VICTORIA COUNTY

HAZARD MITIGATION ACTION PLAN

Mitigating Risk for a Safe, Secure, and Sustainable Future

Approved:
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TABLE OF CONTENTS

SECTION 14 – LIGHTNING

SECTION 15 – DAM FAILURE

SECTION 16 – MITIGATION STRATEGY

SECTION 17 – MITIGATION ACTIONS

SECTION 18 – PLAN MAINTENANCE

TABLE OF CONTENTS

SECTION 1: INTRODUCTION

BACKGROUND

Victoria County is located in southeastern Texas on the Coastal Plain about midway between the southern and eastern extremities of the Texas Gulf Coast. Victoria County was among the original twenty-three counties established by the First Congress of the Republic of Texas on March 17, 1836.

Victoria County is bounded by Lavaca County to the north, Jackson County to the northeast, Calhoun County to the southeast, Refugio County to the south, Goliad County to the Southwest, and DeWitt County to the northwest. The City of Victoria is the county seat. Their roads converge 120 miles from Houston, 102 miles from San Antonio, 110 miles from Austin, and 75 miles from Corpus Christi; hence the city's nickname, the "crossroads of South Texas".[1]

Texas is prone to extremely heavy rains and flooding with half of the world record rainfall rates (48 hours or less).[2] While flooding is a well-known risk, Victoria County is susceptible to a wide range of natural hazards, including but not limited to extreme heat, drought, hail, and winter storms. These life-threatening hazards can destroy property, disrupt the economy, and lower the overall quality of life for individuals.

While it is impossible to prevent an event from occurring, the effect from many hazards to people and property can be lessened. This concept is known as hazard mitigation, which is defined by the Federal Emergency Management Agency (FEMA) as *sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.*[3] Communities participate in hazard mitigation by developing hazard mitigation plans. The Texas Division of Emergency Management (TDEM) and FEMA have the authority to review and approve hazard mitigation plans through the Disaster Mitigation Act of 2000.

Hazard mitigation activities are an investment in a community's safety and sustainability. It is widely accepted that the most effective hazard mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made. A comprehensive update to a hazard mitigation plan addresses hazard vulnerabilities that exist today and in the foreseeable future. Therefore, it is essential that a plan identify projected patterns of how future development will increase or decrease a community's overall hazard vulnerability.

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[1] Source: https://www.tshaonline.org/handbook/online/articles/hcv03

[2] Source: http://floodsafety.com/texas/regional_info/regional_info/sanantonio_zone.htm

[3] Source: http://www.fema.gov/hazard-mitigation-planning-resources

SCOPE AND PARTICIPATION

Victoria County's Plan is a multi-jurisdictional plan. The participating jurisdictions include Victoria County, City of Victoria, and Victoria Independent School District (ISD). These jurisdictions provided valuable input into the planning process. Throughout the plan "Victoria County planning area" refers to the entire planning area including the unincorporated area of Victoria County, the political border of the City of Victoria and the properties of Victoria ISD. Similarly, the term "countywide" refers to the entire planning area including the unincorporated area of Victoria County, the political border of the City of Victoria and the properties of Victoria ISD.

The focus of the Plan is to identify activities to mitigate hazards classified as "high" or "moderate" risk, as determined through a detailed hazard risk assessment conducted for Victoria County and the participating jurisdictions. The hazard classification enables the County and participating jurisdictions to prioritize mitigation actions based on hazards which can present the greatest risk to lives and property in the geographic scope (i.e., planning area).

PURPOSE

The Plan was prepared by Victoria County, participating jurisdictions, and H_2O Partners, Inc. The purpose of the Plan is to protect people and structures and to minimize the costs of disaster response and recovery. The goal of the Plan is to minimize or eliminate long-term risks to human life and property from known hazards by identifying and implementing cost-effective hazard mitigation actions. The planning process is an opportunity for Victoria County, the participating jurisdictions, stakeholders, and the general public to evaluate and develop successful hazard mitigation actions to reduce future risk of loss of life and damage to property resulting from a disaster in the Victoria County planning area.

The Mission Statement of the Plan is, "*Maintaining a secure and sustainable future through the revision and development of targeted hazard mitigation actions to protect life and property.*"

Victoria County, participating jurisdictions, and planning participants identified eleven natural hazards to be addressed by the Plan. The specific goals of the Plan are to:

- Minimize disruption to Victoria County and the participating jurisdictions following a disaster;
- Streamline disaster recovery by articulating actions to be taken before a disaster strikes to reduce or eliminate future damage;
- Demonstrate a firm local commitment to hazard mitigation principles;
- Serve as a basis for future funding that may become available through grant and technical assistance programs offered by the State or Federal government. The Plan will enable Victoria County and participating jurisdictions to take advantage of rapidly developing mitigation grant opportunities as they arise; and
- Ensure that Victoria County and participating jurisdictions maintain eligibility for the full range of future Federal disaster relief.

AUTHORITY

The Plan is tailored specifically for Victoria County, participating jurisdictions, and plan participants including Planning Team members, stakeholders, and the general public who participated in the Plan development process. The Plan complies with all requirements promulgated by the Texas Division of Emergency Management (TDEM) and all applicable provisions of the

Robert T. Stafford Disaster Relief and Emergency Assistance Act, Section 104 of the Disaster Mitigation Act of 2000 (DMA 2000) (P.L. 106-390), and the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). Additionally, the Plan complies with the Interim Final Rules for the Hazard Mitigation Planning and Hazard Mitigation Grant Program (44 CFR, Part 201), which specify the criteria for approval of mitigation plans required in Section 322 of the DMA 2000 and standards found in FEMA's "Local Mitigation Plan Review Guide" (October 2011), and the "Local Mitigation Planning Handbook" (March 2013). The Plan is also developed in accordance with FEMA's Community Rating System (CRS) Floodplain Management Plan standards and policies.

SUMMARY OF SECTIONS

Sections 1 and 2 of the Plan outline the Plan's purpose and development, including how Planning Team members, stakeholders, and members of the general public were involved in the planning process. Section 3 profiles the planning area's population and economy.

Sections 4 through 15 present a hazard overview and information on individual natural hazards in the planning area. The hazards generally appear in order of priority based on potential losses to life and property, and other community concerns. For each hazard, the Plan presents a description of the hazard, a list of historical hazard events, and the results of the vulnerability and risk assessment process.

Section 16 presents hazard mitigation goals and objectives. Mitigation actions for Victoria County and the participating jurisdictions are presented in Section 17, while Section 18 identifies Plan maintenance mechanisms.

The list of planning team members and stakeholders is located in Appendix A. Public survey results are analyzed and presented in Appendix B. Appendix C contains a detailed list of critical facilities for the area, and Appendix D has the dam locations. Appendix E contains information regarding workshops and meeting documentation. Capability Assessment results for Victoria County and participating jurisdictions are located in Appendix F.[4]

[4] Information contained in some of these appendices are exempt from public release under the Freedom of Information Act (FOIA).

SECTION 2: PLANNING PROCESS

PLAN PREPARATION AND DEVELOPMENT

Hazard mitigation planning involves coordination with various constituents and stakeholders to develop a more disaster-resistant community. Section 2 provides an overview of the planning process including the identification of key steps and a detailed description of how stakeholders and the public were involved.

OVERVIEW OF THE PLAN

Victoria County hired H_2O Partners, Inc. (Consultant Team), to provide technical support and oversee the development of the Plan. The Consultant Team used the FEMA "Local Mitigation Plan Review Guide" (October 1, 2011), and the Local Mitigation Planning Handbook" (March 2013) to develop the Plan. The overall planning process is shown in Figure 2-1 below.

Figure 2-1. Mitigation Planning Process

Victoria County, participating jurisdictions, and the Consultant Team met in November 2016 to begin organizing resources, identifying Planning Team members, and conducting a Capability Assessment.

PLANNING TEAM

Key members of H_2O Partners, Inc. developed the Plan in conjunction with the Planning Team. The Planning Team was established using a direct representation model. Some of the responsibilities of the Planning Team included: completing Capability Assessment surveys, providing input regarding the identification of hazards, identifying mitigation goals, and developing mitigation strategies. A Planning Team consisting of key personnel from each of the participating jurisdictions as well as Victoria County, shown in Table 2-1, was formed to coordinate planning efforts, request input, and participate throughout the planning process.

Table 2-1. Planning Team

JURISDICTION / DEPARTMENTS	TITLE
Victoria County/City of Victoria OEM	Emergency Management Coordinator
Victoria County/City of Victoria OEM	Deputy Emergency Management Coordinator
Victoria County/City of Victoria OEM	Program Coordinator/Emergency Planner
Victoria County	Captain of Enforcement
Victoria County	County Fire Marshal
Victoria County	Floodplain Manager

JURISDICTION / DEPARTMENTS	TITLE
Victoria County	Grant Administrator
Victoria County	Precinct #1 Supervisor
Victoria County	Precinct #4 Commissioner
Victoria County	Public Health Emergency Preparedness Coordinator
City of Victoria	Assistant Chief of Police
City of Victoria	Assistant Director of Development Services
City of Victoria	Assistant Fire Chief
City of Victoria	Chief of Police
City of Victoria	Deputy Director of Public Works
City of Victoria	Development Engineer/Floodplain Manager
City of Victoria	Fire Chief
City of Victoria	Network Engineer
Victoria Independent School District	VISD Director of Administration
Victoria Independent School District	RS Networking Consulting - President

Additionally, a Stakeholder Group was invited to participate in the planning process via e-mail. The Consultant Team, Planning Team, and Stakeholder Group coordinated to identify mitigation goals and develop mitigation strategies and actions for the Plan. Appendix A provides a complete listing of all participating Planning Team members and stakeholders by organization and title.

Based on results of completed Capability Assessment, Victoria County and participating jurisdictions described methods for achieving future hazard mitigation measures by expanding existing capabilities. For example, several of the cities have an emergency manager on staff but no emergency operations plan or post disaster recovery plan in place. Other options for improving capabilities include the following:

- Establishing Planning Team members with the authority to monitor the Plan and identify grant funding opportunities for expanding staff.
- Identifying opportunities for cross-training or increasing the technical expertise of staff by attending free training available through FEMA and the Texas Division of Emergency Management (TDEM) by monitoring classes and availability through preparetexas.org.
- Reviewing current floodplain ordinances for opportunities to increase resiliency (above current standards) such as modifying permitting or building codes.
- Developing ordinances that will require all new developments to conform to the higher mitigation standards, exceeding current requirements.

Sample hazard mitigation actions developed with similar hazard risk were shared at the meetings. These important discussions resulted in development of multiple mitigation actions that are included in the Plan to further mitigate risk from natural hazards in the future.

The Planning Team developed hazard mitigation actions for mitigating risk from all of the hazards, including potential flooding, tornado, and extreme heat. The actions include but are not limited to drainage improvement projects, raising bridges above the Base Flood Elevation level, implementing safe room construction practices within new buildings, and establishing heating and cooling centers.

PLANNING PROCESS

The process used to prepare the Plan followed the four major steps included at Figure 2-1. After the Planning Team was organized, a capability assessment was developed and distributed at the Kick-Off Workshop. Hazards were identified and assessed, and results associated with each of the hazards were provided at the Risk Assessment Workshop. Based on Victoria County's identified vulnerabilities, specific mitigation strategies were discussed and developed at the Mitigation Strategy Workshop. Finally, Plan maintenance and implementation procedures were developed and are included in Section 18. Participation of Planning Team members, stakeholders, and the public at each of the workshops is documented in Appendix E.

At the Plan development workshops held throughout the planning process described herein, the following factors were taken into consideration:

- The nature and magnitude of risks currently affecting the community;
- Hazard mitigation goals to address current and expected conditions;
- Whether current resources will be sufficient for implementing the Plan;
- Implementation problems, such as technical, political, legal, and coordination issues that may hinder development;
- Anticipated outcomes; and
- How Victoria County, participating jurisdictions, agencies, and partners will participate in implementing the Plan.

KICKOFF WORKSHOP

The Kickoff Workshop was held at the Victoria Office of Emergency Management on November 17, 2016. The initial workshop informed County officials and key department personnel about how the planning process pertained to their distinct roles and responsibilities and engaged stakeholder groups, including but not limited to the Victoria Chamber of Commerce, Victoria Regional Airport, Citizens Medical Center, Port of Victoria, and local university and college. In addition to the kickoff presentation, participants received the following information:

- Project overview regarding the planning process;
- Public survey access information;
- Hazard Ranking form; and
- Capability Assessment survey for completion.

A risk ranking exercise was conducted at the Kickoff Workshop to get input from the Planning Team and stakeholders pertaining to various risks from a list of natural hazards affecting the planning area. Participants ranked hazards high to low in terms of perceived level of risk, frequency of occurrence, and potential impact.

HAZARD IDENTIFICATION

At the Kickoff Workshop and through e-mail and phone correspondence, the Planning Team conducted preliminary hazard identification. The Planning Team in coordination with the Consultant Team reviewed and considered a full range of natural hazards. Once identified, the teams narrowed the list to significant hazards by reviewing hazards affecting the area as a whole, the 2013 State of Texas Hazard Mitigation Plan Update, and initial study results from reputable sources such as federal and state agencies. Based on this initial analysis, the teams identified a total of eleven natural hazards which pose a significant threat to the planning area.

RISK ASSESSMENT

An initial risk assessment for Victoria County and the participating jurisdictions was completed in March 2017 and results were presented to Planning Team members at the Risk Assessment Workshop held on March 28, 2017. At the workshop, the characteristics and consequences of each hazard were evaluated to determine the extent to which the planning area would be affected in terms of potential danger to property and citizens.

Potential dollar losses from each hazard were estimated using the Federal Emergency Management Agency's Hazards U.S. Multi-Hazards (MH) Model (HAZUS-MH) and other HAZUS-like modeling techniques. The assessments examined the impact of various hazards on the built environment, including general building stock (e.g., residential, commercial, industrial), critical facilities, lifelines, and infrastructure. The resulting risk assessment profiled hazard events, provided information on previous occurrences, estimated probability of future events, and detailed the spatial extent and magnitude of impact on people and property. Each participant at the Risk Assessment Workshop was provided a risk ranking sheet that asked participants to rank hazards in terms of the probability or frequency of occurrence, extent of spatial impact, and the magnitude of impact. The results of the ranking sheets identified unique perspectives on varied risks throughout the planning area.

The assessments were also used to set priorities for hazard mitigation actions based on potential loss of lives and dollar losses. A hazard profile and vulnerability analysis for each of the hazards can be found in Sections 4 through 15.

MITIGATION REVIEW AND DEVELOPMENT

Developing the Mitigation Strategy for the Plan involved identifying mitigation goals and new mitigation actions. A Mitigation Workshop was held at the Victoria Office of Emergency Management on March 28, 2017. In addition to the Planning Team, stakeholder groups were invited to attend the workshop. Regarding hazard mitigation actions, Workshop participants emphasized the desire for flood, hurricane, and thunderstorm wind projects. Additionally, the County and participating jurisdictions were proactive in identifying mitigation actions to lessen the risk of all the identified hazards included in the Plan.

An inclusive and structured process was used to develop and prioritize new hazard mitigation actions for the Plan. The prioritization method was based on FEMA's STAPLE+E criteria and included social, technical, administrative, political, legal, economic, and environmental considerations. As a result, each Planning Team Member assigned an overall priority to each hazard mitigation action. The overall priority of each action is reflected in the hazard mitigation actions found in Section 17.

Planning Team Members then developed action plans identifying proposed actions, costs and benefits, the responsible organization(s), effects on new and existing buildings, implementation schedules, priorities, and potential funding sources.

Specifically the process involved:

- Listing optional hazard mitigation actions based on information collected from previous plan reviews, studies, and interviews with federal, state, and local officials. Workshop participants reviewed the optional mitigation actions and selected actions that were most applicable to their area of responsibility, cost-effective in reducing risk, easily implemented, and likely to receive institutional and community support.
- Workshop participants inventoried federal and state funding sources that could assist in implementing the proposed hazard mitigation actions. Information was collected, including the program name, authority, purpose of the program, types of assistance and eligible projects, conditions on funding, types of hazards covered, matching requirements, application deadlines, and a point of contact.
- Planning Team Members considered the benefits that would result from implementing the hazard mitigation actions compared to the cost of those projects. Although detailed cost-benefit analyses were beyond the scope of the Plan, Planning Team Members utilized economic evaluation as a determining factor between hazard mitigation actions.
- Planning Team Members then selected and prioritized mitigation actions.

Hazard mitigation actions identified in the process were made available to the Planning Team for review. The draft Plan was made available to the general public for review on Victoria County's website, as well as having a hard copy available in Victoria Office of Emergency Management. An email and phone number were provided for the public to provide feedback.[1]

REVIEW AND INCORPORATION OF EXISTING PLANS

REVIEW

Background information utilized during the planning process included various studies, plans, reports, and technical information from sources such as FEMA, the United States Army Corps of Engineers (USACE), the U.S. Fire Administration, National Oceanic and Atmospheric Administration (NOAA), the Texas Water Development Board (TWDB), the Texas Commission on Environmental Quality (TCEQ), the Texas State Data Center, Texas Forest Service, the Texas Division of Emergency Management (TDEM), and local hazard assessments and plans. Section 4 and the hazard-specific sections of the Plan (Sections 5 through 15) summarize the relevant background information.

Specific background documents, including those from FEMA, provided information on hazard risk, hazard mitigation actions currently being implemented, and potential mitigation actions. Previous hazard events, occurrences, and descriptions were identified through NOAA's National Centers for Environmental Information (NCEI). Results of past hazard events were found through searching the NCEI. The USACE studies were reviewed for their assessment of risk and potential projects in the region. State Data Center

[1] The draft Plan was posted on the following website: http://www.victoriacountytx.org/index.php/county-departments/oem and feedback could be sent via email to oem@victoriatx.org or phone call to 361-580-5700.

documents were used to obtain population projections. The State Demographer webpages were reviewed for population and other projections and included in Section 3 of the Plan. Information from the Texas Forest Service was used to appropriately rank the wildfire hazard and to help identify potential grant opportunities. Materials from FEMA and TDEM were reviewed for guidance on Plan development requirements.

INCORPORATION OF EXISTING PLANS INTO THE HMAP PROCESS

A Capability Assessment was completed by key Victoria County and participating jurisdictions' departments which provided information pertaining to existing plans, policies, ordinances, and regulations to be integrated into the goals and objectives of the Plan. The relevant information was included in a master Capability Assessment, Appendix F.

Existing projects and studies were utilized as a starting point for discussing hazard mitigation actions among Planning and Consultant Team members. For example, the Capital Improvements Plan for each jurisdiction was reviewed to include any mitigation actions within this plan. Additionally, policies and ordinances were reviewed by the County and the City. These jurisdictions have included actions to develop, implement, and enforce policies to reduce risk to utilities, implement cool roofing projects, and adopt and enforce drought tolerant practices and regulations. Other plans were reviewed, such as Floodplain Management Plans and Transportation Plans, to identify any additional mitigation actions. Finally, the 2013 State of Texas Mitigation Plan Update, developed by TDEM, was discussed in the initial planning meeting in order to develop a specific group of hazards to address in the planning effort. The 2013 State Plan Update was also used as a guidance document, along with FEMA materials, in the development of the Victoria County Plan.

INCORPORATION OF THE HMAP INTO OTHER PLANNING MECHANISMS

Planning Team members will integrate implementation of the Plan with other planning mechanisms for Victoria County, such as the Emergency Operations Plan. Existing plans for Victoria County will be reviewed and incorporated into the Plan, as appropriate. This section discusses how the Plan will be implemented by Victoria County and the participating jurisdictions. It also addresses how the Plan will be evaluated and improved over time, and how the public will continue to be involved in the hazard mitigation planning process.

Victoria County and the participating jurisdictions will be responsible for implementing hazard mitigation actions contained in Section 17. Each hazard mitigation action has been assigned to a specific County and City department that is responsible for tracking and implementing the action.

A funding source has been listed for each identified hazard mitigation action and may be utilized to implement the action. An implementation time period has also been assigned to each hazard mitigation action as an incentive and to determine whether actions are implemented on a timely basis.

Victoria County and the participating jurisdictions will integrate hazard mitigation actions contained in the Plan with existing planning mechanisms such as Emergency Operations or Management Plans, Evacuation Plans, and other local and area planning efforts. Victoria ISD intends to incorporate aspects of the mitigation plan development process into its next EOP revision, which is scheduled for 2017-2018. Victoria County will work closely with area organizations to coordinate implementation of hazard mitigation actions that benefit the planning area in terms of financial and economic impact.

Upon formal adoption of the Plan, Planning Team members from Victoria County and the participating jurisdictions will review existing plans along with building codes to guide development and ensure that hazard mitigation actions are implemented. Each of the jurisdictions will be responsible for coordinating

periodic review of the Plan with members of the Advisory Planning Team to ensure integration of hazard mitigation strategies into these planning mechanisms and codes. The Planning Team will also conduct periodic reviews of various existing planning mechanisms and analyze the need for any amendments or updates in light of the approved Plan. Victoria County and the participating jurisdictions will ensure that future long-term planning objectives will contribute to the goals of the Plan to reduce the long-term risk to life and property from moderate and high risk hazards. Within one year of formal adoption of the Plan, existing planning mechanisms will be reviewed and analyzed as they pertain to the Plan.

Planning Team members will review and revise, as necessary, the long-range goals and objectives in its strategic plan and budgets to ensure that they are consistent with the Plan.

Furthermore, Victoria County will work with neighboring jurisdictions to advance the goals of the Plan as it applies to ongoing, long-range planning goals and actions for mitigating risk to natural hazards throughout the planning area.

Table 2-2 identifies types of planning mechanisms and examples of methods for incorporating the Plan into other planning efforts.

Table 2-2. Examples of Methods of Incorporation

PLANNING MECHANISM	INCORPORATION OF PLAN
Grant Applications	The Plan will be evaluated by Victoria County and participating jurisdictions when grant funding is sought for mitigation projects. If a project is not in the Plan, an amendment may be necessary to include the action in the Plan.
Annual Budget Review	Various departments and key personnel that participated in the planning process for Victoria County and participating jurisdictions will review the Plan and mitigation actions therein when conducting their annual budget review. Allowances will be made in accordance with grant applications sought, and mitigation actions that will be undertaken, according to the implementation schedule of the specific action.
Regulatory Plans	Currently, Victoria County and participating jurisdictions have regulatory plans in place, such as Emergency Operations Plans, Continuity of Operations Plans, Economic Development, and Evacuation Plans. The Plan will be consulted when County and City departments review or revise their current regulatory planning mechanisms, or in the development of regulatory plans that are not currently in place.
Capital Improvement Plans	Victoria County and participating jurisdictions have a Capital Improvement Plan (CIP) in place. Prior to any revisions to the CIP, County and City departments will review the risk assessment and mitigation strategy sections

PLANNING MECHANISM	INCORPORATION OF PLAN
	of the HMAP, as limiting public spending in hazardous zones is one of the most effective long-term mitigation actions available to local governments.
Comprehensive Plans	Victoria County has a Long-term Comprehensive Development Plan in place. Since comprehensive plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan will be reviewed in the development or revision of a Comprehensive Plan.
Floodplain Management Plans	Floodplain management plans include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding, and information found in Section 5 of this Plan discussing the people and property at risk to flood, will be reviewed and revised when Victoria County updates their management plans or develops new plans.

Appendix F provides an overview of Planning Team members' existing planning and regulatory capabilities to support implementation of mitigation strategy objectives. Appendix F also provides further analysis of how each intends to incorporate hazard mitigation actions into existing plans, policies, and the annual budget review as it pertains to prioritizing grant applications for funding and implementation of identified hazard mitigation projects.

PLAN REVIEW AND PLAN UPDATE

As with the development of Plan, Victoria County will oversee the review and update process for relevance and to necessary make adjustments. At the beginning of each fiscal year, Planning Team Members will meet to evaluate the Plan and review other planning mechanisms to ensure consistency with long-range planning efforts. In addition, planning participants will also meet twice a year by conference call or presentation to re-evaluate prioritization of the hazard mitigation actions.

TIMELINE FOR IMPLEMENTING MITIGATION ACTIONS

The Planning Team (Table A-1, Appendix A) will engage in discussions regarding a timeframe for how and when to implement each hazard mitigation action. Considerations include when the action will be started, how existing planning mechanisms' timelines affect implementation, and when the action should be fully implemented. Timeframes may be general, and there will be short, medium, and long term goals for implementation based on prioritization of each action, as identified on individual Hazard Mitigation Action worksheets included in the Plan for Victoria County and participating jurisdictions.

The Planning Team will evaluate and prioritize the most suitable hazard mitigation actions for the community to implement. The timeline for implementation of actions will partially be directed by Victoria County's comprehensive planning process, budgetary constraints, and community needs. Victoria County and the participating jurisdictions are committed to addressing and implementing hazard mitigation actions that may be aligned with and integrated into the Plan.

Overall, the Planning Team is in agreement that goals and actions of the Plan shall be aligned with the timeframe for implementation of hazard mitigation actions with respect to annual review and updates of existing plans and policies.

PUBLIC AND STAKEHOLDER INVOLVEMENT

An important component of hazard mitigation planning is public participation and stakeholder involvement. Input from individual citizens and the community as a whole provides the Planning Team with a greater understanding of local concerns and increases the likelihood of successfully implemented hazard mitigation actions. If citizens and stakeholders, such as local businesses, non-profits, hospitals, and schools are involved, they are more likely to gain a greater appreciation of the risks that hazards may present in their community and take steps to reduce or mitigate their impact.

The public was involved in the development of Victoria County's Plan at different stages prior to official Plan approval and adoption. Public input was sought using three methods: (1) open public meetings; (2) survey instruments; and (3) making the draft Plan available for public review at Victoria County's website along with a hard copy at the Victoria Office of Emergency Management.

The draft Plan was made available to the general public for review and comment on Victoria County's website and at their office. An email and phone number was provided for the public to provide feedback. The public was notified at the public meetings that the draft Plan would be available for review. No feedback was received on the draft Plan, although it was given on the public survey and all relevant information was incorporated into the Plan.

The Plan will be advertised and posted on Victoria County's website upon approval from FEMA. Annual meeting will be held that the public will be invited to attend.

STAKEHOLDER INVOLVEMENT

Stakeholder involvement is essential to hazard mitigation planning since a wide range of stakeholders can provide input on specific topics and from various points of view. Throughout the planning process, members of community groups, local businesses, neighboring jurisdictions, schools, and hospitals were invited to participate in development of the Plan. The Stakeholder Group (Table A-2 in Appendix A, and Table 2-3, below), included a broad range of representatives from both the public and private sector and served as a key component in Victoria County's outreach efforts for development of the Plan. Documentation of stakeholder meetings is found in Appendix E. A list of organizations invited to attend via e-mail is found in Table 2-3.

Table 2-3. Stakeholder Working Group

AGENCY	TITLE	PARTICIPATED
Texas Department of Public Safety	District Coordinator, DDC 17	
Texas State Senator	State Senator	
Texas State Representatives	State Representatives	
University of Houston – Victoria	Risk/Emergency Management Coordinator UHV	

AGENCY	TITLE	PARTICIPATED
Victoria Chamber of Commerce	President/CEO	
Victoria Regional Airport	Manager	
TxDOT	TxDOT Area Engineer	
Golden Crescent Regional Planning Commission	Emergency Preparedness Coordinator	
Citizens Medical Center	Emergency Services Coordinator	X
Citizens Medical Center	Trauma Program Manager	X
Caterpillar	EHS Manager	
Port of Victoria	Executive Director	
Victoria College	Director of Police Academy	
Victoria College	Chief of Police and Campus Safety	

Stakeholders and participants from neighboring communities that attended the Planning Team and public meetings played a key role in the planning process. For example, hurricane and thunderstorm wind were of concern for the stakeholders, so the County included several actions to harden buildings, upgrade communication systems to eliminate system failures, and reduce risk to utilities to decrease power outages. Additionally, education and awareness of the hazards was requested, so each jurisdictions added an action to conduct an All-Hazards Education and Awareness Program to educate their citizens of hazards, risk, and mitigation measures to employ to protect lives and property.

PUBLIC MEETINGS

A series of public meetings were held throughout the planning area to collect public and stakeholder input. Topics of discussion included the purpose of hazard mitigation, discussion of the planning process, and types of natural hazards. Representatives from area neighborhood associations and area residents were invited to participate. Additionally, Victoria County utilized social media sources including Facebook, Twitter, and the local media to increase public participation in the Plan development process. Documentation on the public meetings are found in Appendix E.

Public meetings were held on the following dates and locations:

- November 17, 2016, Victoria Office of Emergency Management
- March 28, 2017, Victoria Office of Emergency Management

PUBLIC PARTICIPATION SURVEY

In addition to public meetings, the Planning and Consultant Teams developed a public survey designed to solicit public input during the planning process from citizens and stakeholders and to obtain data regarding the identification of any potential hazard mitigation actions or problem areas. The survey was promoted by local officials and a link to the survey was posted on Victoria County's website. A total of 25 surveys were completed online. The survey results are analyzed in Appendix B. Victoria County reviewed the input from the surveys and decided which information to incorporate into the Plan as hazard mitigation actions. For

example, many citizens mentioned concerns about flooding and suggested drainage improvements, such as creating proper drainage or keeping ditches mowed to reduce potential flooding. In response to the public input, several actions were added to the plan to implement drainage improvements and flood control measures throughout the County and participating jurisdictions, including increasing dimensions of drainage culverts and implementing stream restoration/channelization program. Additionally, an action to raise various bridges above the current BFE levels was included in the plan.

SECTION 3: COUNTY PROFILE

OVERVIEW

Victoria County was formed by the Republic of Texas in 1836 but colonization of the area occurred in 1824 with the establishment of Nuestra Señora de Guadalupe de Jesús Victoria by the empresario Martín De León. The settlement, known as Guadalupe Victoria, prospered and over 100 titles to land grants were issued by the Mexican government by 1835. The settlement had the distinction of being the only primarily Mexican colony in Texas. Although the settlers supported the revolution against Antionio López de Santa Anna, the Mexican colonists were ostracized and forced to flee after the revolution in 1836, and Anglo-Americans resettled the area.[1]

Victoria was among the original 23 counties established by the First Congress of the Republic of Texas. Its modern boundaries were defined by the Texas legislature in 1846. Conflicting claims between Victoria, Lavaca, Jackson, and Calhoun counties were settled in Victoria's favor on April 23, 1846, nineteen days after Calhoun County was demarked primarily from the Victoria County coastal area. Due to its location, the county was heavily traveled by traders and immigrants and populated by many who found the area satisfactory.

The County consists of the City of Victoria, several census-designated places, and a few unincorporated communities. The City of Victoria and Victoria Independent School District (ISD) are participating within this plan and are considered part of the planning area. The County has a total area of 889 square miles, of which 882 square miles is land and 6.7 square miles (0.8 percent) is water.

The County comprises of nearly level to gently rolling coastal prairie, surfaced primarily with dark clay loams and clays that support bluestems and tall grasses, oak forest, huisache, mesquite, prickly pear, and other vegetation. The elevation ranges from sea level in the southeast to 300 feet near Mission Valley in the northwest. The northeastern half of the county drains into Lavaca Bay, principally through Garcitas, Arenosa, and Placedo creeks, and the southwestern area is drained by the Guadalupe and San Antonio rivers and Coleto Creek.

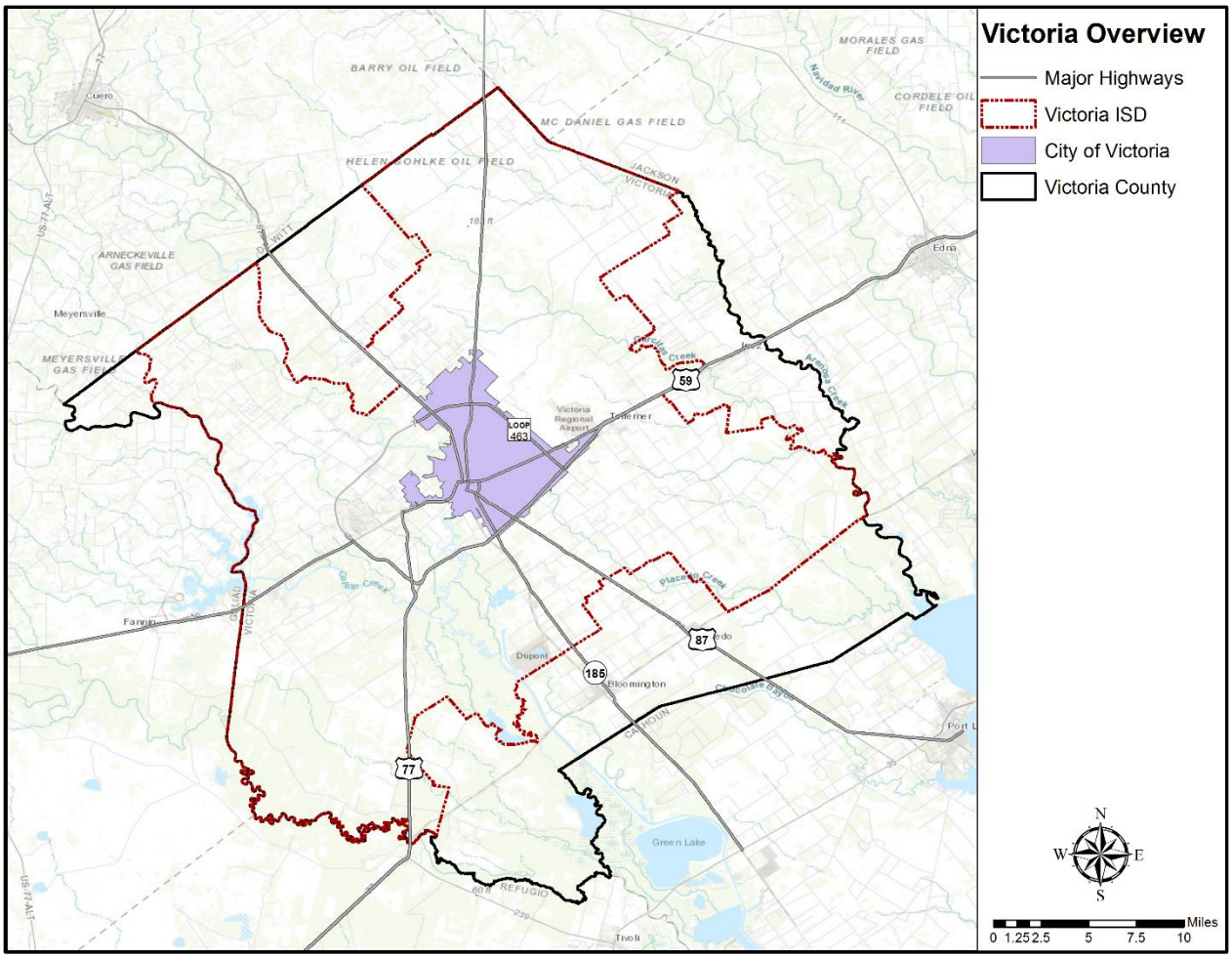
[1] Source: https://www.tshaonline.org/handbook/online/articles/hcv03

Figure 3-1 shows the general location of Victoria County, along with the Cities that are located within the County.

Figure 3-2. Location of Victoria County Planning Area

Figure 3-2 shows the Victoria County Study Area, including the participating jurisdictions that are covered in the risk assessment analysis of the Plan.

Figure 3-2. Victoria County Study Area



Provided in Table 3-1 below is a listing of the jurisdictions in Victoria County that participated in the Hazard Mitigation Plan.

Table 3-1. Participating Jurisdictions

PARTICIPATING JURISDICTIONS
Victoria County
City of Victoria
Victoria ISD

POPULATION AND DEMOGRAPHICS

In the official Census population count, as of April 1, 2010, Victoria County had a population of 86,793 residents. By July 2015, the number had grown to 92,237, and by July 2016, the population was 92,467. Table 3-2 provides the population distribution by jurisdiction within Victoria County.[2]

Between official U.S. Census population counts, the estimate uses a formula based on new residential building permits and household size. It is simply an estimate and there are many variables involved in achieving an accurate estimation of people living in a given area at a given time.

Table 3-2. Population Distribution by Jurisdiction

JURISDICTION	TOTAL 2010 POPULATION	PERCENTAGE	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS	
			Elderly (Over 65)	Below Poverty Level
City of Victoria	62,592	72%	8,457	11,506
Unincorporated Victoria County	24,201	28%	3,207	3,025
VICTORIA COUNTY TOTAL	**86,793**	**100%**	**11,664**	**14,531**

POPULATION GROWTH

The official 2010 Victoria County population is 86,793. Overall, Victoria County experienced an increase in population between 1980 and 2010 by 26.14%, or an increase by 17,986 people. The City of Victoria and the unincorporated areas of Victoria County experienced an increase in their population from 1980 to 2010. Between 2000 and 2010, the County, the City, and the unincorporated area all experienced a population growth. Table 3-3 provides historic growth rates in Victoria County.

Table 3-3. Population for Victoria County, 1980-2010

JURISDICTIONS	1980	1990	2000	2010	POP CHANGE 1980-2010	PERCENT OF CHANGE	POP CHANGE 2000-2010	PERCENT OF CHANGE
City of Victoria	50,695	55,076	60,603	62,592	11,897	23.47%	1,989	3.28%
Unincorporated Victoria County	18,112	19,285	23,485	24,201	6,089	33.62%	716	3.05%
COUNTY TOTAL	**68,807**	**74,361**	**84,088**	**86,793**	**17,986**	**26.14%**	**2,705**	**3.23%**

[2] Source: https://www.census.gov/quickfacts/table/PST045215/48469,00

FUTURE DEVELOPMENT

To better understand how future growth and development in the County might affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts. This section includes an analysis of the projected population change, the number of permits that have been issued throughout the county, and economic impacts.

Population projections from 2010 to 2040 are listed in Table 3-4, as provided by the Office of the State Demographer, Texas State Data Center, and the Institute for Demographic and Socioeconomic Research. Population projections are based on a 0.5 scenario growth rate, which is 50 percent of the population growth rate that occurred during 2000-2010. This information is only available at the County level; however, the population projection shows an increase in population density for the County, which would mean overall growth for the County.

Table 3-2. Victoria County Population Projections

County	LAND AREA (SQ MI)	2010		2020		2030		2040	
		Population							
		Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)	Total Number	Density (Land Area, SQ MI)
Victoria	889	86,793	97.63	93,902	105.63	100,465	113.01	105,735	118.94

ECONOMIC IMPACT

Building and maintaining infrastructure depends on the economy, and therefore, it is important to Victoria County to protect infrastructure from risk due to natural hazards in the planning area. Whether it's expanding culverts under a road that washes out during flash flooding, shuttering a fire station, or flood-proofing a wastewater facility, infrastructure must be mitigated from natural hazards in order to continue providing essential utility and emergency response services in a fast-growing planning area.

Major employers in the area are critical to the health of the economy, as well as effective transportation connectivity. The City of Victoria is strategically located at the center of the South Texas Crossroads, which is aptly named for its location on the convergence of several major highways, making the historic city prime for business.

The City of Victoria adopted in July 2015 the Economic Development Policy to guide its review and consideration of economic development proposals from private sector employers, developers, and participating public entities. The purpose of economic development in the City includes:

- Improving the standard of living
- Moving the city forward
- Increasing the overall employment base of the community
- Keeping the dollars spent on goods and services local
- Growing and diversify the tax base

- Keeping the tax rate as low as practical

EXISTING AND FUTURE LAND USE AND DEVELOPMENT TRENDS

Victoria County, the City of Victoria, and the Victoria Independent School District all have a Master or Comprehensive Plan in place. These plans are part of a continuous process to provide an environment for the citizens and to consider the general desire of the community to conserve, preserve, and protect the natural environment. These plans are used to guide individuals in making decisions which affect the community with the understanding of the long term effects.

The City of Victoria has a Planning Services which is responsible for the City's long range planning efforts. These include planning for future development and demographic trends, as well as providing historic preservation and opportunity to Downtown Victoria. In April 2016, the City adopted its 2035 Comprehensive Plan that is a tool for planning the future of Victoria by addressing the needs of the community for transportation, land use, utilities, parks and recreation, and a variety of other topics relevant to live in Victoria. This document represents the citizens' vision of what the City can accomplish by 2035 and will help guide the decision making process of city official and staff in future projects.

The Victoria Metropolitan Planning Organization (VMPO) is responsible for urban transportation planning processes that are required in order to receive federal and state transportation funding. They work with federal and state transportation agencies, local officials, transportation providers, and the public to develop short and long-range transportation plans.

Victoria ISD Board of Trustees approved the District of Innovation Plan in March 2016. This plan addresses a significant need to provide more planning and staff development opportunities for teachers which in turn allows the district to retain, support, and recruit a high quality workforce. With implementation of House Bill 5, the district worked diligently to include community business and industry partners in the development of curriculum so that they could better support and prepare a workforce for the local community. The alignment of these processes and plans allows the district to keep the important things important in regards to student success and school/district improvement.

SECTION 4: RISK OVERVIEW

HAZARD DESCRIPTION

Section 4 is the first phase of the Risk Assessment and provides background information for the hazard identification process and descriptions for the hazards identified. The Risk Assessment continues with Sections 5 through 15, which include hazard descriptions and vulnerability assessments.

Upon a review of the full range of natural hazards suggested under FEMA planning guidance, Victoria County and the participating jurisdictions identified eleven natural hazards that are addressed in the Hazard Mitigation Plan. Of the hazards identified, ten natural hazards and one quasi-technological hazard (dam failure) were identified as significant, as shown in Table 4-1. The hazards were identified through input from Planning Team members and a review of the current 2013 State of Texas Hazard Mitigation Plan Update (State Plan Update). Readily available online information from reputable sources such as federal and state agencies were also evaluated and utilized to supplement information as needed.

In general, there are three main categories of hazards: atmospheric, hydrologic, and technological. Atmospheric hazards are events or incidents associated with weather generated phenomenon. Atmospheric hazards that have been identified as significant for the Victoria County Planning area include extreme heat, hail, hurricane, lightning, thunderstorm wind, tornado, and winter storm (Table 4-1).

Hydrologic hazards are events or incidents associated with water related damage and account for over 75 percent of Federal disaster declarations in the United States. Hydrologic hazards identified as significant for the planning area include flood and drought.

Technological hazards refer to the origins of incidents that can arise from human activities, such as the construction and maintenance of dams. They are distinct from natural hazards primarily because they originate from human activity. The risks presented by natural hazards may be increased or decreased as a result of human activity, however they are not inherently human-induced. Therefore, dam failure is classified as a quasi-technological hazard and referred to as “technological,” in Table 4-1 for purposes of description.

For the Risk Assessment, the wildfire hazard is considered “other,” since a wildfire may be natural or human-caused, and is not considered atmospheric or hydrologic.

Table 4-1. Hazard Descriptions

HAZARD	DESCRIPTION
ATMOSPHERIC	
Extreme Heat	Extreme heat is the condition whereby temperatures hover ten degrees or more above the average high temperature in a region for an extended period of time.
Hail	Hailstorm events are a potentially damaging outgrowth of severe thunderstorms. During the developmental stages of a hailstorm, ice crystals form within a low pressure front due to the rapid rising of warm air into the upper atmosphere, and the subsequent cooling of the air mass. Frozen droplets gradually accumulate into ice crystals until they fall as precipitation that is round or irregularly shaped masses of ice typically greater than 0.75 inches in diameter.
Hurricane	A hurricane is an intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 mph or higher.
Lightning	Lightning is a sudden electrostatic discharge that occurs during an electrical storm. This discharge occurs between electrically charged regions of a cloud, between two clouds, or between a cloud and the ground.
Thunderstorm Wind	A thunderstorm occurs when an observer hears thunder. Radar observers use the intensity of the radar echo to distinguish between rain showers and thunderstorms. Lightning detection networks routinely track cloud-to-ground flashes and therefore thunderstorms.
Tornado	A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. Its vortex rotates cyclonically with wind speeds ranging from as low as 40 mph to as high as 300 mph. The destruction caused by tornadoes ranges from light to catastrophic, depending on the location, intensity, size, and duration of the storm.
Winter Storm	Severe winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Blizzards, the most dangerous of all winter storms, combine low temperatures, heavy snowfall, and winds of at least 35 miles per hour, reducing visibility to only a few yards. Ice storms occur when moisture falls and freezes immediately upon impact on trees, power lines, communication towers, structures, roads, and other hard surfaces. Winter storms and ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.
HYDROLOGIC	
Drought	A prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality.

HAZARD	DESCRIPTION
Flood	The accumulation of water within a body of water, which results in the overflow of excess water onto adjacent lands, usually floodplains. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. Most floods fall into the following three categories: riverine flooding, coastal flooding, and shallow flooding.
OTHER	
Wildfire	A wildfire is an uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase the risk for people and property located within wildfire hazard areas or along the urban/wildland interface. Wildfires are part of the natural management of forest ecosystems, but most are caused by human factors.
TECHNOLOGICAL	
Dam Failure	Dam failure is the collapse, breach, or other failure of a dam structure resulting in downstream flooding. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream of the dam.

Hazards that were not considered significant or included in the Plan are located in Table 4-2, along with the evaluation process used for determining the significance of each of these hazards. Hazards not identified for inclusion at this time may be addressed during future evaluations and updates.

Table 4-2. Hazard Identification Process

HAZARD CONSIDERED	REASON FOR DETERMINATION
Coastal Erosion	The planning area is not located on the coast, therefore coastal erosion does not pose a risk.
Earthquakes	According to the State Plan, an earthquake occurrence for the planning area is considered exceedingly rare. Earthquake events are not considered to pose a risk to the planning area. There is no history of impact to critical structures, systems, populations, or other community assets or vital services as a result of earthquakes and none is expected in the future.
Expansive Soils	There is no history of impact to critical structures, systems, populations, or other community assets or vital services as a result of expansive soils and none is expected in the future.

HAZARD CONSIDERED	REASON FOR DETERMINATION
Land Subsidence	There are no historical occurrences of land subsidence for the planning area, and it is located in an area where occurrences are considered rare. There is no history of impact to critical structures, systems, populations, or other community assets or vital services as a result of land subsidence and none is expected in the future.

NATURAL HAZARDS AND CLIMATE CHANGE

Climate change is defined as a long-term hazard which can increase or decrease the risk of other weather hazards. It directly endangers property due to sea level rise and biological organisms due to habitat destruction.

Global climate change is expected to exacerbate the risks of certain types of natural hazards impacted through rising sea levels, warmer ocean temperatures, higher humidity, the possibility of stronger storms, and an increase in wind and flood damages due to storm surges. While sea level rise is a natural phenomenon and has been occurring for several thousand years, the general scientific consensus is that the rate has increased in the past 200 years, from 0.5 millimeters per year to 2 millimeters per year.

Texas is considered one of the more vulnerable states in the U.S. to both abrupt climate changes and to the impact of gradual climate changes to the natural and built environments. Mega-droughts can trigger abrupt changes to regional ecosystems and the water cycle, drastically increase extreme summer temperature and fire risk, and reduce availability of water resources, as Texas experienced during 2011-2012.

Paleoclimate records also show that the climate over Texas had large changes between periods of frequent mega-droughts and the periods of mild droughts that Texas is currently experiencing. While the cause of these fluctuations is unclear, it would be wise to anticipate that such changes could occur again and may even be occurring now.

OVERVIEW OF HAZARD ANALYSIS

The methodologies utilized to develop the Risk Assessment are FEMA's loss estimation software, Hazards United States Multi-Hazards (HAZUS-MH), and a statistical approach. Both methodologies provide an estimate of potential impact by using a common, systematic framework for evaluation.

HAZUS-MH is FEMA's standardized loss estimation software program built upon an integrated geographic information system (GIS) platform. HAZUS-MH was utilized in the Risk Assessment to develop regional profiles and estimate losses due to damage caused by a flood event for the Hazard Mitigation Plan.

The HAZUS-MH software and resulting Risk Assessment methodology are parametric, and distinct hazard and inventory parameters (e.g., wind speed and building types) are modeled to determine the impact (e.g., damages and losses) on the built environment.

Records retrieved from National Centers for Environmental Information (NCEI) and Spatial Hazard Events & Losses Database for the United States (SHELDUS) were reported for the Victoria County Planning Area, including the participating jurisdictions. Remaining records identifying the occurrence of hazard events in the planning area and the maximum recorded magnitude of each event were also evaluated.

The four general parameters that are described for each hazard in the Risk Assessment include frequency of return, approximate annualized losses, a description of general vulnerability, and a statement of the hazard's impact.

Frequency of return was calculated by dividing the number of events in the recorded time period for each hazard by the overall time period that the resource database was recording events. Frequency of return statements are defined in Table 4-3, and impact statements are defined in Table 4-4 below.

Table 4-3. Frequency of Return Statements

PROBABILITY	DESCRIPTION
Highly Likely	Event is probable in the next year.
Likely	Event is probable in the next three years.
Occasional	Event is probable in the next five years.
Unlikely	Event is probable in the next ten years.

Table 4-4. Impact Statements

POTENTIAL SEVERITY	DESCRIPTION
Substantial	Multiple deaths. Complete shutdown of facilities for 30 days or more. More than 50 percent of property destroyed or with major damage.
Major	Injuries and illnesses resulting in permanent disability. Complete shutdown of critical facilities for at least two weeks. More than 25 percent of property destroyed or with major damage.
Minor	Injuries and illnesses do not result in permanent disability. Complete shutdown of critical facilities for more than one week. More than 10 percent of property destroyed or with major damage.
Limited	Injuries and illnesses are treatable with first aid. Shutdown of critical facilities and services for 24 hours or less. Less than 10 percent of property destroyed or with major damage.

Each of the hazard profiles includes a description of a general Vulnerability Assessment. Vulnerability is the total of assets that are subject to damages from a hazard, based on historic recorded damages. Assets in the region were inventoried and defined in hazard zones where appropriate. The total amount of damages, including property and crop damages, for each hazard is divided by the total number of assets (building value totals) in that community to determine the percentage of damage that each hazard can cause to the community.

Hazard Vulnerability for Victoria County was reviewed based on recent development changes that occurred throughout the County. To better understand how future growth and development in the County might

affect hazard vulnerability, it is useful to consider population growth, occupied and vacant land, the potential for future development in hazard areas, and current planning and growth management efforts.

Once loss estimates and vulnerability were known, an impact statement was applied to relate the potential impact of the hazard on the assets within the area of impact.

HAZARD RANKING

Table 4-5 portrays the results of the County's self-assessment for hazard ranking, based on the preliminary results of the risk assessment presented at the Risk Assessment Workshop. This table also takes into account local knowledge regarding frequency of occurrence and the potential impact of each hazard.

Table 4-5. Hazard Risk Ranking

HAZARD	FREQUENCY OF OCCURENCE	POTENTIAL SEVERITY	RANKING
Flood	Highly Likely	Limited	High
Hurricane	Occasional	Minor	High
Thunderstorm Wind	Highly Likely	Minor	High
Drought	Highly Likely	Limited	High
Extreme Heat	Highly Likely	Minor	Moderate
Hail	Highly Likely	Minor	Moderate
Winter Storm	Highly Likely	Limited	Low
Tornado	Highly Likely	Minor	Low
Wildfire	Highly Likely	Minor	Low
Lightning	Highly Likely	Limited	Low
Dam Failure	Unlikely	Minor	Low

SECTION 5: FLOOD

HAZARD DESCRIPTION

Floods generally result from excessive precipitation. The severity of a flood event is determined by a combination of several major factors, including: stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and the degree of vegetative clearing and impervious surface. Typically, floods are long-term events that may last for several days.

The primary types of general flooding are inland and coastal flooding. Due to Victoria County's inland location, only inland flooding is profiled in this section. Inland or riverine flooding is a result of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Inland or riverine flooding is overbank flooding of rivers and streams, typically resulting from large-scale weather systems that generate prolonged rainfall over a wide geographic area, thus it is a naturally occurring and inevitable event. Some river floods occur seasonally when winter or spring rainfalls fill river basins with too much water, too quickly. Torrential rains from decaying hurricanes or tropical systems can also produce river flooding.

LOCATION

The Digital Flood Insurance Rate Map (DFIRM) data provided by FEMA for Victoria County shows the following flood hazard areas:

- Zone A: Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance requirements and floodplain management standards apply.
- Zone X: Moderate risk areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-

chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee. No BFEs or base flood depths are shown within these zones.

Locations of flood zones in Victoria County based on the digital Flood Insurance Rate Map (DFIRM) from FEMA are illustrated in Figures 5-1 to 5-3.

Figure 5-1. Estimated Flood Zones in Victoria County

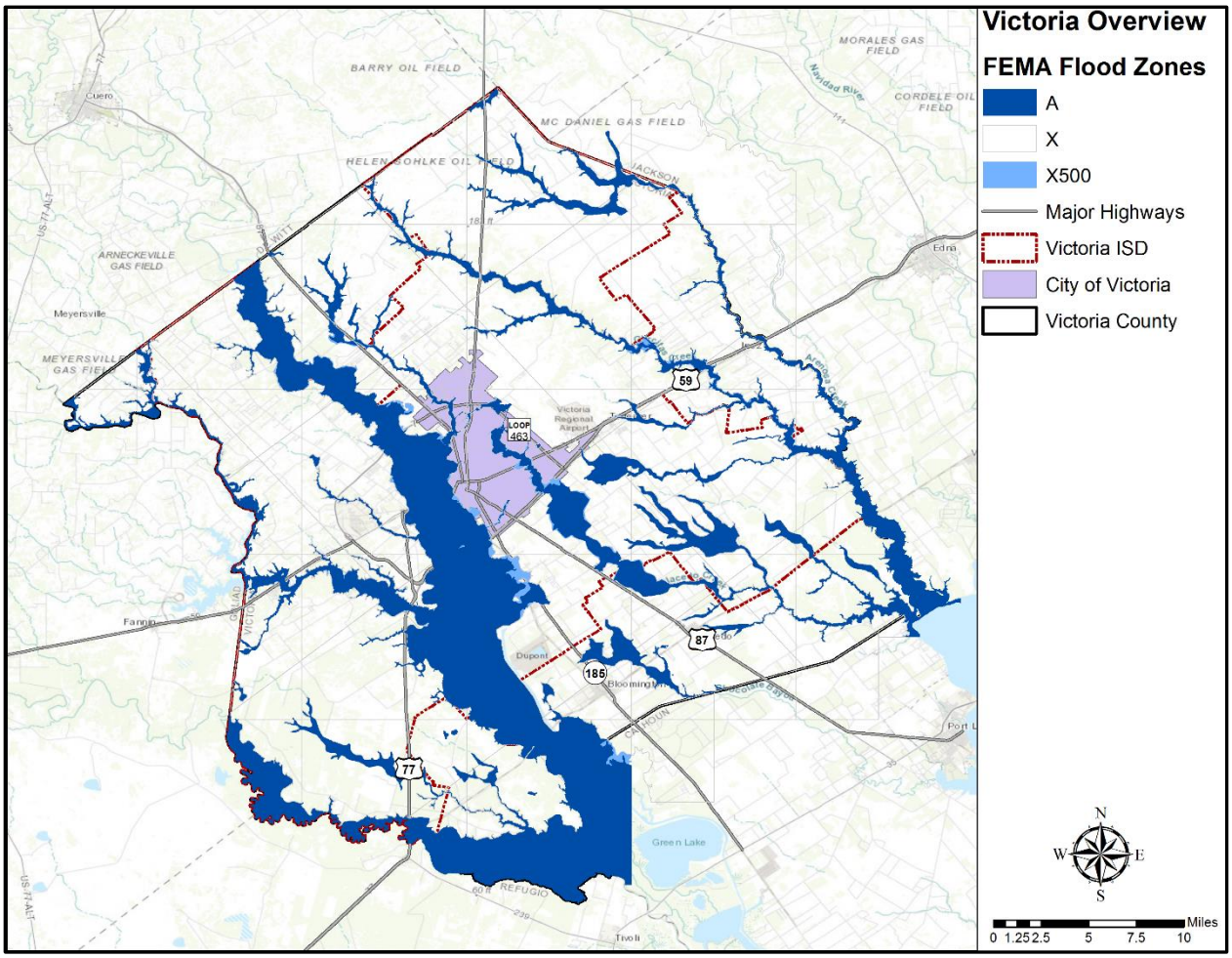


Figure 5-2. Estimated Flood Zones in the City of Victoria

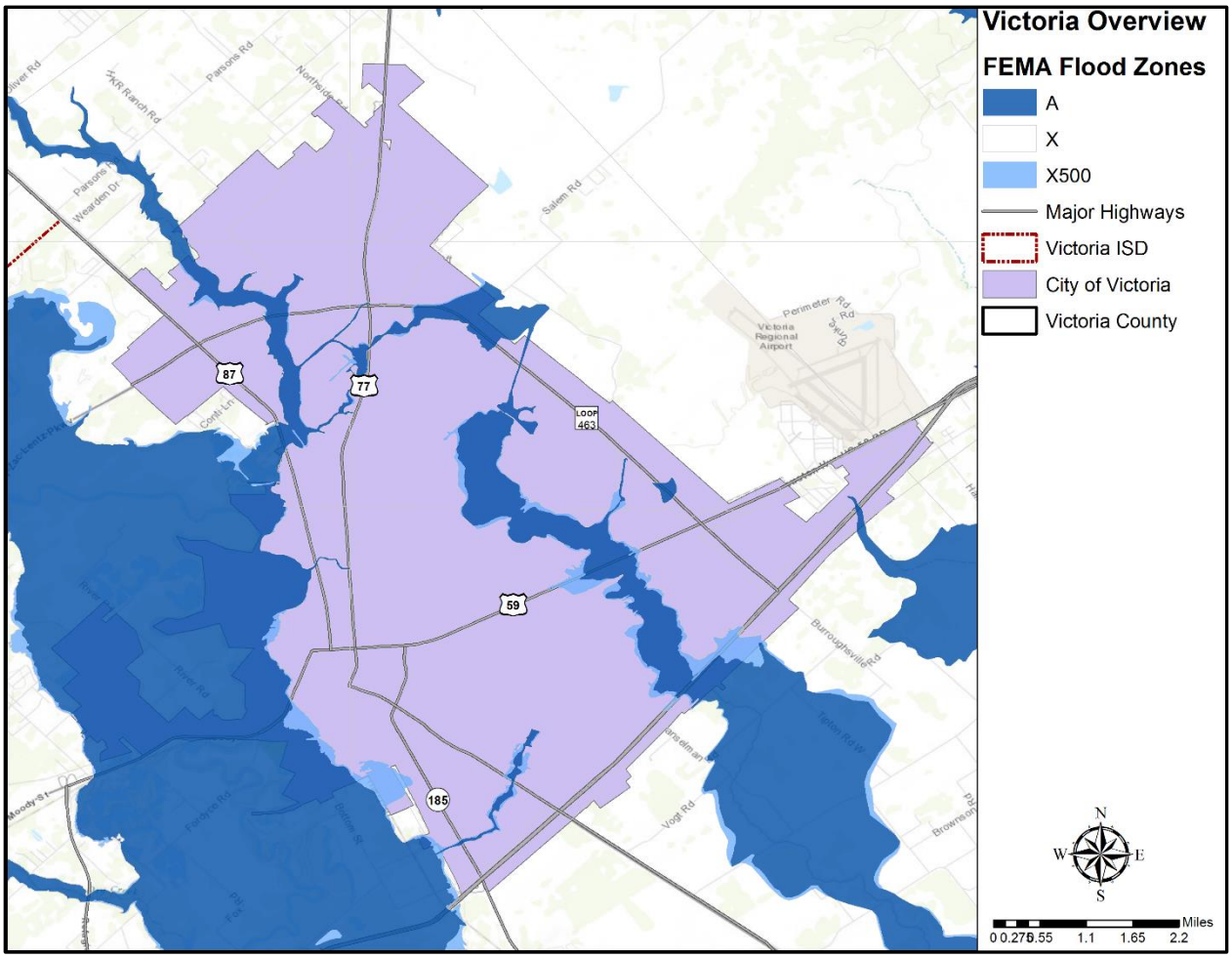
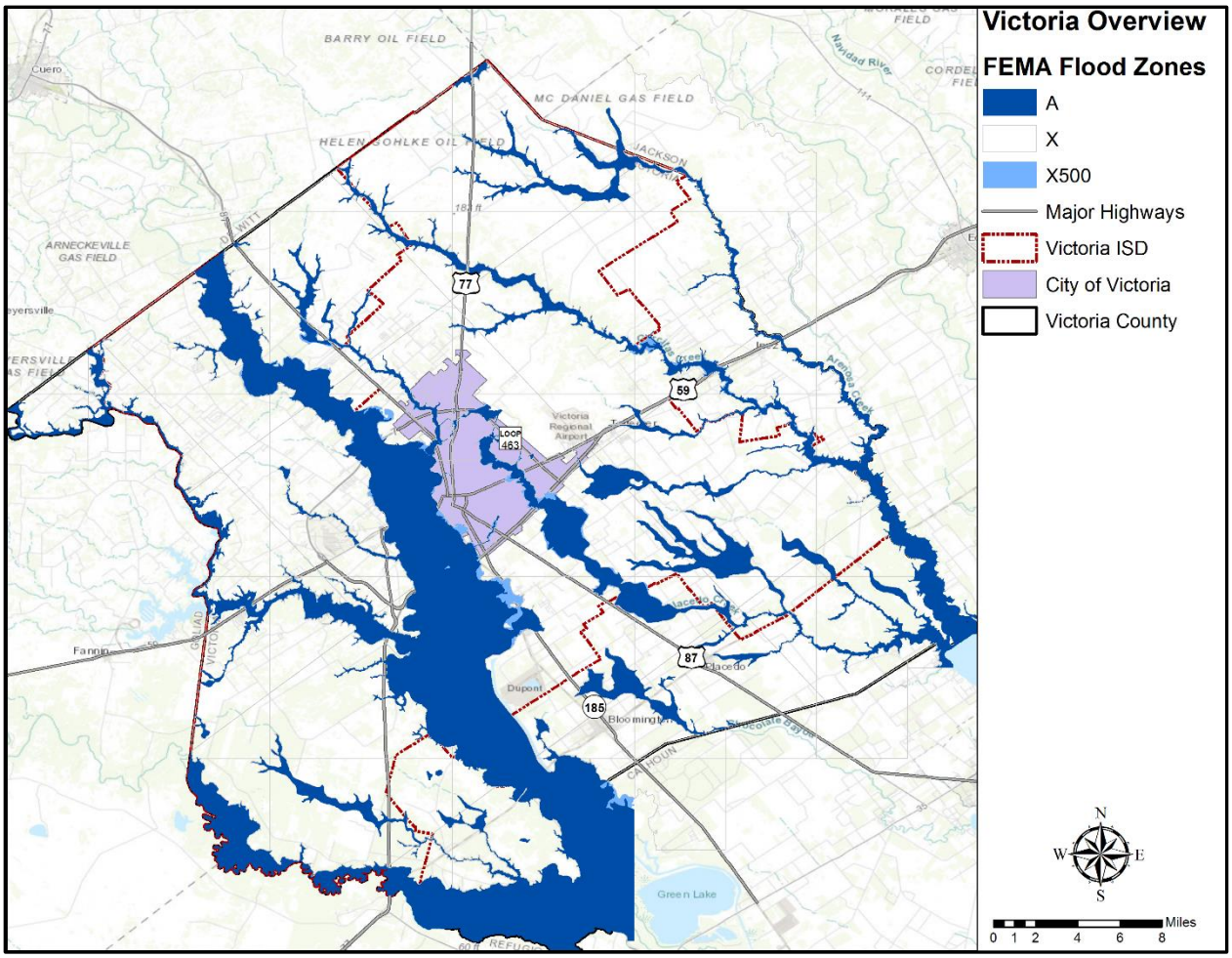


Figure 5-3. Estimated Flood Zones in the Victoria ISD



EXTENT

The severity of a flood event is determined by a combination of several factors including: stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and degree of vegetative clearing and impervious surface. Typically, floods are long-term events that may last for several days.

