the terrorist event. Without a Continuity of Operations Plan (COOP) that takes into account department-specific issues, or regular exercise of that COOP, critical departments may not be able to function and provide necessary services.

Damage from a terrorist event can impact utility infrastructure, either directly or indirectly. This could result in a temporary loss of function for businesses in the planning area that rely on utilities for operation, even if those businesses were not directly impacted by the terrorist event. Additionally, businesses can suffer interruption from closed or blocked roadways; for example, firefighters and law enforcement personnel may need to close a roadway during response and investigative operations. This could negatively impact other businesses in the area that were not otherwise damaged.

Most property, facilities, and infrastructure within the planning area are at risk from damage or destruction from a terrorism event, including residential and commercial structures and their supporting utilities, vehicles and transportation infrastructure, and community buildings, such as hospitals, police stations, and schools. Roadways in or near the terrorist event could be impacted because of damage or closure due to response or investigative operations.

When a terrorist attack occurs there are many potential environmental impacts due to the varied ways an event can occur. The environmental impacts associated with terrorism include, but are not limited to:

- Air pollution,
- Soil contamination,
- Water pollution and hydrologic impacts, and
- Radiological contamination.

Examples of potential terrorist impacts on the environment:

- During severe drought, a terrorist group conducts an arson campaign with multiple fire-bomb attacks that result in large-scale fires throughout the area. Fire affected regions sustain losses to agriculture and forest areas.
- An intentional release of hazardous materials into soil, water, or into the air that leads to environmental contamination and potential changes of the ecosystem, such as habitat loss.
- Failure of control systems of major utility companies due to cyber-attack, leading to damages of critical infrastructure and consequent environmental impacts, such as uncontrolled release of chemicals into the environment, initiation of random fires, or radiological contamination.

The Council of Cities planning area is home to a large number of cultural and historic resources. Many of the historic neighborhoods may be at risk from a terrorist event because they are of a construction type and material that is more vulnerable to fire and explosions. Historic homes are generally exempt from modern building code requirements, which may require fire suppression equipment in the structure, and are often constructed close together. The historic and cultural resources are a significant draw for tourists and visitors to the area and help to generate revenue through taxes and fees. This revenue in turn pays services and programs, which benefit residents and the community.

Section 17: Terrorism

The financial and economic impacts associated with a terrorist event may be significant. A major attack, where a large number of structures are damaged or destroyed, can have serious economic and financial consequences for a community. These consequences will depend on what is damaged, the extent of the damage, and the services the damaged structures provided to the community.

The economic and financial impacts of a terrorist event on local government will depend on the scale of the event, what is damaged, costs of repair or replacement, lost business days in impacted areas, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by businesses and citizens will also contribute to the overall economic and financial conditions in the aftermath of a terrorist event.

Public confidence in local government may be impacted by how response and recovery efforts resulting from the event are handled. A response demonstrating that the city, its leaders, and officials were prepared for the event, anticipated the magnitude, and understood what could happen, will boost the city's reputation and standing with residents. However, if the perception developed, correctly or incorrectly, that the response was slow, that needs or complaints of its residents were ignored, or that the leadership fails to anticipate the magnitude of the event, then public confidence can decline.

A terrorist attack that is responded to and handled with little damage to structures or infrastructure will enhance public perception. Visual images of the first responders can be a powerful tool to aid in the public trust and confidence regarding public safety.