Determining the intensity and magnitude of a flood event is dependent upon the flood zone and location of the flood hazard area in addition to depths of flood waters. Extent of flood damages can be expected to be more damaging in the areas that will convey a base flood. FEMA categorizes areas on the terrain according to how the area will convey flood water. Flood zones are the categories that are mapped on Flood Insurance Rate Maps. Table 5-1 provides a description of FEMA flood zones and the flood impact in terms of severity or potential harm. Flood Zones A and X are the only hazard areas mapped in the region. Figures 5-1 through 5-3 should be read in conjunction with the extent for flooding in Tables 5-1, 5-2, and 5-3 to determine the intensity of a potential flood event.

Table 5-1. – Flood Zones

INTENSITY	ZONE	DESCRIPTION
HIGH	ZONE A	Areas with a one percent annual chance of flooding and a 26 percent chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones.
	ZONE A1-30	These are known as numbered A Zones (e.g., A7 or A14). This is the base floodplain where the FIRM shows a Base Flood Elevation (BFE) (old format).
	ZONE AE	The base floodplain where base flood elevations are provided. AE Zones are now used on the new format FIRMs instead of A1-A30 Zones.
	ZONE AO	River or stream flood hazard areas and areas with a one percent or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from one to three feet. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. Average flood depths derived from detailed analyses are shown within these zones.
	ZONE AH	Areas with a one percent annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from one to three feet. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
	ZONE A99	Areas with a one percent annual chance of flooding that will be protected by a federal flood control system where construction has reached specified legal requirements. No depths or base flood elevations are shown within these zones.
	ZONE AR	Areas with a temporarily increased flood risk due to the building or restoration of a flood control system (such as a levee or a dam). Mandatory flood insurance purchase requirements will apply, but rates will not exceed the rates for unnumbered A zones if the structure is built or restored in compliance with Zone AR floodplain management regulations.
MODERATE to LOW	ZONE X 500	An area inundated by 500-year flooding; an area inundated by 100-year flooding with average depths of less than one foot or with drainage areas less than one square mile; or an area protected by levees from 100-year flooding.

Zone A is interchangeably referred to as the 100-year flood, the one-percent-annual chance flood, the Special Flood Hazard Area (SFHA), or more commonly, the base flood. This is the area that will convey the base flood and constitutes a threat to the planning area. The impact from a flood event can be more damaging in areas that will convey a base flood.

Structures built in the SFHA are subject to damage by rising waters and floating debris. Moving flood water exerts pressure on everything in its path and causes erosion of soil and solid objects. Utility systems, such as heating, ventilation, air conditioning, fuel, electrical systems, sewage maintenance systems and water systems, if not elevated above base flood elevation, may also be damaged.

The intensity and magnitude of a flood event is also determined by the depth of flood waters. Table 5-2 below describes the category of risk and potential magnitude of an event in correlation to water depth. The water depths depicted in Table 5-2 are an approximation based on elevation data. Table 5-3 describes the extent associated with stream gauge data provided by the United States Geological Survey (USGS).

Table 5-2. Extent Scale – Water Depth

SEVERITY	DEPTH (in feet)	DESCRIPTION
BELOW FLOOD STAGE	0 to 15	Water begins to exceed low sections of banks and the lowest sections of the floodplain.
ACTION STAGE	16 to 23	Flow is well into the floodplain, minor lowland flooding reaches low areas of the floodplain. Livestock should be moved from low lying areas.
FLOOD STAGE	24 to 28	Homes are threatened and properties downstream of river flows or in low lying areas begin to flood.
MODERATE FLOOD STAGE	29 to 32	At this stage the lowest homes downstream flood. Roads and bridges in the floodplain flood severely and are dangerous to motorists.
MAJOR FLOOD STAGE	33 and above	Major flooding approaches homes in the floodplain. Primary and secondary roads and bridges are severely flooded and very dangerous. Major flooding extends well into the floodplain, destroying property, equipment, and livestock.

Table 5-3. Extent for Victoria County[1]

JURISDICTION[2]	ESTIMATED SEVERITY PER FLOOD EVENT	PEAK FLOOD EVENT
Victoria County	Action Stage, 16 to 23 feet	Major Flood Stage: Coleto Creek near the City of Victoria reached an overflow elevation of 42 feet in September of 1967.
Victoria County	Below Flood Stage, 0 to 15 feet	Major Flood Stage: Coleto Creek reached an overflow elevation of 33.47 feet in September of 1967 near Schroeder, Texas.
City of Victoria	Flood Stage, 25 to 28 feet	Major Flood Stage: Guadalupe River at the City of Victoria reached an overflow elevation of 34.04 feet in October of 1998.

[1] Severity estimated by averaging floods at certain stage level over the history of flood events. Severity and peak events are based on U.S. Geological Survey data.
[2] Severity is provided for jurisdictions where peak data was provided.

JURISDICTION[2]	ESTIMATED SEVERITY PER FLOOD EVENT	PEAK FLOOD EVENT
Victoria County	Action Stage, 16 to 23 feet	Major Flood Stage: Garcitas Creek reached an overflow elevation of 33.43 feet in October of 1995 near Inez, Texas.
Victoria County	Action Stage, 16 to 23 feet	Major Flood Stage: Placedo Creek reached an overflow elevation of 31.90 feet in September of 1967 near Placedo, Texas.

The range of flood intensity that the County can experience is high, or Zone A. Based on reporting from the USGS, a flood event can place the County at the extent of "Action Flood Stage" as shown in Tables 5-2 and 5-3. However, the Victoria County planning area has experienced flooding over 24 feet. Based on historical occurrences, the planning area and campuses of Victoria ISD could expect to experience up to 6 inches of rainfall within a 4 hour period, resulting in flash flooding.

The data described in Tables 5-1 through 5-3, together with Figures 5-1 through 5-3, and historical occurrences for the area, provides an estimated potential magnitude and severity for the County. For example the City of Victoria, as shown in Figure 5-2, has areas designated as Zone A. Reading this figure in conjunction with Table 5-1 means the area is an area of high risk for flood.

HISTORICAL OCCURRENCES

Historical evidence indicates that areas within the County and City are susceptible to flooding, especially in the form of flash flooding. It is important to note that only flood events that have been reported have been factored into this risk assessment, therefore it is likely that additional flood occurrences have gone unreported before and during the recording period. Table 5-4 identifies historical flood events that resulted in damages, injuries, or fatalities within the Victoria County planning area, including the City of Victoria. Table 5-5 provides the historical flood event summary by jurisdiction. Historical Data is provided by the Storm Prediction Center (NOAA), NCEI database for Victoria County.

Historical flood data for the Victoria ISD are provided within the Victoria City-wide events per the NCEI database.

Table 5-4. Historical Flood Events, 1996-2017[3]

JURISDICTION	DATE	TIME	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	10/18/1998	1:00 PM	0	0	$15,974,145	$0
Victoria County	11/21/2004	10:00 AM	0	0	$907,593	$0
City of Victoria	7/2/2007	4:10 AM	0	0	$1,171,200	$0
Victoria County	5/15/2010	6:00 AM	0	0	$779,558	$0

[3] Only recorded events with fatalities, injuries, and/or damages are listed, values are in 2017 dollars.

JURISDICTION	DATE	TIME	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	5/26/2014	9:30 AM	0	0	$102,578	$0

Table 5-5. Summary of Historical Flood Events, January 1996-May 2017

JURISDICTION	Number of Events	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	33	0	0	$17,763,874	$0
City of Victoria	22	0	0	$1,171,200	$0
TOTAL LOSSES		**0**	**0**	**$18,935,074**	

SIGNIFICANT EVENTS

Flash Flood on October 17-18, 1998 – Victoria County

A cold front drifted slowly southeastward into West Central Texas during the evening of Friday, October 16th following a very slow-moving upper level trough of lower pressure. Deep moisture was in place across South Central Texas as the two systems approached, being fed at the mid and upper levels by two nearly stationary hurricanes, Madeline near the tip of Baja, Mexico and Lester, anchored off Acapulco, Mexico and in the low levels by a strong flow from the Gulf of Mexico. Therefore, a very moisture-rich environment was in place across South Central Texas as the event developed.

During the weekend of October 17-18, 1998, several tornadoes were spawned and were followed by torrential rains over south and southeast Texas. Up to 22 inches of rain fell, which first resulted in deadly flash flooding from San Antonio to Austin, followed by record breaking river floods along several south Texas rivers the following week. Based on provisional data from the USGS, the flood peak for this event was the highest known peak stage at 15 locations. The October 1998 peak streamflow was 2.6 times the previous maximum streamflow at the Guadalupe River Victoria station. The previous maximum streamflow had been at its highest amount since before 1833.

Flash Flood on November 21, 2004 – Victoria County

A significant heavy rainfall event occurred across Goliad and Victoria Counties on November 20-21, 2004. Up to 15 inches of rainfall was observed over northern Goliad County which resulted in Flash Flooding along Perdido, Coleto, and Spring Creeks. Flooding along the Garcitas Creek and Guadalupe River also resulted from this significant rainfall. Several high water rescues were performed as motorists tried to cross flooded roadways.

Strong thunderstorms erupted along a nearly stationary frontal boundary that extended across south Texas from near Cotulla to Three Rivers and Victoria Saturday evening. Moist, southerly winds off the Gulf of Mexico in the lower levels of the atmosphere fueled the storms along the front. Meanwhile, in the middle to upper level portions of the atmosphere, winds were nearly parallel to the frontal boundary out of the southwest. This combination caused thunderstorms to regenerate and train over the same areas Saturday evening through early afternoon on Sunday.

In all, rainfall totals across portions of northwest and central Victoria County reached 5 to 10 inches during this period. Emergency management reported widespread, major flooding problems with numerous road

closures. Several motorists were rescued as they became stranded in rising water. This rainfall led to daily rainfall records on the 20th and 21st at the Victoria Regional Airport.

Flash Flood on July 2, 2007 – City of Victoria, Victoria County
Widespread flash flooding occurred across much of Victoria County during the early morning. Between 2 and 4 inches of rain fell across the southern half of the county and between 4 and 8 inches fell across the northern half of the county, with isolated amounts between 8 and 11 inches. Flooding was reported on Benbow Road at Garcitas Creek and at U.S. 77 at Garcitas Creek, as well as numerous roads throughout the City of Victoria and several Farm to Market Roads in the northern half of the county. U.S. 77 was closed from the north side of the City of Victoria to the Lavaca/De Witt/Victoria county line due to flooding at the county line and at least one vehicle was completely submerged in a high water crossing along U.S. 77. In Nursery, widespread flash flooding of creeks resulted in 25 homes with water in them as well as cars reported underwater. Up to 10 homes in the Tropical Acres subdivision of Victoria had water in them due to flash flooding of Spring Creek. Flooding of 3 homes along Benbow Road near Garcitas Creek also occurred. Several evacuations of families were needed.

Flash Flood on May 15, 2010 – City of Victoria, Victoria County
Street flooding in the City of Victoria was widespread, as approximately 8 inches fell over parts of Victoria over 24 hours, including approximately 4.5 inches within a 2 hour span. This led to widespread flooding over approximately 25-35% of the city's streets and an unknown but significant number of county roads. In total, approximately 160+ residences were flooded (almost all to a minimal degree). Additionally, a number of dwellings and vehicles suffered minor damage from falling trees or limbs. However, due to the rapidity in which most of the flood waters receded, Victoria was spared catastrophic loss to residential and business infrastructure. There was, however, damage sustained to governmental infrastructure. The Victoria County Sheriff's Office Communications Center was damaged when rainwater inundated a portion of the first floor. Damage was sustained to multiple City and County vehicles. A water-main was damaged and required expedient repair. A storm-water/drainage outfall was also damaged by floodwater.

PROBABILITY OF FUTURE EVENTS

Based on recorded historical occurrences and extent within the Victoria County planning area, including the City of Victoria and Victoria ISD, flooding is highly likely and an event will likely occur within the next year.

VULNERABILITY AND IMPACT

A property's vulnerability to a flood depends on its location and proximity to the floodplain. Structures that lie along banks of a waterway are the most vulnerable and are often repetitive loss structures. The County and City encourages development outside of the floodplain, and the impact for flood for the County and City is limited as facilities and services would be shut down for 24 hours or less, depending on the scale of the storm. The Victoria Independent School District is also at risk from damages from floods. Damages to the districts' buildings or power outages could make schools unsafe for students to attend.

Figure 5-4. Estimated Flood Zones in Victoria County with Critical Facilities

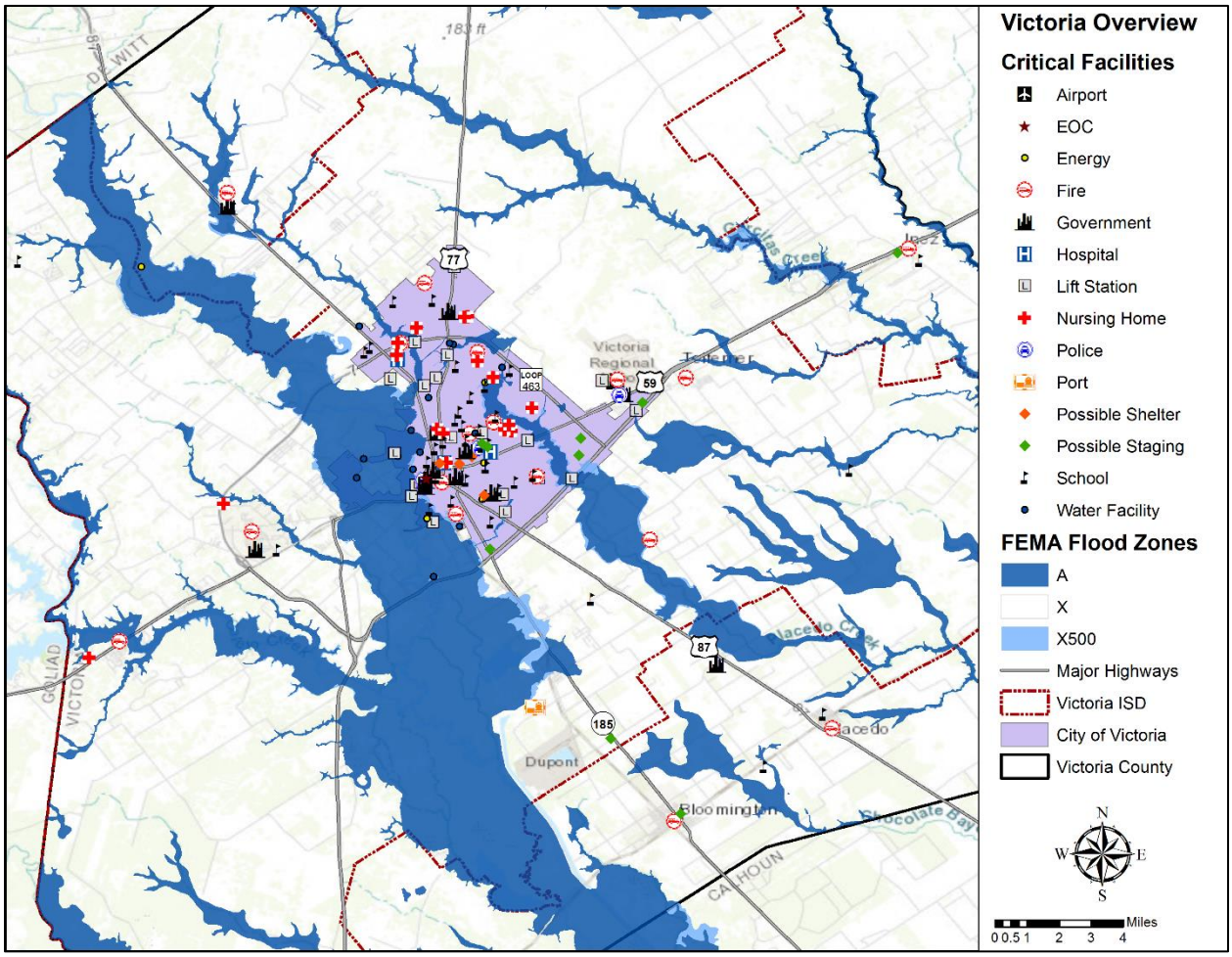


Figure 5-5. Estimated Flood Zones in the City of Victoria with Critical Facilities

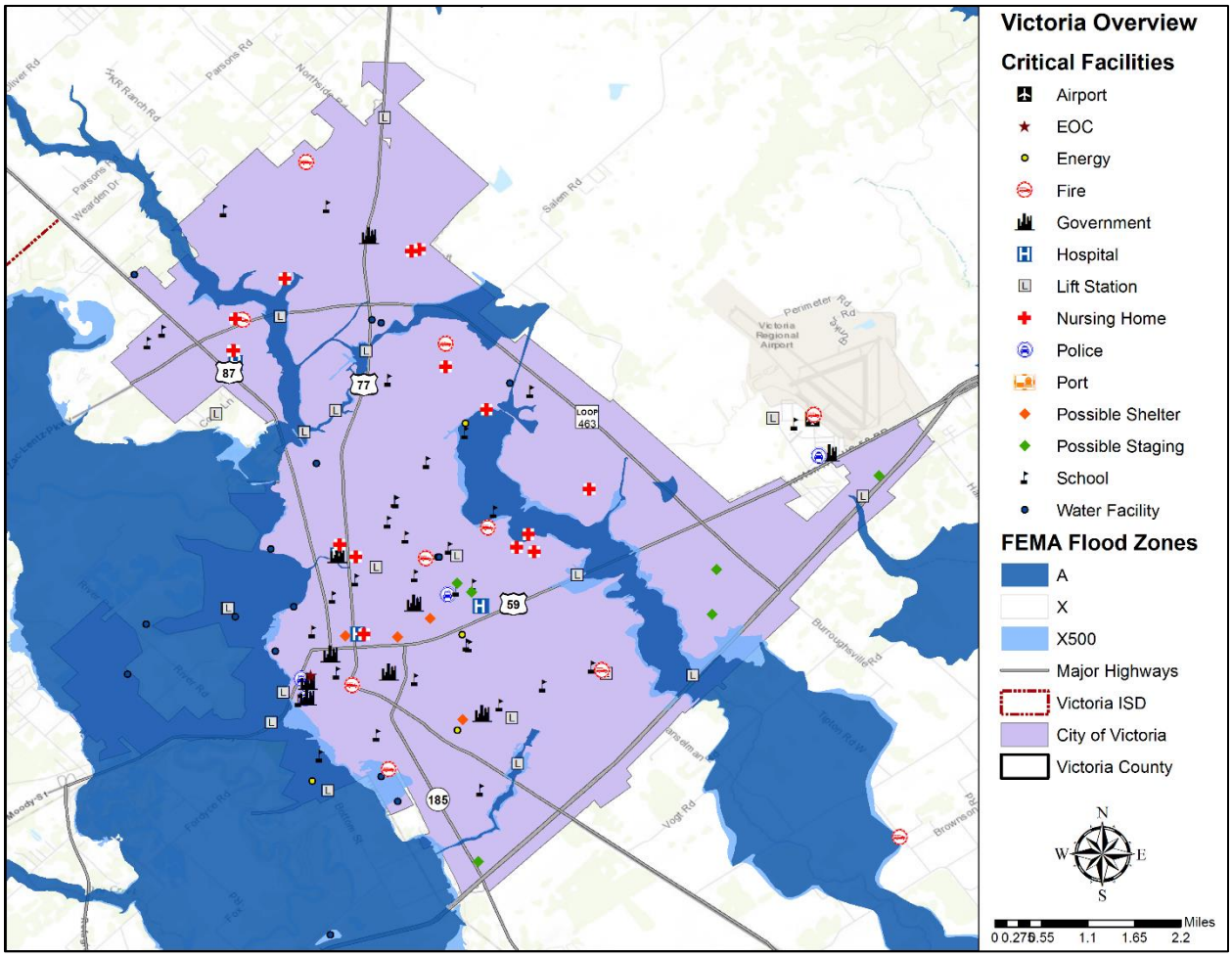


Table 5-6. Critical Facilities in the Floodplain by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Victoria County	Wastewater Treatment Facility
City of Victoria	1 Government Facility, 10 Lift Stations, 2 Nursing Homes, 3 Pump Stations, 3 School Facilities, 4 Utility Facilities
Victoria ISD	2 Elementary Schools

Historic loss estimates due to flood are presented in Table 5-7 below. Considering 55 flood events over a 21-year period, frequency is approximately two to three events every year.

Annualized losses are not included for Victoria ISD as there have not been events or losses to affect the Independent School District separate and apart from a historical occurrence for the City of Victoria.

Table 5-7. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County	$17,763,874	$845,899
City of Victoria	$1,171,200	$55,771
Planning Area	**$18,935,074**	**$901,670**

The severity of a flooding event varies depending on the relative risk to citizens and structures located within each city. Table 5-8 depicts the level of impact for Victoria County and each participating jurisdiction, which includes the level of impact for the participating independent school district.

Table 5-8. Impact by Jurisdiction

JURISDICTION	IMPACT	DESCRIPTION
Victoria County	Limited	Victoria County could have injuries that would be treatable with first aid. Critical facilities including school campuses would be shut down for 24 hours or less, and less than 10 percent of property would be destroyed or damaged.
City of Victoria	Limited	The City of Victoria could have injuries that would be treatable with first aid. Critical facilities including school campuses would be shut down for 24 hours or less, and less than 10 percent of property would be destroyed or damaged.
Victoria ISD	Limited	Any injuries or illnesses would be treatable with first aid, with minor quality of life lost. If critical facilities are shut down it would be for 24 hours or less, and it is expected that less than 10 percent of property would be destroyed or damaged in the school district.

ASSESSMENT OF IMPACTS

Flooding is the deadliest natural disaster that occurs in the U.S. each year, and it poses a constant and significant threat to the health and safety of the people in the Victoria County planning area. Impacts to the planning area can include:

- Flood-related rescues may be necessary at swift and low water crossings or in flooded neighborhoods where roads have become impassable, placing first responders in harm's way.
- Evacuations may be required for entire neighborhoods because of rising floodwaters, further taxing limited response capabilities and increasing sheltering needs for displaced residents.
- Health risks and threats to residents are elevated after the flood waters have receded due to contaminated flood waters (untreated sewage and hazardous chemicals) and mold growth typical in flooded buildings and homes.
- Significant flood events often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage can result in an increase in structure fires and/or carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.

- Floods can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders are exposed to downed power lines, contaminated and potentially unstable debris, hazardous materials, and generally unsafe conditions, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Emergency operations and services may be significantly impacted due to damaged facilities.
- Significant flooding can result in the inability of emergency response vehicles to access areas of the community.
- Critical staff may suffer personal losses or otherwise impacted by a flood event and unable to report for duty, limiting response capabilities.
- City or county departments may be flooded, delaying response and recovery efforts for the entire community.
- Private sector entities that the jurisdiction and its residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- Some businesses not directly damaged by the flood may be negatively impacted while utilities are being restored or water recedes, further slowing economic recovery.
- When the community is affected by significant property damage it is anticipated that funding would be required for infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Residential structures substantially damaged by a flood may not be rebuilt for years and uninsured or underinsured residential structures may never be rebuilt, reducing the tax base for the community.
- Large floods may result in a dramatic population fluctuation, as people are unable to return to their homes or jobs and must seek shelter and/or work outside of the affected area.
- Businesses that are uninsured or underinsured may have difficulty reopening, which results in a net loss of jobs for the community and a potential increase in the unemployment rate.
- Recreation activities may be unavailable and tourism can be unappealing for years following a large flood event, devastating directly related local businesses and negatively impacting economic recovery.
- Flooding may cause significant disruptions of clean water and sewer services, elevating health risks and delaying recovery efforts.
- The psycho-social effects on flood victims and their families can traumatize them for long periods of time, creating long term increases in medical treatment and services.
- Extensive or repetitive flooding can lead to decreases in property value for the affected community.
- Flood poses a potential catastrophic risk to annual and perennial crop production and overall crop quality leading to higher food costs.
- Flood related declines in production may lead to an increase in unemployment.
- Large floods may result in loss of livestock, potential increased livestock mortality due to stress and water borne disease, and increased cost for feed.

The overall extent of damages caused by floods is dependent on the extent, depth and duration of flooding, and the velocities of flows in the flooded areas. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a flood event.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) PARTICIPATION

Flood insurance offered through the National Flood Insurance Program (NFIP) is the best way for home and business owners to protect themselves financially against the flood hazard. Victoria County and the City of Victoria both participate in the NFIP and are in good standing.

Victoria County and the City of Victoria currently have in place minimum NFIP standards for new construction and substantial improvements of structures. Both jurisdictions are considering adopting additional higher regulatory NFIP standards to limit floodplain development.

The flood hazard areas throughout Victoria County are subject to periodic inundation, which may result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, of which adversely affect public safety.

These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, flood-proofed or otherwise protected from flood damage. Mitigation actions are included to address flood maintenance issues as well, including routinely clearing debris from drainage systems and bridges and expanding drainage culverts and storm water structures to more adequately convey flood waters.

It is the purpose of Victoria County and the City of Victoria to continue to promote the public health, safety and general welfare by minimizing public and private losses due to flood conditions in specific areas. Both of the NFIP participating jurisdictions in the Plan are guided by their local Flood Damage Prevention Ordinance. These communities will continue to comply with NFIP requirements through their local permitting, inspection, and record-keeping requirements for new and substantially developed construction. Further, the NFIP program for both of the participating jurisdictions promotes sound development in floodplain areas and includes provisions designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in floodplains;
- Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and
- Ensure that potential buyers are notified that property is in a flood area.

In order to accomplish these tasks, Victoria County and the City of Victoria seek to follow these guidelines to achieve flood mitigation by:

- Restrict or prohibit uses that are dangerous to health, safety, or property in times of flood, such as filling or dumping, that may cause excessive increases in flood heights and/or velocities;
- Require that uses vulnerable to floods, including facilities, which serve such uses, be protected against flood damage at the time of initial construction as a method of reducing flood losses;
- Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;
- Control filling, grading, dredging, and other development, which may increase flood damage; and
- Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.

NFIP COMPLIANCE AND MAINTENANCE

As mentioned, Victoria County and the City of Victoria have developed mitigation actions that relate to either NFIP maintenance or compliance. Compliance and maintenance actions can be found in Section 17.

Flooding was identified by both of the communities as a high risk hazard during hazard ranking activities at the Risk Assessment Workshop. As such, many of the mitigation actions were developed with flood mitigation in mind. A majority of these flood actions address compliance with the NFIP and implementing flood awareness programs. Both jurisdictions recognize the need and are working towards adopting higher NFIP regulatory standards to further minimize flood risk in their community. In addition, each jurisdiction is focusing on NFIP public awareness activities. This includes promoting the availability of flood insurance by placing NFIP brochures and flyers in public libraries or public meeting places.

Both participating jurisdictions in the NFIP has a designated floodplain administrator. The floodplain administrator for the City of Victoria is responsible for Victoria ISD. Both floodplain administrators in the planning area will continue to maintain compliance with the NFIP including continued floodplain administration, zoning ordinances, and development regulation. The floodplain ordinance adopted by each participating jurisdiction outlines the minimum requirements for development in special flood hazard areas.

REPETITIVE LOSS

The Severe Repetitive Loss (SRL) Grant Program under FEMA provides federal funding to assist states and communities in implementing mitigation measures to reduce or eliminate the long-term risk of flood damage to severe repetitive loss residential structures insured under the NFIP. The Texas Water Development Board (TWDB) administers the SRL grant program for the State of Texas.

Severe Repetitive Loss properties are defined as residential properties that are:

- Covered under the NFIP and have at least four flood related damage claim payments (building and contents) over $5,000.00 each, and the cumulative amount of such claims payments exceed $20,000; or
- At least two separate claim payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building.

In either scenario, at least two of the referenced claims must have occurred within any ten-year period, and must be greater than 10 days apart.[4] Table 5-9 shows repetitive loss and severe repetitive loss properties for Victoria County and the City of Victoria.

[4] Source: Texas Water Development Board

Table 5-9. Repetitive Loss and Severe Repetitive Loss Properties

JURISDICTION	BUILDING TYPE	NUMBER OF STRUCTURES	NUMBER OF LOSSES
VICTORIA COUNTY	OTHR-NONRES	2	4
VICTORIA COUNTY	SINGLE FMLY	17	60
CITY OF VICTORIA	2-4 FAMILY	1	5
CITY OF VICTORIA	OTHR-NONRES	1	2
CITY OF VICTORIA	SINGLE FMLY	12	42

SECTION 6: HURRICANE

HAZARD DESCRIPTION

According to the National Oceanic and Atmospheric Administration (NOAA), a hurricane is an intense tropical weather system of strong thunderstorms with well-defined surface circulation and maximum sustained winds of 74 miles per hour (mph) or higher. In the Northern Hemisphere, circulation of winds near the Earth's surface is counterclockwise.

As a hurricane develops, the barometric pressure (measured in millibars or inches) at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression. Tropical depressions intensify into tropical storms when maximum sustained winds increase to between 35-46 knots (39-73 mph). At these wind speeds, the storm becomes more organized and circular in shape and begins to resemble a hurricane. Tropical storms can be equally problematic without ever becoming a hurricane, resulting in heavy rainfall, high winds and tidal surge in coastal communities. When maximum sustained winds reach or exceed 39 mph, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center in Miami, Florida. When sustained winds reach or exceed 74 mph, the storm is deemed a hurricane.

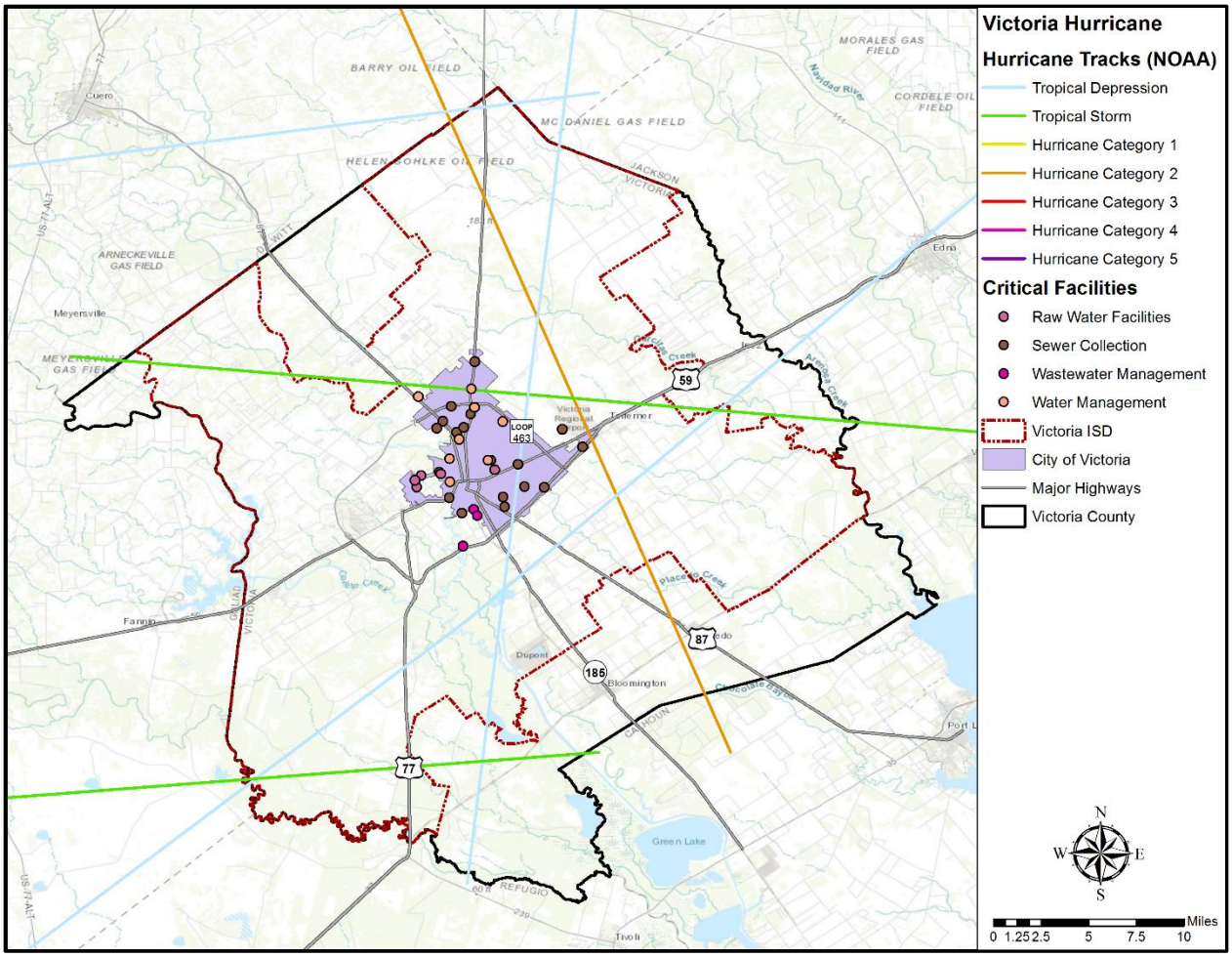
The intensity of a land falling hurricane is expressed in categories relating wind speeds and potential damage. Tropical storm-force winds are strong enough to be dangerous to those caught in them. For this reason, emergency managers plan to have evacuations completed and personnel sheltered before winds of tropical storm-force arrive, which precedes the arrival of hurricane-force winds.

According to the National Hurricane Center, the greatest potential for loss of life related to a hurricane is from storm surge. This happens when low pressure and high circular winds "pile" the water into a dome shape that can be 50-100 miles wide. The surge travels with the storm and is most severe on the right side of the storm, relative to the direction the storm travels. The surge can be 15 feet deep, topped by waves, and make landfall ahead of the center, or "eye", of the hurricane. Wind-driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with normal high tides.

LOCATION

The Victoria County planning area is vulnerable to threats directly and indirectly related to a hurricane event, such as high-force winds and flooding. Hurricanes and/or tropical storms can impact the planning area from June to November, the official Atlantic U.S. hurricane season. The Victoria County planning area, including participating jurisdictions, is located in a moderate to high risk area for hurricane wind speeds of 96 to 130 miles per hour (mph) as shown in Figure 6-1.

Figure 6-1. Location of Hurricane Wind Zones



EXTENT

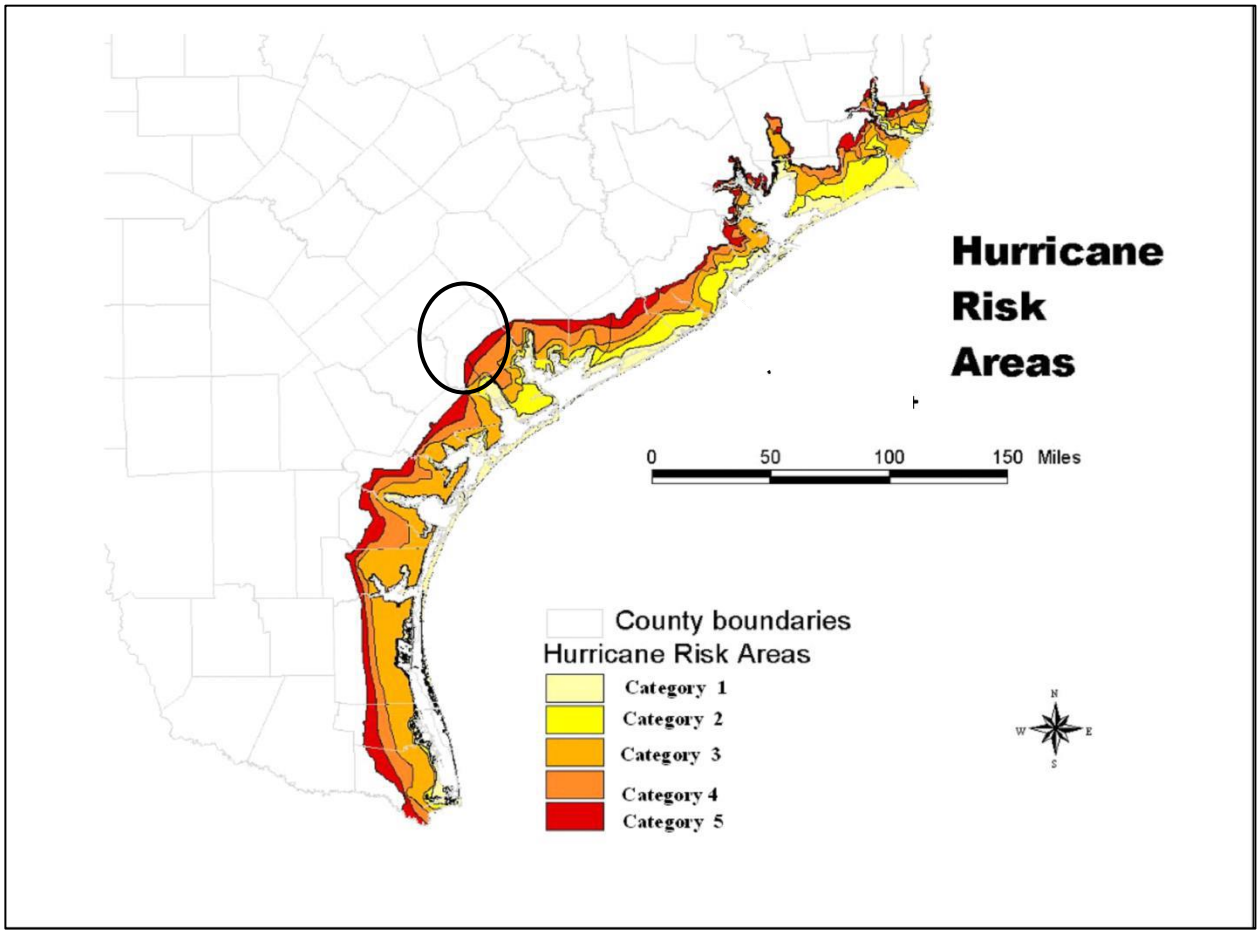
Hurricanes are categorized according to the strength and intensity of their winds using the Saffir-Simpson Hurricane Scale (See Table 6-1). A Category 1 storm has the lowest wind speeds, while a Category 5 hurricane has the highest. This scale only ranks wind speed, but lower category storms can inflict greater damage than higher category storms depending on where they strike, other weather they interact with, and how slow they move.

Table 6-1. Extent Scale for Hurricanes

CATEGORY	MAXIMUM SUSTAINED WIND SPEED (Mph)	MINIMUM SURFACE PRESSURE (Millibars)	STORM SURGE (Feet)
1	74 – 95	Greater than 980	3 – 5
2	96 – 110	979 – 965	6 – 8
3	111 – 130	964 – 945	9 – 12
4	131 – 155	944 – 920	13 – 18
5	155 +	Less than 920	19 +

Based on the historical storm tracks for hurricanes and tropical storms, the average extent to be mitigated for the Victoria County planning area is a Category 2 storm. The planning area is located in the 96-130 wind zone in terms of average wind speeds that should be mitigated in the event of a hurricane. This data is based on the design wind speeds for a 100-year event. Figure 6-2 displays the location of hurricane risk by storm category along the Gulf Coast.

Figure 6-2. Location of Hurricane Risk along the Texas Coast



HISTORICAL OCCURRENCES

Previous occurrences include storms that had a direct path through Victoria County and the tracks near the county. Table 6-2 below lists the storms that have impacted the Victoria County planning area, including the City of Victoria and Victoria ISD, during the years of 1960-2017.

Table 6-2. Historical Hurricane Events for Victoria County Planning Area, January 1960 – August 2017

JURISDICTION	DATE	MAGNITUDE	FATALITIES	INJURIES	PROPERTY DAMAGE (2017 Value)
Countywide	9/9/1961	Hurricane Carla	0	0	$0
Countywide	9/24/1963	Tropical Depression Cindy	0	0	$0
Countywide	8/5/1964	Tropical Storm Abby	0	0	$0

JURISDICTION	DATE	MAGNITUDE	FATALITIES	INJURIES	PROPERTY DAMAGE (2017 Value)
Countywide	9/6/1998	Tropical Storm Frances	0	0	$0
Countywide	7/15/2003	Hurricane Claudette	1	0	$7,813,740
Countywide	9/2005	Hurricane Katrina	0	0	$310,967
Countywide	9/2005	Hurricane Rita	0	0	$63,196
Countywide	9/2008	Hurricane Ike	0	0	$219,508
Countywide	9/9/2015	Tropical Storm Bill	0	0	$0
Countywide	8/27/2017	Hurricane Harvey	0	0	$5,000,000
TOTAL			**1**	**0**	**$13,407,411**

SIGNIFICANT EVENTS

Hurricane Claudette on July 15, 2003

Claudette produced tropical storm force winds and heavy rains primarily on her eastern quadrant, which spanned a large portion of the central Gulf and produced wave heights up to 15 feet. As early as Sunday July 13th, large swells were reaching the sand dunes on Padre Island. Claudette wobbled slowly toward the middle Texas coast in very weak steering currents. The upper level shear in this system relaxed as expected providing the environment for Claudette to strengthen into a Hurricane.

Claudette made landfall as a Category 1 hurricane near Port O'Connor, Texas (Calhoun County) on Tuesday July 15th around 10:30AM. Just prior to landfall storm surge was 5 feet at Port O'Connor in combination with high astronomical tides. Wind speeds along the Northern Coastal Bend were generally sustained around 65 mph at landfall with gusts to 80 mph. Maximum sustained winds at the time of landfall were estimated by the National Hurricane Center at 90 mph. The Formosa Plant in Point Comfort recorded maximum sustained winds of 80 mph with a gust to 100 mph. The minimum central pressure of Claudette at the time of landfall was 981 MB (28.37 Inches). Claudette produced a brief tornado in Port Lavaca. Damage was not attributed directly to this tornado, but rather to the hurricane winds.

Claudette continued inland during the afternoon of the 15th across Victoria, Goliad, and Bee counties, weakening to a Tropical Storm. Claudette continued moving west across Live Oak, McMullen, and La Salle counties during the evening. Claudette continued into Northwestern Mexico and into the Big Bend of Texas before dissipating on July 17th. Damages for all of Texas were estimated at 45.7 million dollars in uninsured losses and 90 million in insured losses at the time of the storm. In the State of Texas two indirect fatalities were also attributed to Claudette and six indirect injuries. One of the indirect fatalities occurred in the City of Victoria when a woman was killed by a falling tree limb while surveying damage to her house. Over twenty thousand homes received damage across the county, most of which was classified as minor damage. Over six hundred homes received major damage, most of which occurred in Victoria County.

Hurricane Harvey on August 25-26, 2017

Hurricane Harvey impacted the Middle Texas coast on August 25th and 26th. Harvey was the first category 4 hurricane to strike Texas since Hurricane Carla in 1961.

Harvey weakened to a tropical wave as the system moved across the Caribbean Sea and the Yucatan peninsula from August 18th until the 22nd. Harvey formed into a tropical depression over the southern Gulf of Mexico on the morning of August 23rd. Harvey rapidly intensified from a tropical depression to a major hurricane in 40 hours as it moved northwest toward the Texas coast. Harvey continued to intensify as it approached the Middle Texas coast on August 25th and made landfall as a Category 4 hurricane during the evening hours. Hurricane Harvey slowed down after landfall and weakened into a tropical storm on the afternoon of the 26th. Tropical Storm Harvey became nearly stationary west of Cuero from the evening of the 26th through the morning of the 27th. Harvey drifted southeastward across the Victoria Crossroads on the afternoon of the 27th. Harvey then moved into Matagorda Bay during the morning hours of the 28th and back into northwest Gulf of Mexico later that afternoon. Tropical storm conditions persisted near the northern portion of the Middle Texas coast into the early morning hours of the 29th.

Major flooding occurred along the Guadalupe River in the Victoria area due to heavy rainfall from Hurricane Harvey. At least 100 homes were flooded in Victoria in the Green's Addition area. Fox, Smith, Pozzi, Fordyce, Parsifal, Lower Mission Valley, and Old River Roads were inundated. Guadalupe River at Victoria created at 31.25 feet at 12:30 a.m. CDT August 31st. The major flood wave continued into the first few days of September.

PROBABILITY OF FUTURE EVENTS

Due to the close proximity to the Gulf Coast and the previous history of hurricanes for the area, the likelihood or future probability of a tropical storm or hurricane in the Victoria County planning area is occasional, meaning an event is probable in the next five years.

VULNERABILITY AND IMPACT

Hurricane-force winds can cause major damage to large areas; hence all existing buildings, facilities, and populations are equally exposed and vulnerable to this hazard and could potentially be impacted. Warning time for hurricanes has lengthened due to modern and early warning technology. Hurricane-force winds can easily destroy poorly constructed buildings and mobile homes, as well as debris such as signs, roofing materials, and small items left outside become extremely hazardous in hurricanes and tropical storms. Extensive damage to trees, towers, and underground utility lines (from uprooted trees) and fallen poles cause considerable civic disruption.

The Victoria County planning area features multiple mobile or manufactured home parks throughout the planning area including the City of Victoria. These parks are typically more vulnerable to thunderstorm wind events than typical site built structures. In addition, manufactured homes are located sporadically throughout the planning area, including the City of Victoria. The Victoria ISD intermittently utilizes portable buildings to facilitate fluctuating student populations. In addition, the ISD features 622 Air Conditioning Units typically located on facility rooftops that would be vulnerable to high winds flying debris. These structures would also be more vulnerable. These units would also pose the addition threat of contributing to flying debris, causing additional damages to campus structures.

The U.S. Census data indicates a total of 3,865 manufactured homes located in the Victoria County planning area, including the City of Victoria (Table 6-3), totaling approximately 10.8% of the residential structures in the planning area. In addition, 55% (approximately 19,720 structures) of the single family residential (SFR) structures in the Victoria County planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant Hurricane or Tropical Storm events.

Table 6-3. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Victoria County	3,865	19,720
City of Victoria	1,311	15,538

The following critical facilities would be vulnerable to hurricane events in the Victoria County planning area, by jurisdiction:

Table 6-4. Critical Facilities at Risk by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Victoria County	10 Fire Stations, 5 Schools, Wastewater Treatment Facility
City of Victoria	Airport, Salvation Army Facility, Red Cross Facility, EOC, 7 Fire Stations, 12 Government Facilities, 3 Hospitals, Hospice Care Facility, 19 Lift Stations, 16 Nursing Homes, 3 Police Stations, Port, 6 Pump Stations, 34 School Facilities, Sherriff's Office, 6 Utility Facilities, Wastewater Treatment Plant, 5 Water Towers, Water Treatment Facility
Victoria ISD	Administration Building, Maintenance Operation Facility, 18 Elementary Schools, 4 Middle Schools, 2 High Schools, 1 Alternative School, 1 Advanced Learning Center, 1 Career and Technology Center, 14 Athletic Fields, 2 Stadiums, 1 Agriculture Farm

Storm track data was available for the past 150 years; however, property and crop loss data is only available from 1996 to the present. Table 6-2 shows impact or loss estimation for storms impacting the county. Table 6-3 shows the number of significantly vulnerable structures within the planning area, including all participating jurisdictions. Damages in Table 6-2 are reported on a countywide basis and are not available for the City of Victoria or the Victoria ISD.

Table 6-5. Potential Annualized Losses for Victoria County

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County	$13,407,411	$638,448

While the potential severity of impact from a hurricane for the Victoria County planning area is considered minor, the historical fatalities support a "Major" severity of impact; meaning injuries or illnesses result in permanent disability, complete shutdown of critical facilities and services for at least two weeks, and more than 25 percent of property would be destroyed or have major damage.

ASSESSMENT OF IMPACTS

Hurricane events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. Impacts to the planning area can include:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Residential structures may suffer substantial damage, requiring immediate shelter and long term displacement assistance for residents.
- Driving conditions in the city may be dangerous during a hurricane event, especially over elevated bridges, elevating the risk of injury and accidents during evacuations if not timed properly.
- Additional resources may be required for emergency preparedness and response during the summer months due to increases in populations.
- Emergency evacuations may be necessary prior to a hurricane landfall, requiring emergency responders, evacuation routing, and temporary shelters.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- During hurricane landfall, first responders may be prevented from responding to calls, as the winds may reach a speed in which their vehicles and equipment are unsafe to operate.
- Hurricane events often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage often results in an increase in structure fires and carbon monoxide poisoning, as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- Extreme hurricane events may rupture gas lines and down trees and power lines, increasing the risk of structure fires during and after a storm event.
- Extreme hurricane events may lead to prolonged evacuations during search and rescue, and immediate recovery efforts requiring additional emergency personnel and resources to prevent entry, and protect citizens and property.
- First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
- Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.
- Critical staff may be unable to report for duty, limiting response capabilities.
- City or county departments may be damaged, delaying response and recovery efforts for the entire community.
- Private sector entities that the County and City and its residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short and long term loss in revenue.
- Some businesses not directly damaged by the hurricane may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Older structures built to less stringent building codes may suffer greater damage as they are typically more vulnerable to hurricane damage.
- Large scale hurricanes can have significant economic impact on the affected area, as it must now fund expenses such as infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, as well as normal day-to-day operating expenses.

- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.

The economic and financial impacts of a hurricane on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the county, community, local businesses and citizens will also contribute to the overall economic and financial conditions in the aftermath of any hurricane event.

SECTION 7: THUNDERSTORM WIND

HAZARD DESCRIPTION

Thunderstorms create extreme wind events which includes straight line winds. Wind is the horizontal motion of the air past a given point, beginning with differences in air pressures. Pressure that is higher at one place than another sets up a force pushing from the high toward the low pressure; the greater the difference in pressures, the stronger the force. The distance between the area of high pressure and the area of low pressure also determines how fast the moving air is accelerated.

Thunderstorms are created when heat and moisture near the Earth's surface are transported to the upper levels of the atmosphere. By-products of this process are the clouds, precipitation, and wind that become the thunderstorm.

According to the National Weather Service (NWS), a thunderstorm occurs when thunder accompanies rainfall. Radar observers use the intensity of radar echoes to distinguish between rain showers and thunderstorms.

Straight line winds are responsible for most thunderstorm wind damages. One type of straight line wind, the downburst, is a small area of rapidly descending air beneath a thunderstorm. A downburst can cause damage equivalent to a strong tornado and make air travel extremely hazardous.

LOCATION

Thunderstorms wind events can develop in any geographic location, and are considered a common occurrence in Texas. Therefore a thunderstorm wind event could occur at any location within Victoria County's planning area, including the City of Victoria and Victoria ISD, as these storms develop randomly and are not confined to any geographic area within the County. It is assumed that the Victoria County planning area is uniformly exposed to the threat of thunderstorms winds.

EXTENT

The extent or magnitude of a thunderstorm wind event is measured by the Beaufort Wind Scale. Table 7-1 describes the different intensities of wind in terms of speed and effects, from calm to violent and destructive.

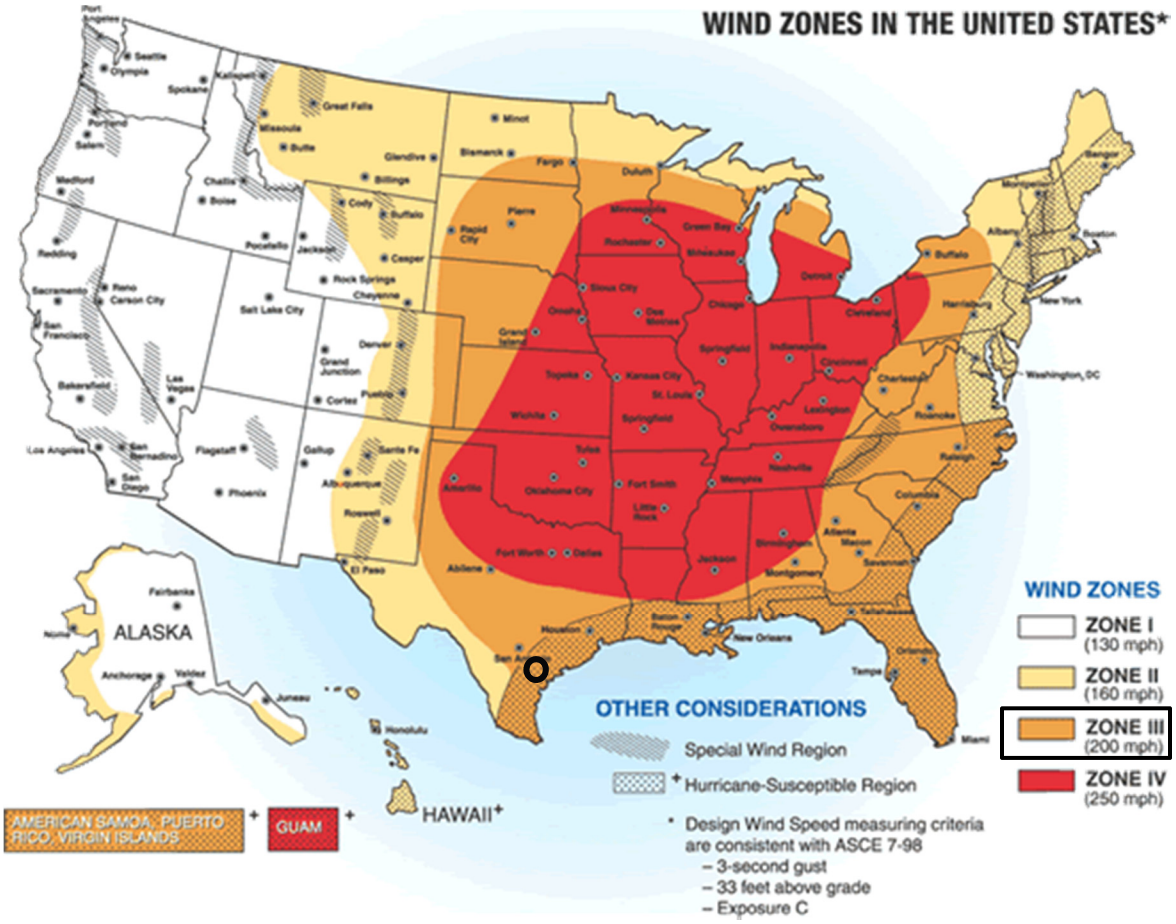
Table 7-1. Beaufort Wind Scale[1]

FORCE	WIND (KNOTS)	WMO CLASSIFICATION	APPEARANCE OF WIND EFFECTS
0	Less than 1	Calm	Calm, smoke rises vertically
1	1-3	Light Air	Smoke drift indicates wind direction, still wind vanes
2	4-7	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	8-12	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	13-18	Moderate Breeze	Dust, leaves and loose paper lifted, small tree branches move
5	19-24	Fresh Breeze	Small trees in leaf begin to sway
6	25-31	Strong Breeze	Larger tree branches moving, whistling in wires
7	32-38	Near Gale	Whole trees moving, resistance felt walking against wind
8	39-46	Gale	Whole trees in motion, resistance felt walking against wind
9	47-54	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	55-63	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	64-72	Violent Storm	If experienced on land, widespread damage
12	73+	Hurricane	Violence and destruction

Figure 7-1 displays the wind zones as derived from NOAA.