Section 18: Pipeline Failure

Hazard Description

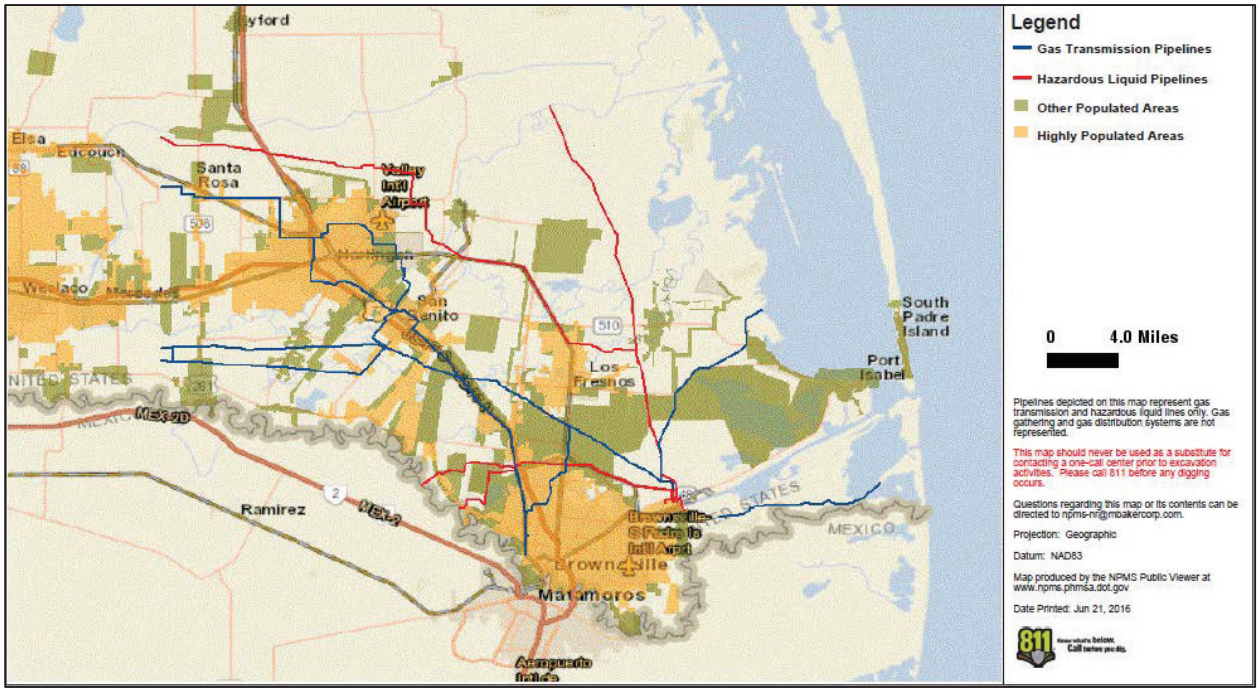
Energy pipeline breach or pipeline failure of an oil or natural gas pipeline is a serious hazard event. An estimated 2.4 million miles of pipelines in the United States carry hazardous materials. Natural gas pipelines transport natural gas and oil. Liquid petroleum pipelines transport crude oil and refined products from crude oils, such as gasoline, home heating oil, jet fuel, kerosene, liquefied propane, ethylene, butane and petrochemical products. Oil pipelines can also transport liquefied gases, such as carbon dioxide.

Pipeline failure is a rare occurrence and has the potential to cause extensive property damage and loss of life. Pipelines have caused fires and explosions that killed more than 200 people and injured more than 1,000 people nationwide with 50 of the injuries in Texas in the last decade.

Location

Figure 18-1 shows the location of gas and oil energy pipelines and pipeline accidents in the Council of Cities and Cameron County according to the Pipeline and Hazardous Materials Safety Administration and Railroad Commission of Texas.

Figure 18-1. Pipeline Location Council of Cities



Extent

The U.S. Department of Transportation's (DOT) Pipeline and Hazardous Material Safety Administration (PHMSA), acting through the Office of Pipeline Safety (OPS), administers the Department's national regulatory program to assure the safe transportation of natural gas, petroleum, and other hazardous materials by pipeline. The OPS develops regulations and other approaches to risk management to assure safety in design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. Since 1986, the pipeline safety program has been funded by a user-fee assessed on a per-mile basis for all pipeline operators that OPS regulates.

Historical Occurrences

Pipeline failure events can be caused by corrosion, equipment failure, damage from excavations, incorrect operation, and natural forces. Incidents are generally categorized by severity and type of affected pipeline system component.

The PHMSA defines significant events as those incidents reported by pipeline operators when any of the following occur:

- Fatality or injury requiring in-patient hospitalization;
- $50,000 or more in total costs, measured in 1984 dollars;

- Highly volatile liquid releases of 5 barrels or more or other liquid releases of 50 barrels or more; and
- Liquid releases resulting in an unintentional fire or explosion.

The PHMSA defines a serious pipeline incident as an event involving a fatality or injury requiring in-patient hospitalization.

Table 18-1 summarizes 21 historical pipeline events for the Council of Cities planning area and Cameron County.

Table 18-1. Historical Pipeline Accidents, 1970-2015[1]

JURISDICTION	NUMBER OF EVENTS	INJURIES	FATALITIES	PROPERTY DAMAGE (2015 DOLLARS)	CROP DAMAGE (2015 DOLLARS)
Bayview	0	0	0	$0	$0
Indian Lake	0	1	0	$0	$0
Laguna Vista	0	0	0	$0	$0
Los Fresnos	2	0	0	$9,557	$0
Port Isabel	1	0	0	$1,911	$0
Primera	2	0	0	$0	$0
Rancho Viejo	2	0	0	$0	$0
Rio Hondo	1	0	0	$0	$0
San Benito	2	0	0	$17,793	$0
South Padre Island	0	0	0	$0	$0
County	15	2	0	$463,373	$0
Total Losses	**21**	**2**	**0**	**$956,007**	

Probability of Future Events

The planning area has experienced multiple pipeline failures and based on the location of pipelines, a large portion of the planning area is vulnerable to the hazard. According to the historical incident data, a pipeline incident for the Council of Cities planning area is highly likely, and an event can occur on average once every year.