[1] Source: World Meteorological Organization

Figure 7-1. Wind Zones in the United States[2]



On average, the planning area experiences one to two thunderstorm wind events every year. The County is located in Zone III, meaning they can experience winds up to 200 mph. Victoria County has experienced a significant wind event or an event with winds in the range of "Force 12" on the Beaufort Wind Scale with winds above 73 knots.

HISTORICAL OCCURRENCES

Tables 7-2, 7-3, and 7-4 depict historical occurrences of thunderstorm wind events for the Victoria County planning area according to the National Centers for Environmental Information (NCEI) data. Since January 1955, 116 thunderstorm wind events are known to have impacted the Victoria County planning area, based upon NCEI records. Table 7-3 presents information on known historical events impacting the Victoria County planning area with resulting damages. It is important to note that high wind events associated with other hazards, such as tornadoes, are not accounted for in this section.

The NCEI is a national data source organized under the National Oceanic and Atmospheric Administration. The NCEI is the largest archive available for climate data; however, it is important to note that the only

[2] Victoria County is indicated by the circle.

incidents recorded are those that are reported to the NCEI from 1955 to May 31, 2017 have been factored into this risk assessment. In the tables that follow throughout this section, some occurrences seem to appear multiple times in one table. This is due to reports from various locations throughout the County. In addition, property damage estimates are not always available. When this occurs, estimates are provided. Where an estimate has been provided in a table for losses, the dollar amounts have been altered to indicate the damage in 2017 dollars.

Historical thunderstorm wind data for the following are provided within a County-wide basis per the NCEI database: Victoria ISD is included in the City of Victoria.

Table 7-2. Historical Thunderstorm Wind Events with Reported Damages, 1955-2017

MAXIMUM WIND SPEED RECORDED (KNOTS)	NUMBER OF REPORTED EVENTS
0-30	0
31-40	1
41-50	16
51-60	52
61-70	12
71-80	1
81-90	2
91-100	0
Unknown	32

Table 7-3. Historical Thunderstorm Wind Events, 1955-2017[3]

JURISDICTION	DATE	TIME	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Victoria	4/30/1993	4:05 PM	0 knots	0	0	$0	$840
Victoria County	5/5/1993	6:15 PM	0 knots	0	0	$0	$840
City of Victoria	5/31/1993	12:10 AM	0 knots	0	0	$0	$840
City of Victoria	5/31/1993	12:25 AM	0 knots	0	0	$0	$8,403
City of Victoria	5/31/1993	12:30 AM	0 knots	0	0	$8,403	$840
City of Victoria	5/31/1993	12:35 AM	0 knots	0	0	$84,027	$0

[3] Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2017 dollars.

JURISDICTION	DATE	TIME	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Victoria	5/13/1994	3:25 PM	53 knots	0	0	$8,193	$8,193
Victoria County	5/30/1994	12:58 AM	0 knots	0	0	$8,193	$8,193
City of Victoria	5/30/1994	1:20 AM	0 knots	0	0	$8,193	$8,193
Victoria County	5/15/2010	6:00 AM	52 knots	0	0	$557	$0
Victoria County	1/9/2011	4:23 AM	52 knots	0	0	$10,796	$0
Victoria County	1/9/2011	4:36 AM	61 knots	0	0	$107,958	$0
Victoria County	1/9/2011	4:40 AM	61 knots	0	0	$53,979	$0
Victoria County	1/9/2011	4:40 AM	61 knots	0	0	$26,989	$0
Victoria County	8/25/2011	12:47 PM	55 knots	0	0	$10,796	$0
City of Victoria	8/25/2011	12:30 PM	52 knots	0	0	$10,796	$0
City of Victoria	8/25/2011	12:40 PM	43 knots	0	0	$5,398	$0
City of Victoria	3/19/2012	5:15 AM	52 knots	0	0	$21,154	$0
Victoria County	5/10/2012	10:46 PM	52 knots	0	0	$26,442	$105,769
City of Victoria	6/7/2012	5:20 PM	52 knots	0	0	$52,884	$0
Victoria County	6/26/2012	6:20 PM	52 knots	0	0	$5,288	$0
City of Victoria	3/9/2016	8:55 AM	52 knots	0	0	$50,590	$0
City of Victoria	3/9/2016	9:05 AM	52 knots	0	0	$10,118	$0
City of Victoria	3/9/2016	9:09 AM	52 knots	0	0	$50,590	$0

Table 7-4. Summary of Historical Thunderstorm Wind Events, January 1955-May 2017

JURISDICTION	NUMBER OF EVENTS	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	73	87 knots	0	0	$310,346	$27,309
City of Victoria	43	65 knots	0	0	$250,998	$114,802
TOTAL LOSSES		**(Max Extent)**	**0**	**0**	**$703,455**	

SIGNIFICANT EVENTS

January 9, 2011 – Victoria County, City of Victoria
A cold front moved through South Texas on Saturday morning, January 8, 2011, and was situated over Deep South Texas Saturday afternoon with temperatures generally in the 50s area-wide. However as the storm system approached, a surface low pressure area formed along the frontal boundary, which helped to draw warm and humid conditions northward into the Coastal Bend. As the upper level storm system moved through the region, very strong wind shear developed and combined with an unstable atmosphere to produce a line of severe thunderstorms. A tornadic thunderstorm developed near the proximity of the surface low and retreating warm front, which persisted for over 20 miles travelling from just southeast of Alice to near Calallen. Damaging straight line winds affected most of the Coastal Bend and extended well into the Gulf of Mexico east of Rockport. Widespread wind damage was observed across the Coastal Bend as the storms moved quickly through the region. Approximately 30,000 customers lost power as a result of the storms.

Further north, doppler radar indicated another bowing segment in the line across Victoria and Calhoun Counties between 4:00 and 5:00 AM CST. The Seadrift TCOON site recorded a wind gust of 70 mph. A NWS storm survey team concluded straight line wind speeds of around 70 mph occurred from rural southern Victoria County to Seadrift in southwestern Calhoun County.

Several trees were reported blown down near Russel and Haynes roads in the City of Victoria. After the first report of damage, three other reports of tree damage were made from within the City. The Sheriff's Office reported power lines down on Upper Mission Valley Road.

June 7, 2012 – City of Victoria
Thunderstorms in the Victoria Crossroads produced wind damage on the north side of Victoria on the afternoon of June 7th. KAVU-TV reported strong downburst winds produced roof damage to an apartment complex on the north side of Victoria. Some trees were also blown down. Damages were reported in excess of $50,000.

PROBABILITY OF FUTURE EVENTS

Most thunderstorm winds occur during the months of March, April, May, and September. Based on available records of historic events, there have been 116 events in a 62 year reporting period, which provides a probability of one to two events every year. Even though the intensity of thunderstorm wind events is not always damaging for the Victoria County planning area, the frequency of occurrence for a thunderstorm wind event is highly likely. This means that an event is probable within the next year for the Victoria County planning area, including the City of Victoria and Victoria ISD.

VULNERABILITY AND IMPACT

Vulnerability is difficult to evaluate since thunderstorm wind events can occur at different strength levels, in random locations, and can create relatively narrow paths of destruction. Due to the randomness of these events, all existing and future structures and facilities at the independent school district, the City of Victoria, and Victoria County could potentially be impacted and remain vulnerable to possible injury and property loss from strong winds.

Trees, power lines and poles, signage, manufactured housing, radio towers, concrete block walls, storage barns, windows, garbage recepticles, brick facades, and vehicles, unless reinforced, are vulnerable to

thunderstorm wind events. More severe damage involves windborne debris; in some instances, patio furniture and other lawn items have been reported to have been blown around by wind and, very commonly, debris from damaged structures in turn have caused damage to other buildings not directly impacted by the event. In numerous instances roofs have been reported as having been torn off of buildings. The portable buildings used at various locations within Victoria ISD campus locations would be more vulnerable to thunderstorm wind events than typical site built structures and could potentially pose a greater risk for wind-blown debris. In addition, the ISD features 622 Air Conditioning Units typically located on facility rooftops that would be vulnerable to high winds flying debris. These structures would also be more vulnerable. These units would also pose the additional threat of contributing to flying debris, causing additional damages to campus structures.

The US Census data indicates a total of 3,865 manufactured homes (approximately 10.8%) located in the Victoria County planning area including the City of Victoria (Table 7-5). In addition, 55% (approximately 19,720 structures) of the residential structures in the Victoria County planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant wind events.

Table 7-5. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Victoria County[4]	3,865	19,720
City of Victoria	1,311	15,538

The following critical facilities would be vulnerable to thunderstorm wind events in each participating jurisdiction:

Table 7-6. Critical Facilities at Risk by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Victoria County	10 Fire Stations, 5 Schools, Wastewater Treatment Facility
City of Victoria	Airport, Salvation Army Facility, Red Cross Facility, EOC, 7 Fire Stations, 12 Government Facilities, 3 Hospitals, Hospice Care Facility, 19 Lift Stations, 16 Nursing Homes, 3 Police Stations, Port, 6 Pump Stations, 34 School Facilities, Sherriff's Office, 6 Utility Facilities, Wastewater Treatment Plant, 5 Water Towers, Water Treatment Facility
Victoria ISD	Administration Building, Maintenance Operation Facility, 18 Elementary Schools, 4 Middle Schools, 2 High Schools, 1 Alternative School, 1 Advanced Learning Center, 1 Career and Technology Center, 14 Athletic Fields, 2 Stadiums, 1 Agriculture Farm

[4] County totals includes all jurisdictions and unincorporated areas within the county.

A thunderstorm wind event can also result in traffic disruptions, injuries and in rare cases, fatalities. Impact of thunderstorms winds experienced in the Victoria County planning area has resulted in no injuries or fatalities. Impact of thunderstorm wind events experienced in the Victoria County planning area, including the City of Victoria and Victoria ISD, would be "Minor," and injuries and illnesses would not result in permanent disability, the quality of life lost would be minor, and facilities would be shut down for more than 1 week. Overall, the average loss estimate (in 2017 dollars) is $703,455, having an approximate annual loss estimate of $11,346 (Table 7-7).

Annualized losses are not included for Victoria ISD as there have not been events or losses to affect the Independent School District separate and apart from a historical occurrence for the City of Victoria.

Table 7-7. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County	$337,655	$5,446
City of Victoria	$365,800	$5,900
Planning Area	**$703,455**	**$11,346**

ASSESSMENT OF IMPACTS

Thunderstorm wind events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. Impacts to the planning area can include:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- During exceptionally heavy wind events, first responders may be prevented from responding to calls, as the winds may reach a speed in which their vehicles and equipment are unsafe to operate.
- Thunderstorm wind events often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage often results in an increase in structure fires and carbon monoxide poisoning, as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions.
- Emergency operations and services may be significantly impacted due to damaged facilities and/or loss of communications.
- Critical staff may be unable to report for duty, limiting response capabilities.
- City or county departments may be damaged, delaying response and recovery efforts for the entire community.

- Private sector entities that the City and its residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short and long term loss in revenue.
- Some businesses not directly damaged by thunderstorm wind events may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Older structures built to less stringent building codes may suffer greater damage as they are typically more vulnerable to thunderstorm winds.
- Large scale wind events can have significant economic impact on the affected area, as it must now fund expenses such as infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.
- Riverside Park is a 565 acre park along the Guadalupe River that attracts tourism including hiking and paddling activities throughout the year. A large thunderstorm wind event could impact recreational activities, placing paddlers and hikers in imminent danger, potentially requiring emergency services or lake evacuation.
- Recreational areas and parks may be damaged or inaccessible due to downed trees or debris, causing temporary impacts to area businesses.

The economic and financial impacts of thunderstorm winds on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any thunderstorm wind event.

SECTION 8: DROUGHT

HAZARD DESCRIPTION

Drought is a period of time without substantial rainfall that persists from one year to the next. Drought is a normal part of virtually all climatic regions, including areas with high and low average rainfall. Drought is the consequence of anticipated natural precipitation reduction over an extended period of time, usually a season or more in length. Droughts can be classified as meteorological, hydrologic, agricultural, and socioeconomic. Table 8-1 presents definitions for these different types of drought.

Droughts are one of the most complex of all natural hazards as it is difficult to determine their precise beginning or end. In addition, droughts can lead to other hazards such as extreme heat and wildfires. Their impact on wildlife and area farming is enormous, often killing crops, grazing land, edible plants, and even in severe cases, trees. A secondary hazard to drought is wildfire because dying vegetation serves as a prime ignition source. Therefore, a heat wave combined with a drought is a very dangerous situation.

Table 8-1. Drought Classification Definitions[1]

METEOROLOGICAL DROUGHT	The degree of dryness or departure of actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales.
HYDROLOGIC DROUGHT	The effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels.
AGRICULTURAL DROUGHT	Soil moisture deficiencies relative to water demands of plant life, usually crops.
SOCIOECONOMIC DROUGHT	The effect of demands for water exceeding the supply as a result of a weather-related supply shortfall.

LOCATION

Droughts occur regularly throughout Texas and Victoria County and are a normal condition. However, they can vary greatly in their intensity and duration. The Drought Monitor shows the planning area is currently experiencing normal conditions (Figure 8-1). However, the planning area has experienced abnormally dry to exceptional drought conditions over the last ten years (Figure 8-2). There is no distinct geographic boundary to drought; therefore, it can occur throughout the Victoria County planning area equally, including the City of Victoria and Victoria ISD.

[1] Source: Multi-Hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy, FEMA

Figure 8-1. U.S. Drought Monitor, May 2017

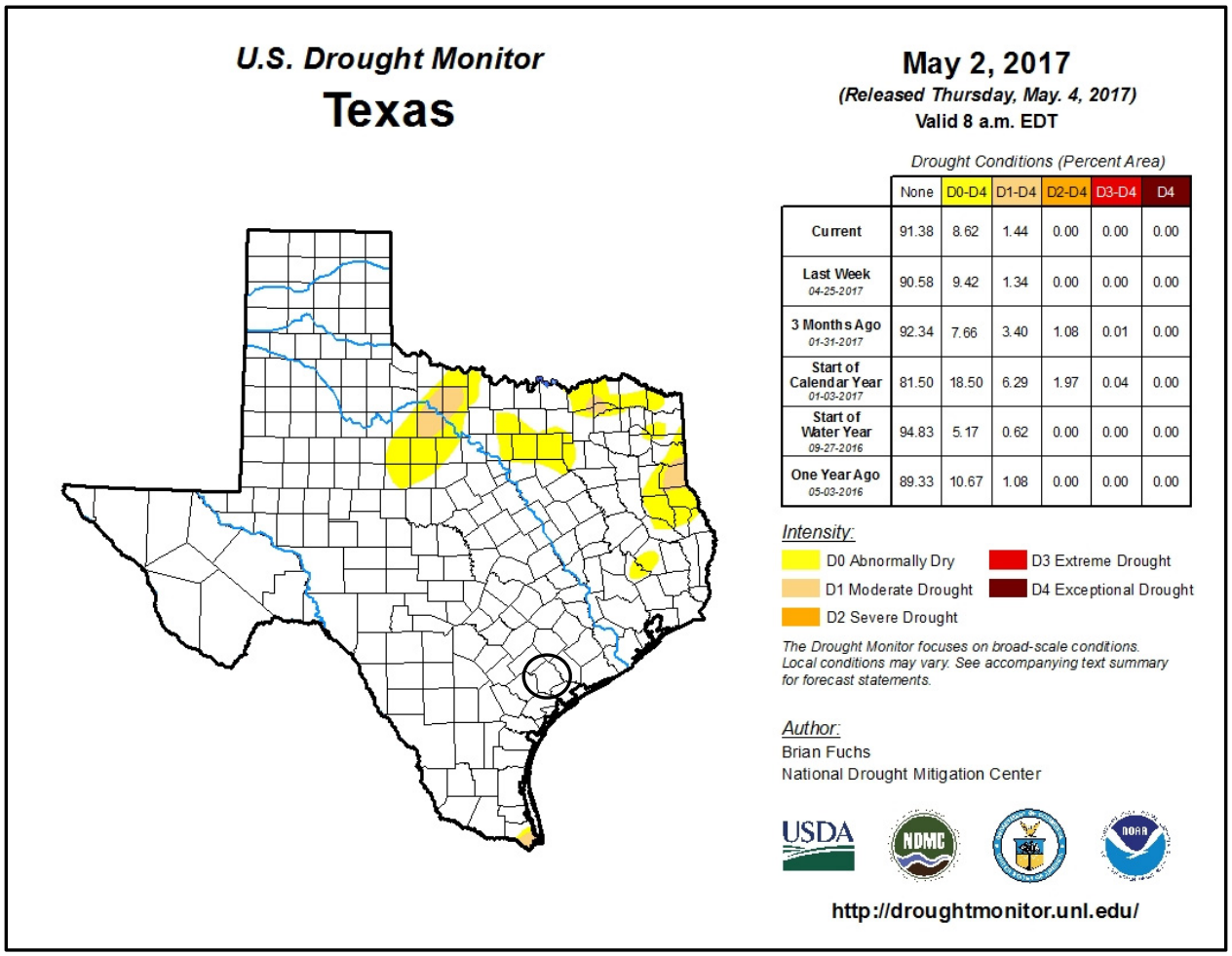
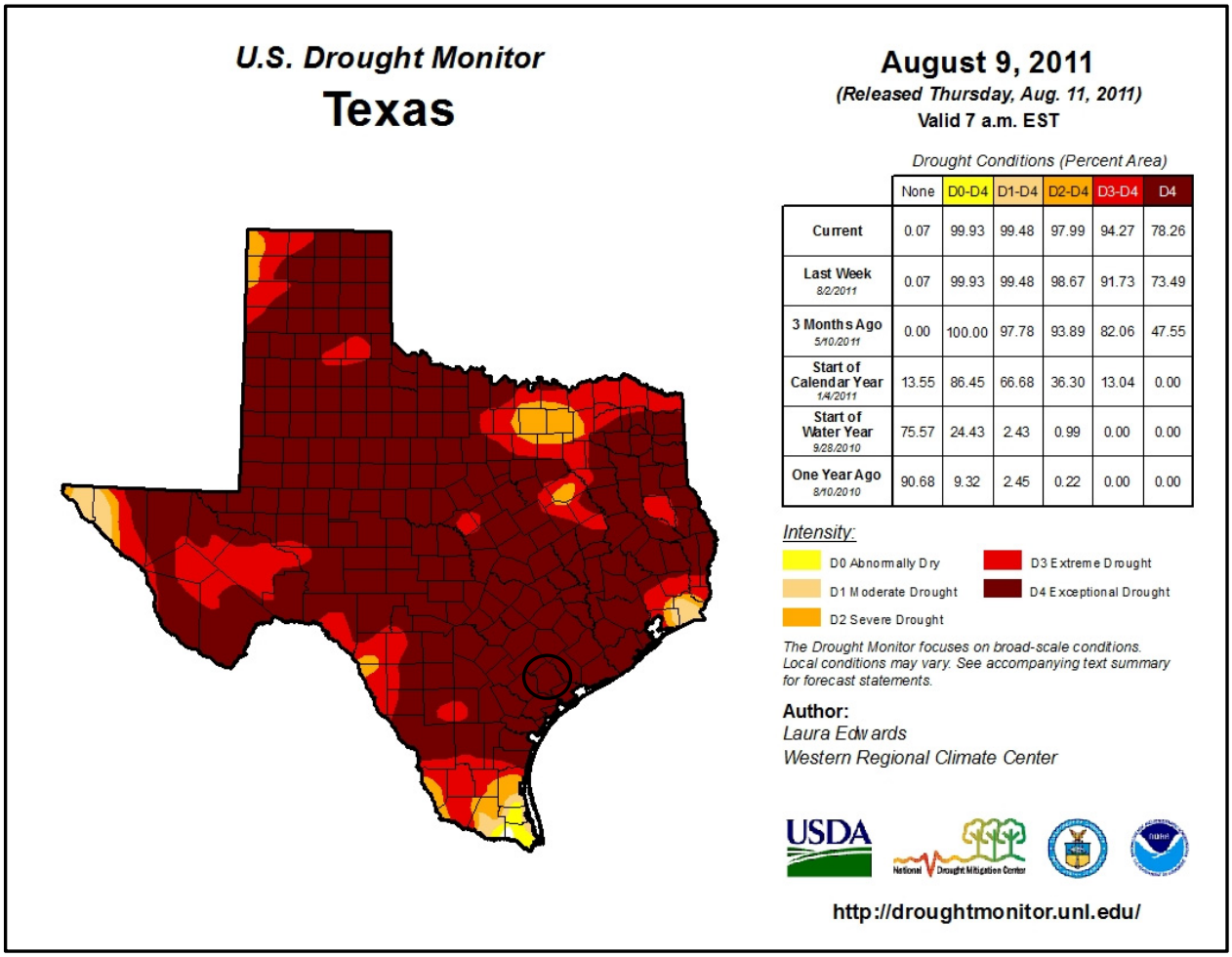


Figure 8-2. U.S. Drought Monitor, August 2011



EXTENT

The Palmer Drought Index is used to measure the extent of drought by measuring the duration and intensity of long-term drought-inducing circulation patterns. Long-term drought is cumulative, with the intensity of drought during the current month dependent upon the current weather patterns plus the cumulative patterns of previous months. The hydrological impacts of drought (e.g., reservoir levels, groundwater levels, etc.) take longer to develop. Table 8-2 depicts magnitude of drought, while Table 8-3 describes the classification descriptions.

Table 8-2. Palmer Drought Index

DROUGHT INDEX	DROUGHT CONDITION CLASSIFICATIONS						
	Extreme	Severe	Moderate	Normal	Moderately Moist	Very Moist	Extremely Moist
Z Index	-2.75 and below	-2.00 to -2.74	-1.25 to -1.99	-1.24 to +.99	+1.00 to +2.49	+2.50 to +3.49	n/a
Meteorological	-4.00 and below	-3.00 to -3.99	-2.00 to -2.99	-1.99 to +1.99	+2.00 to +2.99	+3.00 to +3.99	+4.00 and above
Hydrological	-4.00 and below	-3.00 to -3.99	-2.00 to -2.99	-1.99 to +1.99	+2.00 to +2.99	+3.00 to +3.99	+4.00 and above

Table 8-3. Palmer Drought Category Descriptions[2]

CATEGORY	DESCRIPTION	POSSIBLE IMPACTS	PALMER DROUGHT INDEX
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.	-1.0 to -1.9
D1	Moderate Drought	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-2.0 to -2.9
D2	Severe Drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-3.0 to -3.9
D3	Extreme Drought	Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions.	-4.0 to -4.9
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies.	-5.0 or less

Drought is monitored nationwide by the National Drought Mitigation Center (NDMC). Indicators are used to describe broad scale drought conditions across the U.S. and correspond to the intensity of drought.

[2] Source: National Drought Mitigation Center

Based on the historical occurrences for drought and the location of the Victoria County planning area and the campus of Victoria ISD, the area can anticipate a range of drought from abnormally dry to exceptional, or D0 to D4, based on the Palmer Drought Category.

HISTORICAL OCCURRENCES

Victoria County may typically experience a severe drought. Tables 8-4 and 8-5 list historical events that have occurred in Victoria County as reported in the National Centers for Environmental Information (NCEI). Historical drought information shows drought activity across a multi-county forecast area for each event, the appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical drought data for all participating jurisdictions (Victoria County unincorporated, City of Victoria and Victoria City ISD) in the Victoria County planning area are provided on a county-wide basis per the NCEI database.

Table 8-4. Historical Drought Years, 1996-2017

DROUGHT YEAR
1996
2006
2008
2011
2013
2014
2014
7 unique events

Table 8-5. Historical Drought Events, January 1996-May 2017

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	4/1/1996	0	0	$0	$0
Victoria County	1/1/2006	0	0	$0	$0
Victoria County	2/1/2006	0	0	$0	$0
Victoria County	3/1/2006	0	0	$0	$0
Victoria County	4/1/2006	0	0	$0	$0
Victoria County	5/1/2006	0	0	$0	$0
Victoria County	6/1/2006	0	0	$0	$0

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	5/1/2008	0	0	$0	$0
Victoria County	6/1/2008	0	0	$0	$0
Victoria County	7/1/2008	0	0	$0	$0
Victoria County	8/1/2008	0	0	$0	$0
Victoria County	9/1/2008	0	0	$0	$0
Victoria County	10/1/2008	0	0	$0	$0
Victoria County	11/1/2008	0	0	$0	$0
Victoria County	12/1/2008	0	0	$0	$0
Victoria County	1/1/2009	0	0	$0	$0
Victoria County	2/1/2009	0	0	$0	$0
Victoria County	3/1/2009	0	0	$0	$0
Victoria County	4/1/2009	0	0	$0	$0
Victoria County	5/1/2009	0	0	$0	$0
Victoria County	6/1/2009	0	0	$0	$0
Victoria County	7/1/2009	0	0	$0	$0
Victoria County	8/1/2009	0	0	$0	$0
Victoria County	9/1/2009	0	0	$0	$0
Victoria County	10/1/2009	0	0	$0	$0
Victoria County	11/1/2009	0	0	$0	$0
Victoria County	12/1/2009	0	0	$0	$0
Victoria County	4/1/2011	0	0	$0	$0
Victoria County	5/1/2011	0	0	$0	$0
Victoria County	6/1/2011	0	0	$0	$0
Victoria County	7/1/2011	0	0	$0	$0
Victoria County	8/1/2011	0	0	$0	$0
Victoria County	9/1/2011	0	0	$0	$0
Victoria County	10/1/2011	0	0	$0	$0

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	11/1/2011	0	0	$0	$0
Victoria County	12/1/2011	0	0	$0	$0
Victoria County	1/1/2012	0	0	$0	$0
Victoria County	2/1/2012	0	0	$0	$0
Victoria County	3/1/2012	0	0	$0	$0
Victoria County	4/1/2012	0	0	$0	$0
Victoria County	6/5/2012	0	0	$0	$0
Victoria County	7/1/2012	0	0	$0	$0
Victoria County	4/1/2013	0	0	$0	$0
Victoria County	5/1/2013	0	0	$0	$0
Victoria County	6/1/2013	0	0	$0	$0
Victoria County	7/1/2013	0	0	$0	$0
Victoria County	8/1/2013	0	0	$0	$0
Victoria County	9/1/2013	0	0	$0	$0
Victoria County	1/5/2014	0	0	$0	$0
Victoria County	2/1/2014	0	0	$0	$0
Victoria County	3/1/2014	0	0	$0	$0
Victoria County	4/15/2014	0	0	$0	$0
Victoria County	5/1/2014	0	0	$0	$0
Victoria County	6/1/2014	0	0	$0	$0
Victoria County	8/10/2014	0	0	$0	$0
Victoria County	9/1/2014	0	0	$0	$0
Victoria County	10/1/2014	0	0	$0	$0
Victoria County	11/1/2014	0	0	$0	$0
Victoria County	12/1/2014	0	0	$0	$0
Victoria County	1/1/2015	0	0	$0	$0
Victoria County	2/1/2015	0	0	$0	$0

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	3/1/2015	0	0	$0	$0
TOTALS		**0**	**0**	**$0**	**$0**

SIGNIFICANT EVENTS

January - June, 2006
Persistent drought conditions continued across portions of south Texas. By the end of the month the U.S. Drought Monitor showed exceptional drought conditions persisting across the Rio Grande Plains. Severe to extreme drought conditions were indicated across the Western Coastal Bend. Conditions across the coastal counties and Victoria Crossroads improved to a range of moderate drought conditions to abnormally dry conditions.

Some locations across the Coastal Bend and Victoria Crossroads saw improvement in soil conditions, providing relief to growing crops. But some locations across the Northern Coastal areas received too much rainfall and crop damage likely occurred. Rainfall across the Western Coastal Bend and Rio Grande Plains was insufficient and did not provided significant relief to soil conditions, and crops still struggled. Many ranchers were still relying on hay to feed cattle, and in some locations ranchers continued to diminish their herd sizes.

Reservoir levels continued to slowly fall at Choke Canyon Reservoir and Lake Corpus Christi. The capacity at Choke Canyon at the end of June stood at 81.9%. Lake Corpus Christi fell to around 39% by the end of June. Lake Amistad pool levels also continued to slowly fall. The Coleto Creek Reservoir rose slightly. The wildfire danger decreased significantly across the coastal counties and Victoria Crossroads, but remained high across western portions of the Coastal Bend and over the Rio Grande Plains. No significant wildfires were reported over the month of June across South Texas.

May 2008 – December 2009
During August, extreme to exceptional drought conditions continued across South Texas. There was beneficial rainfall across southeast Webb County, Duval County, and Victoria County. Most locations outside of these areas received less than 25% of normal rainfall for the month of August. Victoria received 1.62 of rainfall, which was 53% of normal rainfall for August. The drought continued to have historic implications, with most of the region now in a 1-in-50 (some locations in a 1-in-100) year drought, rivaling the drought during the 1950s.

The drought and lack of ground moisture also had impacts on summer temperatures. The Corpus Christi International Airport (CRP) broke the August record for the monthly average mean for daily average temperatures, and the Victoria Regional Airport (VCT) had its fifth warmest August on record. For the summer months of June through August, the Corpus Christi International Airport shattered the record for highest average maximum temperature by 2°F and also broke the record for average mean for daily average temperatures during this three month period.

By the end of August, exceptional drought conditions were occurring across Victoria, Goliad, Calhoun, Refugio, Aransas, Bee, San Patricio, Nueces, Kleberg, Live Oak, Jim Wells, and Duval counties. Drought persisted through the month of September across all 46 counties in the Fort Worth County Warning Area

(CWA), experiencing at least extreme drought (D3) conditions. By the end of the month, 37 of 46 counties were classified as exceptional (D4) drought.

By the end of the first week in December, Victoria, Goliad, Bee, Refugio, and Calhoun counties were no longer considered to be in drought, and by the middle of the month, Aransas county was no longer in drought. By the end of December, only Jim Wells and Duval counties were considered to be in extreme drought.

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, there have been seven extended time periods of drought (ranging in length from approximately 60 days to over 600 days) within a 21 year reporting period, which provides a probability of one event every year. This frequency supports a highly likely probability of future events. All participating jurisdictions and Independent School Districts events are included under the County.

VULNERABILITY AND IMPACT

Loss estimates were based on 21 years of statistical data from the NCEI. A drought event frequency-impact was then developed to determine an impact profile on agriculture products and estimate potential losses due to drought in the area. Table 8-6 shows annualized exposure.

Annualized losses are not included for Victoria ISD as there have not been events or losses to affect the Independent School District separate and apart from a historical occurrence for the City of Victoria or Victoria County.

Table 8-6. Potential Annualized Losses for Victoria County

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County	$0	$0

Drought impacts large areas and crosses jurisdictional boundaries. All existing and future buildings, facilities, and populations are exposed to this hazard and could potentially be impacted. However, drought impacts are mostly experienced in water shortages and crop/livestock losses on agricultural lands and typically have no impact on buildings.

In terms of vulnerability, population, agriculture, property, and environment are all vulnerable to drought in the Victoria County planning area, including the City of Victoria and Victoria ISD. The average person will survive only a few days without water, and this timeframe can be drastically shortened for those people with more fragile health – typically children, the elderly, and the ill. Population over 65 in the Victoria County planning area is estimated at 14.2% of the total population, and children under the age of 5 are estimated at 7.4% or an estimated total of 19,418[3] potentially vulnerable residents in the planning area based on age (Table 8-7).

[3] US Census Bureau 2015 data for Victoria County

Table 8-7. Populations at Greater Risk by Jurisdiction

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5
Victoria County[4]	12,788	6,630
City of Victoria	8,885	5,034

The population is also vulnerable to food shortages when drought conditions exist, and potable water is in short supply. Potable water is used for drinking, sanitation, patient care, sterilization, equipment, heating and cooling systems, and many other essential functions in medical facilities. All residents in the Victoria County planning area could be adversely affected by drought conditions, which could limit water supplies and present health threats. During summer drought, or hot and dry conditions, elderly persons, small children, infants and the chronically ill who do not have adequate cooling units in their homes may become more vulnerable to injury and/or death.

Students and faculty in Victoria ISD are also vulnerable to drought, however, the 17 elementary campuses are considered more vulnerable due to their higher population of small children. Outdoor athletic activities or events on all campuses may increase the risk to participating students and faculty. The Victoria ISD includes 14 Athletic Fields and two stadiums that may have ongoing athletic activities that would need to be closely monitored during droughts.

The economic impact of droughts can be significant as they produce a complex web of impacts that spans many sectors of the economy and reach well beyond the area experiencing physical drought. This complexity exists because water is integral to our ability to produce goods and provide services. If droughts extend over a number of years, the direct and indirect economic impact can be significant.

Habitat damage is a vulnerability of the environment during periods of drought for both aquatic and terrestrial species. The environment also becomes vulnerable during periods of extreme or prolonged drought due to severe erosion and land degradation.

Impact of droughts experienced in the Victoria County planning area has resulted in no injuries or fatalities supporting a 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. Annualized loss over the 21-year reporting period in Victoria County is $0 annually.

ASSESSMENT OF IMPACTS

The Drought Impact Reporter was developed in 2005 by the University of Nebraska-Lincoln to provide a national database of drought impacts. Droughts can have an impact on: the agriculture; business and industry; energy; fire; plants and wildlife; relief, response, and restrictions; society and public health; tourism and recreation; and water supply and quality. The reports are submitted from individuals from Federal, State, and local agencies, as well as the general public. Table 8-8 lists the drought impacts to Victoria County from 2005 to 2015 based on reports received by the Drought Impact Reporter.

[4] County totals includes all incorporated jurisdictions and unincorporated areas.

Table 8-8. Drought Impacts, 2005-2015

DROUGHT IMPACTS 2005-2015	
Agriculture	48
Business & Industry	2
Energy	1
Fire	12
Plants & Wildlife	17
Relief, Response & Restrictions	13
Society & Public Health	5
Tourism & Recreation	1
Water Supply & Quality	15

Drought has the potential to impact people in the Victoria County planning area. While it is rare that drought, in and of itself, leads to a direct risk to the health and safety of people in the U.S., severe water shortages could result in inadequate supply for human needs. Drought also is frequently associated with a variety of impacts, including:

- The number of health-related low-flow issues (e.g., diminished sewage flows, increased pollution concentrations, reduced firefighting capacity, and cross-connection contamination) will increase as the drought intensifies.
- Public safety from forest/range/wildfires will increase as water availability and/or pressure decreases.
- Respiratory ailments may increase as the air quality decreases.
- There may be an increase in disease due to wildlife concentrations (e.g., rabies, Rocky Mountain spotted fever, Lyme disease).
- Jurisdictions and residents may disagree over water use/water rights, creating conflict.
- Political conflicts may increase between municipalities, counties, states, and regions.
- Water management conflicts may arise between competing interests.
- Increased law enforcement activities may be required to enforce water restrictions.
- Severe water shortages could result in inadequate supply for human needs as well as lower quality of water for consumption.
- Firefighters may have limited water resources to aid in firefighting and suppression activities, increasing risk to lives and property.
- During drought there is an increased risk for wildfires and dust storms.
- The community may need increased operational costs to enforce water restriction or rationing.
- Prolonged drought can lead to increases in illness and disease related to drought.
- Utility providers can see decreases in revenue as water supplies diminish.
- Utilities providers may cut back energy generation and service to their customers to prioritize critical service needs.

- Hydroelectric power generation facilities and infrastructure would have significantly diminished generation capability. Dams simply cannot produce as much electricity from low water levels as they can from high water levels.
- Fish and wildlife food and habitat will be reduced or degraded over time during a drought and disease will increase, especially for aquatic life.
- Wildlife will move to more sustainable locations creating higher concentrations of wildlife in smaller areas, increasing vulnerability and further depleting limited natural resources.
- Severe and prolonged drought can result in the reduction of a species, or cause the extinction of a species altogether.
- Plant life will suffer from long-term drought. Wind and erosion will also pose a threat to plant life as soil quality will decline.
- Dry and dead vegetation will increase the risk of wildfire.
- Land subsidence threat increases as groundwater is depleted.
- Recreational activities that rely on water may be curtailed, such as hunting and fishing in or near the Guadalupe River, resulting in fewer tourists and lower revenue.
- Drought poses a significant risk to annual and perennial crop production and overall crop quality leading to higher food costs.
- Drought related declines in production may lead to an increase in unemployment.
- Drought may limit livestock grazing resulting in decreased livestock weight, potential increased livestock mortality, and increased cost for feed.
- Negatively impacted water suppliers may face increased costs resulting from the transport water or develop supplemental water resources.
- Long term drought may negatively impact future economic development.

The overall extent of damages caused by periods of drought is dependent on its extent and duration. The level of preparedness and pre-event planning done by government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a drought event.

SECTION 9: EXTREME HEAT

HAZARD DESCRIPTION

Extreme heat is a prolonged period of excessively high temperatures and exceptionally humid conditions. Extreme heat during the summer months is a common occurrence throughout the State of Texas, and Victoria County is no exception. The unincorporated areas of the County and the City of Victoria typically experience extended heat waves. A heat wave is an extended period of extreme heat and is often accompanied by high humidity.

Although heat can damage buildings and facilities, it presents a more significant threat to the safety and welfare of citizens. The major human risks associated with severe summer heat include: heat cramps; sunburn; dehydration; fatigue; heat exhaustion; and even heat stroke. The most vulnerable population to heat casualties are children and the elderly or infirmed who frequently live on low fixed incomes and cannot afford to run air-conditioning on a regular basis. This population is sometimes isolated, with no immediate family or friends to look out for their well-being.

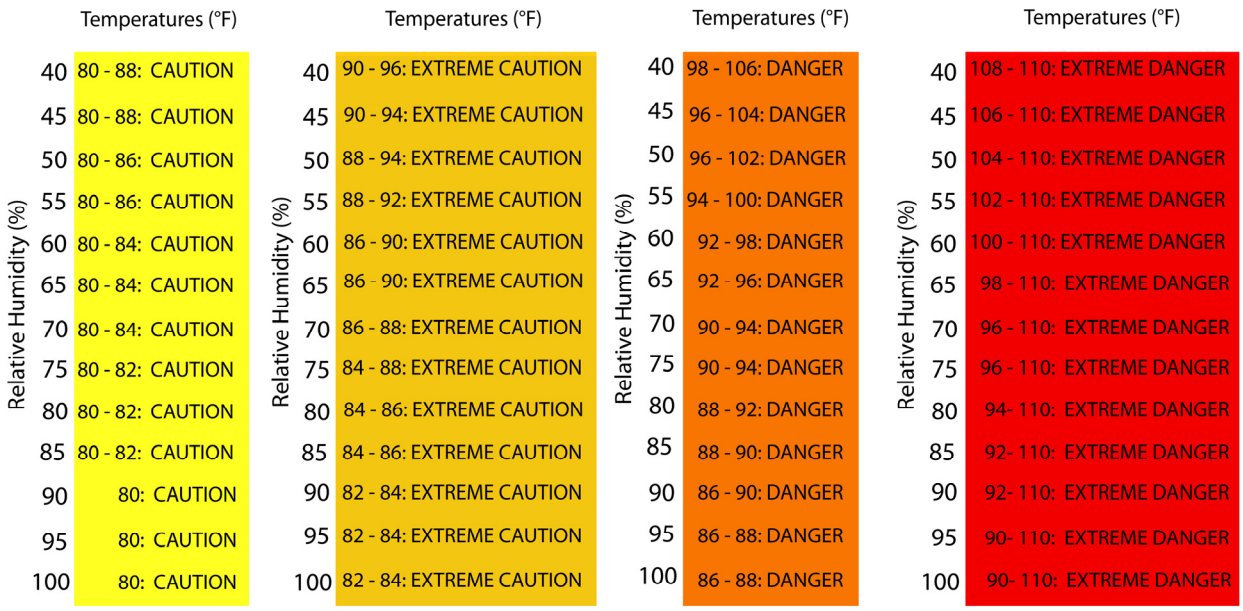
LOCATION

Though a death from extreme heat has been recorded at a specific location in the County, there is no specific geographic scope to the extreme heat hazard. Extreme heat could occur anywhere within the Victoria County planning area, including the City of Victoria and Victoria ISD.

EXTENT

The magnitude or intensity of an extreme heat event is measured according to temperature in relation to the percentage of humidity. According to the National Oceanic Atmospheric Administration (NOAA), this relationship is referred to as the “Heat Index” and is depicted in Figure 9-1. This index measures how hot it feels outside when humidity is combined with high temperatures.

Figure 9-1. Extent Scale for Extreme Summer Heat[1]



The Extent Scale in Figure 9-1 displays varying categories of caution depending on the relative humidity combined with the temperature. For example, when the temperature is at 90 degrees Fahrenheit (ºF) or lower, caution should be exercised if the humidity level is at or above 40 percent.

The shaded zones on the chart indicate varying symptoms or disorders that could occur depending on the magnitude or intensity of the event. “Caution” is the first category of intensity, and it indicates when fatigue due to heat exposure is possible. “Extreme Caution” indicates that sunstroke, muscle cramps, or heat exhaustion are possible, and a “Danger” level means that these symptoms are likely. “Extreme Danger” indicates that heat stroke is likely. The National Weather Service (NWS) initiates alerts based on the Heat Index as shown in Table 9-1.

Table 9-1. Heat Index and Warnings

CATEGORY	HEAT INDEX	POSSIBLE HEAT DISORDERS	WARNING TYPE
Extreme Danger	125°F and higher	Heat stroke or sun stroke likely.	A heat advisory will be issued to warn that the Heat Index may exceed 105°F.
Danger	103 – 124°F	Sunstroke, muscle cramps, and/or heat exhaustion are likely. Heatstroke possible with prolonged exposure and/or physical activity.	

[1] Source: NOAA

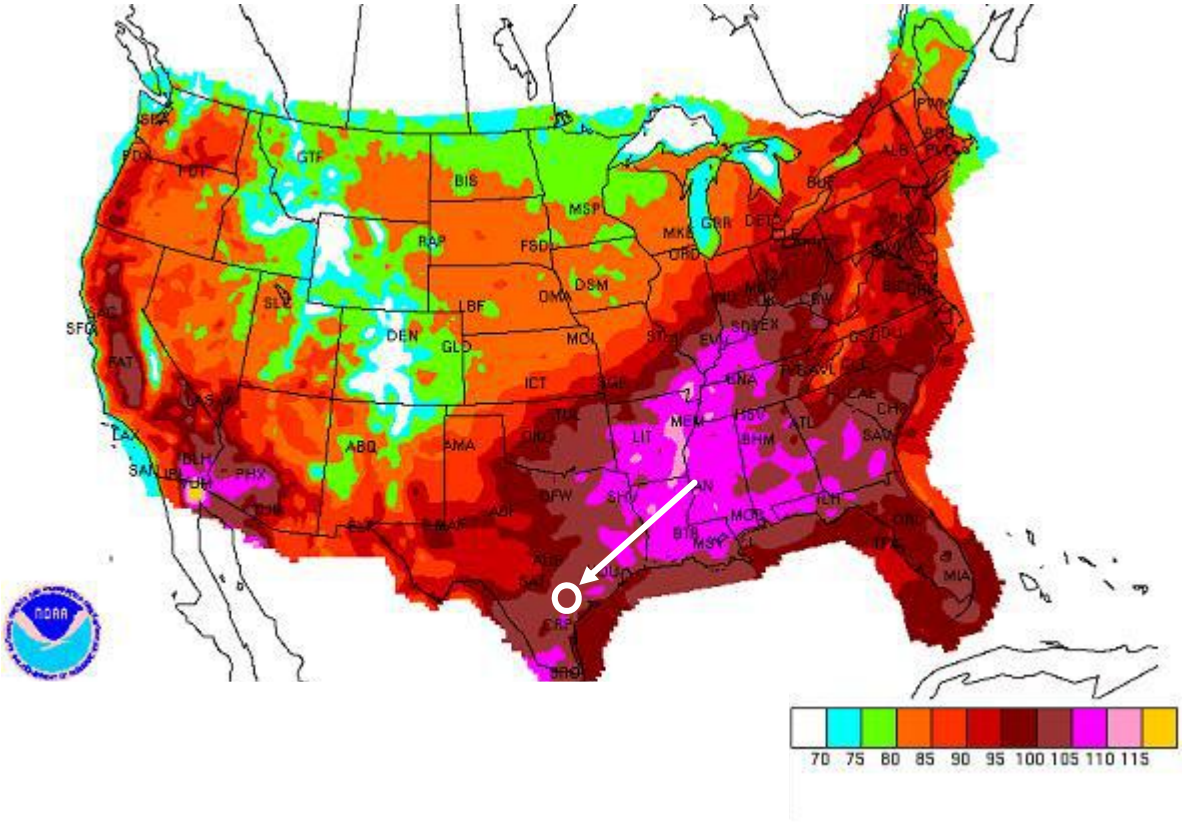
CATEGORY	HEAT INDEX	POSSIBLE HEAT DISORDERS	WARNING TYPE
Extreme Caution	90 – 103°F	Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.	An Excessive Heat Warning is issued if the Heat Index rises above 105°F at least 3 hours during the day or above 80°F at night.
Caution	80 – 90°F	Fatigue is possible with prolonged exposure and/or physical activity.	

Victoria County's terrain is mostly flat to slightly rolling land with an average elevation of 95 feet. The county is located on the coastal plains of Texas about 40 miles from the Gulf of Mexico and 15 miles from the nearest bay waters. The Guadalupe River runs through the county from the northwest through the southern central portion of the county. Vegetation in better-drained areas consists primarily of short grasses with post oaks and other small timber and brush. Moist sites can grow tall forests dominated by elm and pecan.

Victoria County is classified as humid subtropical. June through August is very hot and humid with high temperatures regularly exceeding 90°F. The record high temperature of 111°F was recorded in September 2000. Spring and autumn are generally mild to warm with lower humidity. Due to its geography and warm, sunny, humid subtropical climate, the Victoria County planning area, including the city, county, and Victoria ISD, can expect an extreme heat event each summer. Citizens, especially children and the elderly, should exercise caution by staying out of the heat for prolonged periods when a heat advisory or excessive heat warning is issued. Also at risk are those working or remaining outdoors.

Figure 9-2 displays the daily maximum heat index as derived from NOAA based on data compiled from 1838 to 2015. The black circle shows the Victoria County area. The color brown indicates a daily maximum heat index of 100° to 105°F. Victoria County, including all participating jurisdictions and Victoria ISD could experience extreme heat from 90° to 105°F and should mitigate to the extent of "extreme caution," which can include sunstroke, muscle cramps, and heat exhaustion.

Figure 9-2. Average Daily Maximum Heat Index Days[2]



HISTORICAL OCCURRENCES

Every summer, the hazard of heat-related illness becomes a significant public health issue throughout much of the US. Mortality from all causes increases during heat waves, and excessive heat is an important contributing factor to deaths from other causes, particularly among the elderly. Preliminary data suggest that by August 21, 2009, record high summer temperatures in Texas resulted in more than 120 heat-related deaths statewide. The United States Immigration and Naturalization Service reported that 51 foreign nationals died along the Texas/Mexico border though none of the reported deaths occurred in Victoria County. Table 9-2 depicts historical occurrences of mortality from heat from 1994 to 2004 from the Texas Department of State Health Services and 2005 to 2017 from the NCEI database.

Table 9-2. Extreme Heat Related Deaths in Texas

YEAR	DEATHS
1994	1
1995	12

[2] Source: NRDC and the black circle indicates the Victoria County planning area.

YEAR	DEATHS
1996	10
1997	2
1998	66
1999	22
2000	71
2001	20
2002	1
2003	0
2004	3
2005	49
2006	2
2007	2
2008	7
2009	6
2010	4
2011	20
2012	2
2013	1
2014	0
2015	5
2016	6
2017	0

Because the Texas Department of State Health Services reports on total events statewide, previous occurrences for extreme heat are derived from the NCEI database. According to heat related incidents located solely within Victoria County, there are two heat waves[3] on record for Victoria County (Table 9-3). Historical extreme heat information, as provided by the NCEI, shows extreme heat activity across a multi-county forecast area for each event, the appropriate percentage of the total property and crop damage

[3] Even though the County experiences heat waves each summer, NCEI data only records events reported. Based on reports, only two events are on record.

reported for the entire forecast area has been allocated to each county impacted by the event. Historical extreme heat data for the City of Victoria and Victoria ISD are provided on a County-wide basis per the NCEI database. Only extreme heat events that have been reported have been factored into this Risk Assessment. It is likely additional extreme heat occurrences have gone unreported before and during the recording period.

Table 9-3. Historical Extreme Heat Events, January 1996-May 2017

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	9/1/2000	0	0	$0	$0
Victoria County	5/10/2006	0	0	$0	$0
TOTALS		**0**	**0**	**$0**	**$0**

SIGNIFICANT EVENTS

September 1, 2000
Stagnant high pressure, light winds, and several months of below normal rainfall allowed temperatures to reach extreme levels for the first 5 days of September. High temperatures remained above 100 degrees for most locations. Aside from Corpus Christi and Victoria setting all-time record highs, 109° and 111°F respectively, on September 5th, Alice, Cotulla, Kingsville and Laredo reached 111°, 112°, 110°, and 111°F respectively. As additional evidence that September 5th was the hottest day ever recorded for South Texas, coastal sites Rockport and Corpus Christi Naval Air Station reported 107° and 106°F respectively.

PROBABILITY OF FUTURE EVENTS

Average high temperatures for the planning area through the summer months indicate a probability of one event or more every year. This frequency supports a highly likely probability of future events.

VULNERABILITY AND IMPACT

There is no defined geographic boundary for extreme heat events. While the entire Victoria County planning area, including the county, city, and Victoria ISD, is exposed to extreme temperatures, existing buildings, infrastructure, and critical facilities are not likely to sustain significant damage from extreme heat events. Therefore, any estimated property losses associated with the extreme heat hazard are anticipated to be minimal across the area.

Extreme temperatures do however present a significant threat to life and safety for the population of the County as a whole. Heat casualties for example are typically caused by a lack of adequate air-conditioning or heat exhaustion. The most vulnerable population to heat casualties are the elderly or infirmed who frequently live on low fixed incomes and cannot afford to run air-conditioning on a regular basis. This population is sometimes isolated, with no immediate family or friends to look out for their well-being.

Students in the Independent School District are also susceptible as sporting events and practices are often held outside during early fall or late spring when temperatures are at the highest. The Victoria ISD includes 14 Athletic Fields and 2 stadiums that may have ongoing athletic activities that would need to be closely

monitored during extreme heat events. Another segment of the population at risk are those whose jobs consist of strenuous labor outdoors. Additionally, livestock and crops can become stressed, decreasing in quality or in production, during times of extreme heat.

The population over 65 in the Victoria County planning area is estimated at 14.2% of the total population and children under the age of 5 are estimated at 7.4%, or an estimated total of 19,418[4] potentially vulnerable residents in the planning area based on age (Table 9-4).

Table 9-4. Populations at Greater Risk by Jurisdiction

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5
Victoria County[5]	12,788	6,630
City of Victoria	8,885	5,034

Extreme high temperatures can have significant secondary impacts, leading to droughts, water shortages, increased fire danger, and prompt excessive demands for energy. The possibility of rolling blackouts increases with unseasonably high temperatures in what is a normally mild month with low power demands.

Typically more than 12 hours of warning time would be given before the onset of an extreme heat event. Only minor property damage would result. The potential impact of excessive summer heat is considered "Minor" as injuries and/or illnesses do not result in permanent disability for the Victoria County planning area, including the city, county and the campuses of Victoria ISD.

In terms of vulnerability to structures, the impact from extreme heat would be negligible. It is possible that critical facilities and infrastructure could be shut down for 24 hours if cooling units are running constantly, leading to a temporary power outage. Less than ten percent of residential and commercial property could be damaged if extreme heat events lead to structure fires.

The potential impact of extreme heat for the Victoria County planning area can be considered "Minor," resulting in few injuries and minimal disruption to the quality of life. Based on historical records over a 21-year period, annualized losses for the Victoria County planning area are negligible.

Annualized losses are not included for Victoria ISD as there have not been events or losses to affect the Independent School District separate and apart from a historical occurrence for Victoria County.

ASSESSMENT OF IMPACTS

The greatest risk from extreme heat is to public health and safety. Potential impacts the community may include:

- Vulnerable populations, particularly the elderly and infants, can face serious or life-threatening health problems from exposure to extreme heat including hyperthermia, heat cramps, heat exhaustion, and heat stroke (or sunstroke).

[4] U.S. Census Bureau 2015 data for Victoria County

[5] County totals includes all incorporated jurisdictions and unincorporated areas.

- Response personnel, including utility workers, public works personnel, and any other professions where individuals are required to work outside, are more subject to extreme heat related illnesses since their exposure would typically be greater.
- High energy demand periods can outpace the supply of energy, potentially creating the need for rolling brownouts which would elevate the risk of illness to vulnerable residents.
- Highways and roads may be damaged by excessive heat causing asphalt roads to soften and concrete roads to shift or buckle.
- Vehicles engines and cooling systems typically run harder during extreme heat events resulting in increases in mechanical failures.
- Extreme heat events during times of drought can exacerbate the environmental impacts associated with drought, decreasing water and air quality and further degrading wildlife habitat.
- Extreme heat increases ground-level ozone (smog), increasing the risk of respiratory illnesses.
- Tourism and recreational activities predominant in Guadalupe River area may be negatively impacted during extreme heat events, reducing seasonal revenue.
- Food suppliers can anticipate an increase in food costs due to increases in production costs and crop and livestock losses.
- Fisheries may be negatively impacted by extreme heat, suffering damage to fish habitats (either natural or man-made) and a loss of fish and/or other aquatic organisms due to decreased water flows or availability.
- Negatively impacted water suppliers may face increased costs resulting from the transport of water resources or development of supplemental water resources.
- Outdoor activities may see an increase in school injury or illness during extreme heat events.

The economic and financial impacts of extreme heat on the community will depend on the duration of the event, demand for energy, drought associated with extreme heat, and many other factors. The level of preparedness and the amount of planning done by the jurisdiction, local businesses, and citizens will impact the overall economic and financial conditions before, during, and after an extreme heat event.

SECTION 10: HAIL

HAZARD DESCRIPTION

Hailstorm events are a potentially damaging outgrowth of severe thunderstorms. During the developmental stages of a hailstorm, ice crystals form within a low pressure front due to the rapid rising of warm air into the upper atmosphere, and the subsequent cooling of the air mass. Frozen droplets gradually accumulate into ice crystals until they fall as precipitation that is round or irregularly shaped masses of ice typically greater than 0.75 inches in diameter. The size of hailstones is a direct result of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a by-product of heating on the Earth's surface. Higher temperature gradients above Earth's surface result in increased suspension time and hailstone size.

LOCATION

Hailstorms are an extension of severe thunderstorms that could potentially cause severe damage. As a result, they are not confined to any specific geographic location and can vary greatly in size, location, intensity, and duration. Therefore, the Victoria County planning area, including the county, city, and Victoria ISD, are equally at risk to the hazard of hail.

EXTENT

The National Weather Service (NWS) classifies a storm as "severe" if there is hail three-quarters of an inch in diameter (approximately the size of a penny) or greater, based on radar intensity or as seen by observers. The intensity category of a hailstorm depends on hail size and the potential damage it could cause, as depicted in the National Centers for Environmental Information (NCEI) Intensity Scale in Table 10-1.

Table 10-1. Hail Intensity and Magnitude[1]

SIZE CODE	INTENSITY CATEGORY	SIZE (Diameter Inches)	DESCRIPTIVE TERM	TYPICAL DAMAGE
H0	Hard Hail	Up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33 – 0.60	Marble	Slight damage to plants and crops
H2	Potentially Damaging	0.60 – 0.80	Dime	Significant damage to plants and crops
H3	Severe	0.80 – 1.20	Nickel	Severe damage to plants and crops
H4	Severe	1.2 – 1.6	Quarter	Widespread glass and auto damage
H5	Destructive	1.6 – 2.0	Half Dollar	Widespread destruction of glass, roofs, and risk of injuries
H6	Destructive	2.0 – 2.4	Ping Pong Ball	Aircraft bodywork dented and brick walls pitted
H7	Very Destructive	2.4 – 3.0	Golf Ball	Severe roof damage and risk of serious injuries
H8	Very Destructive	3.0 – 3.5	Hen Egg	Severe damage to all structures
H9	Super Hailstorms	3.5 – 4.0	Tennis Ball	Extensive structural damage, could cause fatal injuries
H10	Super Hailstorms	4.0 +	Baseball	Extensive structural damage, could cause fatal injuries

The intensity scale in Table 10-1 ranges from H0 to H10, with increments of intensity or damage potential in relation to hail size (distribution and maximum), texture, fall speed, speed of storm translation, and strength of the accompanying wind. Based on available data regarding the previous occurrences for the area, the Victoria County planning area may experience hailstorms ranging from an H0 to an H7. The County can mitigate a storm from low risk or hard hail to a very destructive hailstorm with golf ball size hail that leads to severe roof damage and risk of serious injuries.