[1] *Source: Pipeline and Hazardous Materials Safety Administration and Railroad Commission of Texas*

Vulnerability and Impact

The analysis for gas pipelines is for natural gas and the analysis for oil pipelines is for natural gas liquids. The immediate and primary area of impact for both types of pipeline events is a 500-meter buffer. The secondary area of impact for both types of pipeline events is a 2,500-meter buffer. Both types of impact can inflict substantial damage on the surrounding areas. Pipeline breaches have the potential to cause multiple deaths and complete shutdown of facilities for 30 days or more.

The severity of impact depends on a variety of factors, including type of pipeline and volume released; weather conditions; prevailing winds; time of day; and presence of ignition source. Pipeline failure can have a "major" impact on human health and area properties. Pipeline failure events can cause injuries, illnesses, and result in permanent disability. These events can also cause facilities in the Council of Cities area to shut-down for 30 days or more and cause more than twenty-five percent of affected properties to be destroyed or suffer major damage.

Assessment of Impacts

The risk to public health and safety during a pipeline failure event depends on a number of factors, including the type and amount of chemical(s) involved, location, weather conditions, time of day, and presence of an ignition source. The location of pipelines determines the potential number of people in proximity to the hazard and is a significant factor when determining the risk to public health and safety. It is possible that a release of materials from a pipeline failure could involve a number of fatalities. It is likely that inhaled hazardous gases may result in respiratory problems, including burning sensations in the lungs, nose, and throat. A release of solids or liquids can be absorbed through the skin, and may cause burns on contact. In some instances, the threat to health and safety may not be evident for an extended period of time.

Depending on the nature and extent of a pipeline failure, the public could be required to either evacuate the area or shelter in place, which will interrupt normal routines. Response personnel are also at risk from more concentrated or prolonged exposure to the agent involved in the event. Through response efforts, response personnel may respond and come in contact with hazardous substances before the nature of the hazard is determined. Response personnel also have a greater likelihood of impacts from secondary explosions or leaks.

Generally, pipeline failure events will interrupt operations and services within a limited area. The nature of the interruption will depend on the facilities in the impacted area. For example, if the event results in the temporary closure or evacuation of a hospital, this will also impact all hospitals in the area because area hospitals may be expected to assume the patient load for the now-inaccessible facility. However, if the event is near non-essential businesses, the operational or service interruption might not be as far-reaching. While the closure of businesses would result in negative impacts for those businesses, this scenario would not have the same community impacts as the first example.

Section 18: Pipeline Failure

Damage to roadways, railways, and physical infrastructure resulting from a pipeline failure event can impair normal operations and delivery of services.

During a pipeline failure event, the pressure in a pipeline can disrupt the soil above a break. Any facility or piece of infrastructure over or adjacent to a rupture could be damaged or destroyed. If gas ignites, it will set flammable objects near it on fire. Depending on environmental factors such as wind, proximity of vegetation or other fuels, and dryness of the environment, the fire could spread to other nearby structures damaging or destroying them.

Any infrastructure in the area of the incident could be impacted by a pipeline failure event. Gas lines, water lines, sewer lines, and communication lines can be interrupted or destroyed, depending on the nature of the event. If the event is significant enough, utilities in the area may need to be temporarily suspended or disconnected, which would impact multiple facilities and properties.

Environmental risks from pipeline failure events can range from nonexistent to catastrophic, depending on the nature and extent of the release.

Section 19: Mitigation Strategy

Mitigation Goals

Based on the results of the risk and capability assessments, the Planning Team was able to develop and prioritize the mitigation strategy. At the Risk Assessment Workshop held March 2, 2016, and the Mitigation Workshop held April 20, 2016, Planning Team members refined the Plan's mitigation strategy. The following goals and objectives were identified.

Goal 1

Protect public health and safety.

Objective 1.1

Partner with agencies serving vulnerable populations to minimize harm in the event of an emergency.

Objective 1.2

Promote disaster contingency planning and facility safety among institutions that provide essential services such as food, clothing, shelter and health care to vulnerable populations.

Objective 1.3

Educate individuals and communities about disaster preparedness and mitigation.

Objective 1.4

Improve disaster warning systems.

Objective 1.5

Strengthen local building code enforcement.

Objective 1.6

Train emergency responders.

Goal 2

Protect critical public facilities and infrastructure.

Objective 2.1

Implement mitigation programs that protect critical facilities and services and promote reliability of lifeline systems to minimize impacts from hazards, maintain operations, and expedite recovery in an emergency.

Objective 2.2

Consider known hazards when siting new facilities and systems.