HISTORICAL OCCURRENCES

Historical evidence shown in Figure 10-1 demonstrates that the planning area is vulnerable to hail events overall, which typically result from severe thunderstorm activity. Historical events with reported damages, injuries, or fatalities are shown in Table 10-2. A total of 96 reported historical hail events impacted the Victoria County planning area between 1955 through 2017 (Summary Table 10-3). These events were reported to NCEI and NOAA databases and may not represent all hail events to have occurred during the

[1] NCEI Intensity Scale, based on the TORRO Hailstorm Intensity Scale.

past 62 years. Only those events for the Victoria County planning area with latitude and longitude available were plotted (Figure 10-1).

Historical hail data for the following are provided within a City-wide basis per the NCEI database: Victoria ISD is included in the City of Victoria.

Figure 10-1. Spatial Historical Hail Events, 1955-2017

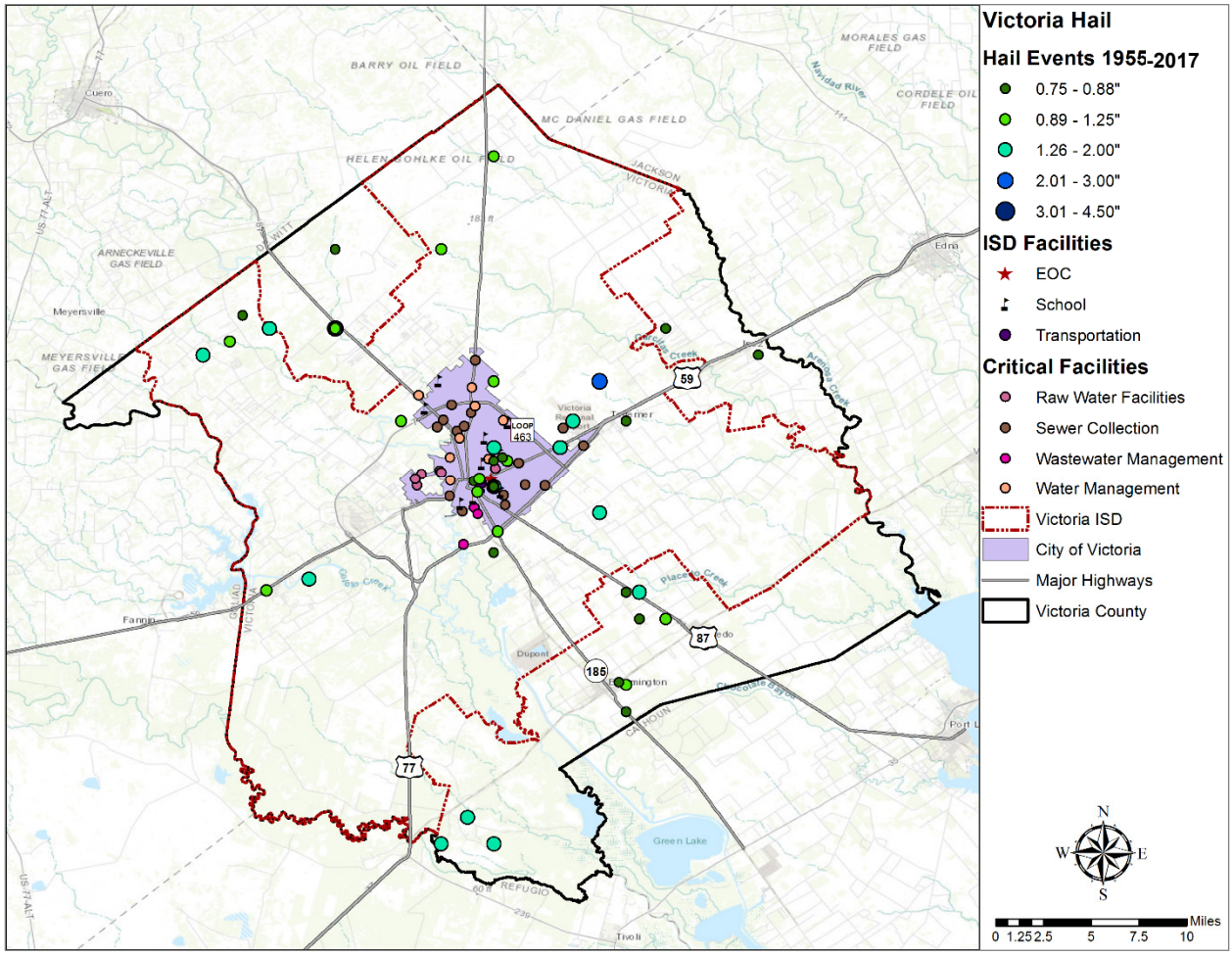


Table 10-2. Historical Hail Events, 1955-2017[2]

JURISDICTION	Date	MAGNITUDE	INJURIES	FATALITIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	4/15/1994	1.75 inches	0	0	$81,929	$81,929
Victoria County	4/15/1994	1.75 inches	0	0	$81,929	$81,929
Victoria County	5/12/1994	0.88 inches	0	0	$8,193	$8,193
TOTALS		**(Max Extent)**			**$344,102**	

Table 10-3. Historical Hail Events Summary, January 1955-May 2017

JURISDICTION	Number of Events	MAGNITUDE	INJURIES	FATALITIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	56	2.75 inches	0	0	$172,051	$172,051
City of Victoria	40	2.75 inches	0	0	$0	$0
TOTAL LOSSES		**(Max Extent)**	**0**	**0**	**$344,102**	

SIGNIFICANT EVENTS

October 12, 1993 – City of Victoria
On October 12, 1993, a hail storm brought golf ball to baseball size hail to the west side of Victoria and portions of Victoria County.

April 15, 2012 – Victoria County
A slow moving cold front along with plentiful moisture, an unstable air mass, and a strong upper level disturbance set the stage for the development of severe thunderstorms late in the afternoon on April 15th. Thunderstorms initially began over the Northern Coastal Bend and Victoria area during the late afternoon. These thunderstorms quickly intensified to produce up to golf ball sized hail near Goliad. As the effects from the upper level disturbance began to impact South Texas, the storms began moving northeast into Victoria County. One storm produced quarter sized hail in Victoria. Very heavy rainfall also occurred, but no flooding was observed. By the end of the evening, strong to severe thunderstorms developed over the southern Coastal Bend and Brush Country, producing quarter sized hail in Duval County. Stripes Convenience store employees reported quarter sized hail at US Highway 59 and North Laurent Street.

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, 96 events in a 62 year reporting period for Victoria County provides a probability of one to two events every year. This frequency supports a highly likely probability of future events for the Victoria County planning area including the city, county, and Victoria ISD. The numbers listed for the City of Victoria within the County are historical events that are known to have specifically impacted that jurisdiction. Independent School District events are included under the City of Victoria.

[2] Only recorded events with fatalities, injuries, and/or damages are listed.

VULNERABILITY AND IMPACT

Damage from hail approaches $1 billion in the U.S. each year. Much of the damage inflicted by hail is to crops. Even relatively small hail can shred plants to ribbons in a matter of minutes. Vehicles, roofs of buildings and homes, and landscaping are most commonly damaged by hail.

Utility systems on roofs at school districts and critical facilities would be vulnerable. Hail could cause a significant threat to people as they could be struck by hail and falling trees or branches. Outdoor student activities and events may elevate the risk to students and faculty when a hailstorm strikes with little warning. Hail events during school hours could elevate the risk to students and faculty due to broken windows and flying debris. Portable buildings utilized by campuses within the school district would be more vulnerable to hail events than the typical site built structures at each Victoria ISD campus. In addition, outdoor equipment at ISD campuses would be more vulnerable including 622 Air Conditioning Units, 14 Athletic Fields equipped with operational infrastructure, and two stadiums. Windows at all 26 campuses would be vulnerable and shattered glass may cause injury to students and faculty.

First responders could not be able to respond to calls due to blocked roads. Also, hail could cause power outages which could cause health and safety risks to faculty and students at schools.

The Victoria County planning area features several mobile or manufactured home parks throughout the planning area. These parks are typically more vulnerable to hail events than typical site built structures. In addition, manufactured homes are located sporadically throughout the planning area including the city and county which would also be more vulnerable. The US Census data indicates a total of 3,865 manufactured homes located in the Victoria County planning area including the City of Victoria (Table 10-4). In addition, 55% (approximately 19,720 structures) of the single family residential (SFR) structures in the Victoria County planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant hail events.

Table 10-4. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Victoria County[3]	3,865	19,720
City of Victoria	1,311	15,538

The following critical facilities would be vulnerable to hail events in each participating jurisdiction:

[3] County totals includes all incorporated jurisdictions and unincorporated areas.

Table 10-5. Critical Facilities at Risk by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Victoria County	10 Fire Stations, 5 Schools, Wastewater Treatment Facility
City of Victoria	Airport, Salvation Army Facility, Red Cross Facility, EOC, 7 Fire Stations, 12 Government Facilities, 3 Hospitals, Hospice Care Facility, 19 Lift Stations, 16 Nursing Homes, 3 Police Stations, Port, 6 Pump Stations, 34 School Facilities, Sherriff's Office, 6 Utility Facilities, Wastewater Treatment Plant, 5 Water Towers, Water Treatment Facility
Victoria ISD	Administration Building, Maintenance Operation Facility, 18 Elementary Schools, 4 Middle Schools, 2 High Schools, 1 Alternative School, 1 Advanced Learning Center, 1 Career and Technology Center, 14 Athletic Fields, 2 Stadiums, 1 Agriculture Farm

Hail has been known to cause injury to humans and occasionally has been fatal. Overall, the average loss estimate of property and crops (in 2017 dollars) is $344,102, having an approximate annual loss estimate of $5,550. Based on historic loss and damages, the impact of hail damages on the Victoria County planning area can be considered "Minor" severity of impact meaning injuries and illness do not result in permanent disability, County area facilities shut down for more than one week, and more than ten percent of property destroyed or with major damage.

Annualized losses are not included for Victoria ISD as there have not been events or losses to affect the Independent School District separate and apart from a historical occurrence for the City of Victoria.

Table 10-5. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP DAMAGE	ANNUAL LOSS ESTIMATE
Victoria County	$344,102	$5,550
City of Victoria	$0	$0
Planning Area	**$344,102**	**$5,550**

ASSESSMENT OF IMPACTS

Hail events have the potential to pose a significant risk to people and can create dangerous situations. Impacts to the planning area can include:

- Hail may create hazardous road conditions during and immediately following an event, delaying first responders from providing for or preserving public health and safety.
- Individuals and first responders who are exposed to the storm may be struck by hail, falling branches, or downed trees resulting in injuries or possible fatalities.
- Residential structures can be damaged by falling trees, which can result in physical harm to occupants.

- Large hail events will likely cause extensive roof damage to residential structures along with siding damage and broken windows, creating a spike in insurance claims and a rise in premiums.
- Automobile damage may be extensive depending on the size of the hail and length of the storm.
- Hail events can result in power outages over widespread areas increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage can result in an increase in structure fires and/or carbon monoxide poisoning, as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- First responders are exposed to downed power lines, damaged structures, hazardous spills, and debris that often accompany hail events, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Downed power lines and large debris, such as downed trees, can result in the inability of emergency response vehicles to access areas of the community.
- Hazardous road conditions may prevent critical staff from reporting for duty, limiting response capabilities.
- Economic disruption negatively impacts the programs and services provided by the community due to short and long term loss in revenue.
- Some businesses not directly damaged by the hail event may be negatively impacted while roads are cleared and utilities are being restored, further slowing economic recovery.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.
- Hazardous road conditions will likely lead to increases in automobile accidents, further straining emergency response capabilities.
- Depending on the severity and scale of damage caused by large hail events, damage to power transmission and distribution infrastructure can require days or weeks to repair.
- A significant hail event could significantly damage agricultural crops, resulting in extensive economic losses for the community and surrounding area.
- Hail events may injure or kill livestock and wildlife.
- A large hail event could impact the accessibility of recreational areas and parks due to extended power outages or debris clogged access roads.

The economic and financial impacts of hail will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning conducted by the community, local businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of any hail event.

SECTION 11: WINTER STORM

HAZARD DESCRIPTION

A severe winter storm event is identified as a storm with snow, ice, or freezing rain. This type of storm can cause significant problems for area residents. Winter storms are associated with freezing or frozen precipitation such as freezing rain, sleet, snow, and the combined effects of winter precipitation and strong winds. Wind chill is a function of temperature and wind. Low wind chill is a product of high winds and freezing temperatures.

Winter storms that threaten Victoria County usually begin as powerful cold fronts that push south from central Canada. Although the county is at risk to ice hazards, extremely cold temperatures, and snow, the effects and frequencies of winter storm events are generally mild and short-lived. As indicated in Figure 11-1, on average, the Victoria County planning area and campuses of Victoria ISD typically experience less than ten extreme cold days a year, meaning one to ten days are at or around freezing temperatures. During times of ice and snow accumulation, response times will increase until public works road crews are able to make major roads passable. Table 11-1 describes the types of winter storms possible to occur in the Victoria County planning area, including the city, county, and Victoria ISD.

Figure 11-1. Extreme Cold Days, 1960-2003[1]

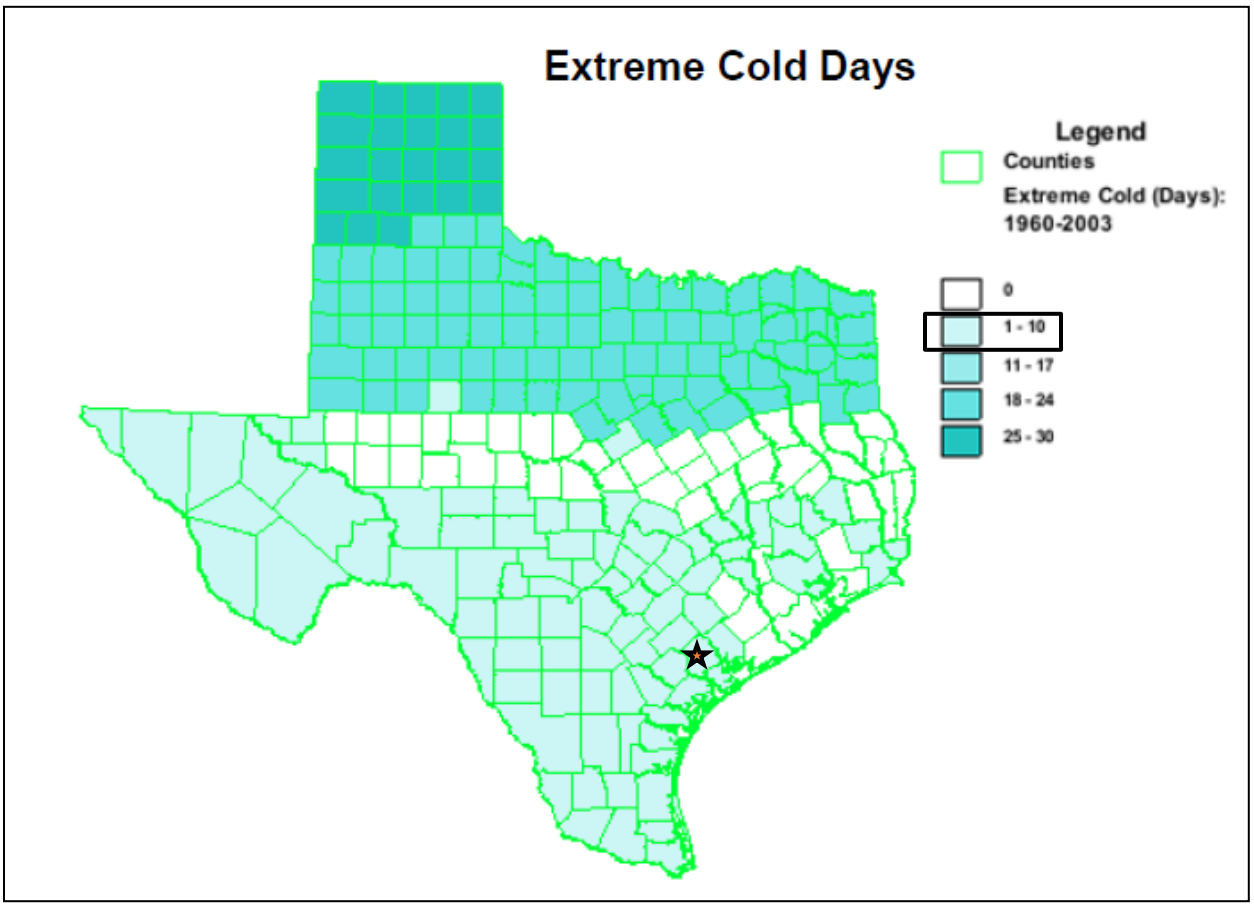


Table 11-1. Types of Winter Storms

TYPE OF WINTER STORM	DESCRIPTION
Winter Weather Advisory	This alert may be issued for a variety of severe conditions. Weather advisories may be announced for snow, blowing or drifting snow, freezing drizzle, freezing rain, or a combination of weather events.
Winter Storm Watch	Severe winter weather conditions may affect your area (freezing rain, sleet, or heavy snow may occur separately or in combination).
Winter Storm Warning	Severe winter weather conditions are imminent.
Freezing Rain or Freezing Drizzle	Rain or drizzle is likely to freeze upon impact, resulting in a coating of ice glaze on roads and all other exposed objects.

[1] Source: National Weather Service. Victoria County indicated by star.

TYPE OF WINTER STORM	DESCRIPTION
Sleet	Small particles of ice usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous.
Blizzard Warning	Sustained wind speeds of at least 35 mph are accompanied by considerable falling or blowing snow. This alert is the most perilous winter storm with visibility dangerously restricted.
Frost/Freeze Warning	Below freezing temperatures are expected and may cause significant damage to plants, crops, and fruit trees.
Wind Chill	A strong wind combined with a temperature slightly below freezing can have the same chilling effect as a temperature nearly 50 degrees lower in a calm atmosphere. The combined cooling power of the wind and temperature on exposed flesh is called the wind-chill factor.

LOCATION

Winter storm events are not confined to specific geographic boundaries. Therefore, all existing and future buildings, facilities, and populations in the Victoria County planning area, including Victoria ISD and the City of Victoria, are considered to be exposed to a winter storm hazard and could potentially be impacted.

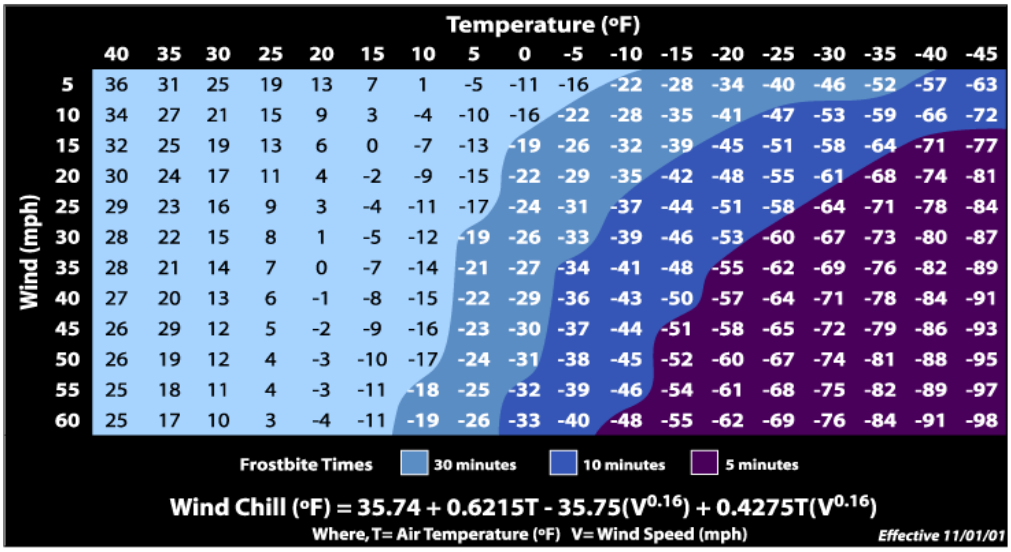
EXTENT

The extent or magnitude of a severe winter storm is measured in intensity based on the temperature and level of accumulations as shown in Table 11-2. Table 11-2 should be read in conjunction with the wind-chill factor described in Figure 11-2 to determine the intensity of a winter storm. The chart is not applicable when temperatures are over 50°F or winds are calm. This is an index developed by the National Weather Service.

Table 11-2. Magnitude of Severe Winter Storms

INTENSITY	TEMPERATURE RANGE (Fahrenheit)	EXTENT DESCRIPTION
Mild	40° – 50°	Winds less than 10 mph and freezing rain or light snow falling for short durations with little or no accumulations
Moderate	30° – 40°	Winds 10 – 15 mph and sleet and/or snow up to 4 inches
Significant	25° – 30°	Intense snow showers accompanied with strong gusty winds between 15 and 20 mph with significant accumulation
Extreme	20° – 25°	Wind driven snow that reduces visibility, heavy winds (between 20 to 30 mph), and sleet or ice up to 5 millimeters in diameter
Severe	Below 20°	Winds of 35 mph or more and snow and sleet greater than 4 inches

Figure 11-2. Wind Chill Chart



Wind chill temperature is a measure of how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a blustery 30°F day would feel just as cold as a calm day with 0°F temperatures. The Victoria County planning area, including Victoria Independent School District, has never experienced a blizzard, but based on 8 previous occurrences recorded from 1996 through 2017, it has been subject to winter storm watches, warnings, freezing rain, sleet, snow, and wind chill.

The average number of cold days is similar for the entire planning area, including the county, city, and Victoria ISD. Therefore, the intensity or extent of a winter storm event to be mitigated for the area ranges from mild to significant according to the definitions at Table 11-2. Victoria County planning area, including Victoria City and Victoria ISD, can expect anywhere between 0.1 to 3.0 inches of ice and snow during a winter storm event and temperatures between 25 and 50 degrees with winds ranging from 0 to 20 mph.

HISTORICAL OCCURRENCES

Table 11-3 shows historical occurrences for Victoria County from 1996 through 2017 provided by the NCEI database. There have been 8 recorded winter storm events in Victoria County. Historical winter storm information, as provided by the NCEI, identifies winter storm activity across a multi-county forecast area for each event. The appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical winter storm data for the county, city, and Victoria ISD are provided on a County-wide basis per the NCEI database. Table 11-3 shows historical incident information for the planning area.

Table 11-3. Historical Winter Storm Events, January 1996-May 2017[2]

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	12/24/2004	0	0	$0	$0
Victoria County	12/8/2006	0	0	$0	$0
Victoria County	1/16/2007	0	0	$0	$0
Victoria County	12/4/2009	0	0	$0	$0
Victoria County	1/8/2010	0	0	$0	$0
Victoria County	2/3/2011	0	0	$0	$0
Victoria County	2/9/2011	0	0	$0	$0
Victoria County	1/24/2014	0	0	$51,289	$0
TOTALS		0	0	$51,289	$0

SIGNIFICANT EVENTS

January 24, 2014 – Victoria County

During the afternoon on January 23rd, 2014, a strong Arctic cold front moved through South Texas. Temperatures dropped around 20 degrees in 3 hours and around 30 degrees in 6 hours after the front had passed. Maximum wind gusts behind the front across most of South Texas averaged between 35 and 40 mph. Overrunning moisture along with an upper level disturbance aided in the development of precipitation behind the cold front. As the Arctic air mass became more entrenched across South Texas during the late evening and overnight hours, freezing rain and drizzle sometimes mixed with sleet became the more dominant precipitation type across much of South Texas. Ice accumulations around an eighth of an inch occurred across portions of Jim Wells, Live Oak, Bee, Goliad, and Victoria counties.

Multiple vehicle accidents occurred across South Texas due to the icy roads and bridges. Even portions of Interstate 35, Interstate 37, and US Highway 181 along with the Harbor Bridge were closed briefly during the morning of the 24th. Flights were delayed for several hours at the Victoria Regional Airport. Power outages were also reported. Ice accumulations on overpasses caused several motor vehicle accidents on the north side of Victoria.

PROBABILITY OF FUTURE EVENTS

According to historical records, the planning area experiences approximately one winter storm event per year. Hence, the probability of a future winter storm event affecting the Victoria County planning area, including the county, city, and Victoria ISD, is highly likely, with a winter storm likely to occur within the next year. Victoria Independent School District events are included under the County.

[2] Values are in 2017 dollars.

VULNERABILITY AND IMPACT

During periods of extreme cold and freezing temperatures, water pipes can freeze and crack, and ice can build up on power lines, causing them to break under the weight or causing tree limbs to fall on the lines. These events can disrupt electric service for long periods.

An economic impact may occur due to increased consumption of heating fuel, which can lead to energy shortages and higher prices. House fires and resulting deaths tend to occur more frequently from increased and improper use of alternate heating sources. Fires during winter storms also present a greater danger because water supplies may freeze and impede firefighting efforts.

All populations, buildings, critical facilities, and infrastructure in the entire Victoria County planning area are vulnerable to severe winter events.

The following critical facilities would be vulnerable to Winter Storm events in each participating jurisdiction:

Table 11-4. Critical Facilities at Risk by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Victoria County	10 Fire Stations, 5 Schools, Wastewater Treatment Facility
City of Victoria	Airport, Salvation Army Facility, Red Cross Facility, EOC, 7 Fire Stations, 12 Government Facilities, 3 Hospitals, Hospice Care Facility, 19 Lift Stations, 16 Nursing Homes, 3 Police Stations, Port, 6 Pump Stations, 34 School Facilities, Sherriff's Office, 6 Utility Facilities, Wastewater Treatment Plant, 5 Water Towers, Water Treatment Facility
Victoria ISD	Administration Building, Maintenance Operation Facility, 18 Elementary Schools, 4 Middle Schools, 2 High Schools, 1 Alternative School, 1 Advanced Learning Center, 1 Career and Technology Center, 14 Athletic Fields, 2 Stadiums, 1 Agriculture Farm

People and animals are subject to health risks from extended exposure to cold air. Elderly people are at greater risk of death from hypothermia during these events, especially in the rural areas of the county where populations are sparse, icy roads may impede travel, and there are fewer neighbors to check in on the elderly. According to the U.S. Center for Disease Control, every year hypothermia kills about 600 Americans, half of whom are 65 years of age or older.

Population over 65 in the Victoria County planning area is estimated at 14.2% of the total population or an estimated total of 12,788[3] potentially vulnerable residents in the planning area based on age (Table 11-5).

[3] US Census Bureau 2015 data for Victoria County

Table 11-5. Population at Greater Risk by Jurisdiction

JURISDICTION	POPULATION 65 AND OLDER
Victoria County[4]	12,788
City of Victoria	8,885

The Victoria Independent School District is also at risk from winter storm events. Power outages at schools without emergency generators could make the schools unsafe for students to attend. The Victoria ISD will also have to consider the safety of the students during the transportation to and from the schools, if roadways are closed, unsafe, or obstructed. There is also a risk as sporting events at the 2 ISD stadiums and practices at the 14 ISD athletic fields are often held outside during late fall or early winter when temperatures begin to lower. Ice storms during the school day can lead to early school closings often combined with hazardous driving conditions. The risk of injury to students and faculty will be elevated along walkways and parking lots as well as access and secondary roads.

Historic loss, in 2017 dollars, is estimated at $51,289 in damages over the 22-year recording period giving an approximate loss of $2,331 in damages annually (Table 11-6). The potential severity of impact for the Victoria County planning area, including the City of Victoria and Victoria ISD, are “Limited” meaning injuries are treatable with first aid, shutdown of facilities and services for 24 hours or less, and less than 10% of property destroyed or with major damage.

Annualized losses are not included for Victoria ISD as there have not been events or losses to affect either Independent School District separate and apart from a historical occurrence for Victoria County.

Table 11-6. Potential Annualized Losses for Victoria County

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County	$51,289	$2,331

ASSESSMENT OF IMPACTS

The greatest risk from a winter storm hazard is to public health and safety. Potential impacts for the planning area may include:

- Vulnerable populations, particularly the elderly and infants, can face serious or life-threatening health problems from exposure to extreme cold including hypothermia and frostbite.
- Loss of electric power or other heat source can result in increased potential for fire injuries or hazardous gas inhalation because residents burn candles for light or use fires or generators to stay warm.
- Response personnel, including utility workers, public works personnel, debris removal staff, tow truck operators, and other first responders, are subject to injury or illness resulting from exposure to extreme cold temperatures.

[4] County totals includes all incorporated jurisdictions and unincorporated areas.

- Response personnel would be required to travel in potentially hazardous conditions, elevating the life safety risk due to accidents and potential contact with downed power lines.
- Operations or service delivery may experience impacts from electricity blackouts due to winter storms.
- Power outages are possible throughout the planning area due to downed trees and power lines and/or rolling blackouts.
- Critical facilities without emergency backup power may not be operational during power outages.
- Emergency response and service operations may be impacted by limitations on access and mobility if roadways are closed, unsafe, or obstructed.
- Hazardous road conditions will likely lead to increases in automobile accidents, further straining emergency response capabilities.
- Depending on the severity and scale of damage caused by ice and snow events, damage to power transmission and distribution infrastructure can require days or weeks to repair.
- A winter storm event could lead to tree, shrub, and plant damage or death.
- Severe cold and ice could significantly damage agricultural crops.
- Schools may be forced to shut early due to treacherous driving conditions.
- Exposed water pipes may be damaged by severe or late season winter storms at both residential and commercial structures, causing significant damages.

The economic and financial impacts of winter weather on the community will depend on the scale of the event, what is damaged, 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 winter storm event.

SECTION 12: TORNADO

HAZARD DESCRIPTION

Tornadoes are among the most violent storms on the planet. A tornado is a rapidly rotating column of air extending between, and in contact with, a cloud and the surface of the earth. The most violent tornadoes are capable of tremendous destruction and have wind speeds of 250 miles per hour or more. In extreme cases, winds may approach 300 miles per hour. Damage paths can be in excess of one mile wide and 50 miles long.

The most powerful tornadoes are produced by "Supercell Thunderstorms." These thunderstorms are created when horizontal wind shears (winds moving in different directions at different altitudes) begin to rotate the storm. This horizontal rotation can be tilted vertically by violent updrafts, and the rotation radius can shrink, forming a vertical column of very quickly swirling air. This rotating air can eventually reach the ground, forming a tornado**.**

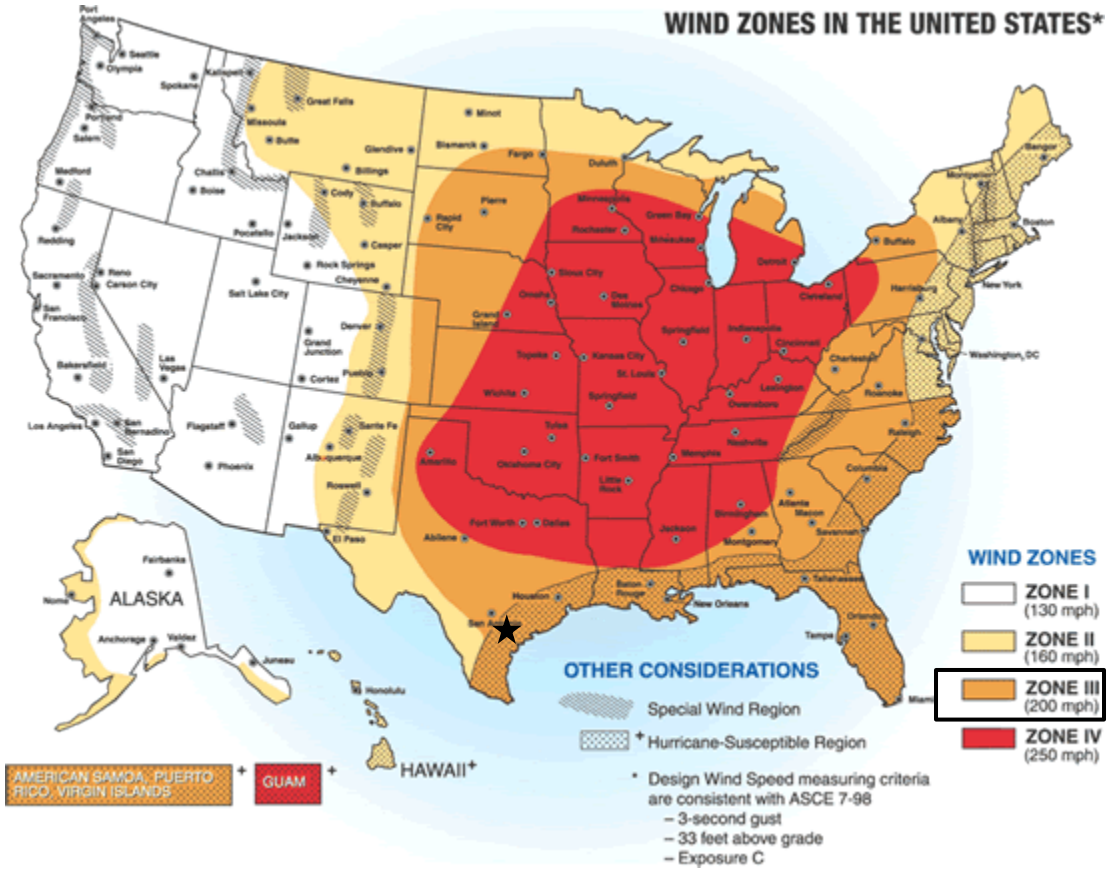
Table 12-1. Variations Among Tornadoes

WEAK TORNADOES	STRONG TORNADOES	VIOLENT TORNADOES
➢ 69% of all tornadoes ➢ Less than 5% of tornado deaths ➢ Lifetime 1-10+ minutes ➢ Winds less than 110 mph	➢ 29% of all tornadoes ➢ Nearly 30% of all tornado deaths ➢ May last 20 minutes or longer ➢ Winds 110 – 205 mph	➢ 2% of all tornadoes ➢ 70% of all tornado deaths ➢ Lifetime can exceed one hour ➢ Winds greater than 205 mph

LOCATION

Tornadoes do not have any specific geographic boundary and can occur throughout the County uniformly. It is assumed that the entire Victoria County planning area including the City of Victoria and the campuses of Victoria ISD are uniformly exposed to tornado activity. The entire Victoria County planning area is located in Wind Zone III (Figure 12-1), where tornado winds can be as high as 200 mph.

Figure 12-1. FEMA Wind Zones in the United States[1]



EXTENT

The destruction caused by tornadoes ranges from light to inconceivable, depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction, such as residential homes (particularly mobile homes).

[1] Victoria County is indicated by the star.

Table 12-2. The Fujita Tornado Scale[2]

F-SCALE NUMBER	INTENSITY	WIND SPEED (MPH)	TYPE OF DAMAGE DONE	PERCENT OF APPRAISED STRUCTURE VALUE LOST DUE TO DAMAGE
F0	Gale Tornado	40 – 72	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.	None Estimated
F1	Moderate Tornado	73 – 112	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads; attached garages may be destroyed.	0% – 20%
F2	Significant Tornado	113 – 157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	50% – 100%
F3	Severe Tornado	158 – 206	Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.	100%
F4	Devastating Tornado	207 – 260	Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	100%
F5	Incredible Tornado	261 – 318	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles flying through the air in excess of 330 yards; trees debarked; steel reinforced concrete badly damaged.	100%

Tornado magnitudes prior to 2005 were determined using the traditional version of the Fujita Scale (Table 12-2). Since February 2007, the Fujita Scale has been replaced by the Enhanced Fujita Scale (Table 12-3), which retains the same basic design and six strength categories as the previous scale. The newer scale reflects more refined assessments of tornado damage surveys, standardization, and damage consideration to a wider range of structures.

[2] Source: http://www.tornadoproject.com/fscale/fscale.htm

Table 12-3. Enhanced Fujita Scale for Tornadoes

STORM CATEGORY	DAMAGE LEVEL	3 SECOND GUST (MPH)	DESCRIPTION OF DAMAGES	PHOTO EXAMPLE
EF0	Gale	65 – 85	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.	
EF1	Weak	86 – 110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads; attached garages may be destroyed.	
EF2	Strong	111 – 135	Considerable damage; roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	
EF3	Severe	136 – 165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.	
EF4	Devastating	166 – 200	Well-constructed homes leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	
EF5	Incredible	200+	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles flying through the air in excess of 330 yards; trees debarked; steel reinforced concrete badly damaged.	

Both the Fujita Scale and Enhanced Fujita Scale should be referenced in reviewing previous occurrences since tornado events prior to 2007 will follow the original Fujita Scale. The largest magnitude reported within the planning area is F3 on the Fujita Scale, a “Severe Tornado.” Based on the planning areas location in Wind Zone III, the planning area could experience anywhere from an EF0 to EF5 depending on the wind speed.

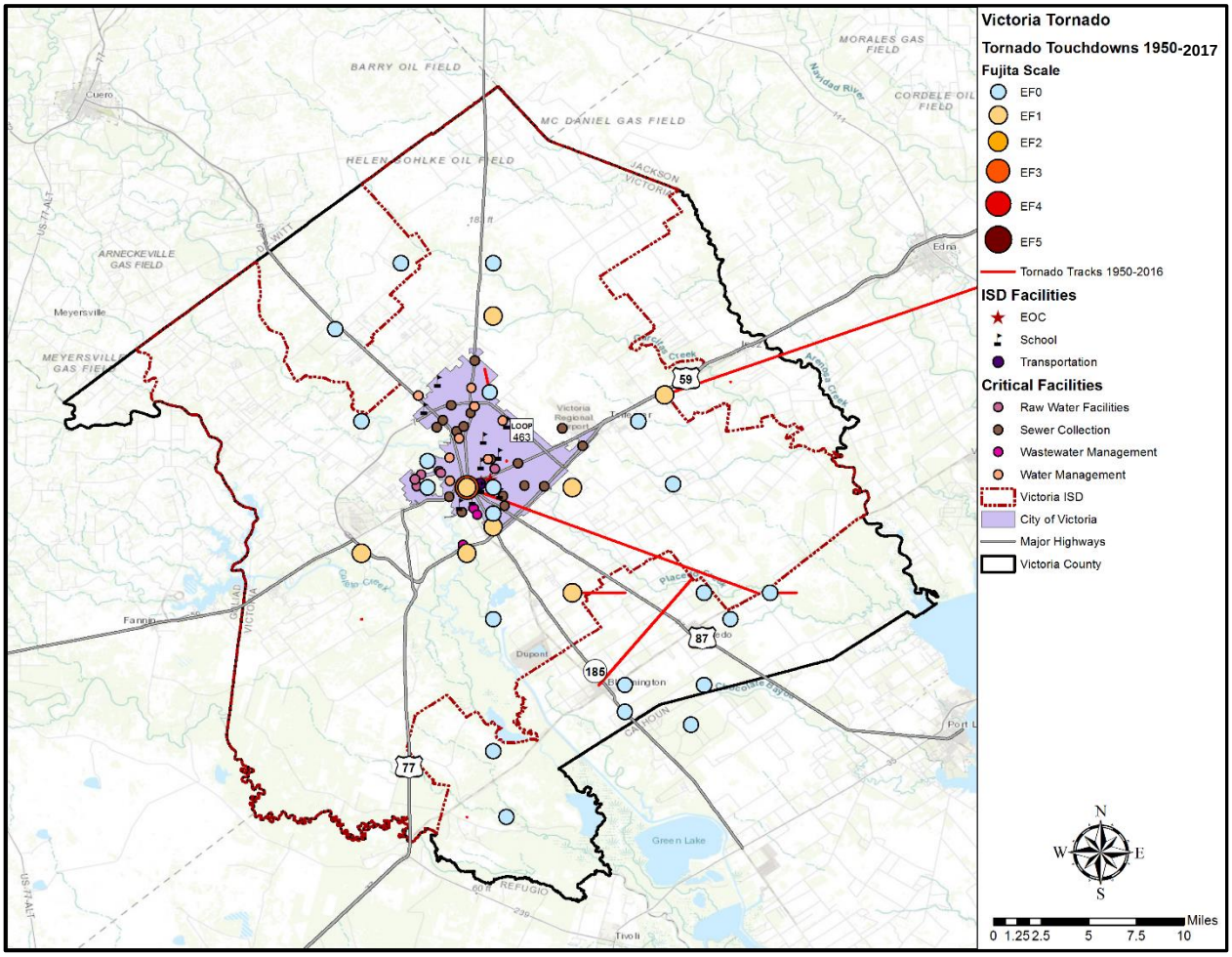
The events in Victoria County have been between EF0 and EF3 (Table 12-4). Therefore, the range of intensity that the Victoria County planning area, including the City of Victoria and Victoria ISD, would be expected to mitigate is a tornado event that would be a low to severe risk, an EF0 to EF3.

HISTORICAL OCCURRENCES

Only reported tornadoes were factored into the Risk Assessment. It is likely that a high number of occurrences have gone unreported over the past 67 years. Historical tornado data for Victoria ISD is provided within a City-wide basis per the NCEI database.

Figure 12-2 identifies the locations of previous occurrences in the Victoria County planning area from 1950 through May 2017. A total of 38 events have been recorded by the Storm Prediction Center (NOAA) and NCEI databases for the Victoria County planning area. The most significant event reported occurred in Victoria County on November 5, 1968. The EF3 tornado and associated storm system caused substantial damage in the county, exceeding more than $1,740,000 in damages in 2017 dollars.

Figure 12-2. Spatial Historical Tornado Events, 1950–2017[3]



[3] Source: NOAA Records

Table 12-4. Historical Tornado Events, 1950-2017[4]

JURISDICTION	DATE	TIME	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	10/22/1954	5:00 PM	F1	0	1	$225,687	$0
Victoria County	6/9/1961	2:30 PM	F0	0	0	$2,030	$0
Victoria County	4/27/1962	6:15 AM	F1	0	0	$201,026	$0
Victoria County	9/20/1967	3:00 AM	F0	0	1	$181,766	$0
Victoria County	9/20/1967	4:40 AM	F0	0	0	$181,766	$0
Victoria County	11/5/1968	8:30 PM	F3	0	2	$1,744,533	$0
Victoria County	4/11/1969	5:10 AM	F1	0	0	$1,654	$0
Victoria County	5/10/1972	5:05 PM	F1	0	0	$14,524	$0
Victoria County	9/4/1975	6:05 PM	F0	0	0	$1,128	$0
Victoria County	10/15/1975	12:11 PM	F0	0	0	$1,128	$0
Victoria County	5/7/1976	10:50 AM	F1	0	0	$106,696	$0
Victoria County	8/10/1980	8:30 AM	F1	0	0	$73,677	$0
Victoria County	10/18/1981	9:53 PM	F0	0	0	$6,679	$0
Victoria County	5/13/1982	12:50 PM	F1	0	0	$629,117	$0
Victoria County	3/26/1983	4:00 AM	F0	0	0	$60,954	$0
Victoria County	3/12/1984	4:00 AM	F0	0	1	$58,431	$0
Victoria County	5/18/1993	1:00 PM	F0	0	0	$840	$0
Victoria County	11/20/2004	7:25 PM	F1	0	0	$32,139	$0

Table 12-5. Summary of Historical Tornado Events, January 1950-May 2017

JURISDICTION	Number of Events	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	36	F3	0	5	$3,523,775	$0
City of Victoria	2	F0	0	0	$0	$0
TOTAL LOSSES		**(Max Extent)**			**$3,523,775**	

[4] Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2017 dollars.

SIGNIFICANT EVENTS

November 20, 2004 – Victoria County
A NWS survey concluded in a supercell that produced a tornado in the Hidden Valley subdivision just west of Dacosta and approximately six miles southeast of Victoria. The tornado damaged several homes and destroyed two sheds. Debris from the subdivision was blown about one mile downwind. The tornado was estimated at 100 yards wide and stayed on the ground for two miles.

PROBABILITY OF FUTURE EVENTS

Tornadic storms can occur at any time of year and at any time of day, but they are typically more common in the spring months during the late afternoon and evening hours. A smaller, high frequency period can emerge in the fall during the brief transition between the warm and cold seasons. According to historical records, Victoria County can experience a tornado touchdown approximately once every year. This frequency supports a highly likely probability of future events for Victoria County, the City of Victoria, and the Victoria ISD.

VULNERABILITY AND IMPACT

Because tornadoes often cross jurisdictional boundaries, all existing and future buildings, facilities, and populations in Victoria County are considered to be exposed to this hazard and could potentially be impacted. The damage caused by a tornado is typically a result of high wind velocity, wind-blown debris, lightning, and large hail.

The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction. Consequently, vulnerability of humans and property is difficult to evaluate since tornadoes form at different strengths, in random locations, and create relatively narrow paths of destruction. Although tornadoes strike at random, making all buildings vulnerable, three types of structures are more likely to suffer damage:

- Manufactured Homes;
- Homes on crawlspaces (more susceptible to lift); and
- Buildings with large spans, such as shopping malls, gymnasiums, and factories.

Tornadoes can cause a significant threat to people as they could be struck by flying debris, falling trees/branches, utility lines, and poles. Blocked roads could prevent first responders to respond to calls. Tornadoes commonly cause power outages which could cause health and safety risks to faculty and students at schools, as well as to patients in hospitals.

The Victoria County planning area features multiple mobile or manufactured home parks throughout the planning area, including the City of Victoria. These parks are typically more vulnerable to tornado events than typical site built structures. In addition, manufactured homes are located sporadically throughout the planning area including the city and unincorporated county which would also be more vulnerable. The US Census data indicates a total of 3,865 manufactured homes located in the Victoria County planning area (10.8%), including the city and unincorporated county (Table 12-6). In addition, 55% (approximately 19,720 structures) of the single family residential (SFR) structures in the entire planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant tornado events.

Table 12-6. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Victoria County[5]	3,865	19,720
City of Victoria	1,311	15,538

The following critical facilities would be vulnerable to tornado events in each participating jurisdiction:

Table 12-7. Critical Facilities at Risk by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Victoria County	10 Fire Stations, 5 Schools, Wastewater Treatment Facility
City of Victoria	Airport, Salvation Army Facility, Red Cross Facility, EOC, 7 Fire Stations, 12 Government Facilities, 3 Hospitals, Hospice Care Facility, 19 Lift Stations, 16 Nursing Homes, 3 Police Stations, Port, 6 Pump Stations, 34 School Facilities, Sherriff's Office, 6 Utility Facilities, Wastewater Treatment Plant, 5 Water Towers, Water Treatment Facility
Victoria ISD	Administration Building, Maintenance Operation Facility, 18 Elementary Schools, 4 Middle Schools, 2 High Schools, 1 Alternative School, 1 Advanced Learning Center, 1 Career and Technology Center, 14 Athletic Fields, 2 Stadiums, 1 Agriculture Farm

The Victoria Independent School District is also at risk from damages from tornadoes. Damages to the districts' buildings or power outages could make the schools unsafe for students to attend. Victoria ISD would also have to consider the safety of the students during transportation to and from the schools, especially if widespread road closures result from the debris produced by tornadoes.

The average loss estimate of property and crop is $3,523,775 (in 2017 dollars), having an approximate annual loss estimate of $52,594 (Table 12-8). Based on historic loss and damages, the impact of tornado on the Victoria County planning area, including the City of Victoria and the Victoria ISD, can be considered "Minor," with more than 10 percent of property expected to be destroyed, treatable injuries that are not permanently disabling, and critical facilities shut down for one week or more.

Annualized losses are not included for Victoria ISD as there have not been events or losses to affect the Independent School District separate and apart from a historical occurrence for the City of Victoria.

[5] County totals includes all incorporated jurisdictions and unincorporated areas.

Table 12-8. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP DAMAGE	ANNUAL LOSS ESTIMATES
Victoria County	$3,523,775	$52,594
City of Victoria	$0	$0
Planning Area	**$3,523,775**	**$52,594**

ASSESSMENT OF IMPACTS

Tornadoes have the potential to pose a significant risk to the population and can create dangerous situations. Often times, providing and preserving public health and safety is difficult. Impacts to the planning area can include:

- Individuals exposed to the storm can be struck by flying debris, falling limbs, or downed trees causing serious injury or death.
- Structures can be damaged or crushed by falling trees, which can result in physical harm to the occupants.
- Manufactured homes may suffer substantial damage as they would be more vulnerable than typical site built structures.
- Significant debris and downed trees can result in emergency response vehicles being unable to access areas of the community.
- Downed power lines may result in roadways being unsafe for use, which may prevent first responders from answering calls for assistance or rescue.
- Tornadoes often result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outages can result in an increase in structure fires and/or carbon monoxide poisoning as individuals attempt to cook or heat their home with alternate, unsafe cooking or heating devices, such as grills.
- Tornadoes can destroy or make residential structures uninhabitable, requiring shelter or relocation of residents in the aftermath of the event.
- First responders must enter the damage area shortly after the tornado passes to begin rescue operations and to organize cleanup and assessments efforts, therefore they are exposed to downed power lines, unstable and unusual debris, hazardous materials, and generally unsafe conditions, elevating the risk of injury to first responders and potentially diminishing emergency response capabilities.
- Emergency operations and services may be significantly impacted due to damaged facilities, loss of communications, and damaged emergency vehicles and equipment.
- City or county departments may be damaged or destroyed, delaying response and recovery efforts for the entire community.
- Private sector entities that the City and its residents rely on, such as utility providers, financial institutions, and medical care providers may not be fully operational and may require assistance from neighboring communities until full services can be restored.
- Economic disruption negatively impacts the programs and services provided by the community due to short and long term loss in revenue.

- Damage to infrastructure may slow economic recovery since repairs may be extensive and lengthy.
- Some businesses not directly damaged by the tornado may be negatively impacted while roads and utilities are being restored, further slowing economic recovery.
- When the community is affected by significant property damage it is anticipated that funding would be required for infrastructure repair and restoration, temporary services and facilities, overtime pay for responders, and normal day-to-day operating expenses.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Residential structures destroyed by a tornado may not be rebuilt for years, reducing the tax base for the community.
- Large or intense tornadoes may result in a dramatic population fluctuation, as people are unable to return to their homes or jobs and must seek shelter and/or work outside of the affected area.
- Businesses that are uninsured or underinsured may have difficulty reopening, which results in a net loss of jobs for the community and a potential increase in the unemployment rate.
- Recreation activities may be unavailable and tourism can be unappealing for years following a large tornado, devastating directly related local businesses.

The economic and financial impacts of a tornado event on the community 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 government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a tornado event.

SECTION 13: WILDFIRE

HAZARD DESCRIPTION

A wildfire event can rapidly spread out of control and occurs most often in the summer when the brush is dry and flames can move unchecked through a highly vegetative area. Wildfires can start as a slow burning fire along the forest floor, killing and damaging trees. The fires often spread more rapidly as they reach the tops of trees with wind carrying the flames from tree to tree. Usually, dense smoke is the first indication of a wildfire.

A wildfire event often begins unnoticed and spreads quickly, lighting brush, trees, and homes on fire. For example, a wildfire may be started by a campfire that was not doused properly, a tossed cigarette, burning debris, or arson.

Texas has seen a significant increase in the number of wildfires in the past 30 years, which included wildland, interface, or intermix fires. Wildland fires are fueled almost exclusively by natural vegetation, while interface or intermix fires are urban/wildland fires in which vegetation and the built-environment provide the fuel.

LOCATION AND HISTORICAL OCCURRENCES

A wildfire event can be a potentially damaging consequence of drought. Wildfires can vary greatly in terms of size, location, intensity, and duration. While wildfires are not confined to any specific geographic location, they are most likely to occur in open grasslands. The threat to people and property from a wildfire event is greater in the fringe areas where developed areas meet open grass lands, such as the WUI. (Figures 13-1 and 13-2). It is estimated that 52 percent of the total population in Victoria County live within the WUI. However, the entire Victoria County planning area is at risk for wildfires.

Figure 13-1. Wildland Urban Interface Map – Victoria County

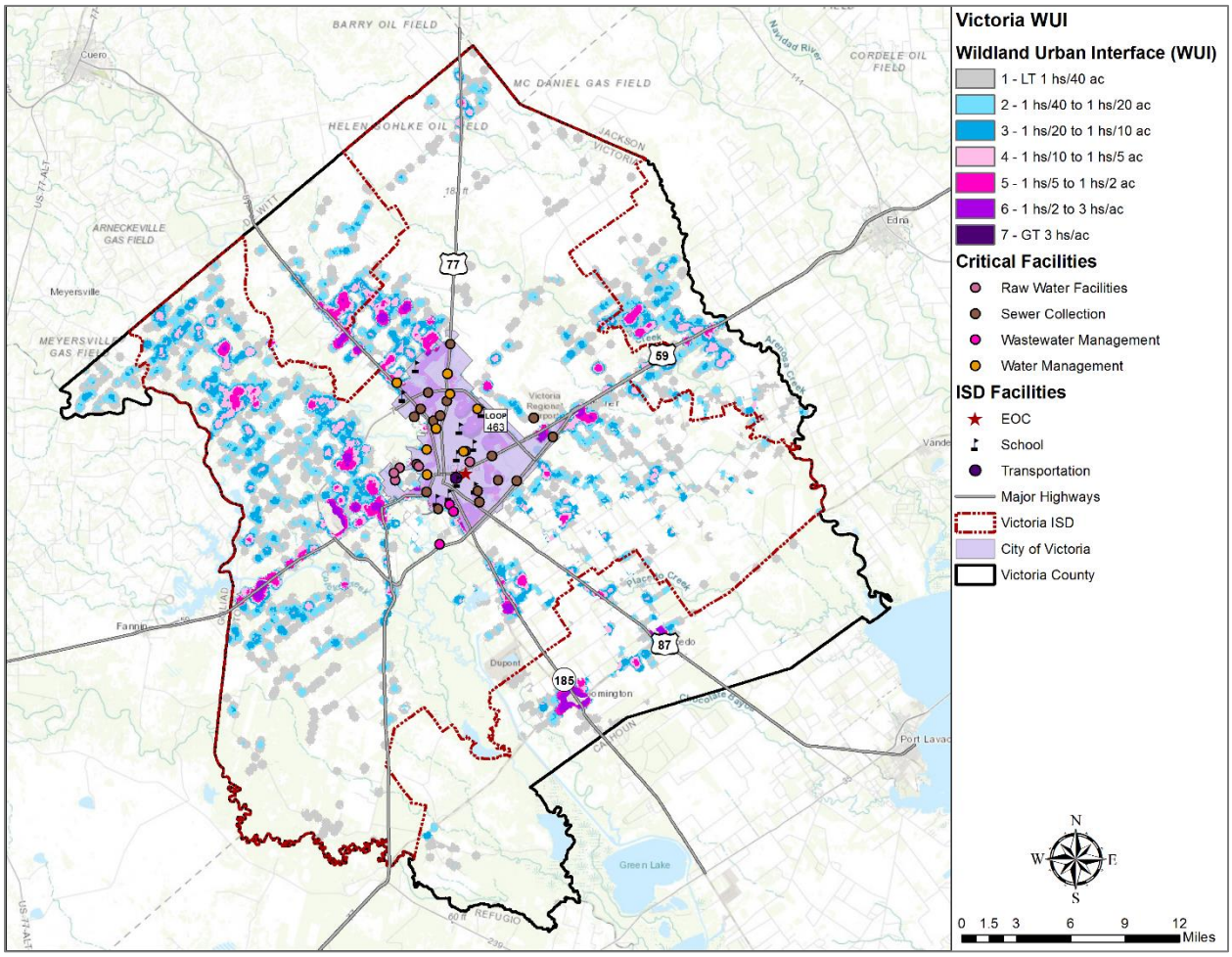
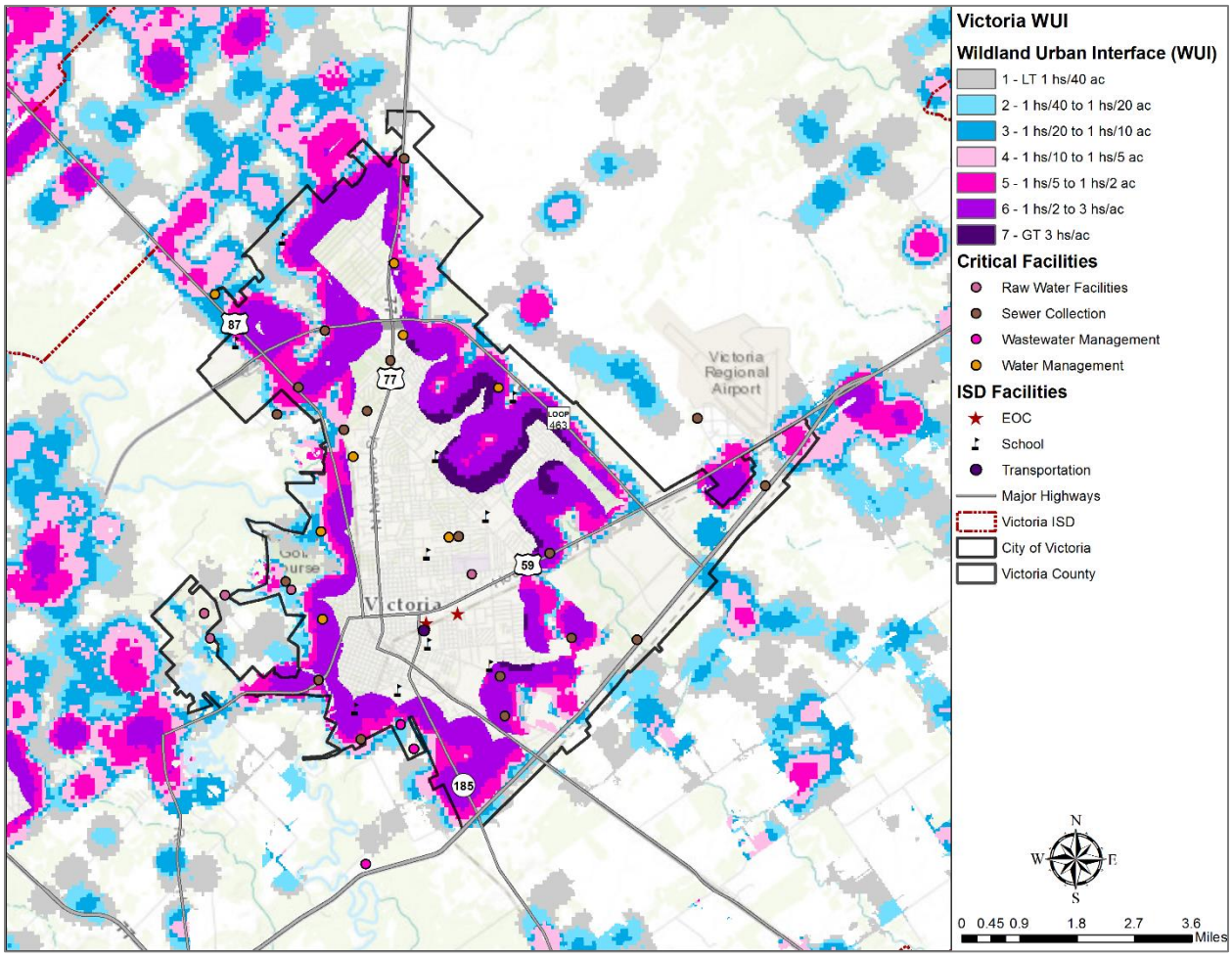


Figure 13-2. Wildland Urban Interface Map – City of Victoria, Victoria ISD



It is estimated that 38 percent of the total population in the City of Victoria live within the WUI. However, the entire City of Victoria, including the Victoria ISD, is at risk for wildfires.

The Texas Forest Service reported 806 wildfire events between 2005 and 2015. The National Center for Environmental Information (NCEI) did not have any reported events from 1996 through 2017. The Texas Forest Service (TFS) started collecting wildfire data in 1985 and volunteer fire departments did not start reporting events until 2005. Due to a lack of recorded data for wildfire events prior to 2005, frequency calculations are based on an eleven-year period using only data from recorded years. The map below shows approximate locations of wildfires, which can be grass or brushfires of any size (Figure 13-3). Table 13-1 identifies the number of wildfires by jurisdiction and total acreage burned.

Historical wildfire data for the Victoria ISD are provided within a City-wide basis per the NCEI database.

Figure 13-3. Location and Historic Wildfire Events for Victoria County Planning Area

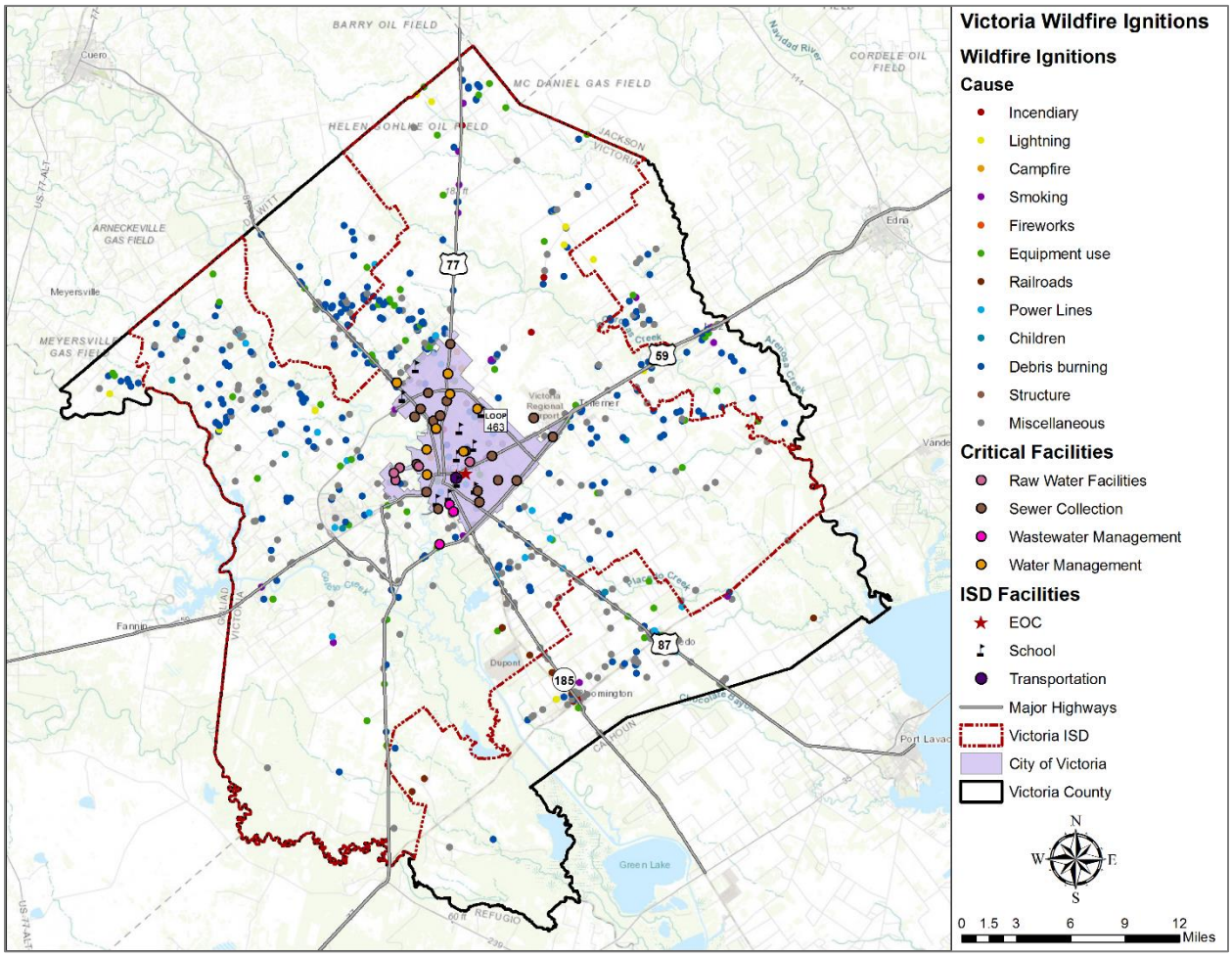


Table 13-1. Historical Wildfire Events Summary

JURISDICTION	NUMBER OF EVENTS	ACRES BURNED
Victoria County	747	13,434
City of Victoria	59	3,070

Table 13-2. Acreage of Suppressed Wildfire by Year

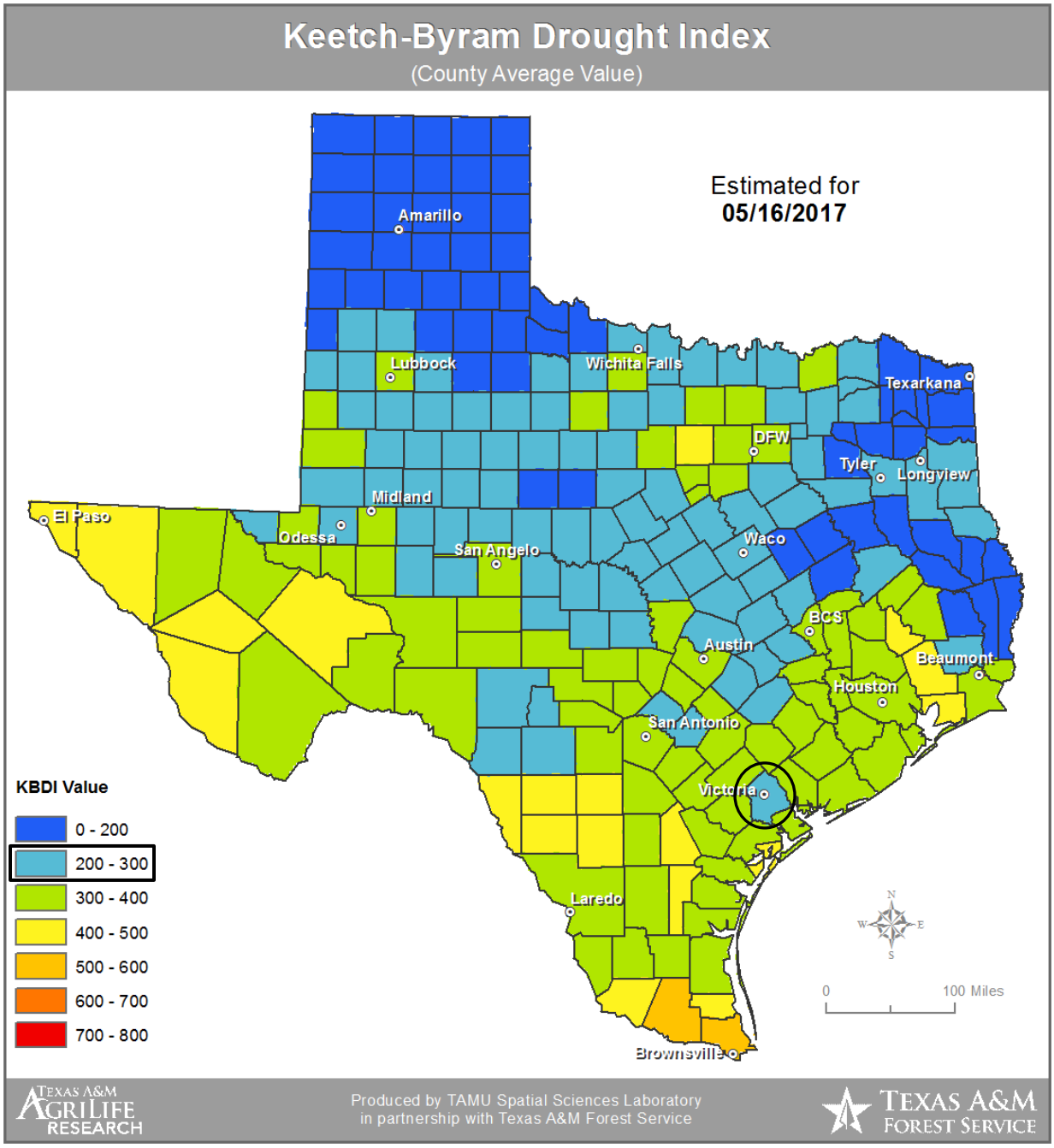
JURISDICTION	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Victoria County	1,025	739	792	1,806	4,570	22	2,097	238	1,013	547	585
City of Victoria	500	0	0	320	1,915	0	225	11	58	41	0

EXTENT

Risk for a wildfire event is measured in terms of magnitude and intensity using the Keetch Byram Drought Index (KBDI), a mathematical system for relating current and recent weather conditions to potential or expected fire behavior. The KBDI determines forest fire potential based on a daily water balance, derived by balancing a drought factor with precipitation and soil moisture (assumed to have a maximum storage capacity of eight inches), and is expressed in hundredths of an inch of soil moisture depletion.

Each color in Figure 13-4 represents the drought index at that location. The drought index ranges from 0 to 800. A drought index of 0 represents no moisture depletion, and a drought index of 800 represents absolutely dry conditions.

Figure 13-4. Keetch-Byram Drought Index (KBDI) for the State of Texas, 2017[1]



[1] Victoria County is located within the black circle.

Fire behavior can be categorized at four distinct levels on the KBDI:

- **0 -200:** Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in spots and patches.
- **200 -400:** Fires more readily burn and will carry across an area with no gaps. Heavier fuels will not readily ignite and burn. Expect smoldering and the resulting smoke to carry into and possibly through the night.
- **400 -600:** Fires intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
- **600 -800:** Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

The KBDI is a good measure of the readiness of fuels for a wildfire event. It should be referenced as the area experiences changes in precipitation and soil moisture, while caution should be exercised in dryer, hotter conditions.

The range of intensity for Victoria County in a wildfire event is within 500 to 600. The average extent to be mitigated for the Victoria County planning area, including the county, city, and the campuses of Victoria ISD, is a KBDI of 561. At this level fires intensity begins to significantly increase and fires readily burn in all directions, exposing mineral soils in some locations.

The Texas Forest Service's Fire Intensity Scale identifies areas where significant fuel hazards and associated dangerous fire behavior potential exist based on weighted average of four percentile weather categories. Victoria County is between a potential limited to low wildfire intensities. Figures 13-5 and 13-6 identify the wildfire intensity for the Victoria County planning area.

Figure 13-5. Fire Intensity Scale Map – Victoria County

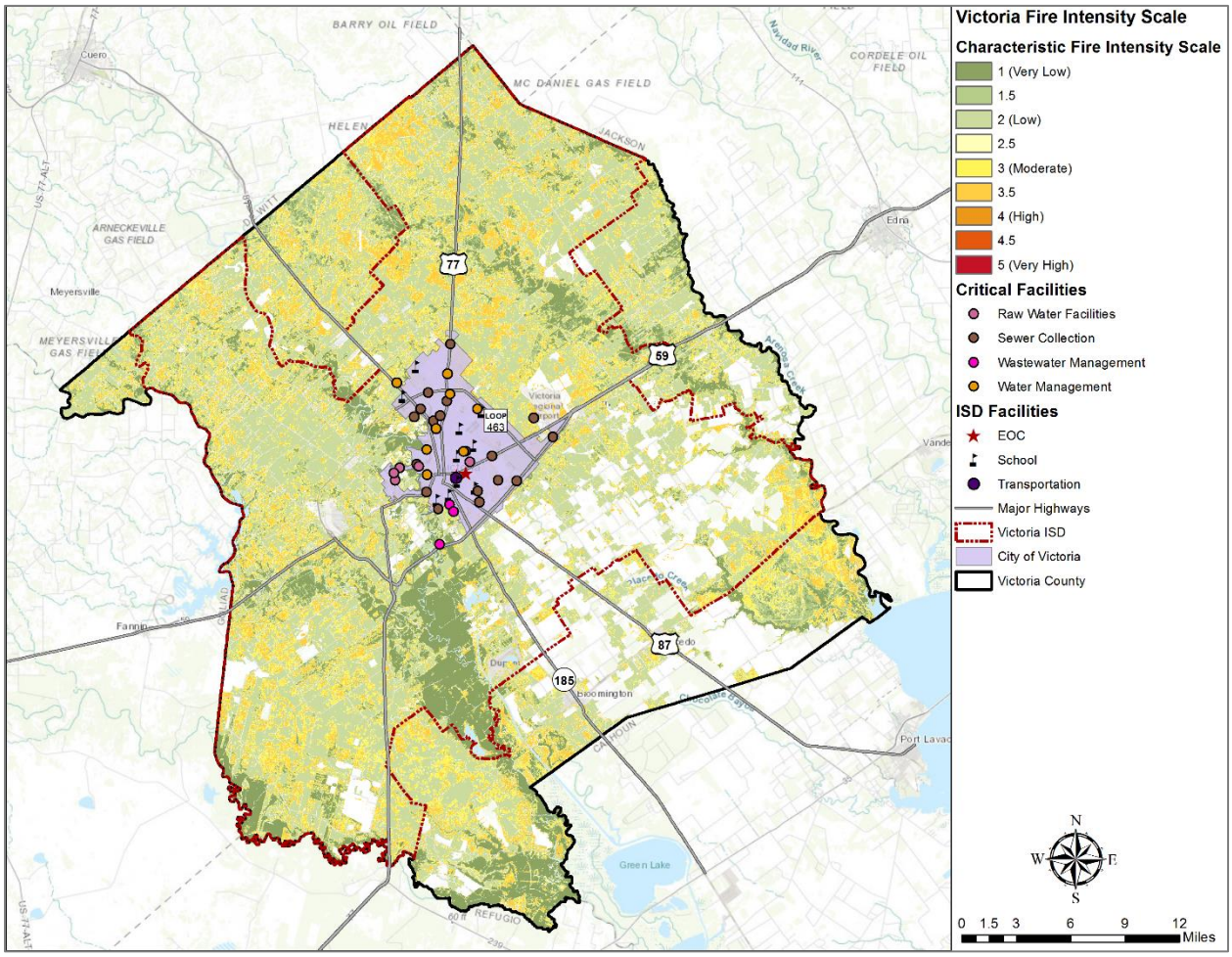
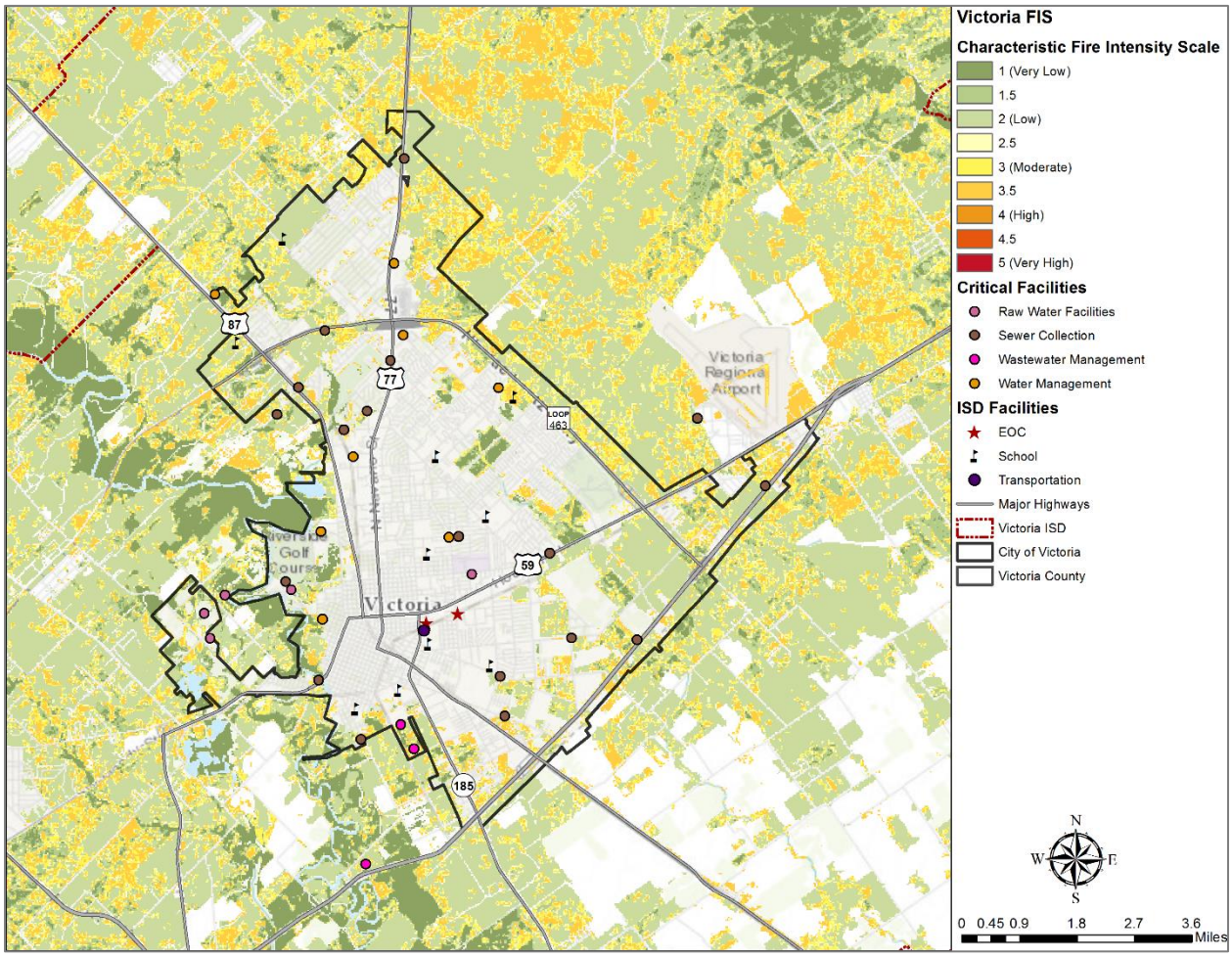


Figure 13-6. Fire Intensity Scale Map – City of Victoria, Victoria ISD



PROBABILITY OF FUTURE EVENTS

Wildfires can occur at any time of the year. As the jurisdictions within the county move into wildland, the potential area of occurrence of wildfire increases. With 806 events in an 11 year period, an event within Victoria County, including the City of Victoria and Victoria ISD, is highly likely, meaning an event is probable within the next year.

VULNERABILITY AND IMPACT

Periods of drought, dry conditions, high temperatures, and low humidity are factors that contribute to the occurrence of a wildfire event. Areas along railroads and people whose homes are in woodland settings have an increased risk of being affected by wildfire.

The heavily populated, urban areas of Victoria County are not likely to experience large, sweeping fires. Areas outside of Victoria city limits and in the unincorporated areas of Victoria County are vulnerable. Unoccupied buildings and open spaces that have not been maintained have the greatest vulnerability to wildfire. The overall level of concern for wildfires is located mostly along the perimeter of the study area

where wildland and urban areas interface. Figures 13-1 through 13-2 illustrate the areas that are the most vulnerable to wildfire throughout the planning area.

The following critical facilities are located in the WUI and are more susceptible to wildfire in each participating jurisdiction:

Table 13-3. Critical Facilities Located in WUI by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Victoria County	7 Fire Stations, 3 Schools
City of Victoria	4 Fire Stations, 5 Government Facilities, 1 Hospital, 12 Lift Stations, 10 Nursing Homes, 1 Police Station, Port, 3 Pump Stations, 9 School Facilities, Sherriff's Office, 4 Utility Facilities, 4 Water Towers, Water Treatment Facility
Victoria ISD	6 Elementary Schools, 2 High Schools

Within Victoria County, a total of 806 fire events were reported from 2005 to 2015. All of these events were suspected wildfires. Historic loss and annualized estimates due to wildfires are presented in Table 13-4 below. The frequency is approximately 73 events every year.

Annualized losses are not included for Victoria ISD as there have not been events or losses to affect the Independent School District separate and apart from a historical occurrence for the City of Victoria.

Table 13-4. Potential Annualized Losses by Jurisdiction[2]

JURISDICTION	ACRES BURNED	ANNUAL ACRE LOSSES
Victoria County	13,434	1,221
City of Victoria	3,070	279
Planning Area	13,434	1,221

Figures 13-7 and 13-8 show Victoria County and the threat of wildfire to the County and participating jurisdictions.

[2] Events divided by 10 years of data.

Figure 13-7. Wildfire Ignition Density – Victoria County

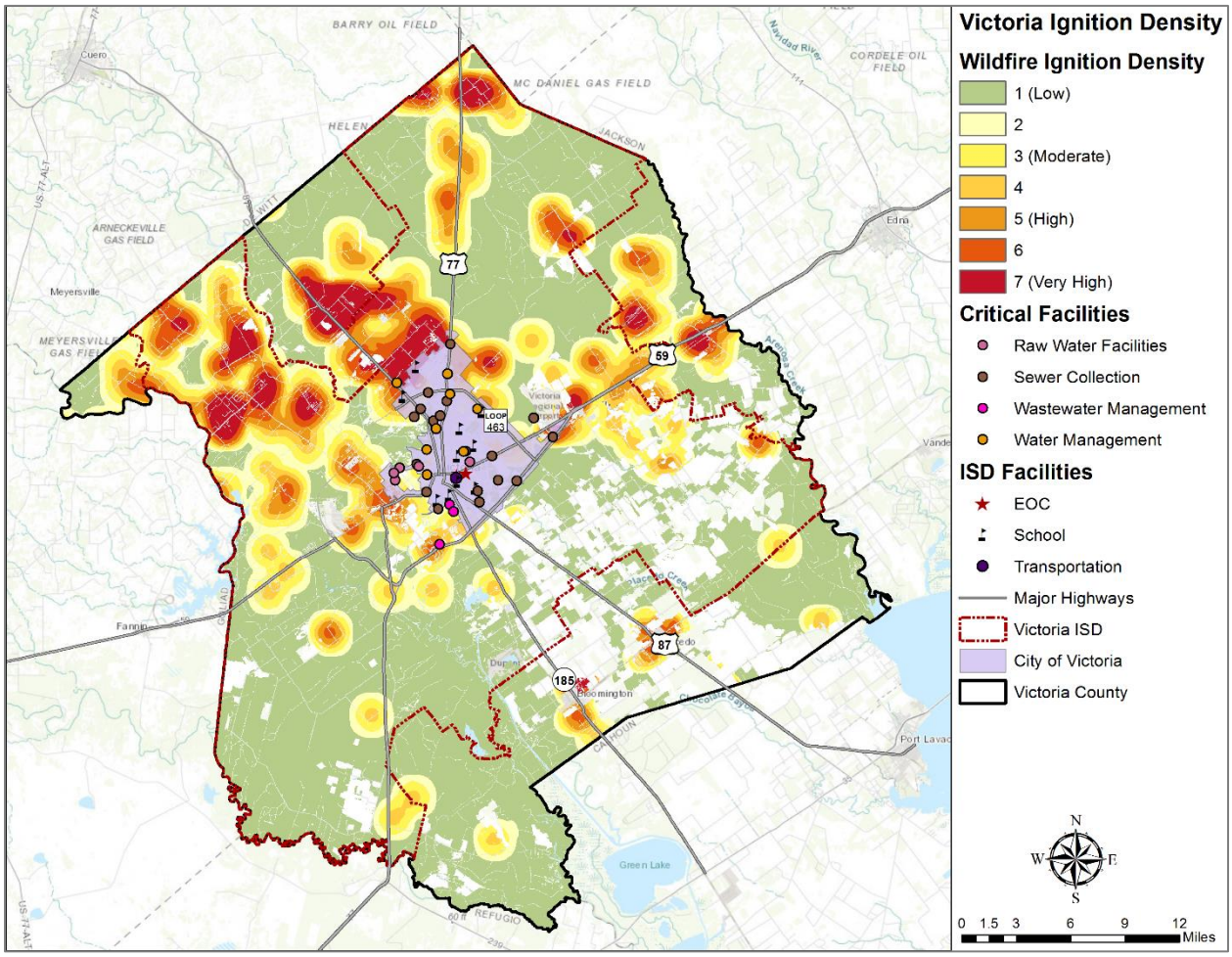
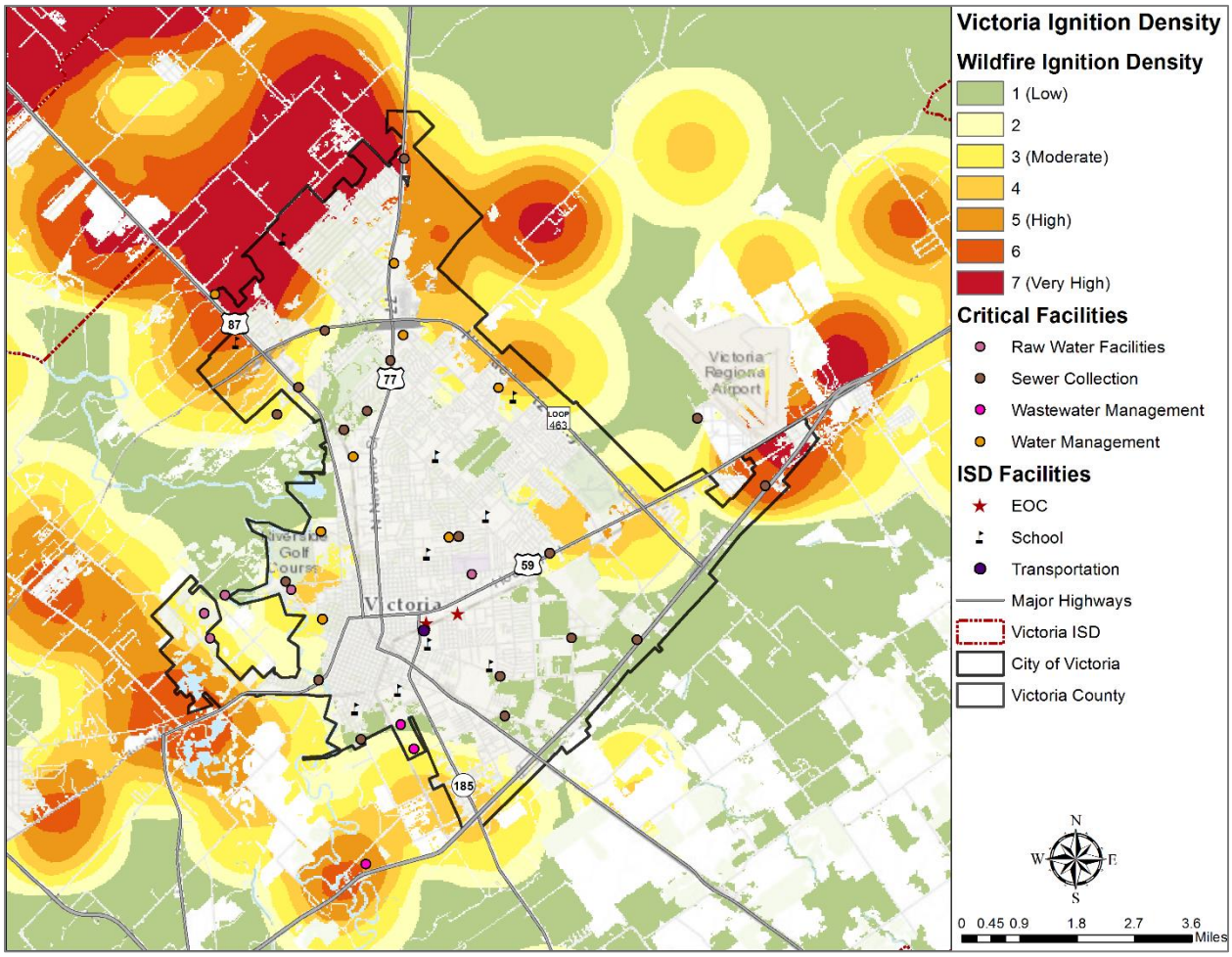


Figure 13-8. Wildfire Threat – City of Victoria, Victoria ISD



Diminished air quality is an environmental impact that can result from a wildfire event and pose a potential health risk. The smoke plumes from wildfires can contain potentially inhalable carcinogenic matter. Fine particles of invisible soot and ash that are too small for the respiratory system to filter can cause immediate and possibly long term health effects. The elderly or those individuals with compromised respiratory systems may be more vulnerable to the effects of diminished air quality after a wildfire event.

Climatic conditions such as severe freezes and drought can significantly increase the intensity of wildfires since these conditions kill vegetation, creating a prime fuel source for wildfires. The intensity and rate at which wildfires spread are directly related to wind speed, temperature, and relative humidity.

The severity of impact from major wildfire events can be substantial. Such events can cause multiple deaths, shut down facilities for 30 days or more, and cause more than 50 percent of affected properties to be destroyed or suffer major damage. Severity of impact is gauged by acreage burned, homes and structures lost, and the number of resulting injuries and fatalities.

For the Victoria County planning area, the impact from a wildfire event can be considered “Minor," 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. Severity of impact is gauged by acreage

burned, homes and structures lost, injuries and fatalities. Based on this, impact for each participating jurisdiction are listed below in Table 13-5.

Table 13-5. Impact by Jurisdiction

JURISDICTION	IMPACT	DESCRIPTION
Victoria County	Minor	Victoria County has an estimated 45,818 people or 52% of the total population that live within the Wildland Urban Interface (WUI). Victoria County, including citizens in unincorporated areas, could be injured or suffer illnesses, but not permanent disability. Critical facilities could be shut down for a week, and 10 percent of total property could be damaged.
City of Victoria	Minor	The largest population in the City of Victoria live in an area that is semi-dense (1 house per 2-3 acres) in the WUI, and the City has a low wildfire threat. Citizens could be injured or suffer illnesses, but not permanent disability. Critical facilities could be shut down for a week, and 10 percent of total property could be damaged.
Victoria ISD	Minor	Victoria ISD has six of their schools located at the fringe or within the WUI and have a low threat to wildfire based on their location. Therefore, students and staff could be injured or suffer illnesses, but not permanent disability. Critical facilities could be shut down for a week, and 10 percent of total property could be damaged.

ASSESSMENT OF IMPACTS

A Wildfire event poses a potentially significant risk to public health and safety, particularly if the wildfire is initially unnoticed and spreads quickly. The impacts associated with a wildfire are not limited to the direct damages. Potential impacts for the planning area include:

- Persons in the area at the time of the fire are at risk for injury or death from burns and/or smoke inhalation.
- First responders are at greater risk of physical injury since they are in close proximity to the hazard while extinguishing flames, protecting property or evacuating residents in the area.
- First responders can experience heart disease, respiratory problems, and other long term related illnesses from prolonged exposure to smoke, chemicals, and heat.
- Emergency services may be disrupted during a wildfire if facilities are impacted, roadways are inaccessible, or personnel are unable to report for duty.
- Critical city and/or county departments may not be able to function and provide necessary services depending on the location of the fire and the structures or personnel impacted.
- Non-critical businesses may be directly damaged, suffer loss of utility services, or be otherwise inaccessible, delaying normal operations and slowing the recovery process.
- Displaced residents may not be able to immediately return to work, further slowing economic recovery.
- Roadways in or near the WUI could be damaged or closed due to smoke and limited visibility.

- Older homes are generally exempt from modern building code requirements, which may require fire suppression equipment in the structure.
- Some high density neighborhoods feature small lots with structures close together, increasing the potential for fire to spread rapidly.
- Air pollution from smoke may exacerbate respiratory problems of vulnerable residents.
- Charred ground after a wildfire cannot easily absorb rainwater, increasing the risk of flooding and potential mudflows.
- Wildfires can cause erosion, degrading stream water quality.
- Wildlife may be displaced or destroyed.
- Historical or cultural resources may be damaged or destroyed.
- Tourism can be significantly disrupted, further delaying economic recovery for the area.
- Vegetated dunes can be stripped, significantly damaging the function of the dunes to protect inland areas from the destructive forces of wind and waves.
- Economic disruption negatively impacts the programs and services provided by the community due to short and long term loss in revenue.
- Fire suppression costs can be substantial, exhausting the financial resources of the community.
- Residential structures lost in a wildfire may not be rebuilt for years, reducing the tax base for the community.
- The Guadalupe River recreation and tourism can be unappealing for years following a large wildfire, devastating directly related businesses.
- Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground delivery lines, and soil erosion or debris deposits into waterways after the fire.

The economic and financial impacts of a wildfire 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 government, businesses, and citizens will contribute to the overall economic and financial conditions in the aftermath of a wildfire event.

SECTION 14: LIGHTNING

HAZARD DESCRIPTION

Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes the thunder which often accompanies lightning strikes. While most often affiliated with severe thunderstorms, lightning often strikes outside of heavy rain and might occur as far as 10 miles away from any rainfall.

According to FEMA, an average of 300 people are injured and 80 people are killed in the United States each year by lightning. Direct lightning strikes also have the ability to cause significant damage to buildings, critical facilities, and infrastructure. Lightning is also responsible for igniting wildfires that can result in widespread damages to property before firefighters have the ability to contain and suppress the resultant fire.

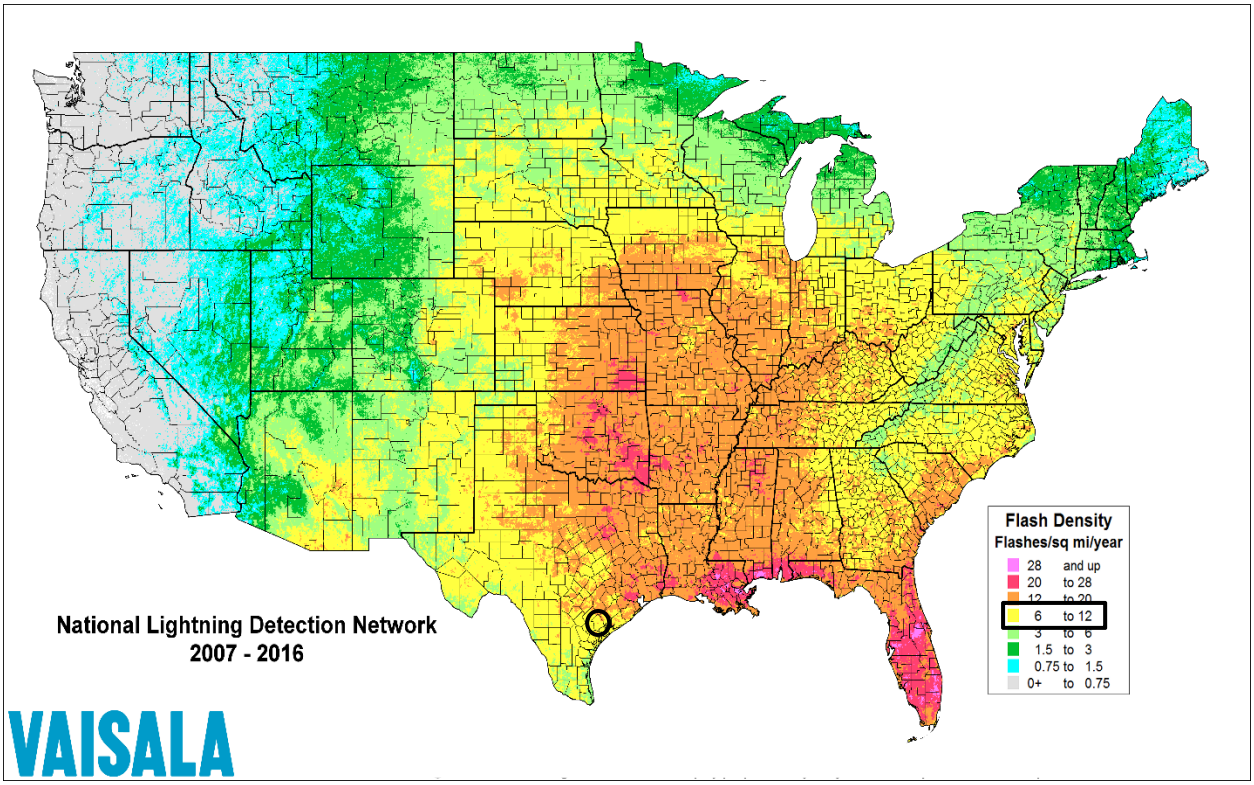
LOCATION

Lightning can strike in any geographic location and is considered a common occurrence in Texas. The Victoria County planning area, including all participating jurisdictions, is located in a region of the country that is moderately susceptible to a lightning strike. Therefore, lightning could occur at any location within the entire planning area. It is assumed that the entire Victoria County planning area is uniformly exposed to the threat of lightning.

EXTENT

According to the NOAA, the average number of cloud-to-ground flashes for the State of Texas between 2007 and 2016 was 11.3 flashes per square mile. Vaisala's U.S. National Lightning Detection Network lightning flash density map (Figure 14-1) shows a range of six to twelve cloud-to-ground lightning flashes per square mile per year for the entire Victoria County planning area. This rate equates to approximately 5,334 to 10,668 flashes per year for the entire planning area.

Figure 14-1. Lightning Flash Density, 2007-2016



The extent for lightning can be expressed in terms of the number of strikes in an interval. NOAA utilizes lightning activity levels (LALs) on a scale from 1-6. LAL rankings reflect the frequency of cloud-to-ground lightning either forecast or observed (Table 14.1).

Table 14-1. NOAA Lightning Activity Levels (LAL)

LAL	CLOUD & STORM DEVELOPMENT	LIGHTNING STRIKES/ 15 MIN
1	No thunderstorms.	-
2	Cumulus clouds are common but only a few reach the towering cumulus stage. A single thunderstorm must be confirmed in the observation area. The clouds produce mainly virga, but light rain will occasionally reach the ground. Lightning is very infrequent.	1-8
3	Towering cumulus covers less than two-tenths of the sky. Thunderstorms are few, but two to three must occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	9-15
4	Towering cumulus covers two to three-tenths of the sky. Thunderstorms are scattered and more than three must occur within the observation area. Moderate rain is common and lightning is frequent.	16-25

LAL	CLOUD & STORM DEVELOPMENT	LIGHTNING STRIKES/ 15 MIN
5	Towering cumulus and thunderstorms are numerous. They cover more than three-tenths and occasionally obscure the sky. Rain is moderate to heavy and lightning is frequent and intense.	>25
6	Similar to LAL 3 except thunderstorms are dry.	

The NCEI does not include the LAL for historical lightning events, therefore in order to determine the extent of lightning strikes, the yearly average range of estimated number of lightning strikes within the planning area (5,334 to 10,668 flashes) and a cloud-to-ground flash density of six to twelve per square mile were divided by the number[1] of thunderstorm events that occur annually in the planning area. Victoria County, including all participating jurisdictions, should expect an average range of five to ten lightning strikes within 15 minutes at any given time during a lightning or combined lightning and thunderstorm event, indicating lightning strikes have an average LAL range of 2 to 3.

HISTORICAL OCCURRENCES

Table 14-2 depicts historical occurrences of lightning for the Victoria County planning area, including the county, city, and Victoria ISD, with associated damages according to the National Centers for Environmental Information (NCEI) data. Since January 1996, only six recorded lightning events are known to have impacted Victoria County, based upon NCEI records. It is likely additional lightning occurrences have gone unreported before and during the recording period.

The NCEI is a national data source organized under the National Oceanic and Atmospheric Administration. The NCEI is the largest archive available for climate data; however, it is important to note that the only incidents factored into this risk assessment are those that are reported to the NCEI for the Victoria County planning area. Damage estimates provided in a table for losses have been modified to reflect the damage in 2017 dollars.

Table 14-2. Historical Lightning Events, with Reported Damages, January 1996-May 2017[2]

JURISDICTION	DATE	TIME	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	8/14/2005	12:30 PM	0	0	$12,473	$0
Victoria County	4/27/2009	5:15 PM	0	0	$1,135	$0
Victoria County	8/25/2011	1:00 PM	0	0	$21,659	$0
Victoria County	9/13/2012	1:20 PM	0	0	$5,305	$0
Victoria County	9/17/2014	6:10 PM	0	0	$10,290	$0
TOTALS			**0**	**0**	**$50,862**	**$0**

[1] Analysis includes the highest number of events recorded in a given year during the reporting period in order to account for typical under reporting of thunderstorm and lightning events.
[2] Damage values are in 2017 dollars.

SIGNIFICANT EVENTS

August 25, 2011 – Victoria County, City of Victoria
On Thursday afternoon, August 25, 2011, portions of the Coastal Bend of South Texas experienced strong to severe thunderstorms. Several clusters of thunderstorms moved southwest across the Coastal Bend and produced winds between 40 and 70 mph. Lightning caused two separate house fires in Victoria. The lightning blew out electrical panels, and the fires damaged structures.

PROBABILITY OF FUTURE EVENTS

Based on historical records and input from the planning team the probability of occurrence for future lightning events in the Victoria County planning area is considered highly likely, or an event probable in the next year. The planning team stated that lightning occurs regularly in the area. According to NOAA, Victoria County is located in an area of the country that experiences six to twelve lightning flashes per square mile per year (approximately 5,334 to 10,668 flashes per year). Given this estimated probability of events, it can be expected that future lightning events will continue to threaten life and cause minor property damages throughout the planning area, including the county, city and Victoria ISD.

VULNERABILITY AND IMPACT

Vulnerability is difficult to evaluate since lightning events can occur at different strength levels, in random locations, and can create a broad range of damages depending on the strike location. Due to the randomness of these events, all existing and future structures and facilities in the Victoria County planning area could potentially be impacted and remain vulnerable to possible injury and property loss from lightning strikes. The Victoria County planning area has had only six reported lightning events, however the county, city, and Victoria ISD are all vulnerable and could be impacted by lightning.

The direct and indirect losses associated with these events include injury and loss of life, damage to structures and infrastructure, agricultural losses, utility failure (power outages), and stress on community resources. The entire population of Victoria County is considered exposed to the lightning hazard. The peak lightning season in the State of Texas is from June to August; however, the most fatalities occur in July. Fatalities occur most often when people are outdoors and/or participating in some form of recreation. Population located outdoors is considered at risk and more vulnerable to a lightning strike compared to being inside a structure. Students and faculty participating in outdoor functions at Victoria ISD would be more vulnerable. Moving to a lower risk location will decrease a person's vulnerability.

The entire general building stock and all infrastructure of Victoria County are considered exposed to the lightning hazard. Lightning can be responsible for damages to buildings, cause electrical, forest and/or wildfires, and damage infrastructure such as power transmission lines and communication towers. Agricultural losses can be extensive due to lightning and resulting fires.

The following critical facilities would be vulnerable to lightning events in each participating jurisdiction:

Table 14-3. Critical Facilities at Risk by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Victoria County	10 Fire Stations, 5 Schools, Wastewater Treatment Facility
City of Victoria	Airport, Salvation Army Facility, Red Cross Facility, EOC, 7 Fire Stations, 12 Government Facilities, 3 Hospitals, Hospice Care Facility, 19 Lift

JURISDICTION	CRITICAL FACILITIES
	Stations, 16 Nursing Homes, 3 Police Stations, Port, 6 Pump Stations, 34 School Facilities, Sherriff's Office, 6 Utility Facilities, Wastewater Treatment Plant, 5 Water Towers, Water Treatment Facility
Victoria ISD	Administration Building, Maintenance Operation Facility, 18 Elementary Schools, 4 Middle Schools, 2 High Schools, 1 Alternative School, 1 Advanced Learning Center, 1 Career and Technology Center, 14 Athletic Fields, 2 Stadiums, 1 Agriculture Farm

Impact of lightning experienced in the Victoria County planning area has resulted in no injuries or fatalities. Impact of lightning events experienced in the Victoria County planning area would be "Limited," and injuries and illnesses would be treatable with first aid. The quality of life lost would be minor, and facilities would be shut down for 24 hours or less. Overall, the average loss estimate for Victoria County, including the county, city, and Victoria ISD, (in 2017 dollars) is $50,862, having an approximate annual loss estimate of $2,312 (Table 14-4).

Annualized losses are not included for Victoria ISD as there have not been events or losses to affect the Independent School District separate and apart from a historical occurrence for the City of Victoria.

Table 14-4. Potential Annualized Losses by Jurisdiction[3]

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATE
Victoria County	$50,862	$2,312
City of Victoria	$0	$0
Planning Area	**$50,862**	**$2,312**

ASSESSMENT OF IMPACTS

Lightning events have the potential to pose a significant risk to people and can create dangerous and difficult situations for public health and safety officials. Impacts to the planning area can include:

- Individuals exposed to the storm can be directly struck, posing significant health risks and potential death.
- Structures can be damaged or crushed by falling trees damaged by lightning, which can result in physical harm to the occupants.
- Lightning strikes can result in widespread power outages increasing the risk to more vulnerable portions of the population who rely on power for health and/or life safety.
- Extended power outage often results in an increase in structure fires and carbon monoxide poisoning as individuals attempt to cook or heat their homes with alternate, unsafe cooking or heating devices, such as grills.

[3] Damage values are in 2017 dollars.

- Lightning strikes can be associated with structure fires and wildfires, creating additional risk to residents and first responders.
- Emergency operations and services may be significantly impacted due to power outages and/or loss of communications.
- City or county departments may be damaged, delaying response and recovery efforts for the entire community.
- Economic disruption due to power outages and fires negatively impacts the programs and services provided by the community due to short and long term loss in revenue.
- Some businesses not directly damaged by lightning events may be negatively impacted while utilities are being restored, further slowing economic recovery.
- Businesses that are more reliant on utility infrastructure than others may suffer greater damages without a backup power source.

The economic and financial impacts of lightning on the area will depend entirely on the scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the county, communities, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any lightning event.

SECTION 15: DAM FAILURE

HAZARD DESCRIPTION

Dams are water storage, control, or diversion structures that impound water upstream in reservoirs. Dam failure can take several forms, including a collapse of or breach in the structure. While most dams have storage volumes small enough that failures have few or no repercussions, dams storing large amounts can cause significant flooding downstream. Dam failures can result from any one or a combination of the following causes:

- Prolonged periods of rainfall and flooding, which cause most failures;
- Inadequate spillway capacity, resulting in excess overtopping of the embankment;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, or maintain gates, valves, and other operational components;
- Improper design or use of improper construction materials;
- Failure of upstream dams in the same drainage basin;
- Landslides into reservoirs, which cause surges that result in overtopping;
- High winds, which can cause significant wave action and result in substantial erosion;
- Destructive acts of terrorism; and,
- Earthquakes, which typically cause longitudinal cracks at the tops of the embankments, leading to structural failure.

Benefits provided by dams include water supplies for drinking; irrigation and industrial uses; flood control; hydroelectric power; recreation; and navigation. At the same time, dams also represent a risk to public safety. Dams require ongoing maintenance, monitoring, safety inspections, and sometimes even rehabilitation to continue safe service.

In the event of a dam failure, the energy of the water stored behind the dam is capable of causing rapid and unexpected flooding downstream, resulting in loss of life and substantial property damage. A devastating effect on water supply and power generation could be expected as well. The terrorist attacks of September 11, 2001 generated increased focus on protecting the country's infrastructure, including ensuring the safety of dams.

One major issue with the safety of dams is their age. The average age of America's 84,000 dams is 52 years. According to statistics released in 2009 by the Association of State Dam Safety Officials[1], more than 2,000 dams near population centers are in need of repair. In addition to the continual aging of dams, there have not been significant increases in the number of safety inspectors resulting in haphazard maintenance and inspection.

The Association of State Dam Safety Officials estimate that $16 billion will be needed to repair all high-hazard dams, but the total for all state dam-safety budgets is less than $60 million[2]. The current maintenance budget does not match the scale of America's long-term modifications of its watersheds. Worse still, more people are moving into risky areas. As the American population grows, dams that once could have failed without major repercussions are now upstream of cities and development.

LOCATION

The State of Texas has 7,413 dams, all regulated by the Texas Commission on Environmental Quality (TCEQ). The National Dam Safety Review Board (in coordination with FEMA) and the National Inventory of Dams (NID) lists a total of six dams in the entire Victoria County planning area, including the City of Victoria (complete list located in Appendix D). Each of these dams were analyzed individually by location, volume, elevation, and condition (where available) when determining the risk, if any, for each dam. Each dam site was further analyzed for potential risks utilizing FEMA's National Flood Hazard Layer to map locations and fully understand development near the dam and topographical variations that may increase risk. Most of the dams listed were embankments for typically dry detention drainage areas or shored up stream embankments. These types of structures are utilized for flood control and do not pose a dam failure

[1] Association of State Dam Safety Officials, Journal of Dam Safety
[2] Source: www.damsafety.org

risk. Other dams in the planning area feature such limited storage capacity that they pose no risk to structures, infrastructure, or citizens. Dams that were deemed to pose no past, current, or future risk to the planning area are not profiled in the plan as no loss of life or impact to critical facilities or infrastructure is expected in the event of a breach. Based on this detailed analysis, the planning team was able to determine that only one of the six dams poses a risk to the planning area. This dam is profiled in detail in the Extent section of this hazard profile, below Figure 15-2. Figure 15-1, illustrates the general location for the critical dam in the planning area.

Figure 15-1. Dam Locations in Victoria County

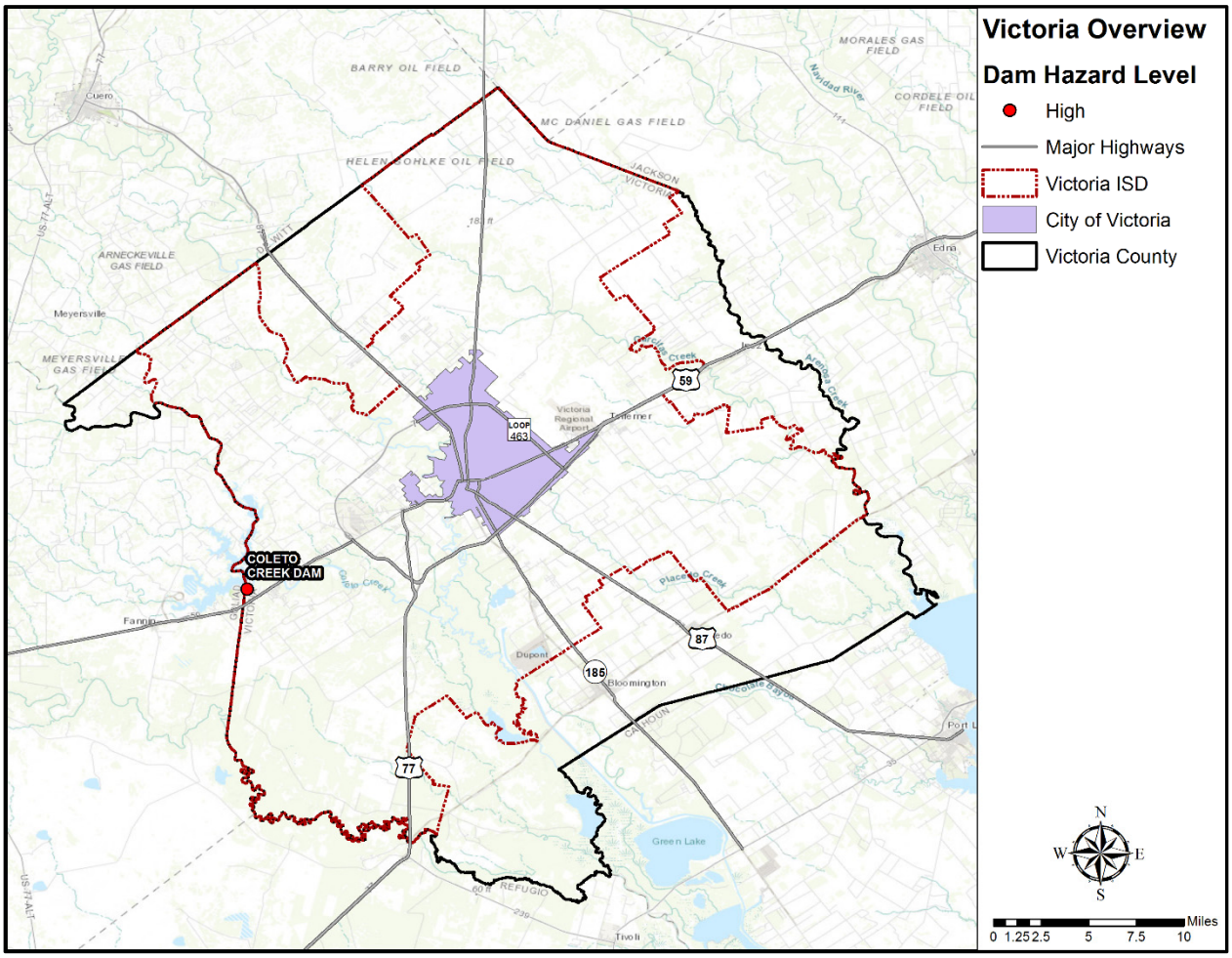


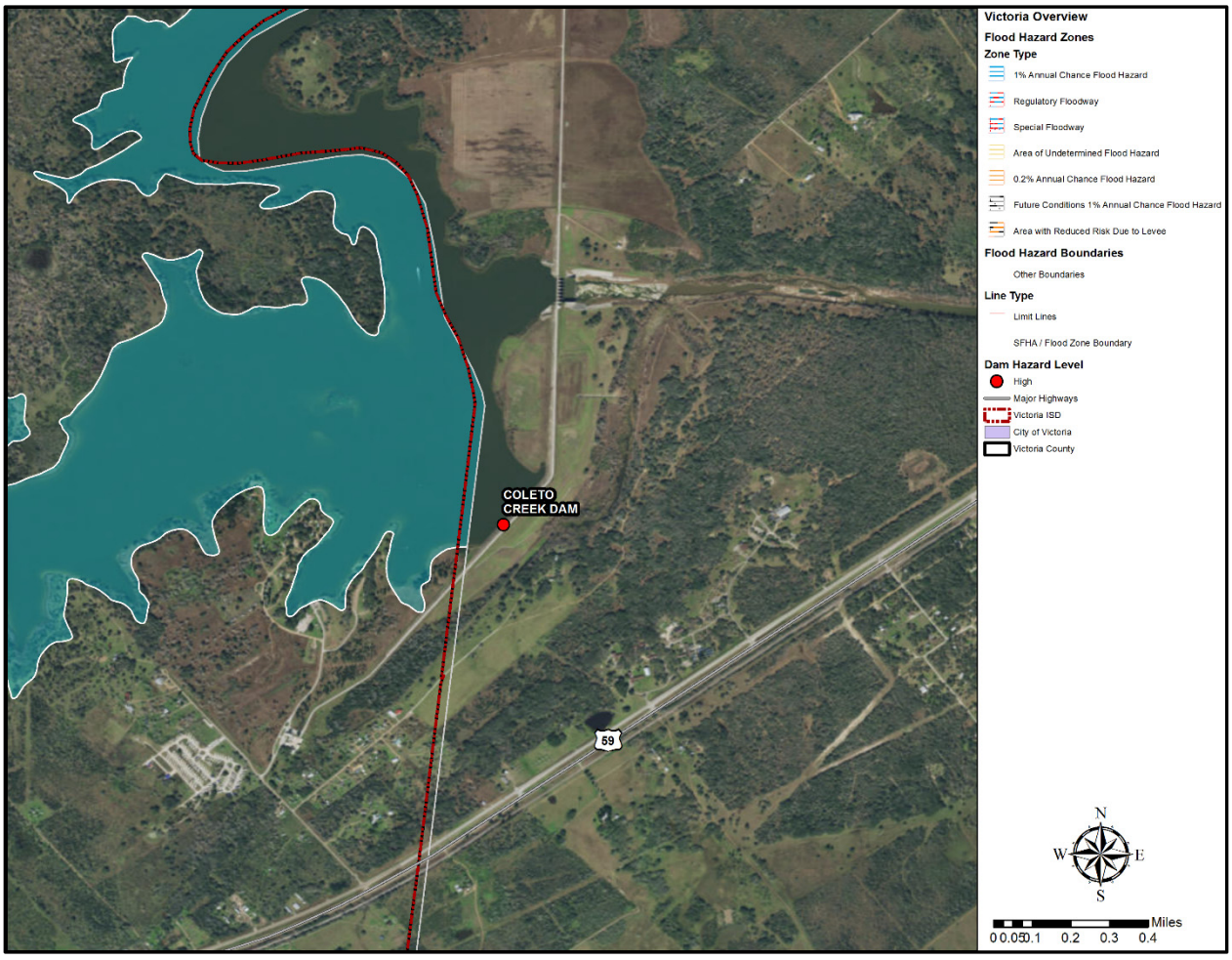
Table 15-1. Victoria County Dam Survey

JURISDICTION	DAM NAME	HEIGHT (Ft.)	STORAGE (Acre Ft.)	CONDITION	PROFILED
Victoria County	Coleto Creek Dam	65	132,536	Satisfactory	Yes

EXTENT

The extent or magnitude of a dam failure event is described in terms of the classification of damages that could result from a dam's failure, not the probability of failure. For dams with a maximum storage capacity of 100,000 acre-feet or more, all structures within five miles are considered to be at risk to potential dam failure hazards.