Objective 2.3

Create redundancies for critical networks such as water, sewer, digital data, power and communications.

Objective 2.4

Educate public officials, developers, realtors, contractors, building owners, and the public about hazard risks and building requirements.

Goal 3

Protect the environment.

Objective 3.1

Consider the secondary effects of disasters, such as hazardous waste and hazardous materials spills, when planning and developing mitigation projects.

Objective 3.2

Use environmentally and conservation friendly materials in mitigation projects whenever possible and economically feasible.

Goal 4

Increase public education and awareness.

Objective 4.1

Enhance understanding of local hazards and the risks they pose.

Objective 4.2

Educate the public on actions they can take to prevent or reduce the loss of life or property from all hazards and increase individual efforts to respond to potential hazards.

Objective 4.3

Publicize and encourage the adoption of appropriate hazard mitigation measures.

Goal 5

Encourage partnerships.

Objective 5.1

Partner with private sector, including small businesses, to promote structural and non-structural hazard mitigation as part of standard business practice.

Objective 5.2

Educate businesses about contingency planning, targeting small businesses and those located in high risk areas.

Objective 5.3

Partner with private sector to promote employee education about disaster preparedness and practice conservation while at work and at home.

Section 20: Mitigation Actions

Summary

As discussed in Section 2, at the mitigation workshop the planning team and stakeholders met to develop mitigation actions for each of the natural and human-caused hazards included in the Plan. Each of the actions in this section were prioritized based on FEMA's Social, Technical, Administrative, Political, Legal, Economic and Environmental (STAPLEE) criteria necessary for the implementation of each action. As a result of this exercise, an overall priority was assigned to each mitigation action.

As part of the economic evaluation of the STAPLEE analysis, jurisdictions analyzed each action in terms of the overall costs, measuring whether the potential benefit to be gained from the action outweighed costs associated with it. As a result of this exercise, priority was assigned to each mitigation action by marking them as High (H), Moderate (M), or Low (L). An action that is ranked as "High" indicates that the action will be implemented as soon as funding is received. A "Moderate" action is one that may not be implemented right away depending on the cost and number of citizens served by the action. Actions ranked as "Low" indicate that they will not be implemented without first seeking grant funding and after "High" and "Moderate" actions have been completed.

All mitigation actions created by Planning Team members are presented in this section in the form of Mitigation Action Worksheets. More than one hazard is sometimes listed for an action, if appropriate. Actions presented in this section represent a comprehensive range of mitigation actions per current State and FEMA Guidelines, including two actions, per hazard, and of two different types.

Section 20: Mitigation Actions

*Table 20-1. Council of Cities Mitigation Action Matrix**

*FEMA does not review mitigation actions for human-caused hazards; therefore, they are not included in the comprehensive list of mitigation actions in Table 20-1.

COUNCIL OF CITIES: MITIGATION ACTION MATRIX				
Actions presented in this matrix represent a comprehensive range and minimum number of required mitigation actions per current State and FEMA Guidelines, including two actions per hazard, and of two different types.				
BAYVIEW: MITIGATION ACTION MATRIX				
HAZARDS	**Types of Action:**			
	LOCAL PLANS/ REGULATIONS	**STRUCTURAL/ INFRASTRUCTURE**	**NATURAL SYSTEM PROTECTION**	**EDUCATION & AWARENESS**
Extreme Wind	XXX	XXX		XX
Hurricane	XXX	XXX		XX
Flood	XXX	XXX		X
Extreme Heat		X		XX
Drought	X			XX
Tornado	XXX	X		XXX
Hail	XX	X		XX
Wildfire	X	XX	X	XXX
Expansive Soils		X		XX
INDIAN LAKE: MITIGATION ACTION MATRIX				
HAZARDS	**Types of Action:**			
	LOCAL PLANS/ REGULATIONS	**STRUCTURAL/ INFRASTRUCTURE**	**NATURAL SYSTEM PROTECTION**	**EDUCATION & AWARENESS**
Extreme Wind	X	XXXXX		XXXXXX
Hurricane	X	XXXXX		XXXXX
Flood	X	XXXXX		XXXXXX
Extreme Heat		XXX		XX
Drought		X		X
Tornado	X	XXXX		XXXX
Hail	XX	XXX		XXXX
Wildfire	X	XXXX		XXX
Expansive Soils	X	X		

LAGUNA VISTA: MITIGATION ACTION MATRIX				
HAZARDS	Types of Action:			
	LOCAL PLANS/ REGULATIONS	STRUCTURAL/ INFRASTRUCTURE	NATURAL SYSTEM PROTECTION	EDUCATION & AWARENESS
Extreme Wind	X	XXX		XX
Hurricane	X	XXX		XXX
Flood	X	XXXXXXXXXXXXXXX		XX
Extreme Heat	X	XX		XX
Drought	X	X		XX
Tornado		XXX		XX
Hail	X	XX		XX
Wildfire	X	XXX	X	XXX
Expansive Soils		XX		XX