Figure 15-2. Coleto Creek Dam Flood Risk Areas



Coleto Creek Dam is located in Victoria County at the confluence of the Coleto and Perdido Creek. The dam was constructed in 1980 by the Guadalupe-Blanco River Authority to provide a power station cooling pond for electric power generation. The reservoir is also used for recreational purposes including fishing and boating. The area located near the dam is rural with limited residential development. The area near the dam is rolling terrain with relatively limited changes in elevations. Approximately 150 residential structures within five miles of the dam may be impacted in the event of a breach. In addition, there is a park, camping grounds, day care center, volunteer fire department, church, and three commercial structures within the five mile radius. A dam failure could cause limited infrastructure damages, minor power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 514.7 feet with a maximum breach flow of 492,181 cubic feet per second according to the National Weather Service

(NWS) Dam Break Equation. A dam breach could result in an estimated depth of zero to 15 feet with the highest depth in the immediate area of the dam.

Table 15-3 represents the extent or magnitude of a dam failure event that could be expected for the Victoria County planning area for the profiled dam.

Table 15-3. Extent by Jurisdiction

JURISDICTION	PROFILED DAM	EXTENT (FLOW DEPTH)	LEVEL OF INTENSITY TO MITIGATE
Victoria County	Coleto Creek Dam	0-15 Feet	Dam failure presents a minor threat for the County. While loss of life is not expected, the fire department and some infrastructure could be impacted. Economic loss would be minimal in the event of a dam failure.

HISTORICAL OCCURRENCES

There are approximately 84,000 dams in the United States today.[3] Catastrophic dam failures have occurred frequently throughout the past century. Between 1918 and 1958, 33 major U.S. dam failures caused 1,680 deaths. From 1959 to 1965, nine major dams failed worldwide. Some of the largest disasters in the U.S. have resulted from dam failures. More than 90 dam incidents, including 23 dam failures, were reported in the past ten years to the National Performance of Dams Program, which collects and archives information on dam performance from state and federal regulatory agencies and dam owners.

The State of Texas has not experienced loss of life or extensive economic damage due to a dam failure since the first half of the twentieth century. However, there may be many incidents that are not reported and, therefore, the actual number of incidents is likely to be greater.

There has not been a recorded dam failure event for either of the participating jurisdictions in the Victoria County planning area.

PROBABILITY OF FUTURE EVENTS

No historical events of dam failure have been recorded in the Victoria County planning area, though the risk of dam failure is monitored closely. Due to the lack of historical occurrences, the probability of a future event is unlikely, meaning an event is possible in the next ten years.

VULNERABILITY AND IMPACT

There are six dams in the Victoria County planning area. All dams were evaluated in-depth to determine the risk, if any, associated with each dam. This analysis indicated one dam in the planning area that presents a risk to structures or infrastructure in the planning area.

Flooding is the most prominent effect of dam failure. If the dam failure is extensive, a large amount of water would enter the downstream waterways forcing them out of their banks. There may be significant

[3] Federal Emergency Management Agency, Dam Safety Program, available at: http://www.fema.gov/hazards/damsafety/

environmental effects, resulting in flooding that could disperse debris and hazardous materials downstream that can damage local ecosystems. If the event is severe, debris carried downstream can block traffic flow, cause power outages, and disrupt local utilities, such as water and wastewater, which could result in school closures. For specific vulnerability, please refer to the narrative below Figure 15-2.

Annualized loss-estimates for dam failure are not available; neither is there a breakdown of potential dollar losses for critical facilities, infrastructure and lifelines, or hazardous-materials facilities. If a major dam should fail, however, the severity of impact could be substantial. The City of Victoria and all Victoria ISD campuses are not located in any areas at risk for dam failure.

The severity of impact from a dam breach would be minor, meaning it could result in possible injuries with facilities being shut down for more than one week, and more than ten percent of property destroyed or damaged. For these reasons, creating mitigation actions to remove or protect people and structures from the path of destruction is necessary in order to minimize impact from dam failure.

ASSESSMENT OF IMPACTS

Any individual dam has a very specific area that will be impacted by a catastrophic failure. Dams identified as high or significant hazard can directly threaten the lives of individuals living or working in the inundation zone below the dam. The impact from any catastrophic failure would be similar to that of a flash flood. Potential impacts for the planning area include:

- Lives could be lost.
- There could be injuries from impacts with debris carried by the flood.
- Swift-water rescue of individuals trapped by the water puts the immediate responders at risk for their own lives.
- Individuals involved in the cleanup may be at risk from the debris left behind.
- Continuity of operations for any jurisdiction outside the direct impact area could be very limited.
- Roads and bridges could be destroyed.
- Homes and businesses could be damaged or destroyed.
- Emergency services may be temporarily unavailable.
- Disruption of operations and the delivery of services in the impacted area.
- A large dam with a high head of water could effectively scour the terrain below it for miles, taking out all buildings and other infrastructure.
- Scouring force could erode soil and any buried pipelines.
- Scouring action of a large dam will destroy all vegetation in its path.
- Wildlife and wildlife habitat caught in the flow will likely be destroyed.
- Fish habitat will likely be destroyed.
- Topsoil will erode, slowing the return of natural vegetation.
- The destructive high velocity water flow may include substantial debris and hazardous materials, significantly increasing the risks to life and property in its path.
- Debris and hazardous material deposited downstream may cause further pollution of areas far greater than the inundation zone.
- Destroyed businesses and homes may not be rebuilt, reducing the tax base and impacting long term economic recovery.
- Historical or cultural resources may be damaged or destroyed
- Recreational activities and tourism may be temporarily unavailable or unappealing, slowing economic recovery.

The economic and financial impacts of dam failure on the area will depend entirely on the location of the dam, scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any dam failure event.

SECTION 16: MITIGATION STRATEGY

MITIGATION GOALS

Based on the results of the risk and capability assessments, the Planning Team developed and prioritized the mitigation strategy. At the Mitigation Workshop in March 2017, 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

Advise the public about health and safety precautions to guard against injury and loss of life from hazards.

OBJECTIVE 1.2

Maximize utilization of the latest technology to provide adequate warning, communication, and mitigation of hazard events.

OBJECTIVE 1.3

Reduce the danger to, and enhance protection of, high risk areas during hazard events.

OBJECTIVE 1.4

Protect critical facilities and services.

GOAL 2

Build and support local capacity and commitment to continuously become less vulnerable to hazards.

OBJECTIVE 2.1

Build and support local partnerships to continuously become less vulnerable to hazards.

OBJECTIVE 2.2

Build a cadre of committed volunteers to safeguard the community before, during, and after a disaster.

OBJECTIVE 2.3

Build hazard mitigation concerns into county planning and budgeting processes.

GOAL 3

Increase public understanding, support, and demand for hazard mitigation.

OBJECTIVE 3.1

Heighten public awareness regarding the full range of natural and man-made hazards the public may face.

OBJECTIVE 3.2

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 3.3

Publicize and encourage the adoption of appropriate hazard mitigation measures.

GOAL 4

Protect new and existing properties.

OBJECTIVE 4.1

Reduce repetitive losses to the National Flood Insurance Program (NFIP).

OBJECTIVE 4.2

Use the most cost-effective approach to protect existing buildings and public infrastructure from hazards.

OBJECTIVE 4.3

Enact and enforce regulatory measures to ensure that future development will not put people in harm's way or increase threats to existing properties.

GOAL 5

Maximize the resources for investment in hazard mitigation.

OBJECTIVE 5.1

Maximize the use of outside sources of funding.

OBJECTIVE 5.2

Maximize participation of property owners in protecting their properties.

OBJECTIVE 5.3

Maximize insurance coverage to provide financial protection against hazard events.

OBJECTIVE 5.4

Prioritize mitigation projects based on cost-effectiveness and sites facing the greatest threat to life, health, and property.

GOAL 6

Promote growth in a sustainable manner.

OBJECTIVE 6.1

Incorporate hazard mitigation activities into long-range planning and development activities.

OBJECTIVE 6.2

Promote beneficial uses of hazardous areas while expanding open space and recreational opportunities.

OBJECTIVE 6.3

Utilize regulatory approaches to prevent creation of future hazards to life and property.

SECTION 17: 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 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.

Table 17-1. Victoria County and Participating Jurisdictions Mitigation Action Matrix

TYPE OF ACTION:
Action #1 – Plans/Regulations (Blue)
Action #2 - Education/Awareness (Red)
Action #3 - Natural Resource (Green)
Action #4 - Structural (Orange)
Action #5 – Preparedness/Response (Black)

Jurisdiction	Flood	Hurricane	Thunderstorm Wind	Drought	Extreme Heat	Hail	Winter Storm	Tornado	Wildfire	Lightning	Dam Failure
Victoria County	XXX	XXXX	XXXX	XX	XXX	XXXX	XXXX	XXXX	XXX	XXXX	XXX
City of Victoria	XXX	XXXX	XXXX	XXX	XXX	XXXX	XXXX	XXXX	XXX	XXXX	N/A
Victoria ISD	XXX	XXX	XXX	XX	XX	XX	XX	XXX	XX	XXX	N/A

VICTORIA COUNTY

	Victoria County – Action #1
Proposed Action:	**Provide additional means of access into single entry riverine basins/public lands.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Victoria County
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Additional access for first responders, emergency services, and evacuation routes.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$2,500,000
Potential Funding Sources:	HMGP, PDM, Federal Grants, Local Funds
Lead Agency/Department Responsible:	Victoria County Emergency Management
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Dam Safety Plan 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 = 4; Technically Feasible = 3; Administratively Possible = 4; Politically Acceptable = 4; Legal = 4; Economically Sound = 4; and Environmentally Sound = 4

		Victoria County – Action #2
	Proposed Action:	**Purchase and implement enhanced area-wide emergency notification system.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Increase emergency notification capabilities in the event of a natural hazard.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Flood, Hurricane, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$50,000
Potential Funding Sources:	HMGP, Local Funds, Federal Grants
Lead Agency/Department Responsible:	Victoria County Emergency Management
Implementation Schedule:	Within 36 months of plan adoption
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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

		Victoria County – Action #3
	Proposed Action:	**Conduct All-Hazards Education and Awareness Program to educate citizens of hazards, risks, and mitigation measures to employ to protect lives and property (includes Firewise/WUI campaign).**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Promote hazard awareness and protect citizens from potential injuries and damages.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane, Thunderstorm Wind, Drought, Extreme Heat, Hail, Winter Storm, Tornado, Wildfire, Lightning, Dam Failure
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$20,000
Potential Funding Sources:	HMGP, Local Funds, Staff Time
Lead Agency/Department Responsible:	Victoria County Emergency Management
Implementation Schedule:	Within 12 months of plan adoption
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

	Victoria County – Action #4
Proposed Action:	**Purchase and install rainwater collection systems at precinct barns and other county facilities.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Victoria County
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce water loss.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Effect on New/Existing Buildings:	Reduce impacts on existing structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$50,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	County Public Works
Implementation Schedule:	Within 48 months of plan adoption
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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

	Victoria County – Action #5
Proposed Action:	**Install emergency generators and quick connects on all public buildings, critical infrastructure, and government buildings.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Prevent power loss to critical properties and ensure continuity of services.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Flood, Hurricane, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning, Extreme Heat
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria County Emergency Management
Implementation Schedule:	Within 12 months of plan adoption
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

	Victoria County – Action #6
Proposed Action:	**Develop and adopt plans and regulations to reduce risk and impacts of urban heat. Implement cool roofing projects on county buildings.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide, and public buildings
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce urban heat zones.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	Low
Estimated Cost:	$500,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria County Public Works
Implementation Schedule:	Within 26-38 months of plan adoption
Incorporation into Existing Plans:	Local Ordinances, Capital Improvement 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 = 4; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

		Victoria County – Action #7
	Proposed Action:	**Implement programs to assist vulnerable populations by establishing heating and cooling centers. Distribute heating and cooling center locations and operation procedures to vulnerable populations.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	Designated county buildings
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk to vulnerable populations during extreme events by providing cooling and heating centers throughout the county during extreme events.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Winter Storm
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$25,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 12 months of plan adoption
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

	Victoria County – Action #8
Proposed Action:	**Increase dimensions of drainage culverts in areas prone to flooding and/or drainage problems, in various county locations.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of flooding to structures and infrastructure.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	HMGP, Bonds, Other Federal Grants
Lead Agency/Department Responsible:	County Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan, Capital Improvements 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 = 4; Technically Feasible = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 4; Economically Sound = 5; and Environmentally Sound = 4

	Victoria County – Action #9
Proposed Action:	**Implement a stream restoration/channelization program to ensure adequate drainage/diversion of storm water, throughout various county low water crossings, streambeds, creek sheds, tributaries, and riverine areas.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Springcreek, Garcitas Creek, Coleto Creek, Arenosa Creek, and Guadalupe River
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of flood damages to structures and infrastructure through improved drainage capacity.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000
Potential Funding Sources:	HMGP, Bonds, Other Federal Grants
Lead Agency/Department Responsible:	County Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Drainage 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 =4; Technically Feasible = 4; Administratively Possible = 5; Politically Acceptable = 4; Legal = 4; Economically Sound = 4; and Environmentally Sound = 4

	Victoria County – Action #10
Proposed Action:	**Raise various County bridges above current BFE levels to include such improvements as: box culverts, wingback walls, rip rap, channelization, and road base improvement.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	To include the following roads: Smith, Tibelitti, Mexico, River, Fordyce, Benbow, Oliver, Albrecht, Dentler, Hensley, Noll, Lower Mission Valley, Reinecke, Levi Sloan, Parsons, Fox, Midway, Tipton, J2 Ranch, Bischoff, and Kobitz
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of flooding and degradation of infrastructure.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000
Potential Funding Sources:	HMGP, Bonds, Local Funds
Lead Agency/Department Responsible:	County Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan, Capital Improvement 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 = 4; Technically Feasible = 4; Administratively Possible = 5; Politically Acceptable = 4; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

	Victoria County – Action #11
Proposed Action:	**Implement a voluntary acquisition program for repetitive flood properties.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Guadalupe River Basin, Spring Creek, Garcitas Creek, Quail Creek
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of loss of life and property in repetitive loss areas.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 24-36 months of plan adoption
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 = 3; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 4; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

	Victoria County – Action #12
Proposed Action:	**Improve drainage around County EOC and flood-proof facilities as necessary.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County EOC
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce flooding concerns and ensure continuity of services
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to existing facilities
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	County Emergency Operations
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Operations Plan, Capital Improvements Plan, Drainage 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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 4; Economically Sound = 5; and Environmentally Sound = 4

	Victoria County – Action #13
Proposed Action:	**Harden county buildings, critical infrastructure, and government buildings. Hardening of non-governmental facilities, to include for profit and not for profit locations that have been identified as crucial in the response and recovery to/of emergencies and disasters.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Victoria County Facilities, as identified
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of damages through mitigation measures such as upgraded roofing, lightning arrestors, shatter resistant windows, fire resistant building materials, storm shutters, and other measures necessary for full building envelope protection.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hail, Hurricane, Lightning, Tornado, Thunderstorm Wind, Flood, Extreme Heat, Winter Storm, Wildfire, Dam Failure
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000,000
Potential Funding Sources:	HMGP, Other Federal Grants, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division and County Public Works
Implementation Schedule:	Within 36-48 months of plan adoption
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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

	Victoria County – Action #14
Proposed Action:	**Implement safe room construction practices within new county buildings to prevent injuries and protect property.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	New county buildings
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of injury and property damages during extreme events.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hail, Thunderstorm Wind, Tornado, Hurricane
Effect on New/Existing Buildings:	Reduce risk to future buildings
Priority (High, Moderate, Low):	Low
Estimated Cost:	$500,000
Potential Funding Sources:	HMGP, Bonds
Lead Agency/Department Responsible:	County Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Capital Improvements Plan, 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 = 4; and Environmentally Sound = 5

	Victoria County – Action #15
Proposed Action:	**Upgrade existing 911, PSAP, and communication systems to eliminate duplications and system failures.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Eliminate redundant systems, improve emergency communications and coordination, and reduce risk to citizens.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure, Flood, Hurricane, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$100,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 24-36 months of plan adoption
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

	Victoria County – Action #16
Proposed Action:	**Implement program to reduce risk of hazards to utilities, including uprooting of overheat utilities, tree trimming throughout right-of-way, adjust pole size, utility span widths, line strengths, and burying of utilities.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Decrease utility damage, power outages, and associated risks and damages resulting from power outages.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado, Hurricane, Hail, Winter Storm, Lightning
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	Low
Estimated Cost:	$500,000
Potential Funding Sources:	HMGP, Bonds, Other Federal Grants
Lead Agency/Department Responsible:	County Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Standard Operating Procedures – 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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

	Victoria County – Action #17
Proposed Action:	**Demolish, renovate, and harden various county buildings deemed to be substandard and/or detrimental to the public and environment.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Victoria County
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce environmental and public health hazards.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project – Non-mitigation restoration – Other

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Thunderstorm Wind, Hurricane, Hail, Winter Storm, Wildfire
Effect on New/Existing Buildings:	Reduce impact on existing structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000,000
Potential Funding Sources:	Bonds, Local Budgets
Lead Agency/Department Responsible:	County Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement 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 = 4; Technically Feasible = 4; Administratively Possible = 5; Politically Acceptable = 4; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

	Victoria County – Action #18
Proposed Action:	**Strengthen and improve emergency response and recovery through the purchase of specialized equipment.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Improve response and recovery capabilities.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness – Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning, Dam Failure
Effect on New/Existing Buildings:	Reduce risk to structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$500,000
Potential Funding Sources:	Bonds, Other Federal Programs
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response 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

	Victoria County – Action #19
Proposed Action:	**Purchase and install tornado sirens.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Prevent loss of life through early warning.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Response 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

		Victoria County – Action #20
	Proposed Action:	**Implement program to reduce fuel loads/fuels reduction program to reduce wildfire risk.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-wide with emphasis on WUI
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce fuel loads by cleanup activities in areas of abandoned or collapsed structures, accumulated trash or debris, etc.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$200,000
Potential Funding Sources:	HMGP, Local Funds, Texas Forestry
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 24 months of plan adoption
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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

	Victoria County – Action #21
Proposed Action:	**Establish, adopt, and implement burning standards throughout the community.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce wildfire risk.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Local Plans and Regulations; Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on New/Existing Buildings:	Reduce risk to existing and new structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$2,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Building Permits
Implementation Schedule:	Within 24-36 months of plan adoption
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 = 4; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

	Victoria County – Action #22
Proposed Action:	**Properly train personnel on wildland firefighting techniques and equip with fast attack vehicles.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce wildfire risk and increase efficacy of response.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness – Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$3,000
Potential Funding Sources:	Local Funds, SOP
Lead Agency/Department Responsible:	VFD
Implementation Schedule:	Within 48 months of plan adoption
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

		Victoria County – Action #23
	Proposed Action:	**Equip emergency response and preparedness equipment for proper response and alleviation of dangerous conditions on roadways, parking areas, and access and egress points.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Prevent dangerous conditions.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project – Response

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local Funds, Other Federal Grants
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Response 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

	Victoria County – Action #24
Proposed Action:	**Conduct study for the development and implementation of county wide planning & development standards, sub-division rules, infrastructure rules and building / construction codes.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce loss of property during natural hazards.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane, Winter Storm, Wildfire, Severe Weather
Effect on New/Existing Buildings:	Reduce impacts to homes and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria County
Implementation Schedule:	Within 36 months of plan adoption
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

	Victoria County – Action #25
Proposed Action:	**Purchase and implement enhanced county wide rain intensity and river forecasting capability equipment.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce flooding impact to low lying areas that impact homes and infrastructure.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane
Effect on New/Existing Buildings:	Reduce flooding impact to homes and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$200,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria County
Implementation Schedule:	Within 36 months of plan adoption
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

	Victoria County – Action #26
Proposed Action:	**Harden, elevate and improve the existing levee system, including the installation of a Railroad Levee Closer System along the Victoria Barge Canal serving Victoria Navigation District, the Port of Victoria.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	South Victoria County along the Victoria Barge Canal to the County line (see attached exhibit)
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce flooding and flood damage to the Port of Victoria and Industrial Development along the Victoria Barge Canal.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Chemical Spill, Economic
Effect on New/Existing Buildings:	Reduce risk of flooding to the Port, industrial complexes, structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$2.6 million
Potential Funding Sources:	HMGP, Federal and Local Funds
Lead Agency/Department Responsible:	Victoria Navigation District
Implementation Schedule:	Within 12 months of plan adoption
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

	Victoria County – Action #27
Proposed Action:	**Engineering Studies to revise Flood Insurance Rate Maps (FIRMs) throughout the County to establish Base Flood Elevations (BFE) in areas that are currently identified as unstudied Zone A's.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Various Drainage Basins which include but are not limited to Guadalupe River, Spring Creek, Marcado Creek, Garcitas Creek, Arenosa Creek, Lone Tree Creek, Placedo Creek, Black Bayou, Coleto Creek drainage basins.
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Accurate mapping of the floodplain areas with BFE's will allow repaired structures and new structures to be constructed to an elevation to mitigate future flood damage and to properly rate flood insurance policies.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Local Plans and Regulations Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Proper elevation of new and repaired structures and proper flood insurance rating
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria County and City of Victoria
Implementation Schedule:	Within 24 months of plan adoption
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

		Victoria County – Action #28
	Proposed Action:	**Study, design, and construct county / city wide safe rooms in all critical infrastructure / key resource locations, to include government / nongovernment, profit and nonprofit locations.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County / City-wide CI/KR determined locations
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce loss of property damage and human causalities by providing safe room environments.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Severe Wind, Flood
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$10,000,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria County and City of Victoria
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, HMAP

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

	Victoria County – Action #29
Proposed Action:	**Enhance County-wide 911 addressing / warning systems, using GIS maps, street signs, address markers, and proper 911 Geo-Coding, to identify at risk populations and provide accurate warnings, alerts, and first responder services.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide incorporated and unincorporated addresses
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Increase emergency notification capabilities, and first responder services in the event of a natural hazard.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Severe Wind, Flood, Drought, Wildfire, Thunderstorm Wind, Tornado, Lightning, Hurricane, Hail, Winter Storm
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$700,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria County
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, HMAP

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

	Victoria County – Action #30
Proposed Action:	**Study, develop, design, construct and enhance county-wide water delivery systems to accommodate the risk associated to various natural hazards.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide incorporated and unincorporated areas
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce infrastructure loss.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Severe Wind, Flood, Drought, Wildfire, Thunderstorm Wind, Tornado, Lightning, Hurricane, Hail, Winter Storm
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria County
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, HMAP

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

	Victoria County – Action #31
Proposed Action:	**Study, design, develop, enhanced, and rehab water, waste-water, surface water reservoirs, water wells, lift stations, and aqua storage recovery systems.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-wide incorporated and unincorporated areas.
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce infrastructure loss, eliminate breaks, leaks, and loss of delivery systems.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Severe Wind, Flood, Drought, Wildfire, Thunderstorm, Tornado, Lightning, Hurricanes, Hail, Winter Storm
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000.00
Potential Funding Sources:	HMGP, Local
Lead Agency/Department Responsible:	Victoria County
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, MAP

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 = 4; Administratively Possible = 4; Politically Acceptable = 4; Legal = 4; Economically Sound = 4; and Environmentally Sound = 4

	Victoria County – Action #32
Proposed Action:	**Initiate study of storm water drainage systems to assess impacts from flooding & flash flooding to Victoria County Precincts & City of Victoria.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-Wide incorporated and unincorporated areas
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Identify flood-prone areas to mitigate damages and build into future improvement projects
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Projects

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to existing structures and roadways
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000,000
Potential Funding Sources:	HMGP, BRIC, Federal Funds, Local Funds
Lead Agency/Department Responsible:	Victoria County/City Floodplain Administrators(s)
Implementation Schedule:	Within 26-38 months of plan adoption
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 = 4; Administratively Possible = 4; Politically Acceptable = 4; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

		Victoria County – Action #33
	Proposed Action:	**Acquire/build survivable location for Victoria County Fire Department responders & apparatuses.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	Victoria County
	Risk Reduction Benefit *(Cu0rrent Cost/Losses Avoided)***:**	Provide a survivable location for responders & Victoria County Fire Department apparatuses to continually provide essential emergency services to Victoria County, respond to calls for service, including mutual aid.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Projects

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,500,000
Potential Funding Sources:	HMGP, BRIC, Federal Funds, Local Funds
Lead Agency/Department Responsible:	Victoria County Fire Marshal's Office
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvements

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 = 4; Administratively Possible = 4; Politically Acceptable = 4; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

		Victoria County – Action #34
	Proposed Action:	**Incorporate hazard mitigation practices and education for pandemic response in all public buildings.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	County-Wide / All Public Buildings
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Incorporate public health safety measures and education in public facilities to include: touch-free ingress/egress points, UV disinfecting lights, additional sanitation measures, billboards, educational campaigns, signage, etc.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Projects Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Multi-Hazards
Effect on New/Existing Buildings:	Reduce impact on existing buildings / facilities
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	HMGP, American Rescue Plan (ARP) Funding
Lead Agency/Department Responsible:	Victoria County Public Health Department
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response 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 = 4; Politically Acceptable = 4; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

	Victoria County – Action #35
Proposed Action:	**Hardening, retrofitting, and insulation of windows, doors, entrances to Victoria County Sheriff's Office and Victoria County Jail.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Victoria County
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Improve building security and safety during severe weather and public safety issues
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Projects

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Severe Wind, Tornado
Effect on New/Existing Buildings:	Reduce impact on existing buildings / facilities
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$600,000
Potential Funding Sources:	HMGP
Lead Agency/Department Responsible:	Victoria County Sheriff's Office
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response 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 = 4; and Environmentally Sound = 4

	Victoria County – Action #36
Proposed Action:	**Hardening of public buildings and critical infrastructure from severe winter events.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-Wide / All Public Buildings
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce the risk of injury & property damage to public buildings, critical infrastructure and key resources (CI/KR) during and after severe winter weather events
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Projects

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Effect on New/Existing Buildings:	Reduce impact on existing buildings / facilities
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	HMGP
Lead Agency/Department Responsible:	County/City Public Works, County/City Maintenance, VOEM
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response 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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

CITY OF VICTORIA

	City of Victoria – Action #1
Proposed Action:	**Provide additional means of access into single entry neighborhoods.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	City of Victoria
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Additional access for first responders, emergency services, and evacuation routes.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$2,500,000
Potential Funding Sources:	HMGP, PDM, Federal Grants, Local Funds
Lead Agency/Department Responsible:	Victoria Emergency Management Office
Implementation Schedule:	Within 36 months of plan adoption
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 = 4; Technically Feasible = 3; Administratively Possible = 4; Politically Acceptable = 4; Legal = 4; Economically Sound = 4; and Environmentally Sound = 4

		City of Victoria – Action #2
	Proposed Action:	**Purchase and implement enhanced area-wide emergency notification system.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Increase emergency notification capabilities in the event of a natural hazard.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$20,000
Potential Funding Sources:	HMGP, Local Funds, Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Office
Implementation Schedule:	Within 36 months of plan adoption
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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

	City of Victoria – Action #3
Proposed Action:	**Design and implement methods of improving Aquifer Storage & Recovery (ASR) systems.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	City of Victoria
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of loss of aquifer.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Wildfire
Effect on New/Existing Buildings:	Reduce impacts to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$250,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	ASR Regional 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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

	City of Victoria – Action #4
Proposed Action:	**Perform study and assess vulnerability to drought risk. Adopt and enforce drought tolerant practices and regulations.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	City of Victoria
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce impacts of drought on structures, infrastructure, and natural environment.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Effect on New/Existing Buildings:	Reduce impact to existing structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$5,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local 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 = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

	City of Victoria – Action #5
Proposed Action:	**Install emergency generators and quick connects on all buildings, critical infrastructure, and government buildings.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	City of Victoria
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Prevent power loss to critical properties and ensure continuity of services.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning, Extreme Heat
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria Emergency Management
Implementation Schedule:	Within 12 months of plan adoption
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

		City of Victoria – Action #6
	Proposed Action:	**Develop and adopt plans and regulations to reduce risk and impacts of urban heat. Implement cool roofing projects on city buildings.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide and public buildings
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce urban heat zones.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	Low
Estimated Cost:	$500,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Victoria Public Works
Implementation Schedule:	Within 36-48 months of plan adoption
Incorporation into Existing Plans:	Local Ordinances, Capital Improvement 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 = 4; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

		City of Victoria – Action #7
	Proposed Action:	**Implement programs to assist vulnerable populations by establishing heating and cooling centers. Distribute heating and cooling center locations and operation procedures to vulnerable populations.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	Designated city buildings
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk to vulnerable populations during extreme events by providing cooling and heating centers throughout the city during extreme events.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Winter Storm
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$20,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 12 months of plan adoption
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

		City of Victoria – Action #8
	Proposed Action:	**Increase dimensions of drainage culverts in areas prone to flooding and/or drainage problems in various City locations.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City of Victoria – Northcrest Basin, Mayfair Subdivision, and other locations as identified
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of flooding to structures and infrastructure.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	HMGP, Bonds, Other Federal Grants
Lead Agency/Department Responsible:	City Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan, Capital Improvement 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 = 4; Technically Feasible = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 4; Economically Sound = 5; and Environmentally Sound = 4

	City of Victoria – Action #9
Proposed Action:	**Implement a stream restoration/channelization program to ensure adequate drainage/diversion of storm water, throughout various City low water crossings, streambeds, creek sheds, tributaries, and riverine areas.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Lone Tree Outfalls, Guadalupe River, and drainage districts
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of flood damages to structures and infrastructure through improved drainage capacity.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000
Potential Funding Sources:	HMGP, Bonds, Other Federal Grants
Lead Agency/Department Responsible:	City Public Works
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Drainage 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 = 4; Technically Feasible = 4; Administratively Possible = 5; Politically Acceptable = 4; Legal = 4; Economically Sound = 4; and Environmentally Sound = 4

	City of Victoria – Action #10
Proposed Action:	**Implement a voluntary acquisition program for repetitive flood properties.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Greens Addition, Old Town, and various other areas when identified
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of loss of life and property in repetitive loss areas.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 24-36 months of plan adoption
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 = 3; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 4; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

City of Victoria – Action #11	
Proposed Action:	**Harden city buildings, critical infrastructure, and government buildings. Hardening of non-governmental facilities, to include for profit and not for profit locations that have been identified as crucial in the response and recovery to/of emergencies and disasters.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	City of Victoria
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of damages through mitigation measures such as upgraded roofing, lightning arrestors, shatter resistant windows, fire resistant building materials, storm shutters, and other measures necessary for full building envelope protection.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hail, Hurricane, Lightning, Tornado, Thunderstorm Wind, Flood, Extreme Heat, Winter Storm, Wildfire
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000,000
Potential Funding Sources:	HMGP, Other Federal Grants, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division and City Public Works
Implementation Schedule:	Within 36-48 months of plan adoption
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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

	City of Victoria – Action #12
Proposed Action:	**Implement safe room construction practices within new city buildings to prevent injuries and protect property.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	New city buildings
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of injury and property damages during extreme events.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hail, Thunderstorm Wind, Tornado, Hurricane
Effect on New/Existing Buildings:	Reduce risk to future buildings
Priority (High, Moderate, Low):	Low
Estimated Cost:	$200,000
Potential Funding Sources:	HMGP, Bonds
Lead Agency/Department Responsible:	City Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Capital Improvements 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 = 4; and Environmentally Sound = 5

		City of Victoria – Action #13
	Proposed Action:	**Upgrade existing 911, PSAP, and communication systems to eliminate duplications and system failures.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City of Victoria
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Eliminate redundant systems, improve emergency communications and coordination, and reduce risk to citizens.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 24-36 months of plan adoption
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

	City of Victoria – Action #14
Proposed Action:	**Conduct All-Hazards Education and Awareness Program to educate citizens of hazards, risks, and mitigation measures to employ to protect lives and property (include Firewise/WUI campaign).**
BACKGROUND INFORMATION	
Jurisdiction/Location:	City-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Promote hazard awareness and protect citizens from potential injuries and damages.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane, Thunderstorm Wind, Drought, Extreme Heat, Hail, Winter Storm, Tornado, Wildfire, Lightning
Effect on New/Existing Buildings:	Reduce risk to lives and property
Priority (High, Moderate, Low):	High
Estimated Cost:	$10,000
Potential Funding Sources:	HMGP, Local Funds, Staff Time
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 12 months of plan adoption
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

		City of Victoria – Action #15
	Proposed Action:	**Implement study to include GIS mapping of areas that are at risk to wind hazards.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Determine vulnerability due to wind.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness – Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$5,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	N/A

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

	City of Victoria – Action #16
Proposed Action:	**Adopt regulations and implement program to reduce risk of hazards to utilities, including uprooting of overhead utilities, tree trimming throughout right-of-way, adjust pole size, utility span widths, line strengths, and burying of utilities.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	City-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Decrease utility damage, power outages and associated risks and damages resulting from power outages.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind, Tornado, Hurricane, Hail, Winter Storm, Lightning
Effect on New/Existing Buildings:	Reduce risk to existing structures and infrastructure
Priority (High, Moderate, Low):	Low
Estimated Cost:	$500,000
Potential Funding Sources:	HMGP, Bonds, Other Federal Grants
Lead Agency/Department Responsible:	City Public Works
Implementation Schedule:	Within 48 months of Plan Adoption
Incorporation into Existing Plans:	Standard Operating Procedures – 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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

	City of Victoria – Action #17
Proposed Action:	**Construct stand-alone or build interior Safe Rooms at designated existing public structures.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	TBD within the City of Victoria
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Provide safe zone during tornadic events.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$2,000,000
Potential Funding Sources:	HMGP, Other Federal Grants, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvement 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 = 4; and Environmentally Sound = 5

	City of Victoria – Action #18
Proposed Action:	**Purchase and install tornado sirens.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	City-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Prevent loss of life through early warning.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Response 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

	City of Victoria – Action #19
Proposed Action:	**Strengthen and improve emergency response and recovery through the purchase of specialized equipment.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	City-wide
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Improve response and recovery capabilities.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness – Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning
Effect on New/Existing Buildings:	Reduce risk to structures and citizens
Priority (High, Moderate, Low):	Low
Estimated Cost:	$500,000
Potential Funding Sources:	Bonds, Other Federal Programs
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response 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

		City of Victoria – Action #20
	Proposed Action:	**Implement program to reduce fuel loads/fuels reduction program to reduce wildfire risk.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide with emphasis on WUI
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce fuel loads by cleanup activities in areas of abandoned or collapsed structures, accumulated trash or debris, etc.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$200,000
Potential Funding Sources:	HMGP, Local Funds, Texas Forestry
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 24 months of plan adoption
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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

		City of Victoria – Action #21
	Proposed Action:	**Establish, adopt, and implement burning standards throughout the community.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City-wide
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce wildfire risk.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on New/Existing Buildings:	Reduce risk to existing and future structures and infrastructure
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$2,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	Building Permits
Implementation Schedule:	Within 24-36 months of plan adoption
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 = 4; Technically Feasible = 5; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 5; and Environmentally Sound = 5

	City of Victoria – Action #22
Proposed Action:	**Properly train personnel on wildland firefighting techniques and equip with fast attack vehicles.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	City of Victoria
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce wildfire risk and increase efficacy of response.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness – Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$3,000
Potential Funding Sources:	Local Funds, SOP
Lead Agency/Department Responsible:	VFD
Implementation Schedule:	Within 48 months of plan adoption
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

		City of Victoria – Action #23
	Proposed Action:	**Equip emergency response and preparedness equipment for proper response and alleviation of dangerous conditions on roadways, parking areas, and access and egress points.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	City of Victoria
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Prevent dangerous conditions.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project – Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Winter Storm
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local Funds
Lead Agency/Department Responsible:	Emergency Management Division
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Response 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

	City of Victoria – Action #24
Proposed Action:	**Rehabilitate, repair, or replace the City of Victoria's existing flood gates.** **Install additional flood gates as recommended by Engineering Study.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Low lying areas within the City limits along the Guadalupe River
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce flooding in low lying areas along the Guadalupe River.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk of flood to homes and structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$700,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	City of Victoria Public Works Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvements 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

	City of Victoria – Action #25
Proposed Action:	**Construct a storm water lift station in an area to be determined by an engineering study.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	Low lying areas within the City limits along the Guadalupe River
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce flooding in low lying areas along the Guadalupe River.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk of flood to homes and structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	City of Victoria Public Works Department
Implementation Schedule:	Within 36 months of plan adoption
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

		City of Victoria – Action #26
	Proposed Action:	**Conduct engineering study to determine the need to rehabilitate, repair or replace the City of Victoria's existing flood gates. Also determine if additional gates are needed.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	Low lying areas within the City limits along the Guadalupe River
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce flooding in low lying areas along the Guadalupe River
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk of flood to homes and structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$45,000
Potential Funding Sources:	HMGP, Local Funds
Lead Agency/Department Responsible:	City of Victoria Public Works Department
Implementation Schedule:	Within 12 months of plan adoption
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

	City of Victoria – Action #27
Proposed Action:	**Initiate study of storm water drainage systems to assess impacts from flooding & flash flooding to Victoria County Precincts & City of Victoria.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	County-Wide incorporated and unincorporated areas
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Identify flood-prone areas to mitigate damages and build into future improvement projects
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Projects

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to existing structures and roadways
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000,000
Potential Funding Sources:	HMGP, BRIC, Federal Funds, Local Funds
Lead Agency/Department Responsible:	Victoria County/City Floodplain Administrators(s)
Implementation Schedule:	Within 26-38 months of plan adoption
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 = 4; Administratively Possible = 4; Politically Acceptable = 4; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

VICTORIA ISD

	Victoria ISD – Action #1
Proposed Action:	**Educate students on mitigation measures to reduce water consumption during periods of drought.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	All VISD Campuses
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce water consumption through education.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000
Potential Funding Sources:	VISD Budget (Staff Time)
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	VISD Curriculum

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

		Victoria ISD – Action #2
	Proposed Action:	**Improve and retrofit Water Supply Systems to reduce water loss due to damaged pipes and to increase water quality.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	All VISD Campuses
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Improve water supply and delivery systems to save water and reduce foundation subsidence.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Effect on New/Existing Buildings:	Reduce impact to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$100,000
Potential Funding Sources:	Local Revenue, HMGP, Bonds
Lead Agency/Department Responsible:	VISD Maintenance
Implementation Schedule:	Within 24-36 months of plan adoption pending available funding
Incorporation into Existing Plans:	VISD Maintenance 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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

		Victoria ISD – Action #3
	Proposed Action:	**Purchase and install generators and permanent quick-connections on all schools, buildings, fuel barn, and fiber switches.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	All VISD Campuses
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk of heat induced sickness, keep AC and heat on during power outages and rolling blackouts.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Winter Storm, Flood, Hurricane, Thunderstorm Wind, Hail, Tornado, Wildfire, Lightning
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$500,000
Potential Funding Sources:	Local Revenue, HMGP, Bonds
Lead Agency/Department Responsible:	VISD Maintenance
Implementation Schedule:	Within 24-36 months of plan adoption pending available funding
Incorporation into Existing Plans:	VISD Maintenance 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

		Victoria ISD – Action #4
	Proposed Action:	**Purchase and plant additional trees and vegetation around buildings and parking lots at all VISD campuses.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	All VISD Campuses
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce Urban Heat Island Effect.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat
Effect on New/Existing Buildings:	Reduce heat effects on existing buildings
Priority (High, Moderate, Low):	Low
Estimated Cost:	$10,000
Potential Funding Sources:	Local Revenue, VISD Maintenance Budget
Lead Agency/Department Responsible:	VISD Maintenance
Implementation Schedule:	Within 36-48 months of plan adoption
Incorporation into Existing Plans:	VISD Maintenance 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

	Victoria ISD – Action #5
Proposed Action:	**School Zone Signage / Exits**
BACKGROUND INFORMATION	
Jurisdiction/Location:	VISD Maintenance
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Facilitate ease of access/egress for first responders / rescue personnel.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project - Response

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane, Tornado
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$2,500
Potential Funding Sources:	Local Revenue, Bonds
Lead Agency/Department Responsible:	VIDS Maintenance
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Evacuation 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

	Victoria ISD – Action #6
Proposed Action:	**Implement a flood awareness program. Educate students on flood mitigation actions to employ at home and ways to protect lives and property.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	VISD
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Increase awareness of hazards and mitigation measures.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000
Potential Funding Sources:	Local Revenue, VISD Operating Budget
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	VISD Curriculum

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

		Victoria ISD – Action #7
	Proposed Action:	**Install roofing products that bear the UL 2218 hail-resistant product listing.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	All VISD Campus Buildings
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce potential damage, and existing vulnerabilities.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hail
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$500,000
Potential Funding Sources:	Local Revenue, HMGP, Bonds
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 24-36 months of plan adoption pending available funding
Incorporation into Existing Plans:	VISD Maintenance 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 = 4; and Environmentally Sound = 5

		Victoria ISD – Action #8
	Proposed Action:	**Conduct education/outreach activities to increase awareness of extreme event dangers and mitigation measures to reduce impacts from extreme events.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	All VISD Campuses
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Increase risk awareness for all hazards; improve shelter-in-place procedures.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hail, Flood, Hurricane, Thunderstorm Wind, Drought, Extreme Heat, Winter Storm, Tornado, Wildfire, Lightning
Effect on New/Existing Buildings:	Reduce risk to existing facilities
Priority (High, Moderate, Low):	High
Estimated Cost:	$2,000
Potential Funding Sources:	Local Revenue, VISD Operating Budget
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	VISD Curriculum

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

		Victoria ISD – Action #9
	Proposed Action:	**Retrofit / Harden windows on all VISD buildings.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	VISD Buildings
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce risk to students and faculty, due to flying debris, and failure of structural protection.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane, Thunderstorm Wind, Hail
Effect on New/Existing Buildings:	Reduce risk to existing buildings
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$500,000
Potential Funding Sources:	HMGP, Bonds
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 36 months of plan adoption
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 = 4; and Environmentally Sound = 5

	Victoria ISD – Action #10
Proposed Action:	**Retrofit all VISD buses for ADA accessibility.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	VISD buses
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Increase capability of evacuation transport.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project - Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane, Flood
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$250,000
Potential Funding Sources:	Bonds
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	SOP

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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

	Victoria ISD – Action #11
Proposed Action:	**Install lightning protection devices and methods, such as lightning rods and grounding, on communications infrastructure and other critical facilities.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	VISD
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Protect Critical Facilities and Equipment.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Lightning
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$5,000
Potential Funding Sources:	Local Revenue, HMGP
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	N/A

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 = 4; and Environmentally Sound = 5

	Victoria ISD – Action #12
Proposed Action:	**Improve/upgrade door locking system throughout district.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	All VISD Campuses
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Increase ability to secure buildings quickly during severe weather events; protect lives and property.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hail, Hurricane, Thunderstorm Wind, Tornado
Effect on New/Existing Buildings:	Reduce risk to existing facilities
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$25,000
Potential Funding Sources:	Local Revenues, Bonds, HMGP
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement 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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 5

	Victoria ISD – Action #13
Proposed Action:	**Conduct study to assess campus vulnerability to Thunderstorm Wind.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	All VISD Campuses
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Estimate potential loss of life and injuries, the types of potential damage, and existing vulnerabilities; determine mitigation measures to reduce risk.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Local Plans and Regulations - Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Thunderstorm Wind
Effect on New/Existing Buildings:	Reduce risk to existing facilities
Priority (High, Moderate, Low):	Low
Estimated Cost:	$10,000
Potential Funding Sources:	Local Revenue, Bonds
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	N/A

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

Victoria ISD – Action #14	
Proposed Action:	**Build interior hardened Safe Rooms.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	All VISD Campuses
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Provide safe zone during tornadic events.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$2,000,000
Potential Funding Sources:	Local Revenue, Bonds, HMGP
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 12-24 months of plan adoption pending available funding
Incorporation into Existing Plans:	Capital Improvements 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

		Victoria ISD – Action #15
	Proposed Action:	**Evaluate access and road conditions for response vehicles; formulate and implement options to improve access.**
	BACKGROUND INFORMATION	
	Jurisdiction/Location:	All VISD Campuses
	Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Better accessibility for first responders.
	Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Project

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$250,000
Potential Funding Sources:	Local Revenue, Bonds, HMGP
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 24-36 months of plan adoption pending available funding
Incorporation into Existing Plans:	Capital Improvements 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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

	Victoria ISD – Action #16
Proposed Action:	**Assess vulnerability to Wildfire and implement fuels reduction at all campuses.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	All VISD Campuses
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Identify and mitigate wildfire hazard areas.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Natural Systems Protection

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Effect on New/Existing Buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$500,000
Potential Funding Sources:	Local Revenue, Bonds, HMGP
Lead Agency/Department Responsible:	VISD Administration
Implementation Schedule:	Within 24-36 months of plan adoption pending available funding
Incorporation into Existing Plans:	Wildfire Protection 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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

	Victoria ISD – Action #17
Proposed Action:	**Harden VISD campuses/facilities to include insulation of pipes, walls, windows, roofs, and other critical areas from severe weather incidents.**
BACKGROUND INFORMATION	
Jurisdiction/Location:	VISD Buildings and Campuses
Risk Reduction Benefit *(Current Cost/Losses Avoided)***:**	Reduce exposure to severe weather, including extreme cold, wind-borne flying debris, and other environmental hazards.
Type of Action *(Local Plans and Regulations, Structure and Infrastructure projects, Natural System Protection, or Education and Awareness)*	Structure and Infrastructure Projects

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane, Extreme Temperatures, Hail, Lightning, Severe Wind, Severe Winter Weather, Extreme Heat
Effect on New/Existing Buildings:	Reduce impact on existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$200,000 (per site)
Potential Funding Sources:	HMGP, Bonds
Lead Agency/Department Responsible:	VISD Maintenance
Implementation Schedule:	Within 36-48 months of plan adoption pending available funding
Incorporation into Existing Plans:	VISD Maintenance Plan

COMMENTS
This is a per site estimate.
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 = 4; Administratively Possible = 5; Politically Acceptable = 5; Legal = 5; Economically Sound = 4; and Environmentally Sound = 4

SECTION 18: PLAN MAINTENANCE

PLAN MAINTENANCE PROCEDURES

The following is an explanation of how Victoria County, participating jurisdictions, and the general public will be involved in implementing, evaluating, and enhancing the Plan over time. The sustained hazard mitigation planning process consists of four main parts:

- Incorporation
- Monitoring and Evaluation
- Updating
- Continued Public Involvement

INCORPORATION

Victoria County and participating jurisdictions will be responsible for further development and implementation of mitigation actions. Each action has been assigned to a specific department within the County and participating jurisdictions. The following describes the process by which Victoria County will incorporate elements of the mitigation plan into other planning mechanisms.

PROCESS OF INCORPORATION

Once the Plan is adopted, Victoria County and participating jurisdictions will implement actions based on priority and the availability of funding. The County currently implements policies and programs to reduce loss to life and property from hazards. The mitigation actions developed for this Plan enhance this ongoing effort and will be implemented through other program mechanisms where possible.

The potential funding sources listed for each identified action may be used when the jurisdiction seeks funds to implement actions. An implementation time period or a specific implementation date has been assigned to each action as an incentive for completing each task and gauging whether actions are implemented in a timely manner.

Victoria County and participating jurisdictions will integrate implementation of their mitigation actions with other plans and policies, such as construction standards and emergency management plans, and ensure that these actions, or proposed projects, are reflected in other planning efforts. Coordinating and integrating components of other plans and policies into goals and objectives of the Plan will further maximize funding and provide possible cost-sharing of key projects. This coordination and integration will thereby be reducing loss of lives and property and mitigating hazards affecting the area.

Upon formal adoption of the Plan, planning team members from each participating jurisdiction will work to integrate the hazard mitigation strategies into other plans and codes as they are developed. Participating team members will conduct periodic reviews of plans and policies, once per year at a minimum, and analyze the need for amendments in light of the approved Plan. The planning team will review all comprehensive land use plans, capital improvement plans, annual budget reviews, emergency operations or management plans, transportation plans, and any building codes to guide and control development. Participating jurisdictions will ensure that capital improvement planning in the future will also contribute to the goals of this hazard mitigation Plan to reduce the long-term risk to life and property from all hazards. Within one year of formal adoption of the hazard mitigation plan, existing planning mechanisms will be reviewed by each jurisdiction.

Victoria County is committed to supporting the cities, communities, and participating jurisdictions as they implement their mitigation actions. Victoria County and participating planning team members will review and revise, as necessary, the long-range goals and objectives in strategic plan and budgets to ensure that they are consistent with this mitigation action plan. Additionally, the County will work to advance the goals of this hazard mitigation plan through its routine, ongoing, long-range planning, budgeting, and work processes.

Table 18-1 identifies types of planning mechanisms and examples of methods for incorporating the Plan into other planning efforts. The team members, listed in Table 18-2 below, will be responsible for the review of these planning mechanisms and their incorporation of the plan, with the exception of the Floodplain Management Plans. The jurisdictions who have a Floodplain Administrator on staff will be responsible for incorporating the plan when floodplain management plans are updated or new plans are developed.

Table 18-1. Methods of Incorporation of the Plan

PLANNING MECHANISM	DEPARTMENT/TITLE RESPONSIBLE	INCORPORATION OF PLAN
Grant Applications	Victoria County: Emergency Management Coordinator City of Victoria: Program Coordinator/Emergency Planner Victoria ISD: VISD Director of Administration	The Plan will be evaluated by Victoria County and participating jurisdictions when grant funding is sought for mitigation projects. If a project is not in the Plan, an amendment may be necessary to include the action in the Plan.
Annual Budget Review	Victoria County: Emergency Management Coordinator City of Victoria: Program Coordinator/Emergency Planner	Various departments and key personnel that participated in the planning process for Victoria County and participating jurisdictions will review the Plan and mitigation actions therein when conducting their annual budget review. Allowances will

PLANNING MECHANISM	DEPARTMENT/TITLE RESPONSIBLE	INCORPORATION OF PLAN
	Victoria ISD: VISD Director of Administration	be made in accordance with grant applications sought, and mitigation actions that will be undertaken, according to the implementation schedule of the specific action.
Regulatory Plans	Victoria County: Emergency Management Coordinator City of Victoria: Program Coordinator/Emergency Planner Victoria ISD: VISD Director of Administration	Currently, Victoria County and participating jurisdictions have regulatory plans in place, such as Emergency Operations Plans, Continuity of Operations Plans, Economic Development, and Evacuation Plans. The Plan will be consulted when County and City departments review or revise their current regulatory planning mechanisms, or in the development of regulatory plans that are not currently in place.
Capital Improvement Plans	Victoria County: Emergency Management Coordinator City of Victoria: Program Coordinator/Emergency Planner Victoria ISD: VISD Director of Administration	Victoria County and participating jurisdictions have a Capital Improvement Plan (CIP) in place. Prior to any revisions to the CIP, County and City departments will review the risk assessment and mitigation strategy sections of the HMAP, as limiting public spending in hazardous zones is one of the most effective long-term mitigation actions available to local governments.
Comprehensive Plans	Victoria County: Emergency Management Coordinator City of Victoria: Program Coordinator/Emergency Planner Victoria ISD: VISD Director of Administration	Victoria County has a Long-term Comprehensive Development Plan in place. Since comprehensive plans involve developing a unified vision for a community, the mitigation vision and goals of the Plan will be reviewed in the development or revision of a Comprehensive Plan.
Floodplain Management Plans	Victoria County: Floodplain Manager City of Victoria: Floodplain Manager Victoria ISD: Floodplain Manager	Floodplain management plans include preventative and corrective actions to address the flood hazard. Therefore, the actions for flooding, and information found in Section 5 of this Plan discussing the people and property at risk to flood, will be reviewed and revised when Victoria County updates their management plans or develops new plans.

MONITORING AND EVALUATION

Periodic revisions of the Plan are required to ensure that goals, objectives, and mitigation actions are kept current. Revisions may be required to ensure the Plan is in compliance with federal and state statutes and regulations. This section outlines the procedures for completing Plan revisions, updates, and review. Table 18-2 indicates the department and title of the party responsible for Plan monitoring, updating, and review of the Plan.

Table 18-2. Team Members Responsible for Plan Monitoring, Evaluating, Updating, and Review of the Plan

JURISDICTION	TITLE
Victoria County	Emergency Management Coordinator & Program Coordinator/Emergency Planner
City of Victoria	Emergency Management Coordinator & Program Coordinator/Emergency Planner
Victoria ISD	VISD Director of Administration

MONITORING

Designated Planning Team members are responsible for monitoring, updating, and reviewing the Plan, as shown in Table 18-2. Individuals holding the title listed in Table 18-2 will be responsible for monitoring the Plan on an annual basis. Plan monitoring includes reviewing and incorporating into the Plan other existing planning mechanisms that relate or support goals and objectives of the Plan; monitoring the incorporation of the Plan into future updates of other existing planning mechanisms as appropriate; reviewing mitigation actions submitted and coordinating with various County and City departments to determine if mitigation actions need to be re-evaluated and updated; evaluating the hazards that pose a risk to the planning area and updating the risk assessment when warranted; evaluating and updating the Plan as necessary; and monitoring plan maintenance to ensure that the process described is being followed, on an annual basis, throughout the planning process. The Planning Team will develop a brief report that identifies policies and actions in the plan that have been successfully implemented and any changes in the implementation process needed for continued success. A summary of meeting notes will report the particulars involved in developing an action into a project. In addition to the annual monitoring, the Plan will be similarly reviewed immediately after extreme weather events including but not limited to state and federally declared disasters.

EVALUATION

As part of the evaluation process, the Planning Team will assess changes in risk; determine whether the implementation of mitigation actions is on schedule; determine whether there are any implementation problems, such as technical, political, legal, or coordination issues; and identify changes in land development or programs that affect mitigation priorities for each respective department or organization.

The Planning Team will meet on an annual basis to evaluate the Plan, identify any needed changes, and assess the effectiveness of the plan achieving its stated purpose and goals. The team will evaluate the number of mitigation actions implemented along with the loss-reduction associated with each action. Actions that have not been implemented will be evaluated to determine if any social, political or financial

barriers are impeding implementation and if any changes are necessary to improve the viability of an action. The team will evaluate changes in land development and/or programs that affect mitigation priorities in their respective jurisdictions. The annual evaluation process will help to determine if any changes are necessary. In addition, the Plan will be similarly evaluated immediately after extreme weather events including but not limited to state and federally declared disasters.

UPDATING

PLAN AMENDMENTS

At any time, minor technical changes may be made to update the Victoria County Hazard Mitigation Plan. Material changes to mitigation actions or major changes in the overall direction of the Plan or the policies contained within it must be subject to formal adoption by the County and participating jurisdictions.

The County will review proposed amendments and vote to accept, reject, or amend the proposed change. Upon ratification, the amendment will be transmitted to TDEM.

In determining whether to recommend approval or denial of a Plan amendment request, the County will consider the following factors:

- Errors or omissions made in the identification of issues or needs during the preparation of the Plan;
- New issues or needs that were not adequately addressed in the Plan; and
- Changes in information, data, or assumptions from those on which the Plan was based.

FIVE (5) YEAR REVIEW

The Plan will be thoroughly reviewed by the Planning Team at the end of three years from the approval date, to determine whether there have been significant changes in the planning area that necessitate changes in the types of mitigation actions proposed. Factors that may affect the content of the Plan include new development in identified hazard areas, increased exposure to hazards, disaster declarations, increase or decrease in capability to address hazards, and changes to federal or state legislation.

The Plan review process provides the County and participating jurisdictions an opportunity to evaluate mitigation actions that have been successful, identify losses avoided due to the implementation of specific mitigation measures, and address mitigation actions that may not have been successfully implemented as assigned.

It is recommended that the full Planning Team (Section 2, Table 2-1) meet to review the Plan at the end of three years because grant funds may be necessary for the development of a five-year update. Reviewing planning grant options in advance of the five-year Plan update deadline is recommended considering the timelines for grant and planning cycles can be in excess of a year.

Following the Plan review, any revisions deemed necessary will be summarized and implemented according to the reporting procedures and Plan amendment process outlined herein. Upon completion of the review, update, and amendment process, the revised Plan will be submitted to TDEM for final review and approval in coordination with FEMA.

CONTINUED PUBLIC INVOLVEMENT

Public input was an integral part of the preparation of this Plan and will continue to be essential for Plan updates. The Public will be directly involved in the annual review and cyclical updates. Changes or suggestions to improve or update the Plan will provide opportunities for additional public input.

The public can review the Plan on Victoria County's website along with a hard copy at the Victoria Office of Emergency Management. Annual meeting will be held that the public will be invited to attend.

The Planning Team may also designate voluntary citizens from the County or willing stakeholder members from the private sector businesses that were involved in the Plan's development to provide feedback on an annual basis. It is important that stakeholders and the immediate community maintain a vested interest in preserving the functionality of the planning area as it pertains to the overall goals of the mitigation plan. The Planning team is responsible for notifying stakeholders and community members on an annual basis and maintaining the Plan.

Media, including local newspaper and radio stations, will be used to notify the public of any maintenance or periodic review activities during the implementation, monitoring, and evaluation phases. Additionally, local news media will be contacted to cover information regarding Plan updates, status of grant applications, and project implementation. Local and social media outlets, such as Facebook and Twitter, will keep the public and stakeholders apprised of potential opportunities to fund and implement mitigation projects identified in the Plan.

APPENDIX A: PLANNING TEAM

PLANNING TEAM MEMBERS

The Victoria County Plan was organized using a direct representative model. A Planning Team from Victoria County and participating jurisdictions, shown in Table A-1, was formed to coordinate planning efforts and request input and participation in the planning process. The Planning Team consists of representatives from area organizations and departments that participated throughout the planning process. Table A-2 is comprised of stakeholders who were invited to provide Plan input. Public outreach efforts and meeting documentation is provided in Appendix E.

Table A-1. Planning Team

DEPARTMENTS	TITLE
Victoria County/City of Victoria OEM	Emergency Management Coordinator
Victoria County/City of Victoria OEM	Deputy Emergency Management Coordinator
Victoria County/City of Victoria OEM	Program Coordinator/Emergency Planner
Victoria County	Public Health Emergency Preparedness Coordinator
Victoria County	Captain of Enforcement
Victoria County	Precinct #1 Supervisor
Victoria County	Floodplain Manager
Victoria County	Grant Administrator
Victoria County	County Fire Marshal
Victoria County	Precinct #4 Commissioner
City of Victoria	Deputy Director of Public Works
City of Victoria	Fire Chief
City of Victoria	Assistant Fire Chief
City of Victoria	Chief of Police
City of Victoria	Assistant Director of Development Services
City of Victoria	Development Engineer/Floodplain Manager

DEPARTMENTS	TITLE
City of Victoria	Network Engineer
City of Victoria	Assistant Chief of Police
Victoria Independent School District	VISD Director of Administration
Victoria Independent School District	RS Networking Consulting - President

STAKEHOLDERS

The following groups listed in Table A-2 represent a list of organizations invited to stakeholder meetings, public meetings, and workshops throughout the planning process and include non-profit organizations, private businesses, universities, and legislators. The public were also invited to participate via e-mail throughout the planning process. For a list of attendees at meetings, please see Appendix E[1].

Table A-2. Stakeholders

AGENCY	TITLE
Texas Department of Public Safety	District Coordinator, DDC 17
Texas State Senator	State Senator
Texas State Representatives	State Representatives
University of Houston – Victoria	Risk/Emergency Management Coordinator UHV
Victoria Chamber of Commerce	President/CEO
Victoria Regional Airport	Manager
TxDOT	TxDOT Area Engineer
Golden Crescent Regional Planning Commission	Emergency Preparedness Coordinator
Citizens Medical Center	Emergency Services Coordinator
Citizens Medical Center	Trauma Program Manager
Caterpillar	EHS Manager
Port of Victoria	Executive Director
Victoria College	Director of Police Academy
Victoria College	Chief of Police and Campus Safety

[1] Information contained in Appendix E is exempt from public release under the Freedom of Information Act (FOIA).

APPENDIX B: PUBLIC SURVEY RESULTS

OVERVIEW

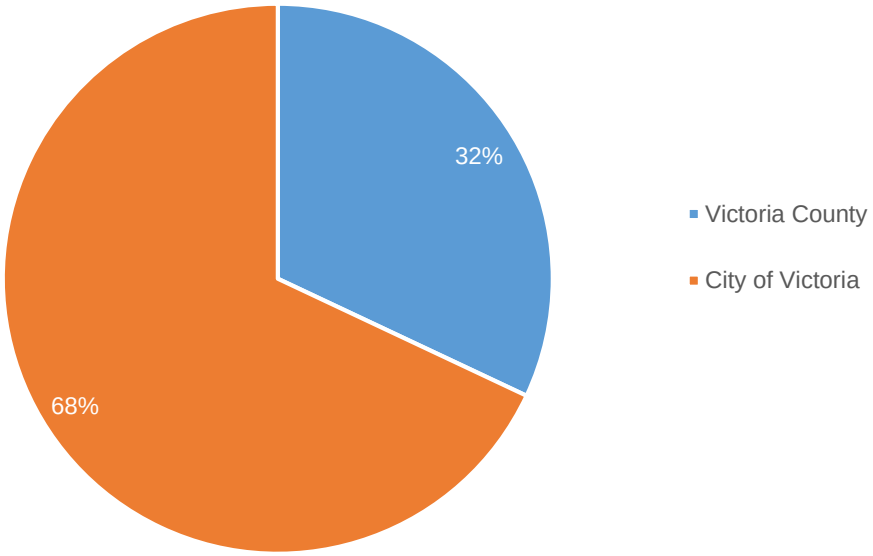
Victoria County prepared a public survey that requested public opinion on a wide range of questions relating to natural hazards. The survey was made available on the County's website, along with participating jurisdictions. This survey link was also distributed at public meetings and stakeholder events throughout the planning process.

A total of 25 surveys were collected, the results of which are analyzed in Appendix B. The purpose of the survey was twofold: 1) to solicit public input during the planning process, and 2) to help the jurisdictions identify any potential actions or problem areas.

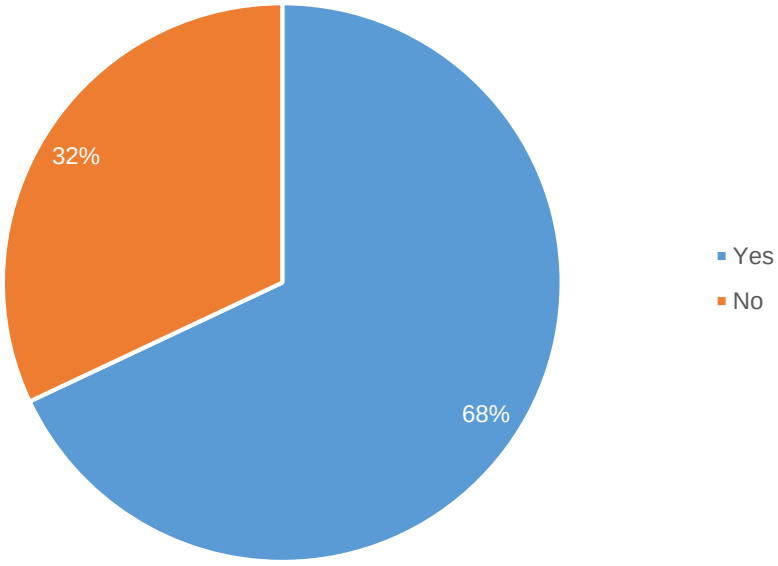
The following survey results depict the percentage of responses for each answer. Similar responses have been summarized for questions that did not provide a multiple-choice answer or that required an explanation.

PUBLIC SURVEY RESULTS

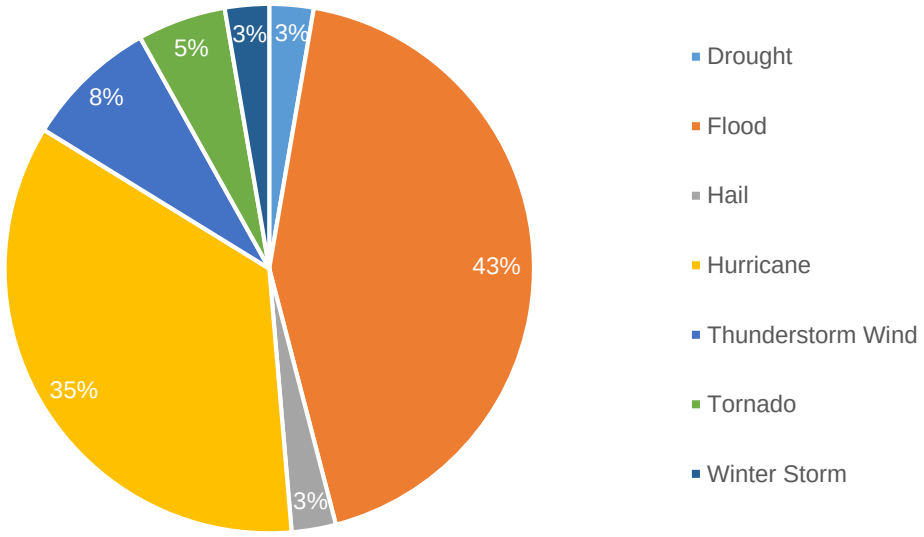
1. Please state the jurisdiction (city or community) where you reside.



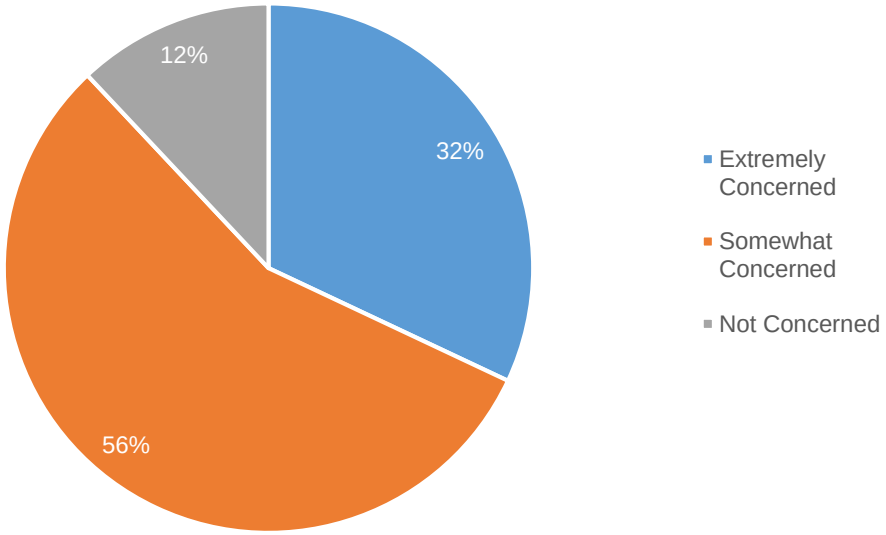
2. A. Have you ever experienced or been impacted by a disaster?



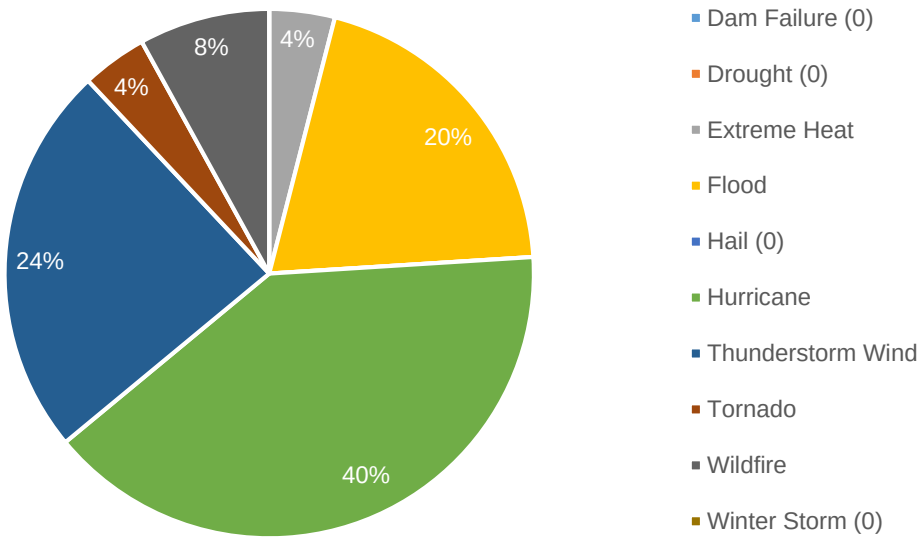
2. B. If “Yes”, please explain:



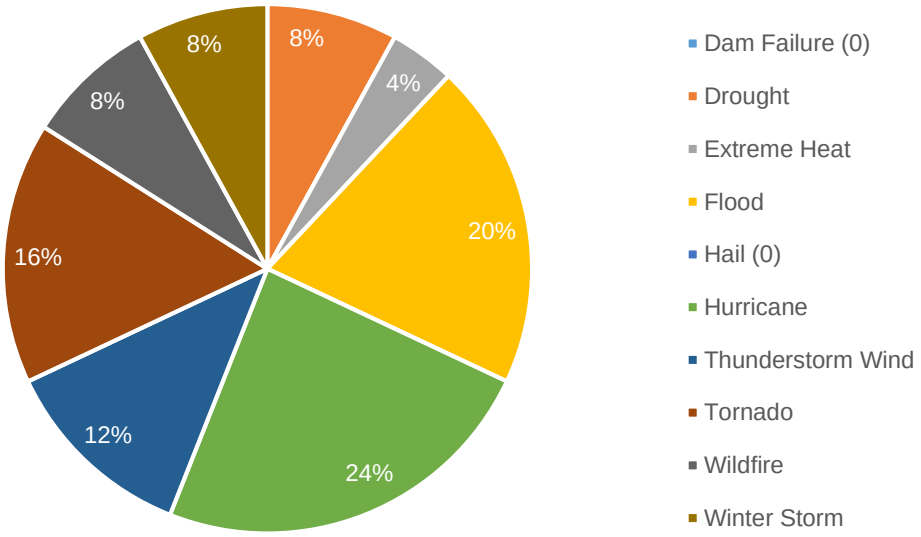
3. How concerned are you about the possibility of your community being impacted by a disaster?



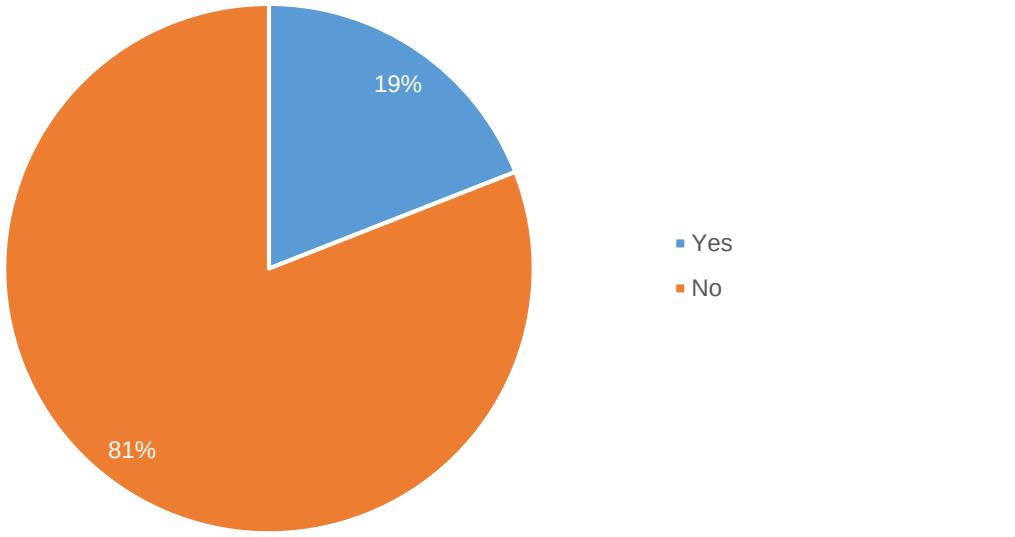
4. Please select the one hazard you think is the highest threat to your neighborhood:



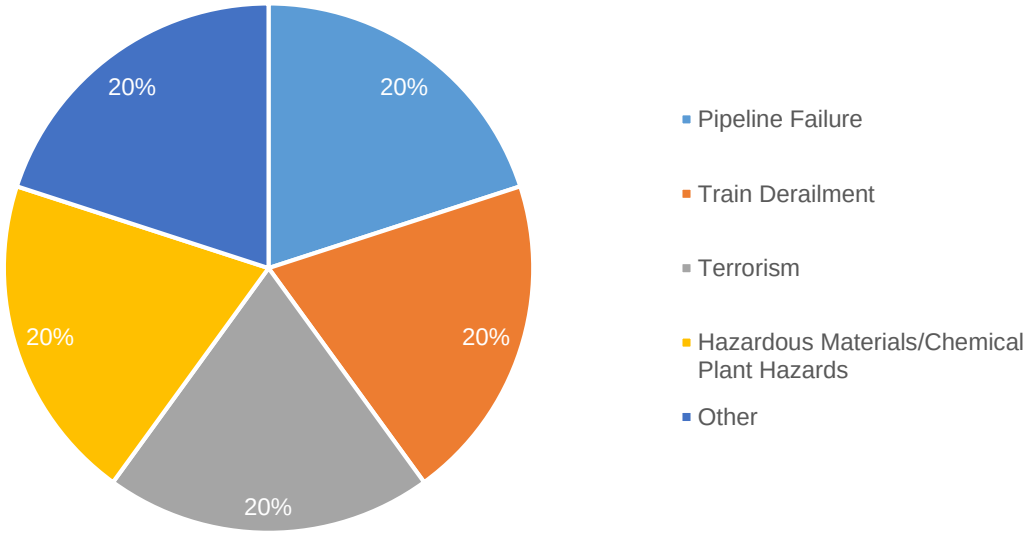
5. Please select the one hazard you think is the second highest threat to your neighborhood:



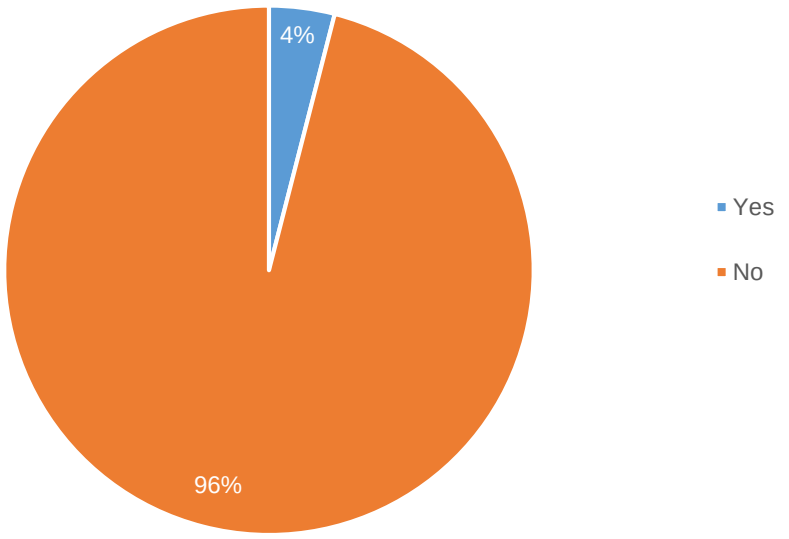
6. A. Are there hazards not listed above that you think are wide-scale threats to your neighborhood?



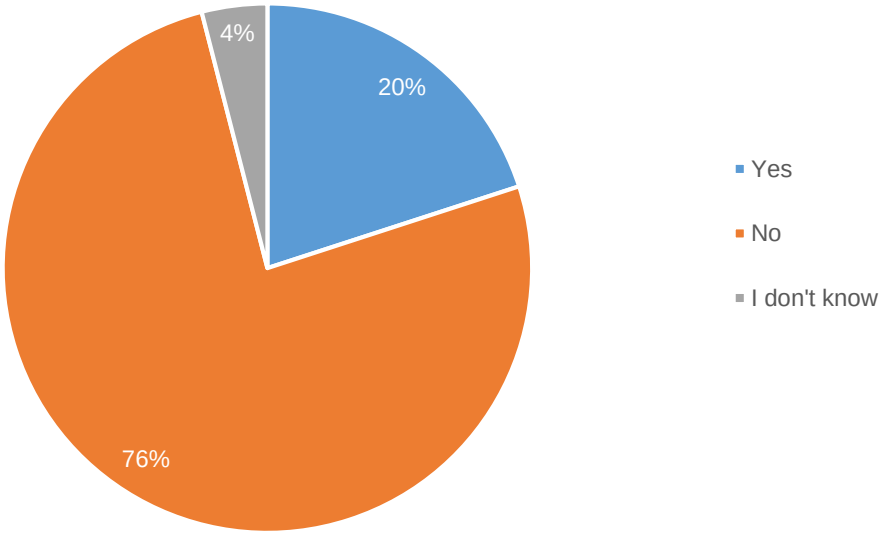
6. B. If “Yes”, please explain:



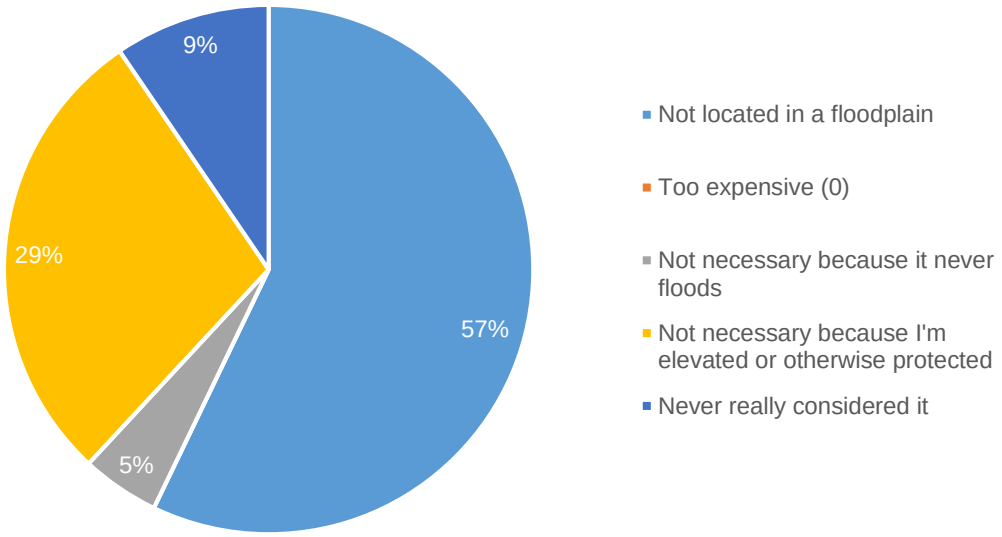
7. Is your home located in a floodplain?



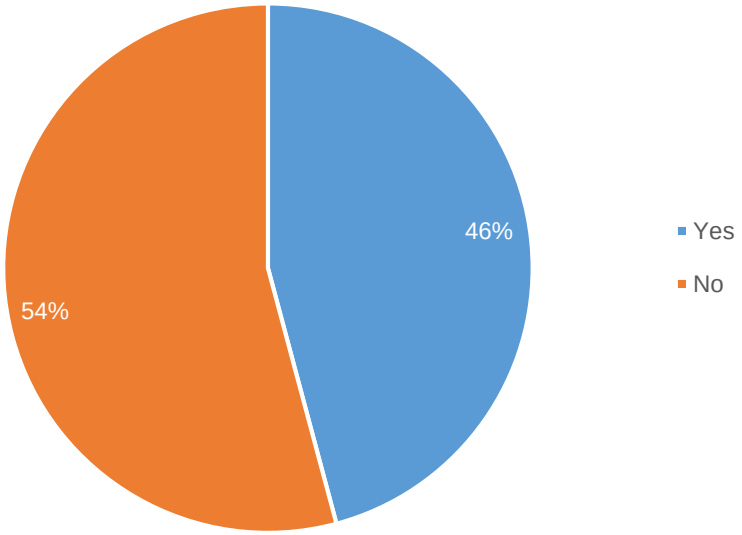
8. Do you have flood insurance?



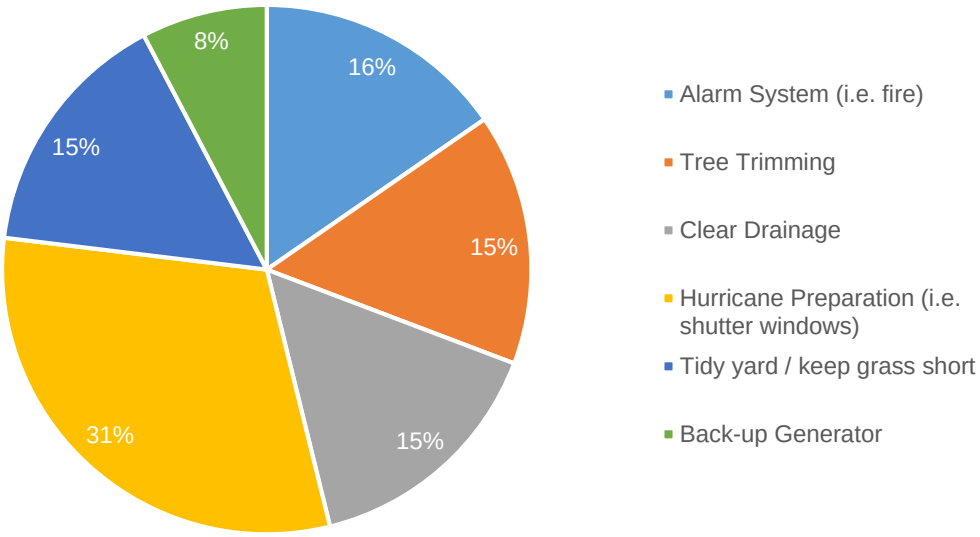
9. If you do not have flood insurance, why not?



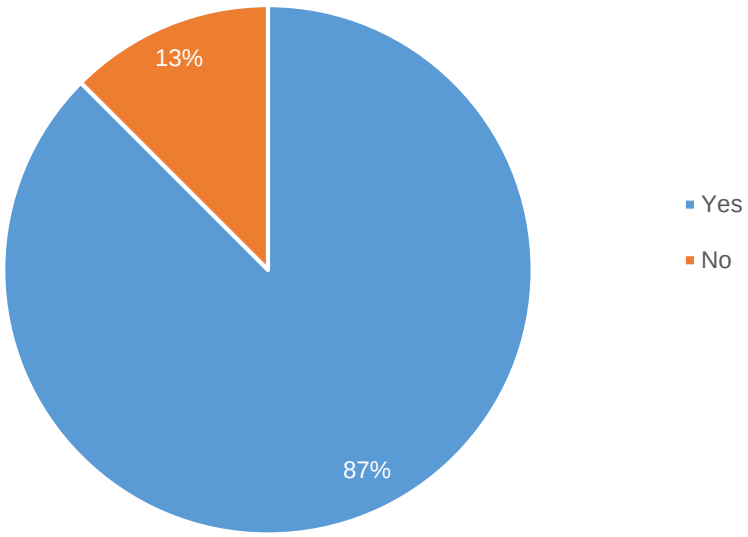
10. A. Have you taken any actions to make your home or neighborhood more resistant to hazards?



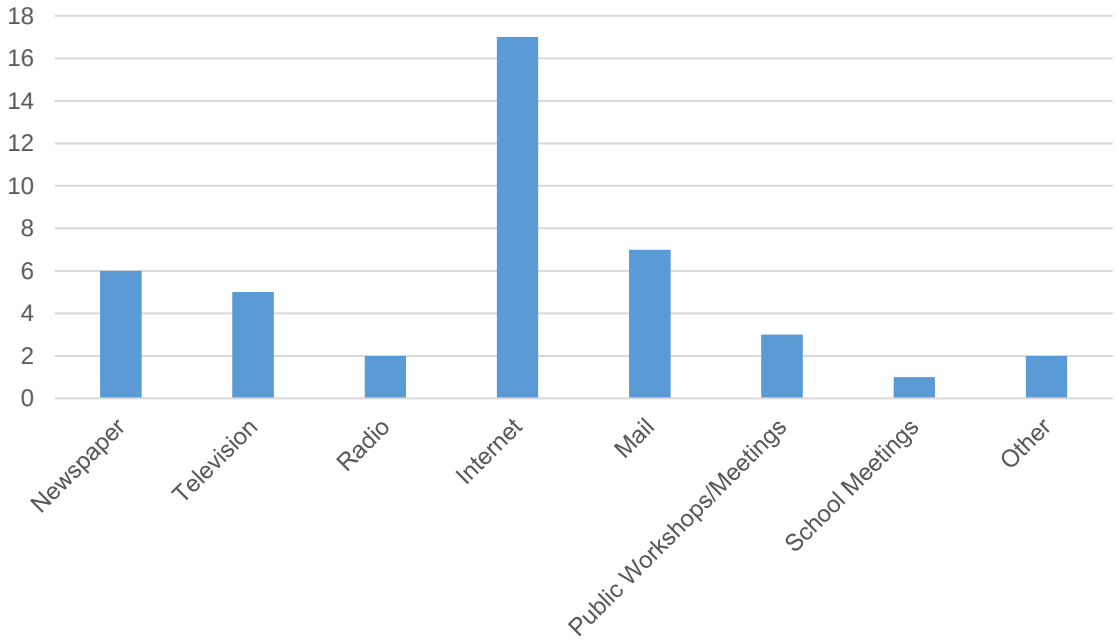
10. B. What have you done?



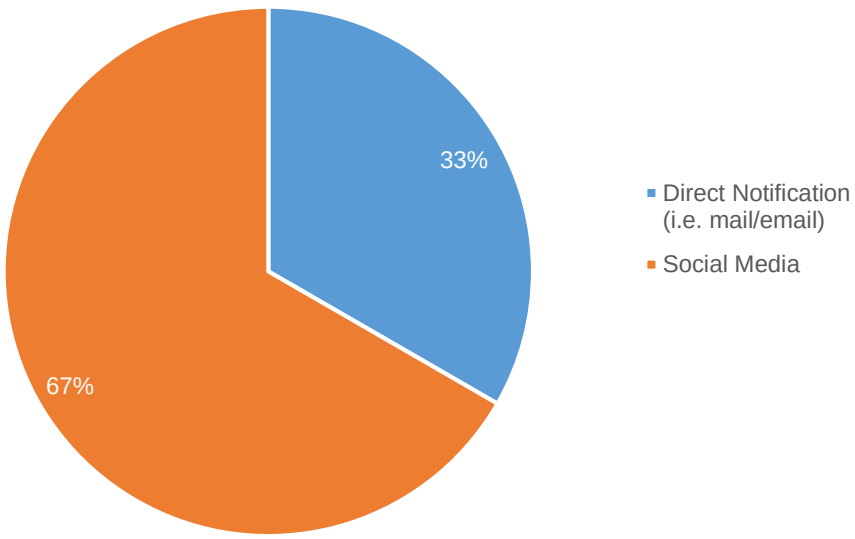
11. Are you interested in making your home or neighborhood more resistant to hazards?



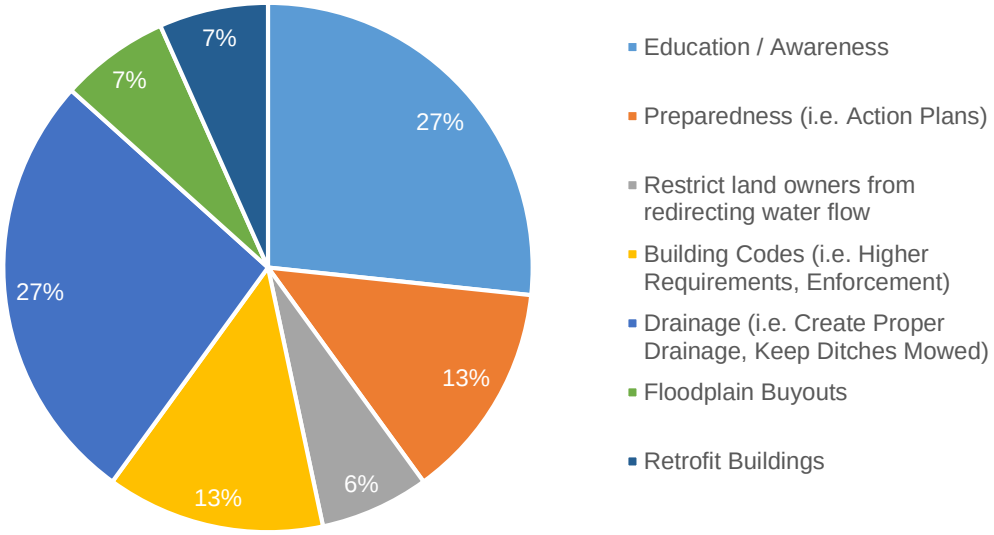
12. A. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?



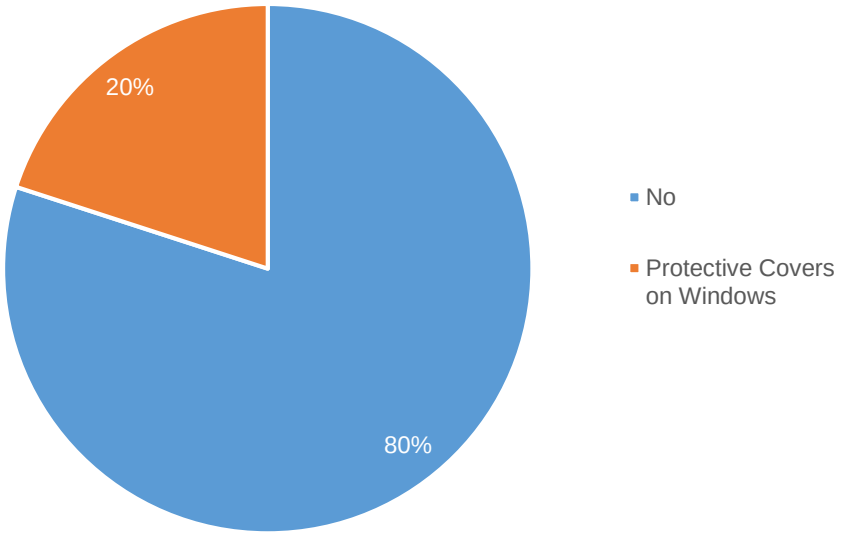
12. B. If other, please specify.



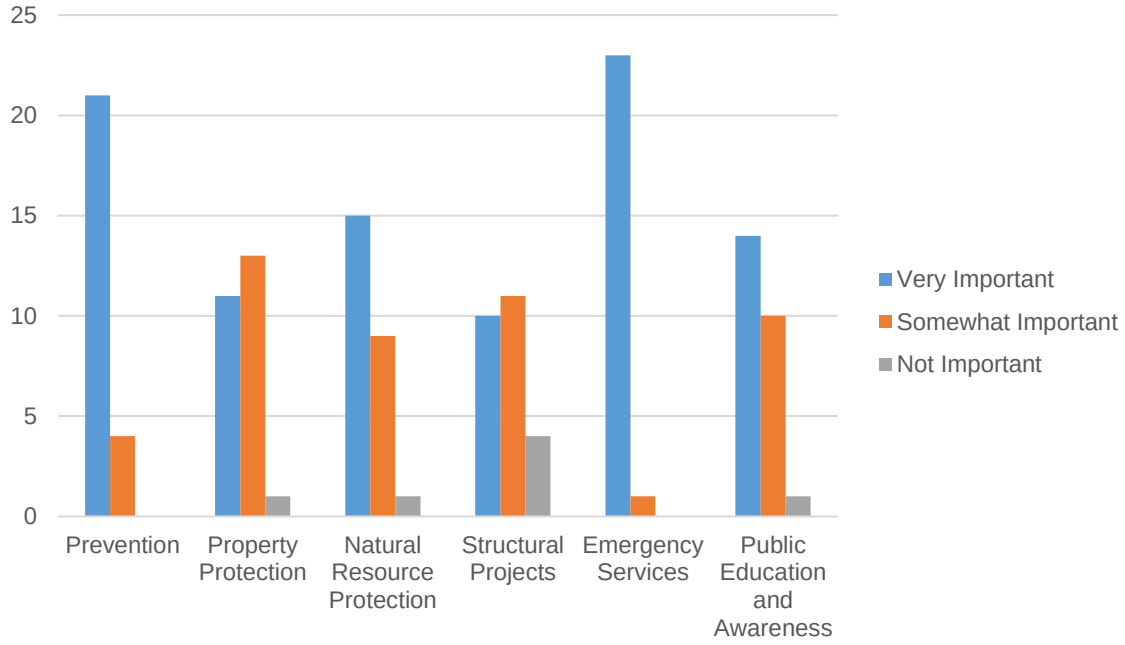
13. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood?



14. Are there any other issues regarding the reduction of risk and loss associated with hazards or disasters in the community that you think are important?



15. A number of community-wide activities can reduce our risk from hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.



Prevention / Local Plans & Regulations - Administrative or regulatory actions that influence the way land is developed and buildings are built. Examples include planning and zoning, building codes, open space preservation, and floodplain regulations.

Property Protection - Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area. Examples include acquisition, relocation, elevation, structural retrofits, and storm shutters.

Natural Resource Protection - Actions that in addition to minimizing hazard losses also preserve or restore the functions of natural systems. Examples include: floodplain protection, habitat preservation, slope stabilization, riparian buffers, and forest management.

Structural Projects - Actions intended to lessen the impact of a hazard by modifying the natural progression of the hazard. Examples include dams, levees, seawalls detention / retention basins, channel modification, retaining walls, and storm sewers.

Emergency Services - Actions that protect people and property during and immediately after a hazard event. Examples include warning systems, evacuation planning, emergency response training, and protection of critical facilities or systems.

Public Education and Awareness - Actions to inform citizens about hazards and techniques they can use to protect themselves and their property. Examples include outreach projects, school education programs, library materials, and demonstration events.

APPENDIX C: CRITICAL FACILITIES

OVERVIEW

This Appendix is **For Official Use Only (FOUO)** and may be exempt from public release under FOIA. Figures C-1 through C-15 locate all critical facilities that were included in the risk assessment. Mapped facilities were provided by Victoria County Planning Team members. Table C-1 notes the critical facilities by type.

CRITICAL FACILITIES

Figure C-1. Critical Facilities in the Victoria County Planning Area

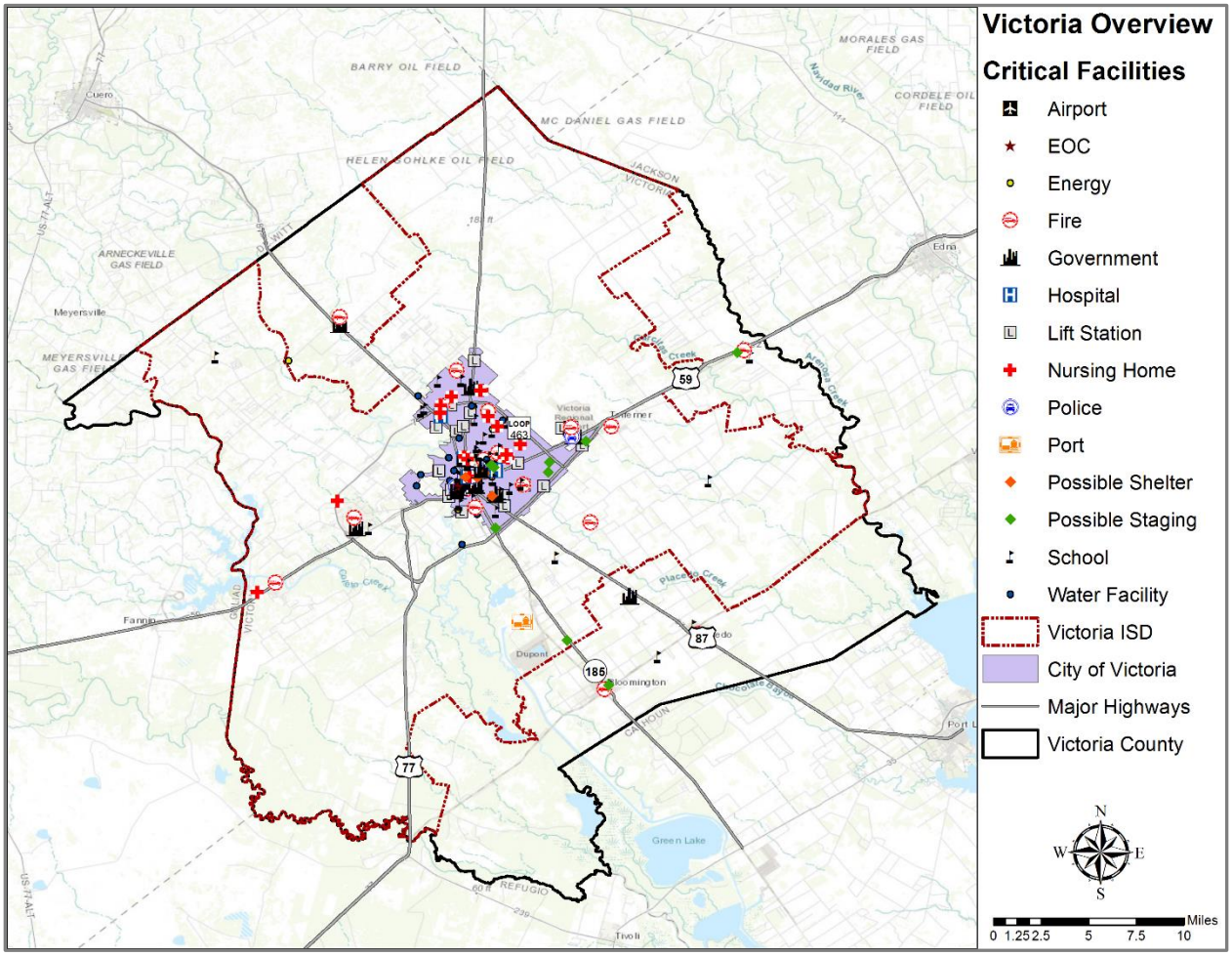


Table C-1. Critical Facilities by Type in Victoria County

TYPE	NUMBER
Airport	1
Energy	4
Emergency Operations Center	1
Fire	16
Government	11
Hospital	4
Lift Station	19
Nursing Home	16
Police	3
Port	1
Potential Shelter	4
Potential Staging	9
School	38
Water Facility	16