LOS FRESNOS: MITIGATION ACTION MATRIX				
HAZARDS	Types of Action:			
	LOCAL PLANS/ REGULATIONS	STRUCTURAL/ INFRASTRUCTURE	NATURAL SYSTEM PROTECTION	EDUCATION & AWARENESS
Extreme Wind	X	XXXXX	XX	XXX
Hurricane	X	XXXXX	XX	XXXX
Flood	X	XXXX	XX	X
Extreme Heat	X	XX		X
Drought	X	X		
Tornado		XXX		XX
Hail		XXXX		XX
Wildfire	X	X	X	X
Dam Failure	X	X		

PORT ISABEL: MITIGATION ACTION MATRIX				
HAZARDS	Types of Action:			
	LOCAL PLANS/ REGULATIONS	STRUCTURAL/ INFRASTRUCTURE	NATURAL SYSTEM PROTECTION	EDUCATION & AWARENESS
Extreme Wind	XX	XXXX	X	XXXXX
Hurricane	XX	XXXX	X	XXXXX
Flood	XXX	XXXX	X	XXXXX
Extreme Heat	X	XXXX		XXXX
Drought	X			XX

PORT ISABEL: MITIGATION ACTION MATRIX				
HAZARDS	Types of Action:			
	LOCAL PLANS/ REGULATIONS	STRUCTURAL/ INFRASTRUCTURE	NATURAL SYSTEM PROTECTION	EDUCATION & AWARENESS
Tornado	X	XXX		XXX
Hail	XX	XXXXX		XXXX
Wildfire	X		X	XXXXX
Expansive Soils	X	X		X

PRIMERA: MITIGATION ACTION MATRIX				
HAZARDS	Types of Action:			
	LOCAL PLANS/ REGULATIONS	STRUCTURAL/ INFRASTRUCTURE	NATURAL SYSTEM PROTECTION	EDUCATION & AWARENESS
Extreme Wind	X			XX
Hurricane	XX			XX
Flood	XX	X		XX
Extreme Heat	X	X		X
Drought	X	X		X
Tornado	X			XX
Hail		X		XX
Wildfire	X		X	XXX
Expansive Soils		X		X

RANCHO VIEJO: MITIGATION ACTION MATRIX				
HAZARDS	Types of Action:			
	LOCAL PLANS/ REGULATIONS	STRUCTURAL/ INFRASTRUCTURE	NATURAL SYSTEM PROTECTION	EDUCATION & AWARENESS
Extreme Wind	XX	X		XX
Hurricane	XX	X		XX
Flood	X			X
Extreme Heat	X			X
Drought	X			X
Tornado	X	X		X
Hail	XX	X		XX
Wildfire	X	X	X	X
Expansive Soils	X	X		X

RIO HONDO: MITIGATION ACTION MATRIX				
HAZARDS	Types of Action:			
	LOCAL PLANS/ REGULATIONS	STRUCTURAL/ INFRASTRUCTURE	NATURAL SYSTEM PROTECTION	EDUCATION & AWARENESS
Extreme Wind	X			X
Hurricane	XX	XX		X
Flood	X	X		
Extreme Heat	X			X
Drought		X	X	
Tornado	X	X		
Hail	X	X		
Wildfire	X	X	X	X
Expansive Soils		X		X

SAN BENITO: MITIGATION ACTION MATRIX				
HAZARDS	Types of Action:			
	LOCAL PLANS/ REGULATIONS	STRUCTURAL/ INFRASTRUCTURE	NATURAL SYSTEM PROTECTION	EDUCATION & AWARENESS
Extreme Wind	XX	X		X
Hurricane	XX	X		X
Flood	X	X		
Extreme Heat	X			X
Drought	X	X		
Tornado	X	X		
Hail	X	X		X
Wildfire	X		X	
Expansive Soils	X			X

SOUTH PADRE ISLAND: MITIGATION ACTION MATRIX				
HAZARDS	Types of Action:			
	LOCAL PLANS/ REGULATIONS	STRUCTURAL/ INFRASTRUCTURE	NATURAL SYSTEM PROTECTION	EDUCATION & AWARENESS
Extreme Wind	XX	XX		
Hurricane	XXXX	XX	X	
Flood	XXX	XX		
Extreme Heat	X	X		X
Drought	X			X

Section 20: Mitigation Actions

SOUTH PADRE ISLAND: MITIGATION ACTION MATRIX				
HAZARDS	Types of Action:			
	LOCAL PLANS/ REGULATIONS	STRUCTURAL/ INFRASTRUCTURE	NATURAL SYSTEM PROTECTION	EDUCATION & AWARENESS
Tornado	X	XX		
Hail	X	XX		X
Wildfire	X	X	X	X
Expansive Soils		X		X
Coastal Erosion	X	X	X	

Bayview

	Bayview – Action #1
Proposed Action:	**Implement program to trim trees along public ROW to reduce limbs falling on roads and power lines**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Town-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risks to residents; Reduce damage to Town roads; Reduce recover/clean-up costs; Reduce power outages
Type of Action *(Local Plans and Regulations, Structure and Infrastructure Projects, Natural System Protection, or Education and Awareness)*	Local Plans and Regulations – Zoning ordinance

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Wind; Hurricane; Tornado
Effect on New/Existing Buildings:	Reduce risk to existing and future structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$225,000
Potential Funding Sources:	Local revenue, HMGP
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 12 months of plan adoption pending funding
Incorporation into Existing Plans:	Road Maintenance

COMMENTS
Town has done prior work on a limited basis with volunteers and limited funding; not adequate for the scope required. No regularly scheduled/funded maintenance program in place. Long-term ongoing residential problem; many residents resistant to efforts to trim/reduce trees
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 4; Technically Feasible = 5; Administratively Possible = 4; Politically Acceptable = 4; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

		Bayview – Action #2
	Proposed Action:	**Develop and conduct public awareness program relating to tree pruning and maintenance at commercial and residential home sites**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	Town-wide; private property
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risks and impacts for residents; Reduce recovery/clean-up costs; Reduce risk of power outages; Help expedite recovery
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Wind; Hurricane; Tornado
Effect on New/Existing Buildings:	Reduce damage to existing and future structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$5,000
Potential Funding Sources:	HMGP
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 24 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Maintenance

COMMENTS
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 3; Technically Feasible = 3; Administratively Possible = 4; Politically Acceptable = 3; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

		Bayview – Action #3
	Proposed Action:	**Adopt building codes for wind-resistant, Hail resistant and structurally adequate design and construction**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)*:	Reduce potential for damage to structures; Reduce potential for blowing debris to impact other property; Reduce recovery costs
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Local Plans and Regulations – Zoning Ordinance

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Wind; Hurricane; Tornado; Hail
Effect on New/Existing Buildings:	Reduce damage to existing/new structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000/year
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Town Ordinances

COMMENTS
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 4; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 4; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #4
	Proposed Action:	**Program for inspection and enforcement of building codes; engage full time Building Inspector**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Assure sound construction; Reduce potential for damage to structures and injury to residents; Reduce recovery costs
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Local Plans and Regulations – Zoning Ordinance

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Wind; Hurricane; Tornado; Hail
Effect on New/Existing Buildings:	Enhance structural integrity, systems reliability, survivability for new and existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$40,000
Potential Funding Sources:	Grants; Local Funds (cost share)
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 12 months of plan adoption pending funding
Incorporation into Existing Plans:	Town Ordinances

COMMENTS
Currently have part-time inspector.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 4; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 4; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #5
	Proposed Action:	**Implement erosion control mitigation measures along Resaca Road banks near bridges and roadways with retaining walls and bank stabilization/reinforcement**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	Approximately 1 mile of roadways along Resaca Road
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce erosion that threatens infrastructure; Reduce recovery/restoration costs; Prevent future damage
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Structure and Infrastructure Project – Retaining walls and reinforcement

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane; Extreme Wind; Flood
Effect on New/Existing Buildings:	Reduce risk to existing infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$2,000,000
Potential Funding Sources:	HMGP; USDA; Other Grants
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 12 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Maintenance Plan

COMMENTS
Town's most critical infrastructure need.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 4; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #6
	Proposed Action:	**Upgrade three roadway bridges and one footbridge including structural improvements and stabilization to reduce damages caused by flooding and high winds**
	BACKGROUND INFORMATION	
	Site and Location:	Three roadway bridges; one foot bridge
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce erosion that threatens infrastructure; Reduce recovery/restoration costs; Prevent future damage
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane; Extreme Wind; Flood
Effect on new/existing buildings:	Reduce risk to existing infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$2,000,000
Potential Funding Sources:	HMGP; USDA; Other Grants
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 12 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Maintenance Plan

COMMENTS:
Town's most critical infrastructure need.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 4; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

	Bayview – Action #7
Proposed Action:	**Approve and Adopt FEMA Flood Insurance Rate Maps**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Town-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Increase awareness of flood risks in Town and in surrounding areas that are subject to flooding
Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Limited; no areas prone to flooding at present; May reduce risk to future buildings
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000
Potential Funding Sources:	Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 48 months of plan adoption pending funding
Incorporation into Existing Plans:	Zoning ordinances

COMMENTS
Incorporate into Town Zoning.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #8
	Proposed Action:	**Develop cooperative agreement with state and county to address flood risk to roadways leading in and out of town – outside of jurisdictional boundaries**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Result *(Current Cost/Losses Avoided)***:**	Facilitate evacuation of residents when such need arises; Facilitate ingress of response and recovery resources before, during, and immediately following a disaster; Reduce impacts on residents trying to return to the area
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on new/existing buildings:	Improve accessibility for post-event access
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000
Potential Funding Sources:	Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 12 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Maintenance Planning

COMMENTS:
Roadways leading into/out of Town are prone to flooding.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #9
	Proposed Action:	**Participate in the National Flood Insurance Program**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Assure property owners and developers are aware of any flood risks in and adjacent to the Town
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on new/existing buildings:	Flood status would be known before siting new buildings; increase resident awareness; reduce risk to new structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000
Potential Funding Sources:	Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 12 months of plan adoption pending funding
Incorporation into Existing Plans:	Zoning Ordinances

COMMENTS:
Ensure that Flood Insurance Rate Maps are maintained for resident access and used in Town-wide planning and permitting.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 4; Politically Acceptable = 4; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #10
	Proposed Action:	**Notification program using email and Town website for residents when extreme heat events are forecast. Educate citizens on the risks associated with extreme heat events and how to prevent injury or illness.**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Make residents aware of potential hazard, risk, and possible means to reduce physical impacts
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000
Potential Funding Sources:	Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 12 months of plan adoption pending funding
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Town website is being updated; enhanced awareness and risk reduction information can be added; Town email notification can be improved to reach a broader audience
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #11
	Proposed Action:	**Purchase permanent generator hookups for critical facilities including Town Office building and LFVFD Fire Station building (Bayview PUP/POD)**
	BACKGROUND INFORMATION	
	Site and Location:	Town Office site
	Risk Reduction Benefit *(Current Cost/Losses Avoided)*:	Provide back-up power generation for the Town Office building and the fire station which serves as the Pick-Up Point for evacuations, and the Point of Distribution for recovery supplies, as well as the local response staging area and shelter location; Would allow the buildings to be returned to service for operations, and also to be used as a recovery center and as a temporary shelter for persons in need of relief from extreme heat or other hazard conditions
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat; Extreme Wind; Hurricane; Tornado; Flood; Hail, Wildfire
Effect on new/existing buildings:	Improved capabilities, resilience, functionality
Priority (High, Moderate, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	HMGP; Other Grants
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 12 months of plan adoption pending funding
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #12
	Proposed Action:	**Notification program using email and Town website for residents with information on drought impacts, restrictions, and water conservation measures**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Make residents aware of potential hazard, risk, water conservation measures required or recommended, and possible means to reduce the impacts of prolonged drought conditions
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Effect on new/existing buildings:	Encourage low-water use designs; Reduce impact on new and existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000
Potential Funding Sources:	HMGP; Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 24 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Awareness Planning

COMMENTS:
Update Town website; enhance awareness and risk reduction information can be added along with links to forecast and condition reports.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #13
	Proposed Action:	**Notification program using email and Town website for residents to encourage EAS participation, provide information on tornado threats, and what to do during a tornado event**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Make residents aware of tornado threats and risks and possible protection actions
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado
Effect on new/existing buildings:	Help prevent/mitigate damage with early notification; reduce potential damages to existing buildings
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000
Potential Funding Sources:	HMGP; Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 24 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Awareness Planning

COMMENTS:
Town email notification can be improved to reach a broader audience; Encourage residents to sign up for Emergency Alert System EAS alert notices.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #14
	Proposed Action:	**Notification program using email and Town website for residents to encourage EAS participation, provide information on hail threats, and how to protect lives and property during an event**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)*:	Make residents aware of potential for hail damage and ways to reduce/mitigation risks
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hail
Effect on new/existing buildings:	Help prevent/mitigate damage with early notification; reduce potential damages to existing buildings
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000
Potential Funding Sources:	HMGP; Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 24 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Awareness Planning

COMMENTS:
Town website can be upgraded to include links to information on hail threats; email notification can be improved to reach a broader audience; encourage residents to sign up for EAS alert notices.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #15
	Proposed Action:	**Notification program using email and Town website for residents to encourage EAS participation, provide information on wildfire threats, and how to protect lives and property during an event**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Make residents aware of potential for wildfire events and protectives measures to take before and during a wildfire event
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on new/existing buildings:	Help prevent/mitigate damage with early notification; reduce potential damages to new and existing buildings
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000
Potential Funding Sources:	HMGP; Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 24 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Awareness Planning

COMMENTS:
Town website can be upgraded to include links to information on wildfire threats; email notification can be improved to reach a broader audience; encourage residents to sign up for EAS alert notices
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #16
	Proposed Action:	**Establish communication links with Local Emergency Planning Committees and emergency managers in nearby communities for information on hazardous materials being transported by vehicle, rail, or pipeline through or near the town**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Make residents aware of the nature of general and specific hazards associated with hazardous materials transportation and storage in the areas near the Town and how to safeguard themselves, families, and property
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Local Plans and Regulations; Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hazardous Materials
Effect on new/existing buildings:	Reduce exposure to structures/possible explosions
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000
Potential Funding Sources:	HMGP; Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 24 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Awareness Planning

COMMENTS:
Town website can be upgraded to provide information on the nature of hazardous materials that are transported on state and county roads that pass through the Town and the sources of information available to them.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #17
	Proposed Action:	**Improve communication and participation in regional Homeland Security Programs and Plans to assure awareness of known, anticipated, and potential threats and agency response postures**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Enhanced awareness of threats and protective actions for Town Council and residents
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Terrorism
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000
Potential Funding Sources:	HMGP; Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 24 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Awareness Planning

COMMENTS:
Provide resources for necessary level of participation.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #18
	Proposed Action:	**Identify all pipelines passing through or near the Town limits and the associated emergency response programs and contacts**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Make Town Council and residents aware of potential risks and appropriate public protection measures
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Local Plans and Regulations; Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Pipeline Failure
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000
Potential Funding Sources:	HMGP; Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 24 months of plan adoption pending funding
Incorporation into Existing Plans:	Public Awareness Planning

COMMENTS:
Include the information obtained in a local response plan and in public information sources for residents
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #19
	Proposed Action:	**Upgrade the Town's website to include local information on hazards, risks, mitigation, protective actions, and applicable ordinances**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Make residents aware of the nature of hazards in the area and how to safeguard themselves, families, animals, and property
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Wind; Hurricane; Flood; Extreme Heat; Drought; Tornado; Hail; Wildfire; Expansive Soils; Hazardous Materials; Terrorism; Pipeline Failure
Effect on new/existing buildings:	Facilitate more resilient community through awareness, education and early warning
Priority (High, Moderate, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	HMGP; Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 12 months of plan adoption pending funding
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Town website can be upgraded to provide information on all hazards events; include links to federal, state, and county websites and other resources that address hazard events, life safety measures, mitigation techniques, evacuation routes or other relevant information.
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #20
	Proposed Action:	**Adopt ordinance to promote water conservation by landscaping with low water usage plants at all public buildings**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide Public Buildings
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce the use of water
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Effect on new/existing buildings:	Reduce drought impact on existing/new buildings
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$1,000
Potential Funding Sources:	HMGP; Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 24 months of plan adoption pending funding
Incorporation into Existing Plans:	Local Ordinance, Comprehensive Plan

COMMENTS:
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #21
	Proposed Action:	**Remove dead and downed trees to decrease fire fuels in Wildland Urban Interface (WUI) areas**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide; WUI
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Natural landform protection and reduce risk of loss of property due to wildfire
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Natural Systems Protection

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on new/existing buildings:	Reduce fire risk to new and existing structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$25,000
Potential Funding Sources:	Texas Forest Service; FireWise; HMGP
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 48 months of plan adoption pending funding
Incorporation into Existing Plans:	CWPP

COMMENTS:
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #22
	Proposed Action:	**Landscaping ordinance to include plants more resistant to fire at public building and new residential developments**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide Public Buildings
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce the spread of fire; reduced risk of loss of property due to wildfire
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on new/existing buildings:	Reduce fire risk to new/existing buildings
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000
Potential Funding Sources:	Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 48 months of plan adoption pending funding
Incorporation into Existing Plans:	Local Ordinance, Comprehensive Plan

COMMENTS:
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

		Bayview – Action #23
	Proposed Action:	**Install irrigation/sprinkler systems at all public buildings and common areas and implement watering schedule**
	BACKGROUND INFORMATION	
	Site and Location:	Town-wide public buildings and common areas
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of foundation shifts and cracks
	Type of Action: (*Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Expansive Soils, Wildfire
Effect on new/existing buildings:	Reduce risk on new and existing structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$10,000 per location
Potential Funding Sources:	HMGP; CDBD; Local Funding
Lead Agency/Department Responsible:	Town Council
Implementation Schedule:	Within 48 months of plan adoption pending funding
Incorporation into Existing Plans:	Comprehensive Plan, Public Works

COMMENTS:
Additional Considerations: The following STAPLEE criteria were evaluated on a scale of 1 to 5 indicating the extent to which this action satisfies each consideration. (1= Does Not Satisfy 3 = Moderately Satisfies 5 = Strongly Satisfies)
Socially Acceptable = 5; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5