Figure C-2. Planning Area Critical Facilities – Airport

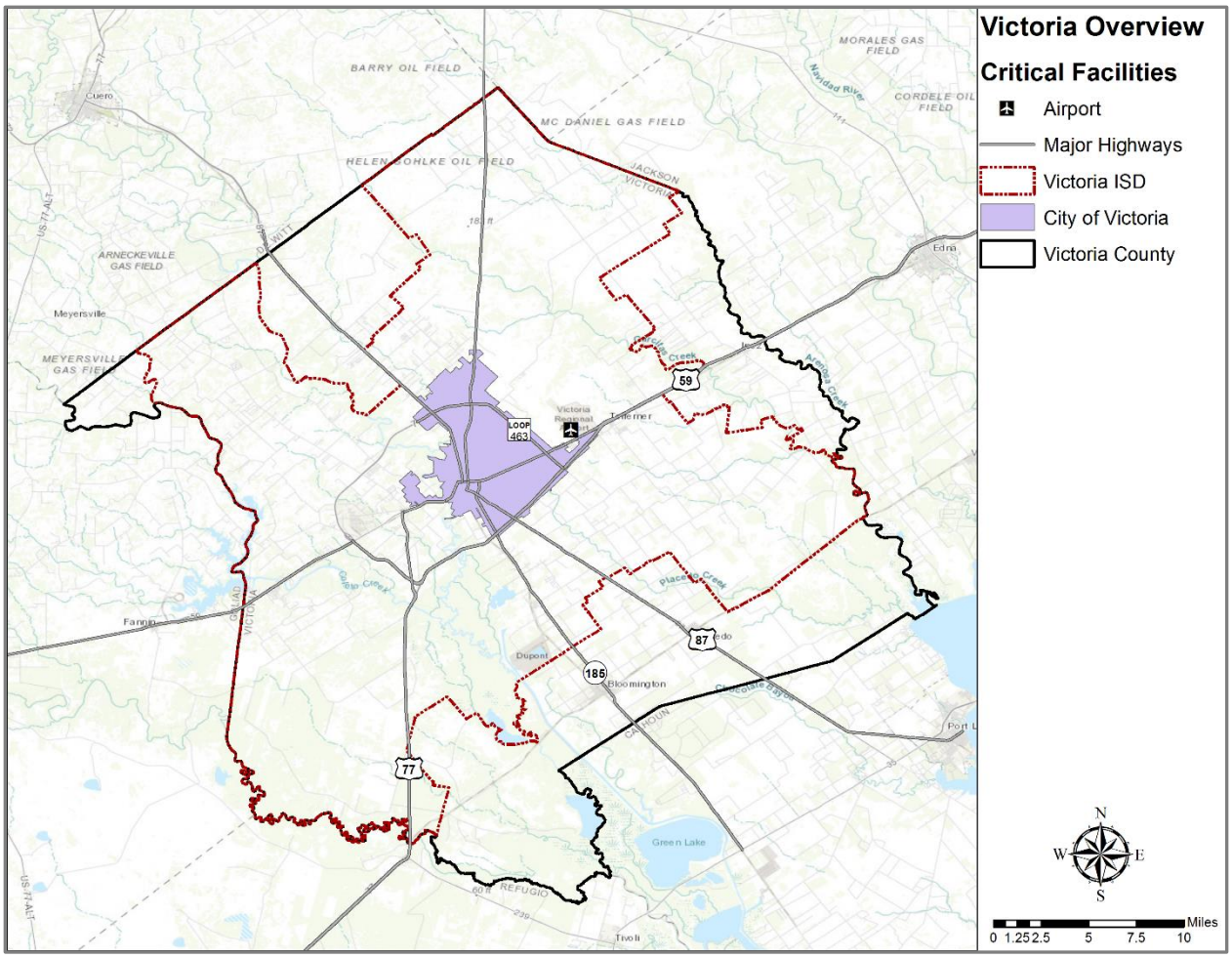


Figure C-3. Planning Area Critical Facilities – Energy Facilities

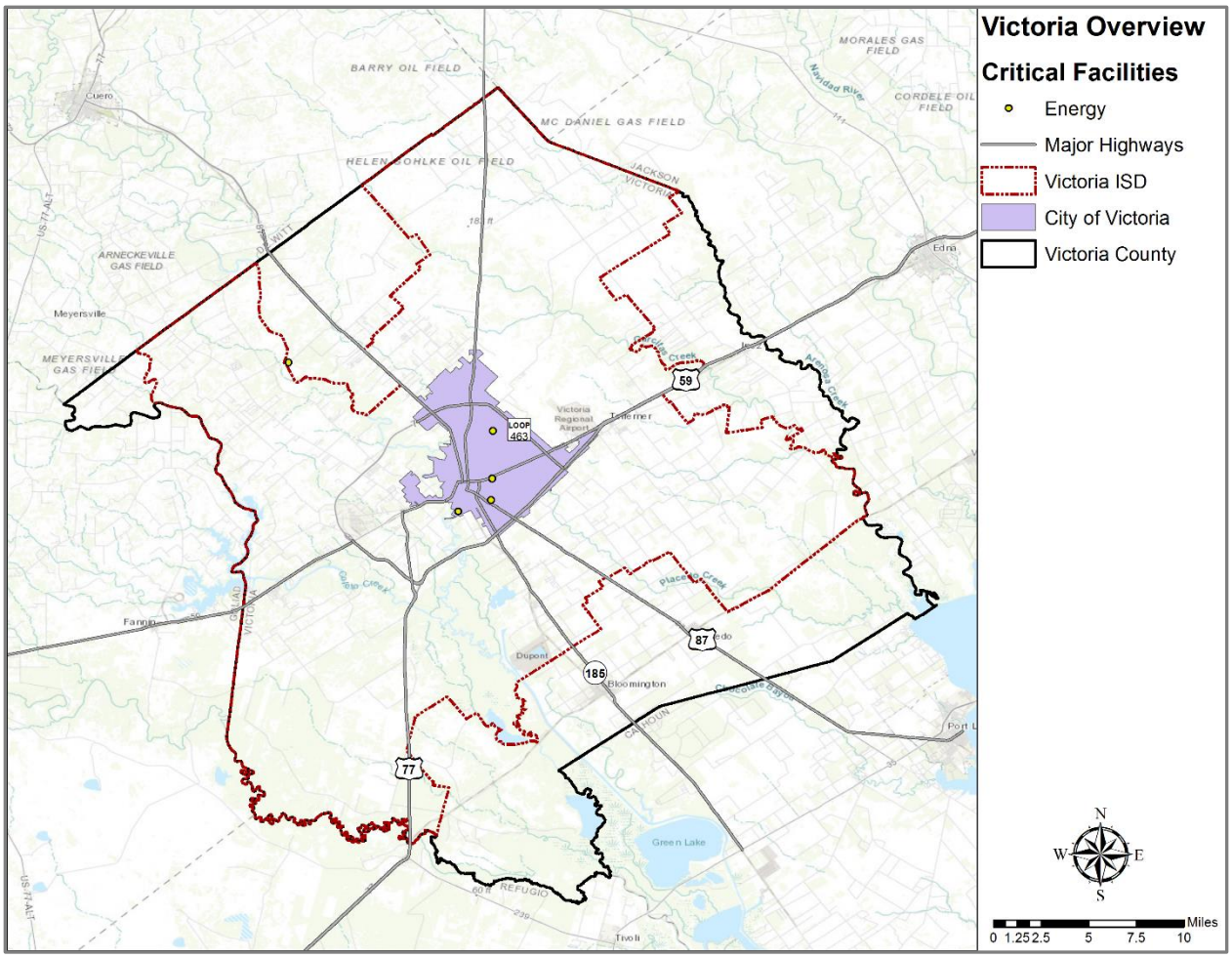


Figure C-4. Planning Area Critical Facilities – Emergency Operations Center

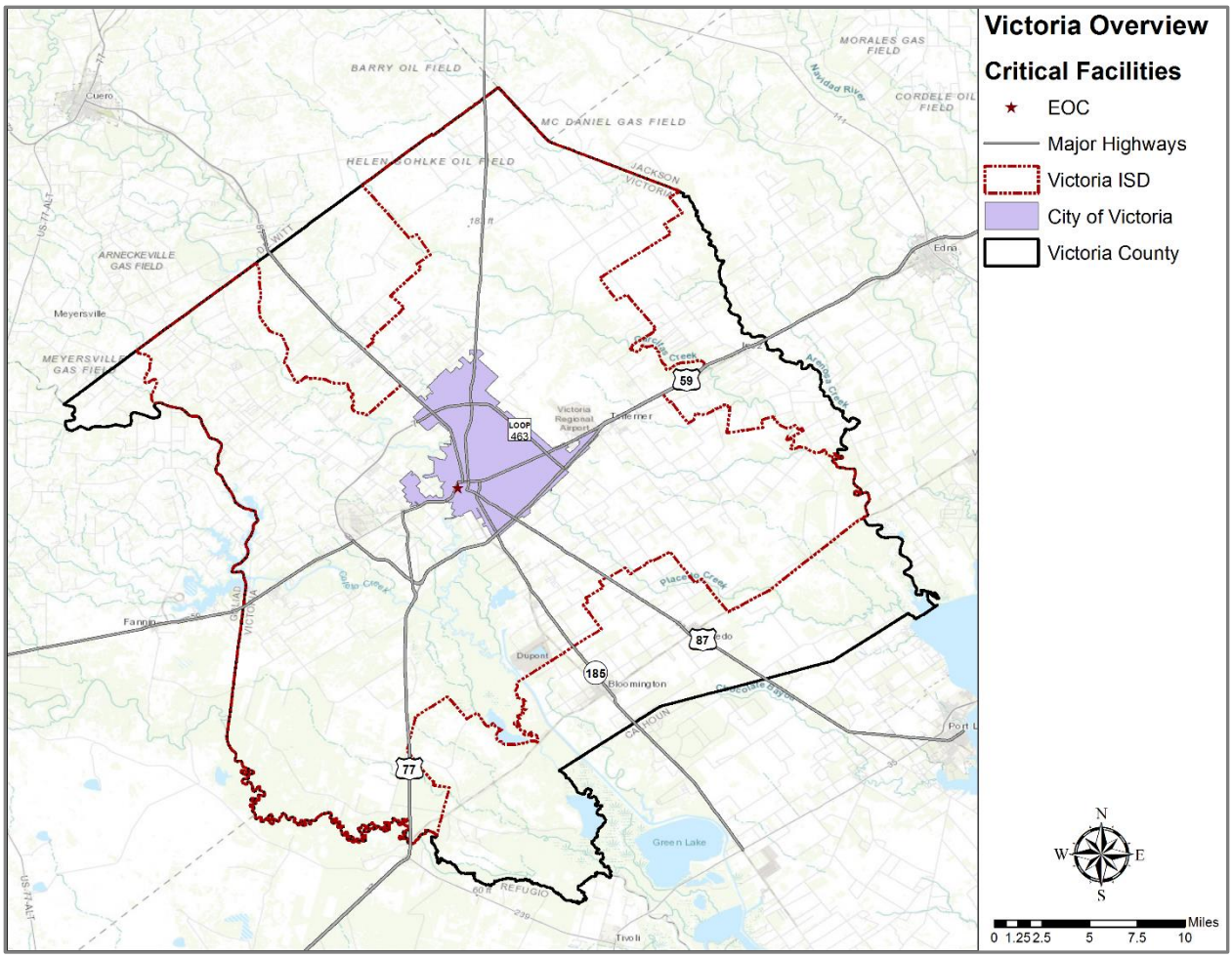


Figure C-5. Planning Area Critical Facilities – Fire Stations

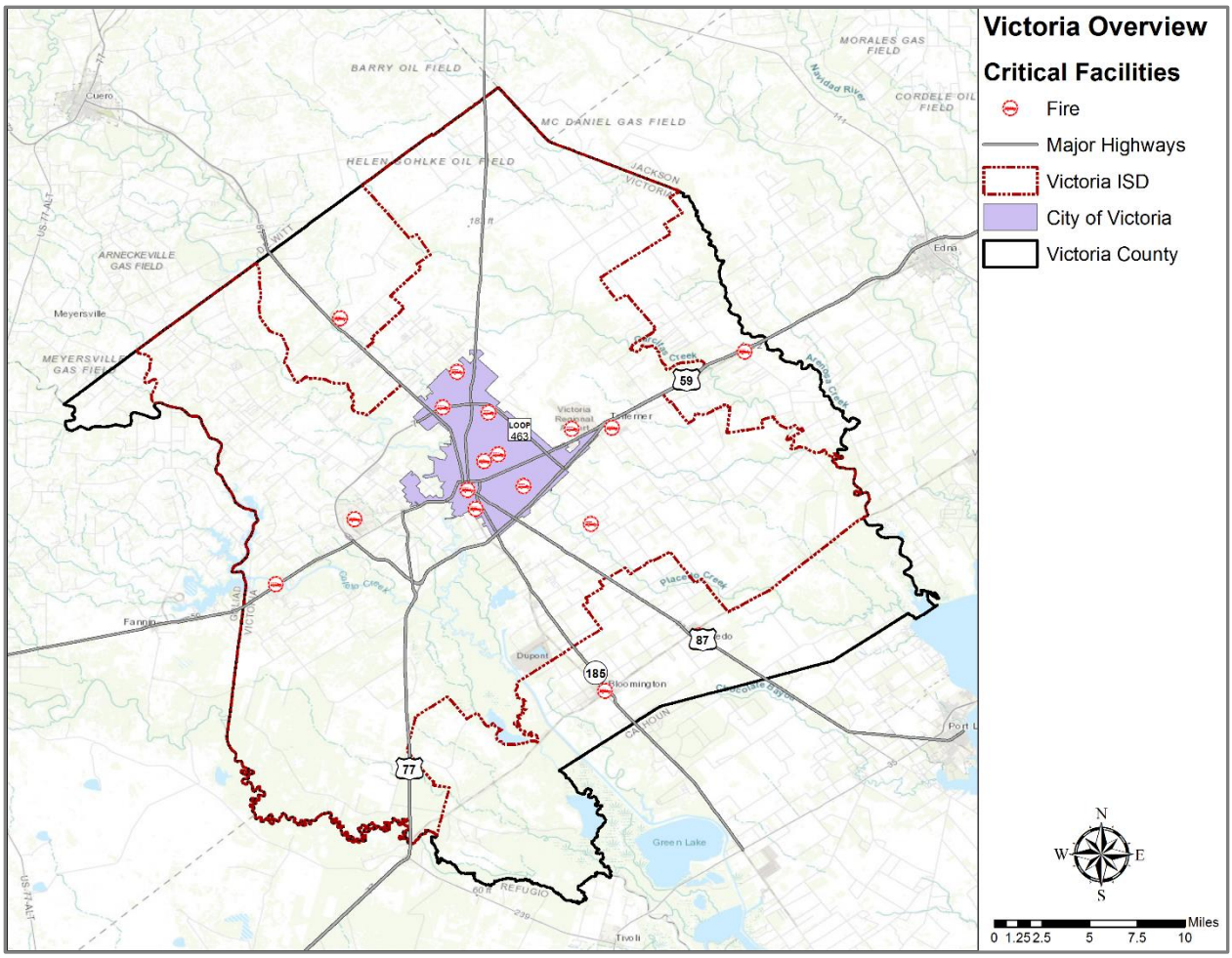


Figure C-6. Planning Area Critical Facilities – Government Facilities

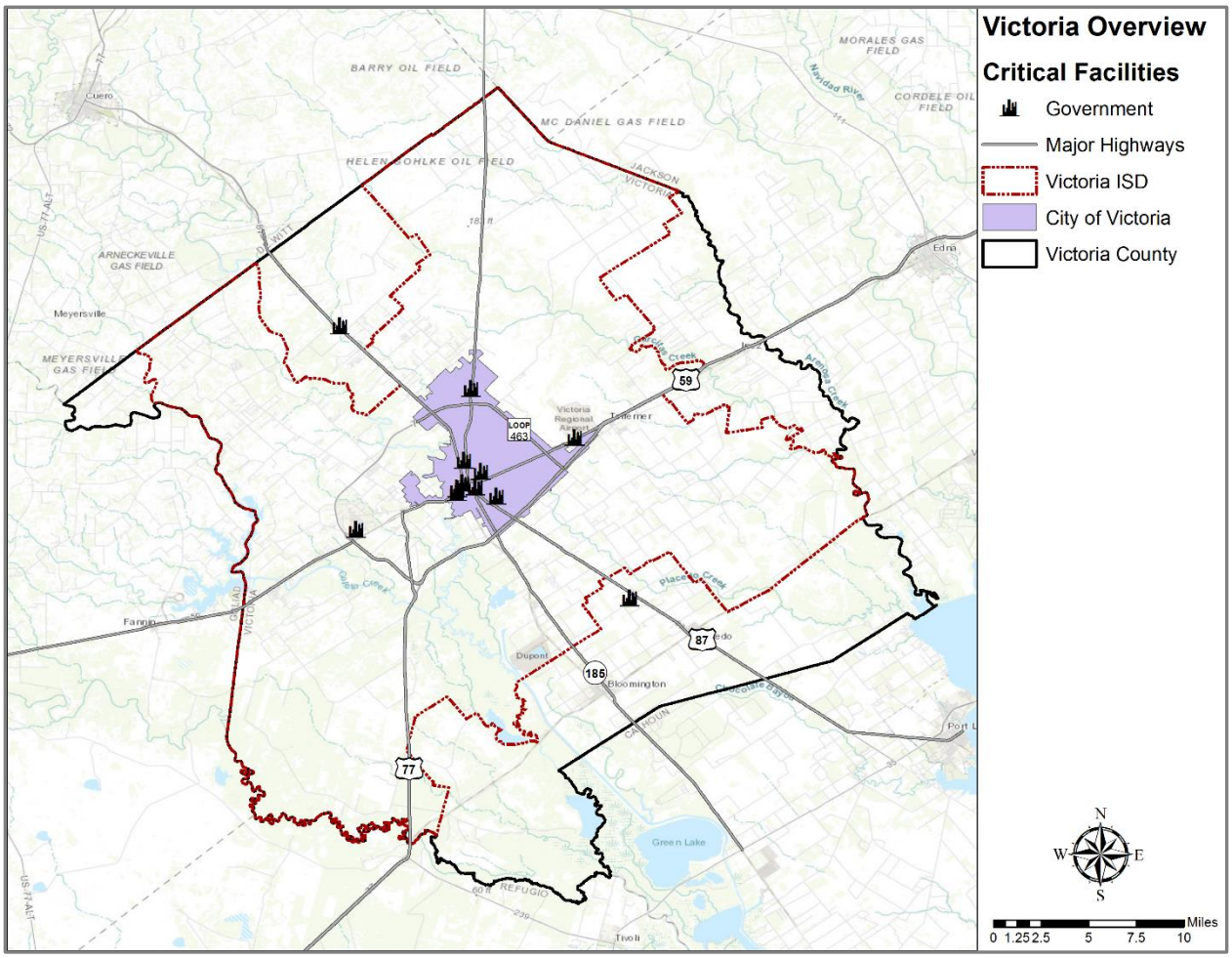


Figure C-7. Planning Area Critical Facilities – Hospitals

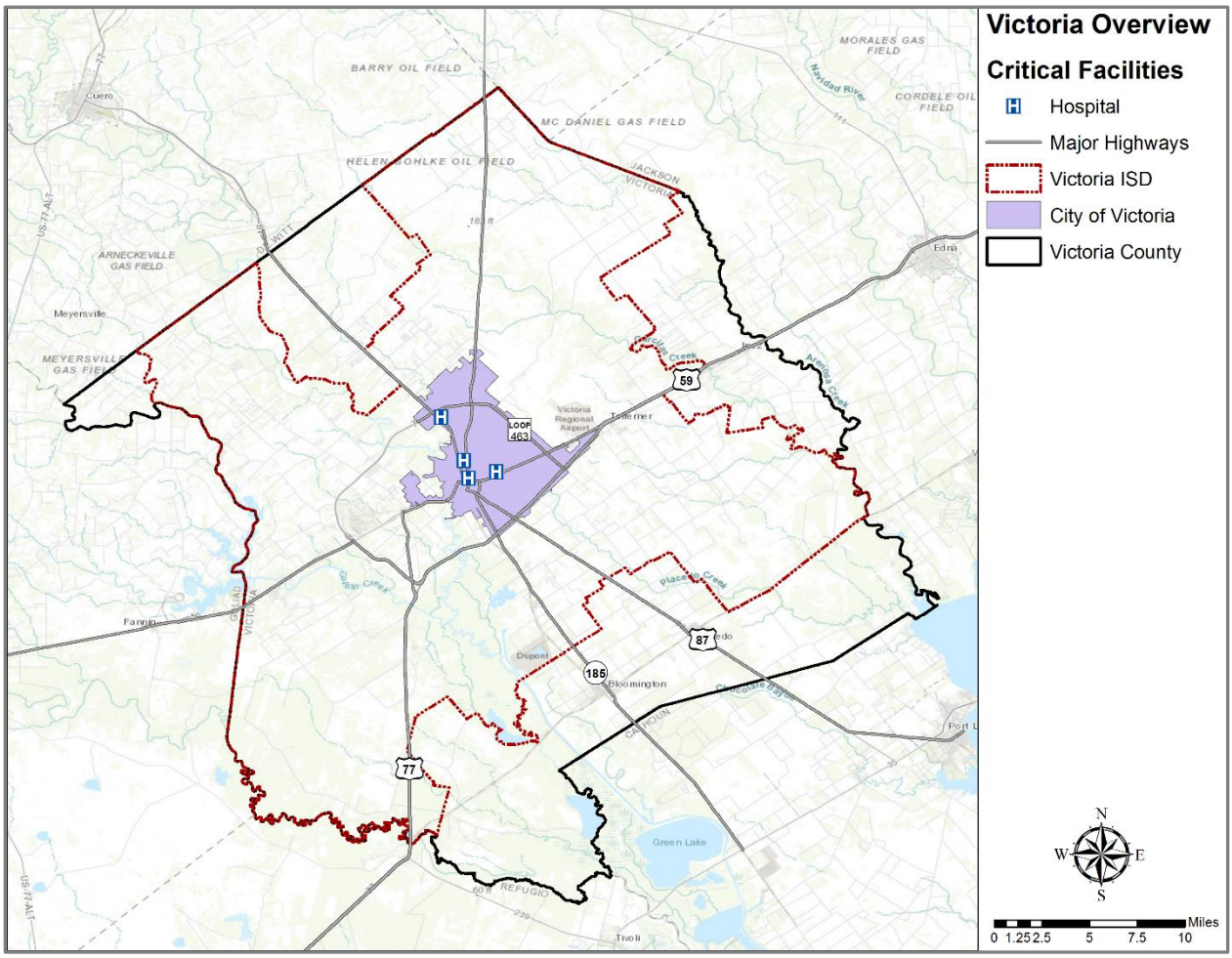


Figure C-8. Planning Area Critical Facilities – Lift Stations

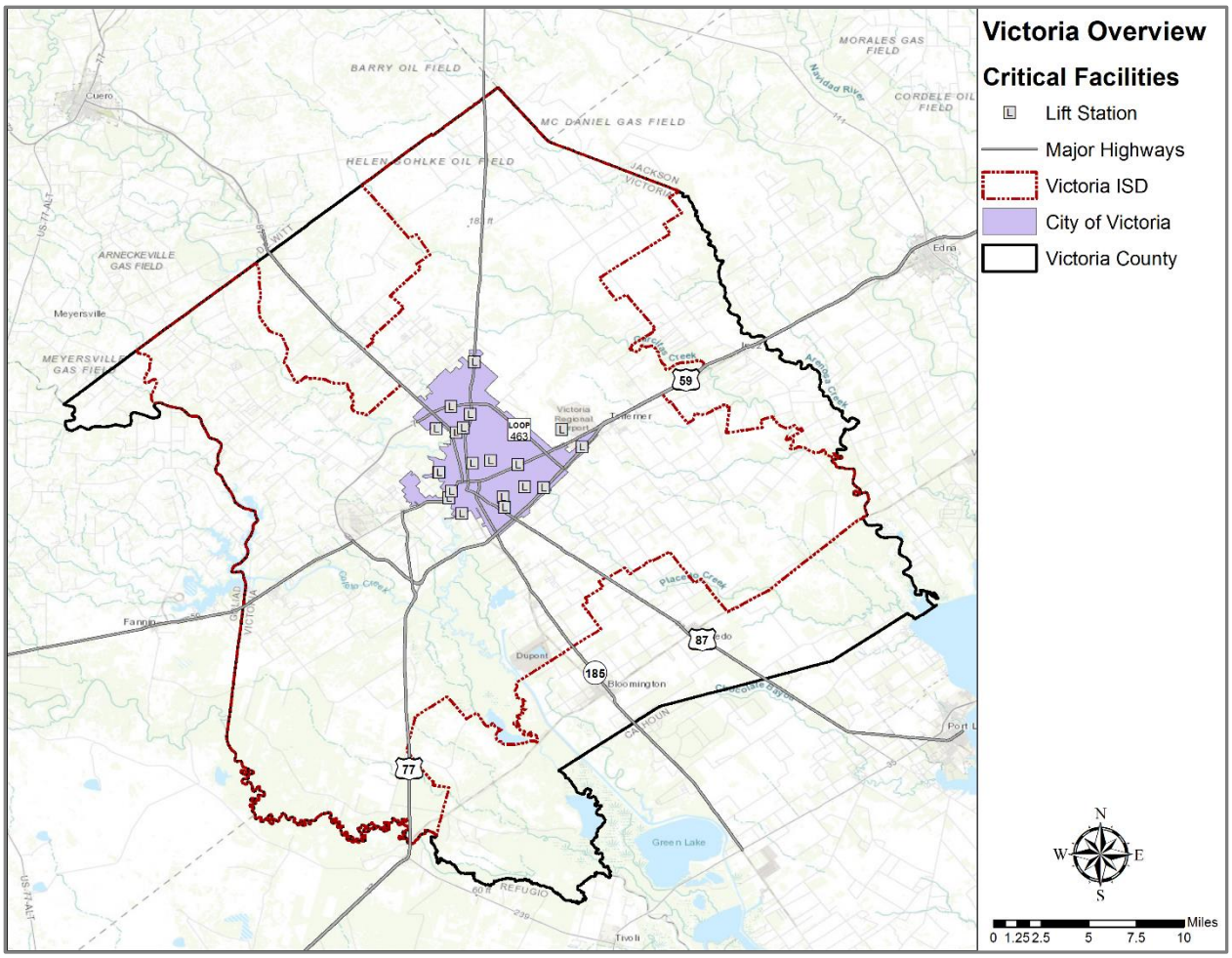


Figure C-9. Planning Area Critical Facilities – Nursing Homes

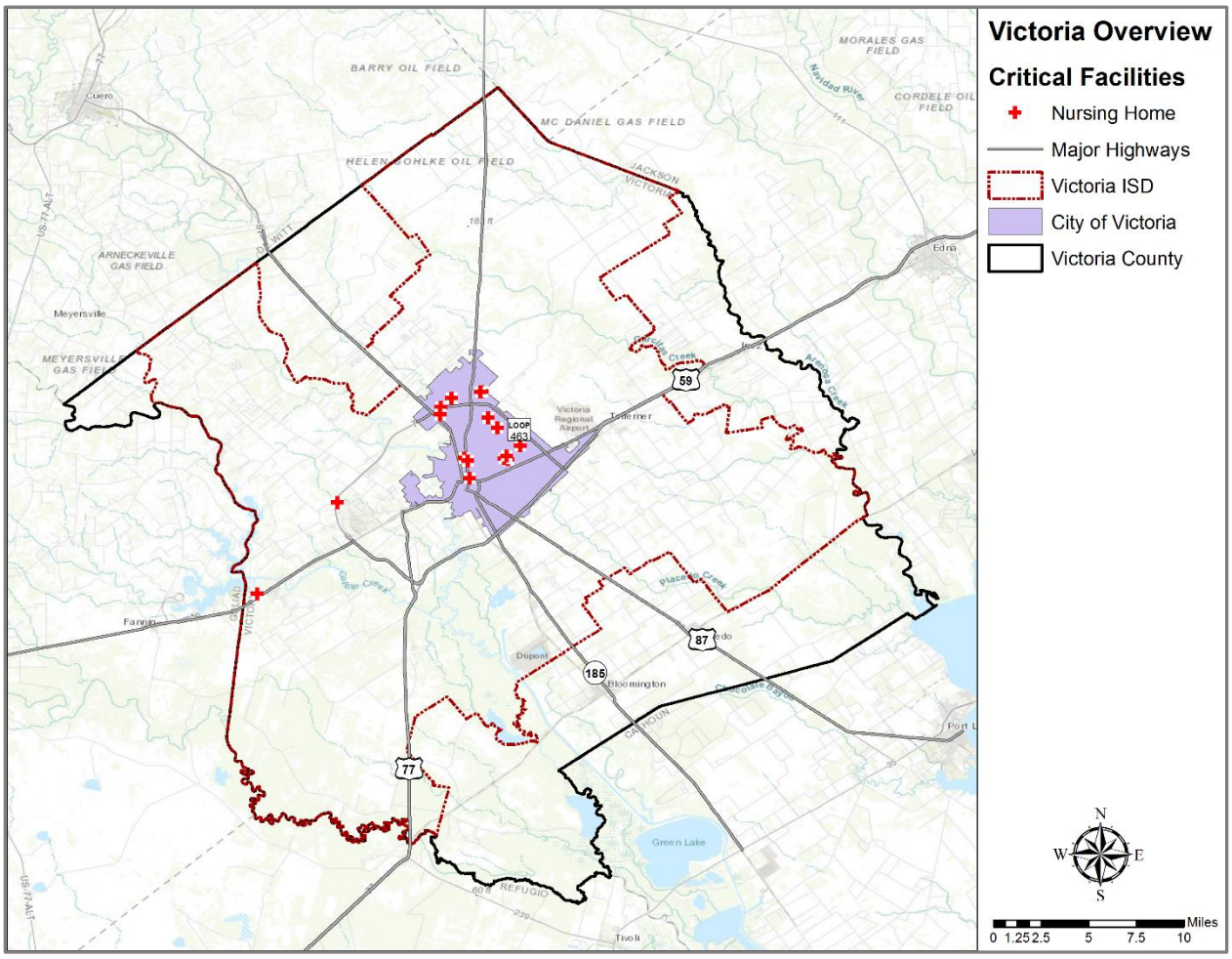


Figure C-10. Planning Area Critical Facilities – Police Stations

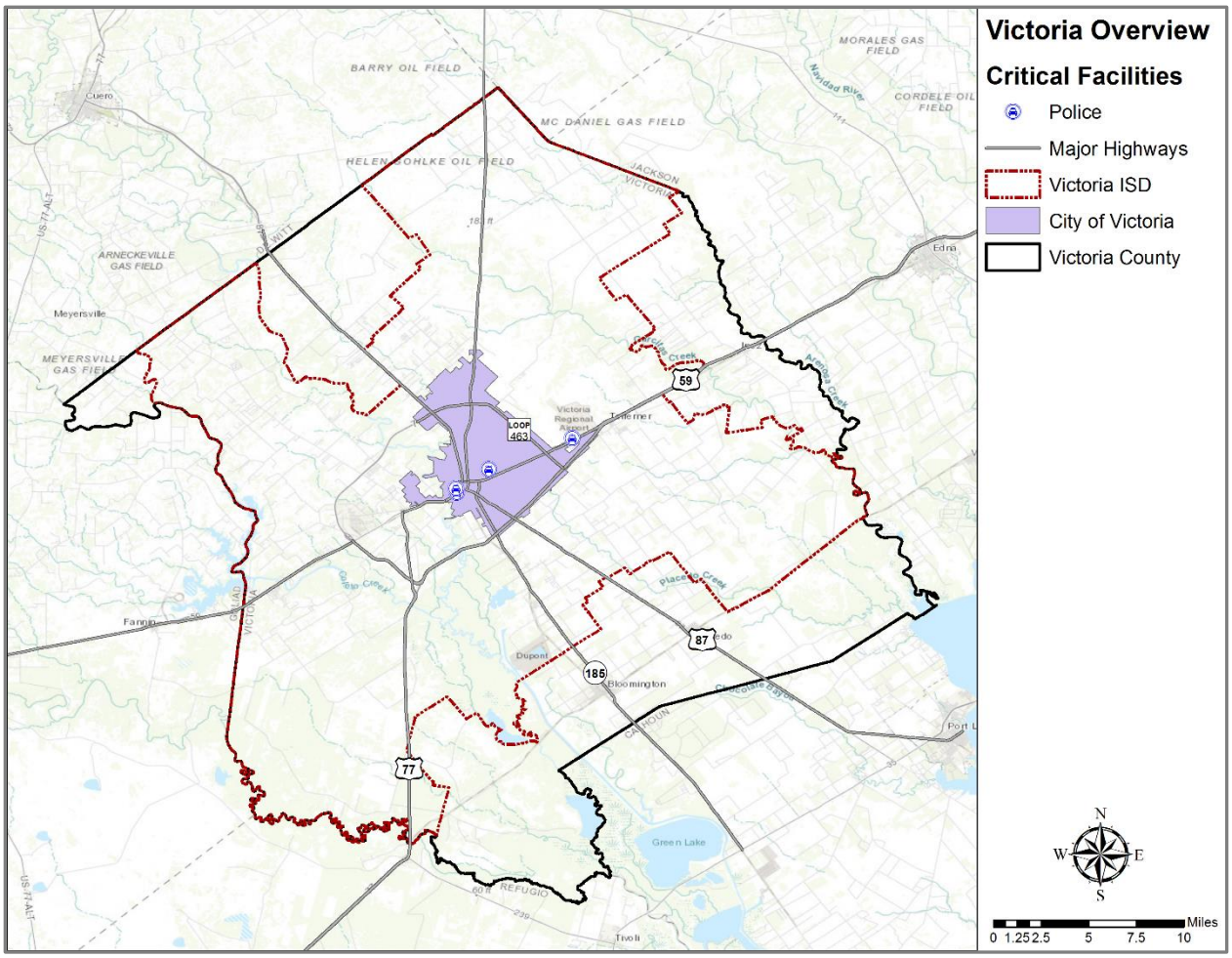


Figure C-11. Planning Area Critical Facilities – Port Authority

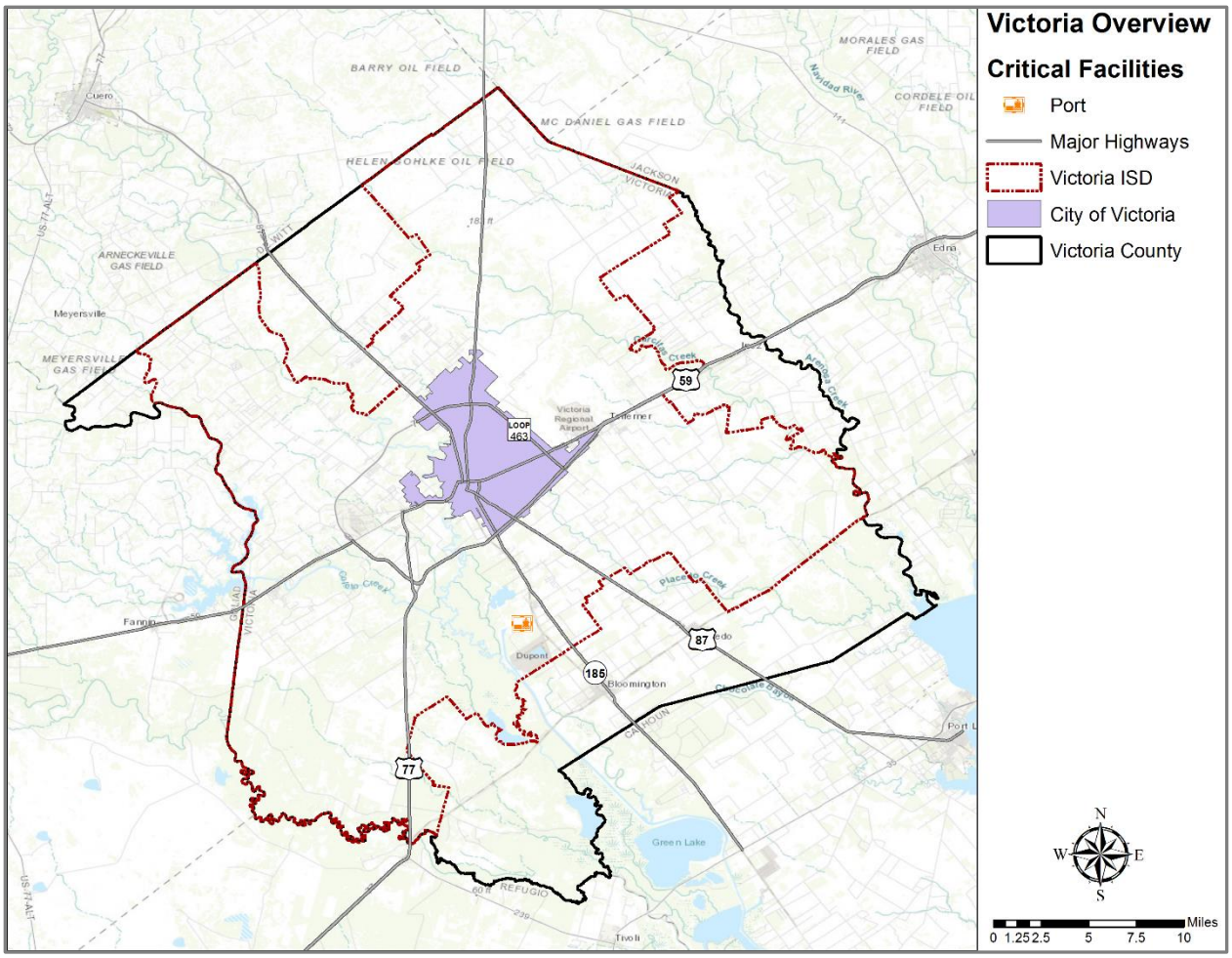


Figure C-12. Planning Area Critical Facilities – Potential Shelters

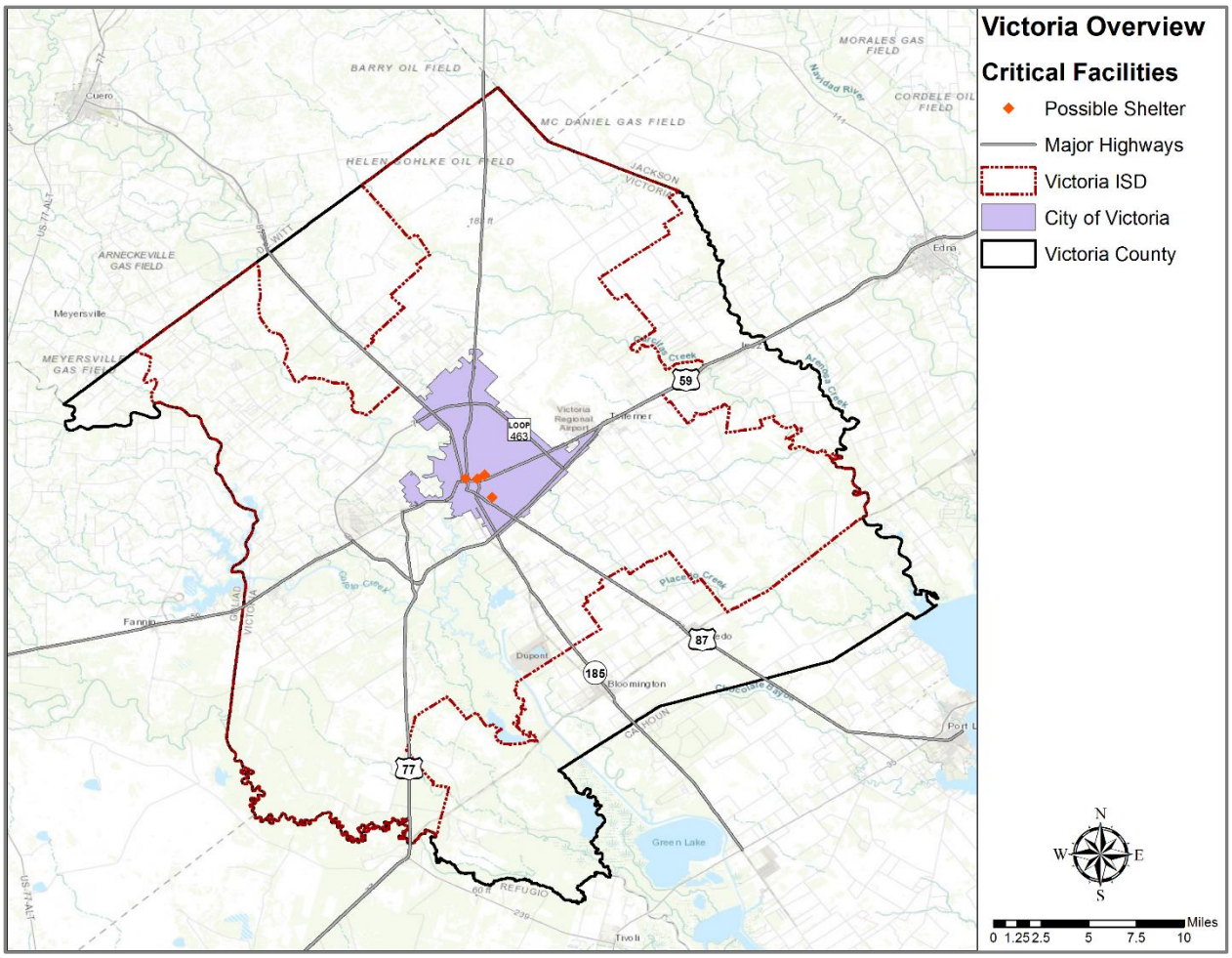


Figure C-13. Planning Area Critical Facilities – Potential Staging Areas

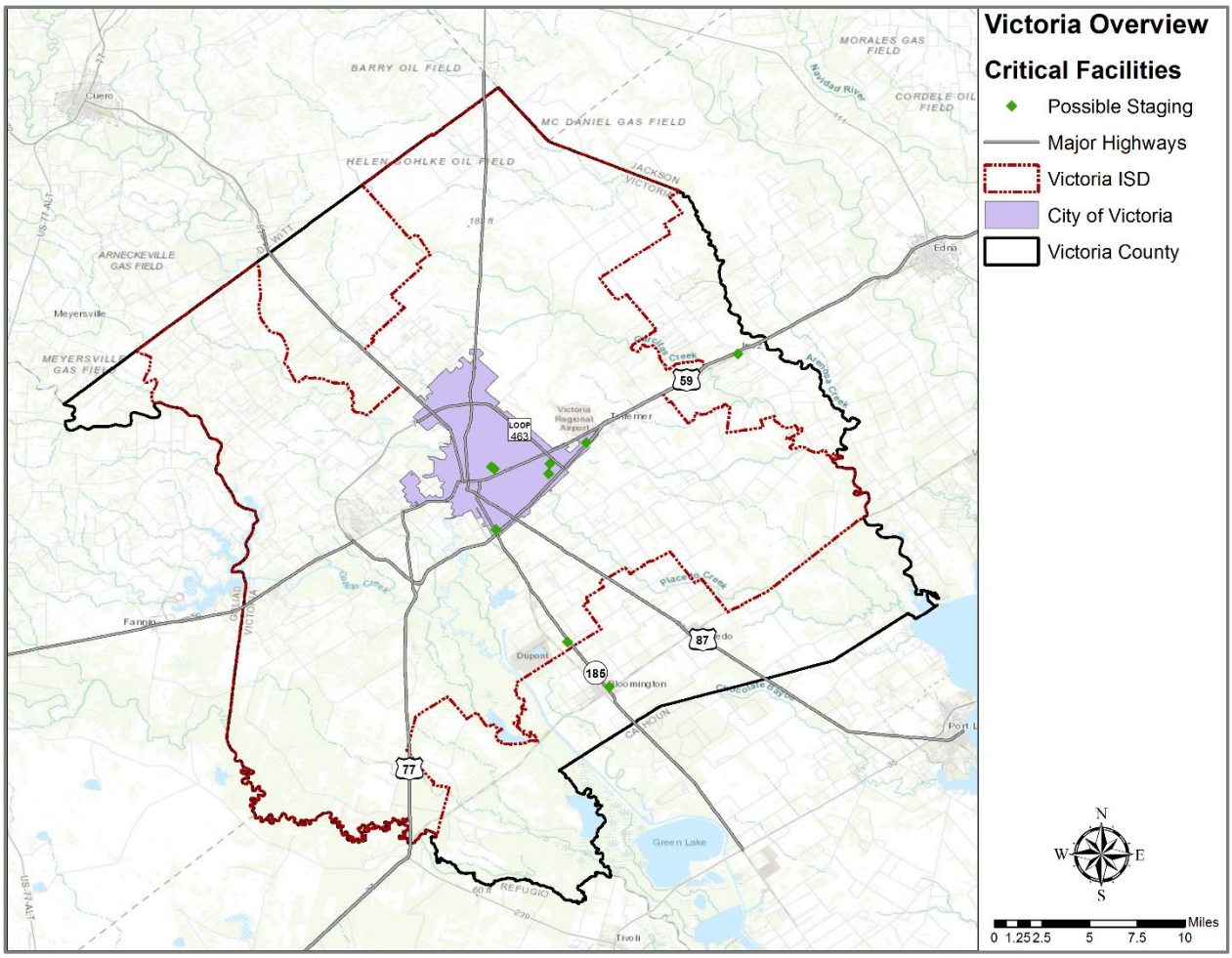


Figure C-14. Planning Area Critical Facilities – Schools

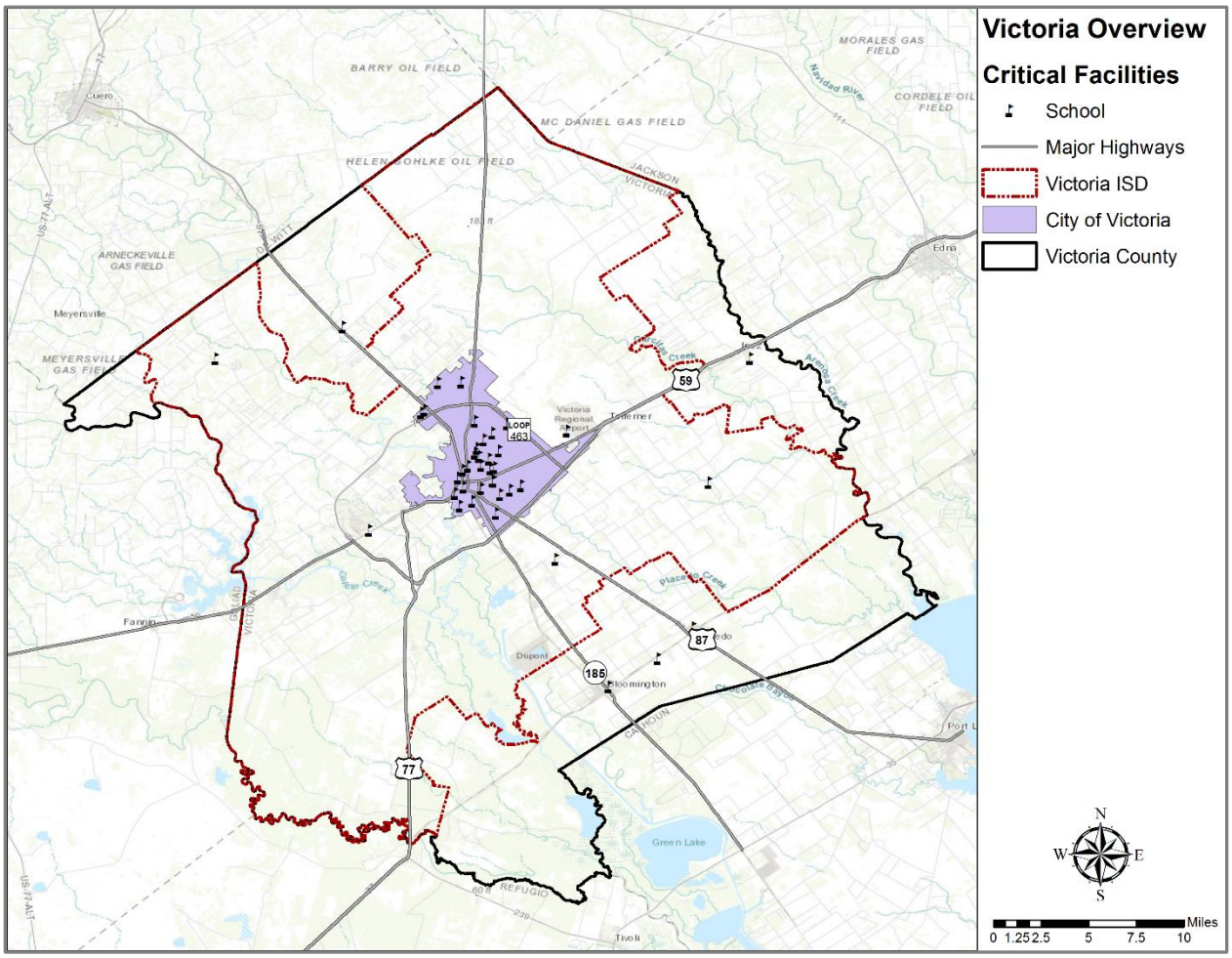
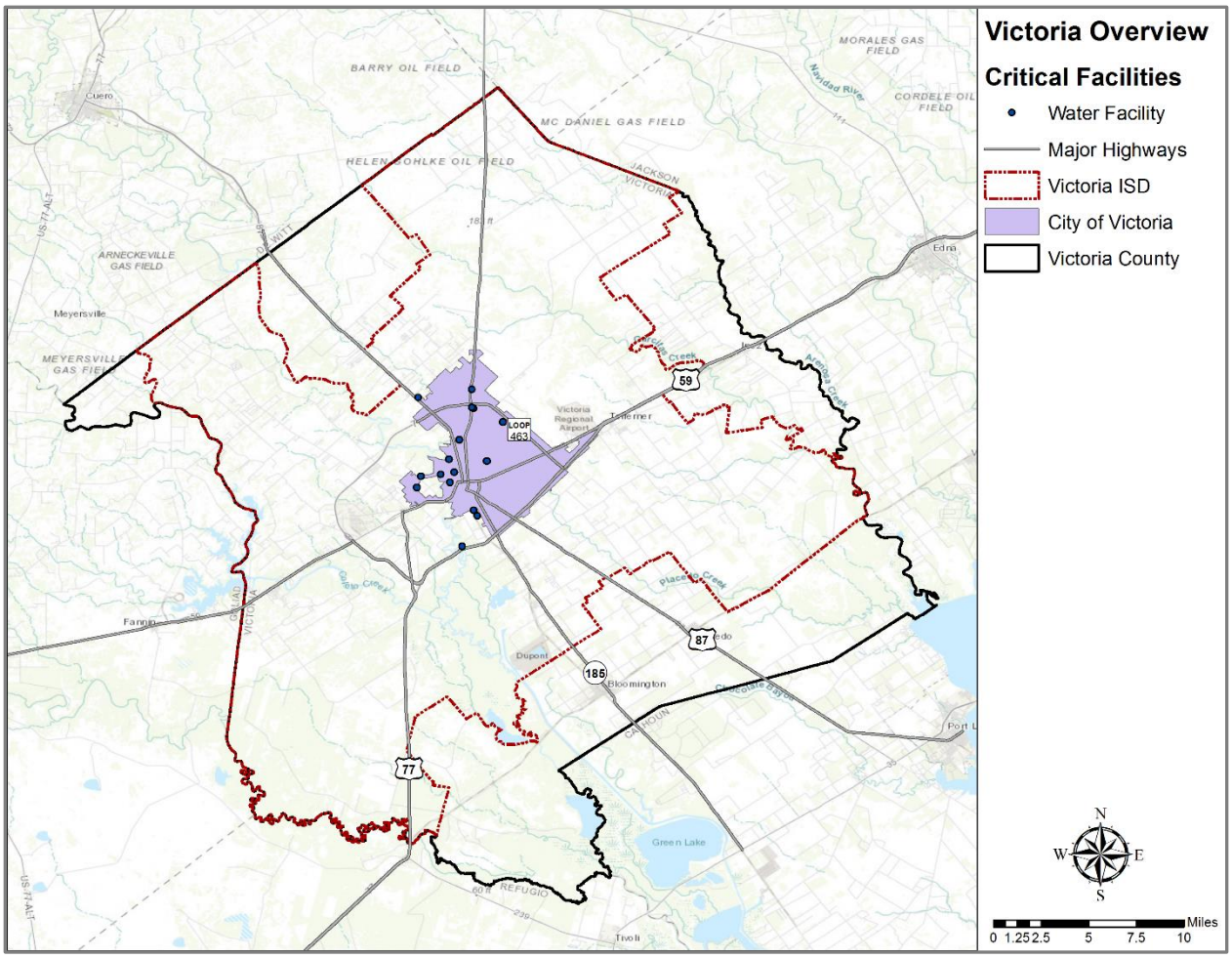


Figure C-15. Planning Area Critical Facilities – Water Facilities



APPENDIX D: DAM LOCATIONS

OVERVIEW

Appendix D is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

DAM LOCATIONS

Table D-1 below reflects all dams that are located in Victoria County. This list includes all dams listed with the National Dam Safety Review Board (in coordination with FEMA) and the National Inventory of Dams (NID). The list includes a total of six dams within the planning area. Section 15 of the Plan profiles only those dams posing a risk to the planning area, as required by FEMA.

Table D-1. Listing of Victoria County Dam Locations and Storage Capacities

JURISDICTION	LATITUDE	LONGITUDE	HEIGHT (Feet)	STORAGE (Acre Feet)
Victoria County	28.72333	-97.166667	65	132,536
Victoria County	28.736032	-96.723456	18	286
Victoria County	28.6819389	-97.9852653	30	Unknown
Victoria County	29.016803	-97.060737	16	128
Victoria County	28.7369377	-96.7235911	23	Unknown
Victoria County	28.666667	-96.951667	11	454

APPENDIX E: MEETING DOCUMENTATION

WORKSHOP DOCUMENTATION

Appendix E is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

Victoria County held a series of Planning Team workshops: a Kickoff Workshop on November 17, 2016, and a Risk Assessment and Mitigation Strategy Workshop on March 28, 2017. At each of these workshops members of the Planning Team were informed of the planning process, expressed opinions, and volunteered information. Victoria County hosted two public meetings following each workshop. The sign-in sheets for each workshop and public meeting are included below. For more details on the workshops and planning process, see Section 2.

Figure E-1. Victoria County Kickoff Workshop, 11.17.16

VICTORIA COUNTY HAZARD MITIGATION PLAN
Kick Off Workshop
Victoria Office of Emergency Management, Victoria, TX
November 17, 2016

Please print clearly.

Name	Title	Department	Phone	Email
Brian Williams	CMS Manager	Caterpillar	309 224 0791	williams_brian_j2@cat.com
James Foote	IT Director	City of Victoria	361-485-3140	jfoote@victoriatx.org
Felix Appelt	Chief	Victoria College	361-652-6762	felix.appelt@victoriacollege.edu
Jennifer Bedford	Program Coor./EM Planner	VEM	361-580-5770	jbedford@victoriatxoem.org
Rachel Andrews	Mitigation Specialist	H2O Partners	512983-0092	rachel@h2opartnersusa.com
Robin Knipling	Grant Admin	Victoria Co.	361-578-0752	rknipling@vctx.org
Donald Reese	Dep Dir Public Works	COV	(361) 485-3381	dreese@victoriatx.org
Taner Drake	Fire Chief	Victoria Fire Dept	361-485-3450	tdrake@victoriatx.org
Julie Fulgham	City Dev. Services – Asst. Director		361-485-3360	jfulgham@victoriatx.org
Heidi Watson	Mitigation Specialist	H2O Partners	512 568 2259	heidi@h2opartnersusa.com
Jeff Craig	Police Chief	Police	361 485 5714	JCraig@victoriatx.org
Randy				

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VICTORIA COUNTY HAZARD MITIGATION PLAN
Kick Off Workshop
Victoria Office of Emergency Management, Victoria, TX
November 17, 2016

Please print clearly.

Name	Title	Department	Phone	Email
Robbie Kirk	EOC	CMC	574-1519	RKirk@cmcutx.org
John M. Reay	Asst. Chief	Victoria P.D.	485-3717	JMReay@victoriatx.org
Jena West	Victoria PHD PHEP	VCPHD	570-5773	JWest@victoriatx.org
Randy Vivian	President/CEO	VCOC	573-5277	randyvivian@victoriachamber.org
Rick Gresczyk	EMC	VOEM	580-5770	Rmcgregor@victoriatxoem.org
David Gonzales	Deputy EMC	VOEM	580-5770	DGonzales@victoriatxoem.org
Mike Walsh	TxDOT Area Engineer	TxDOT	361-739-5794	Mike.Walsh@TxDOT.gov
John A. Johnston	City of Victoria	Development Services	361-485-3320	Johnston@victoriatx.org
Tammy Fikac	Environment Services Supervisors	Victoria County Public Health Dept	361-578-6281	tfikac@vctx.org
Brian Hogan	Environment Services Internship	Victoria County Public Health Dept	760-978-9590	brian.hogan@gmail.com
Rex Mayes	VCSO	Enforcement	(361) 550-4211	rmayes@vctx.org

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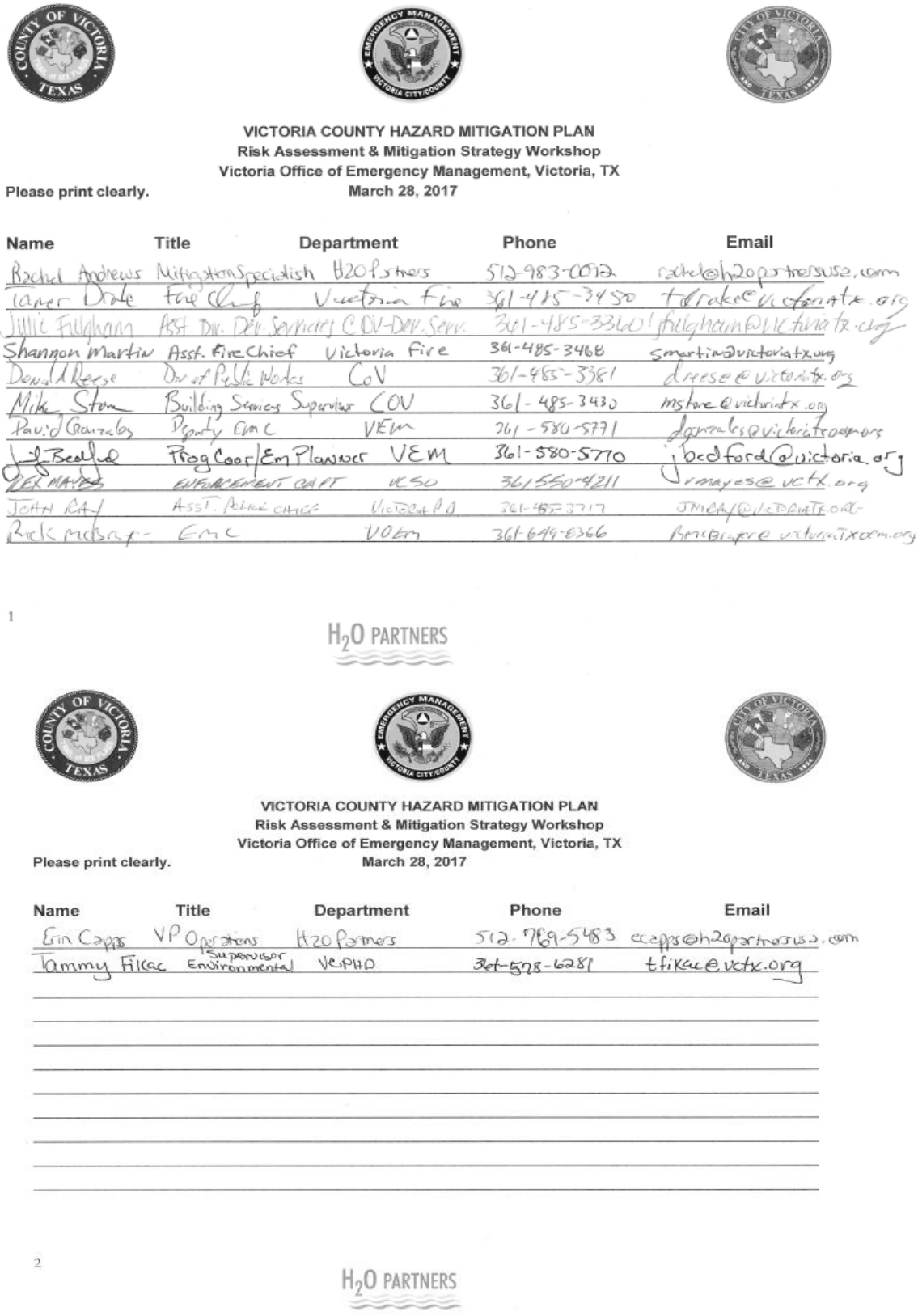
Figure E-2. Victoria County Risk Assessment and Mitigation Strategy Workshop, 03.28.17



VICTORIA COUNTY HAZARD MITIGATION PLAN
Risk Assessment & Mitigation Strategy Workshop
Victoria Office of Emergency Management, Victoria, TX
March 28, 2017

Please print clearly.

Name	Title	Department	Phone	Email
Rachel Andrews	Mitigation Specialish	H2O Partners	512-983-0012	rachel@h2opartnersusa.com
James Drake	Fire Chief	Victoria Fire	361-485-3450	tdrake@victoriatx.org
Jillie Fulgham	Asst. Dir. Dev. Services	COV-Dev. Serv.	361-485-3360	jfulgham@victoriatx.org
Shannon Martin	Asst. Fire Chief	Victoria Fire	361-485-3468	smartin@victoriatx.org
Donald Reese	Dir of Public Works	CoV	361-485-3381	dreese@victoriatx.org
Mike Stone	Building Services Supervisor	COV	361-485-3430	mstone@victoriatx.org
David Gonzales	Deputy Emc	VEM	361-580-5771	dgonzales@victoriatxgov.org
Jeff Bedford	Prog Coor/Em Planner	VEM	361-580-5770	jbedford@victoria.org
ALEX MAYES	ENFORCEMENT CAPT	VCSO	361 550 4211	amayes@vctx.org
JOHN RAY	ASST. PUBLIC OFFICE	VICTORIA P.D.	361-485-3717	JMRAY@VICTORIATX.ORG
Rick McBay	EMC	VOEM	361-649-8366	RMCBAY@VICTORIATXGOV.ORG

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VICTORIA COUNTY HAZARD MITIGATION PLAN
Risk Assessment & Mitigation Strategy Workshop
Victoria Office of Emergency Management, Victoria, TX
March 28, 2017

Please print clearly.

Name	Title	Department	Phone	Email
Erin Capps	VP Operations	H2O Partners	512-789-5483	ecapps@h2opartnersusa.com
Tammy Fikac	Supervisor Environmental	VCPHD	361-578-6287	tfikac@vctx.org

2

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PUBLIC MEETING DOCUMENTATION

As discussed in Section 2, public meetings were held in conjunction with each of the Victoria County workshops. Survey respondents were asked if they wanted to be informed about public meetings, and these respondents were invited to the public meetings. Documentation in the form of sign-in sheets for each of the meetings follows.

Figure E-3. Victoria County Public Kickoff Workshop Public Meeting, 11.17.16

VICTORIA COUNTY HAZARD MITIGATION PLAN
Kick Off Public Meeting
Victoria Office of Emergency Management, Victoria, TX
November 17, 2016

Please print clearly.

Name	Title	Department	Phone	Email
Rachel Andrews	Mitigation Specialist	H20 Partners	512-983-0092	rachel@h2opartnersusa.com
Heidi Watson	Mitigation Specialist	H20 Partners	512 568 2259	heidi@h2opartnersusa.com
Jennifer Bedford	Prog Coor/Em Planner	VEM	361-580-5770	jbedford@victoriatxoem.org
Jena West	PHEP Coordinator	VCPHD	361-580-5773	jwest2@victoriatxoem.org
David Gonzales	Deputy EMC	VEM	361-580-5770	dgonzales@victoriatxoem.org

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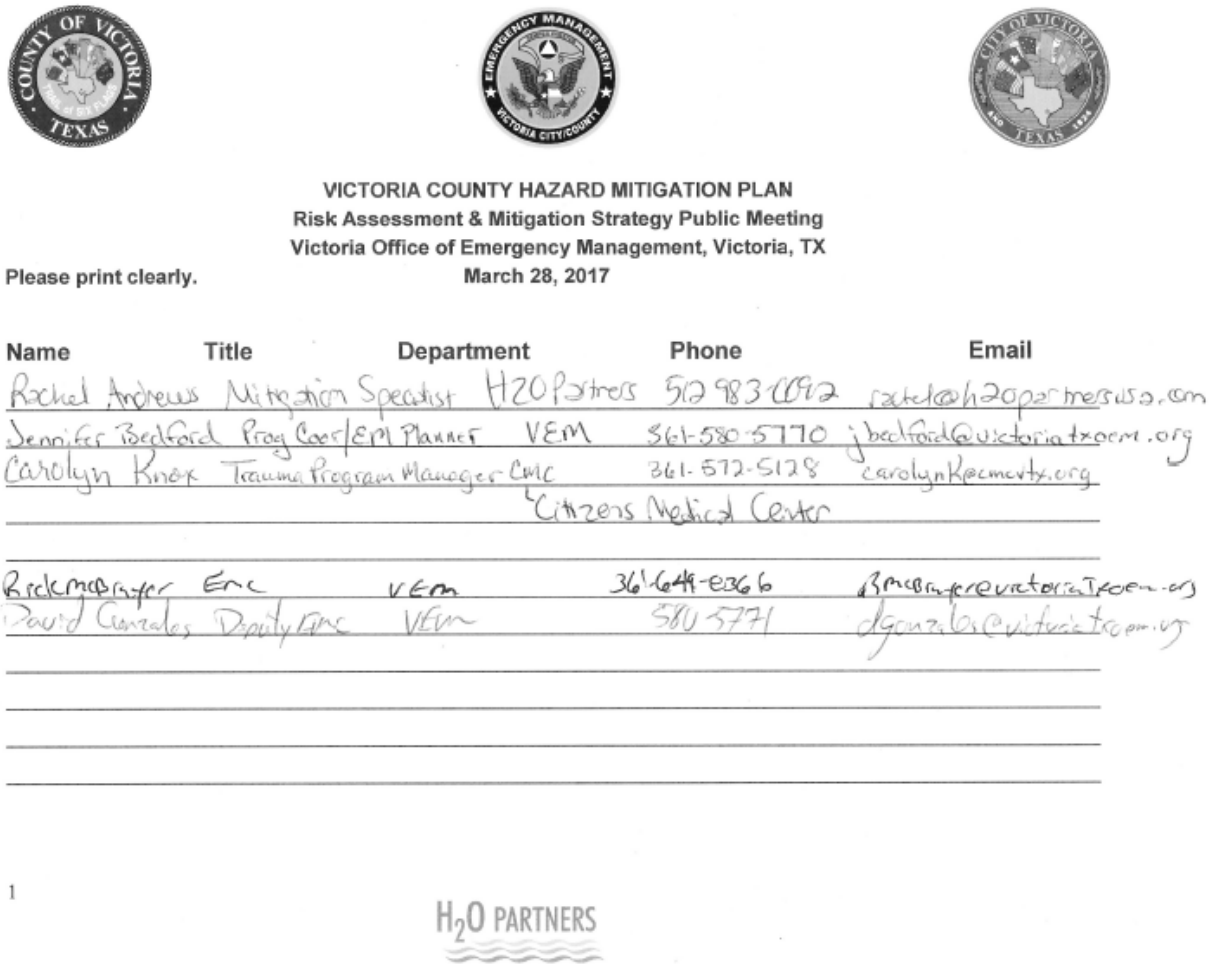
Figure E-4. Victoria County Risk Assessment and Mitigation Strategy Workshop Public Meeting, 03.28.17



VICTORIA COUNTY HAZARD MITIGATION PLAN
Risk Assessment & Mitigation Strategy Public Meeting
Victoria Office of Emergency Management, Victoria, TX
March 28, 2017

Please print clearly.

Name	Title	Department	Phone	Email
Rachel Andrews	Mitigation Specialist	H2O Partners	512 983 0092	rachel@h2opartnersusa.com
Jennifer Bedford	Prog Coor/EM Planner	VEM	361-580-5770	jbedford@victoriatxoem.org
Carolyn Knox	Trauma Program Manager	CMC Citizens Medical Center	361-572-5128	carolynk@cmcvtx.org
Brickmeyer	Eric	VEM	361-649-8366	EBrickmeyer@victoriatxoem.org
David Gonzales	Deputy Emc	VEM	580-5771	dgonzales@victoriatxoem.org

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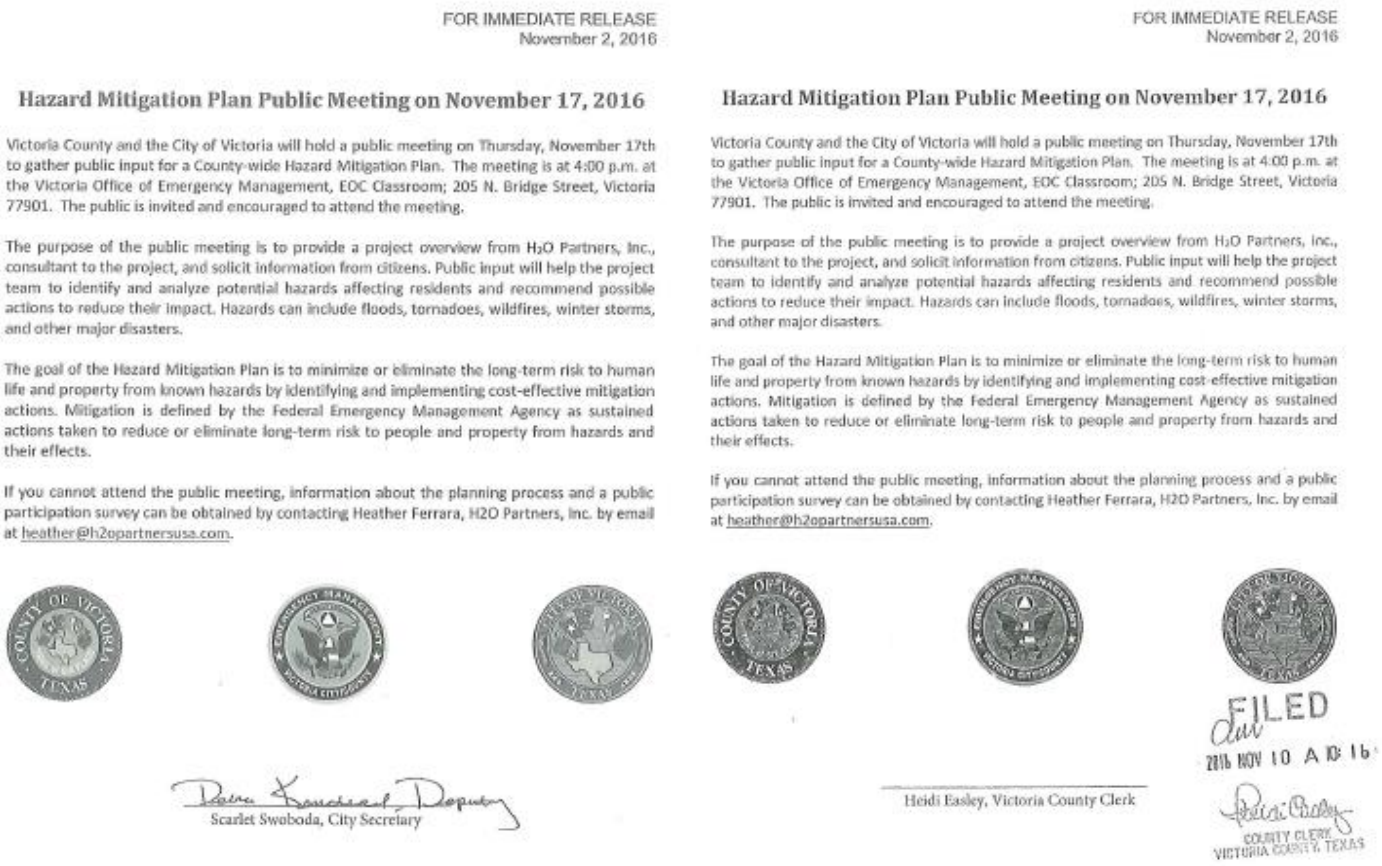
PUBLIC NOTICES

Public notices to announce Victoria County's participation in the Plan development process were posted on various websites, outside of community offices, and Facebook (including participating jurisdictions within the County) as shown in Figures E-5 through E-9.

Figure E-5. Signed Public Notice, Victoria County, 11.10.16 Public Meeting



FOR IMMEDIATE RELEASE
November 2, 2016

Hazard Mitigation Plan Public Meeting on November 17, 2016

Victoria County and the City of Victoria will hold a public meeting on Thursday, November 17th to gather public input for a County-wide Hazard Mitigation Plan. The meeting is at 4:00 p.m. at the Victoria Office of Emergency Management, EOC Classroom; 205 N. Bridge Street, Victoria 77901. The public is invited and encouraged to attend the meeting.

The purpose of the public meeting is to provide a project overview from H_2O Partners, Inc., consultant to the project, and solicit information from citizens. Public input will help the project team to identify and analyze potential hazards affecting residents and recommend possible actions to reduce their impact. Hazards can include floods, tornadoes, wildfires, winter storms, and other major disasters.

The goal of the Hazard Mitigation Plan is to minimize or eliminate the long-term risk to human life and property from known hazards by identifying and implementing cost-effective mitigation actions. Mitigation is defined by the Federal Emergency Management Agency as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.

If you cannot attend the public meeting, information about the planning process and a public participation survey can be obtained by contacting Heather Ferrara, H2O Partners, Inc. by email at heather@h2opartnersusa.com.

Scarlet Swoboda, City Secretary

FOR IMMEDIATE RELEASE
November 2, 2016

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Heidi Easley, Victoria County Clerk

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2016 NOV 10 A 10:16
COUNTY CLERK
VICTORIA COUNTY, TEXAS

Figure E-6. Victoria OEM Facebook Page, 11.10.16 Public Meeting

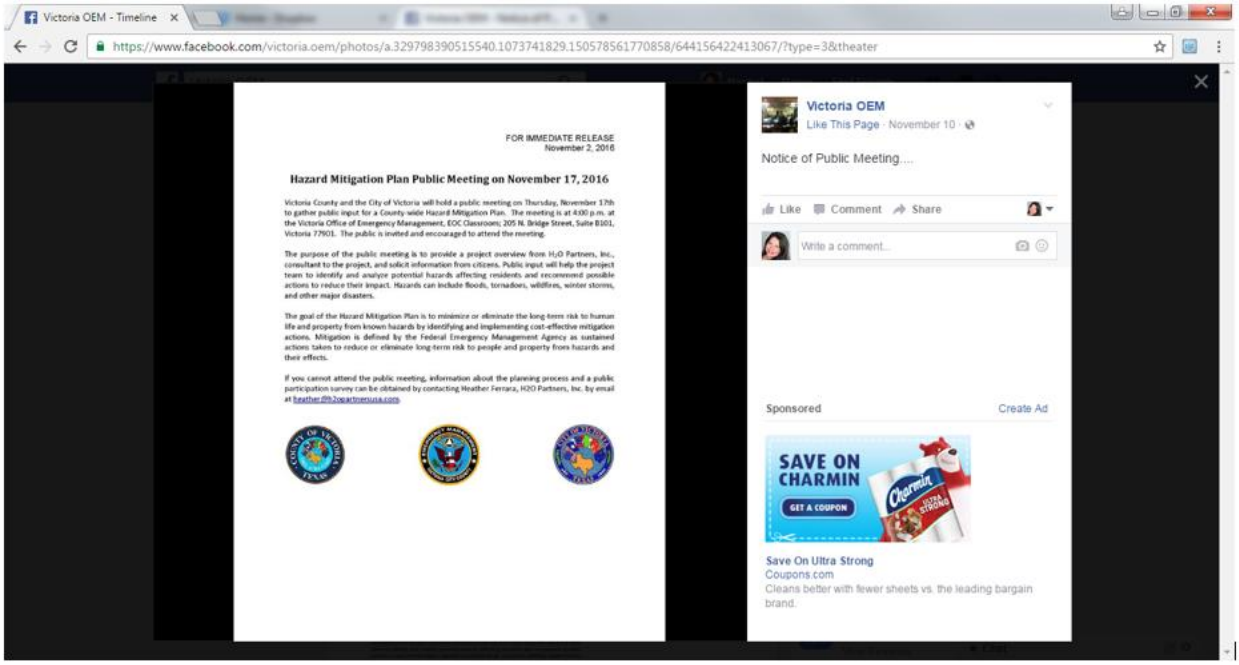


Figure E-7. Victoria OEM Twitter Page, 11.10.17 Public Meeting

Figure E-8. Victoria OEM Facebook Page, 3.20.17 Public Meeting

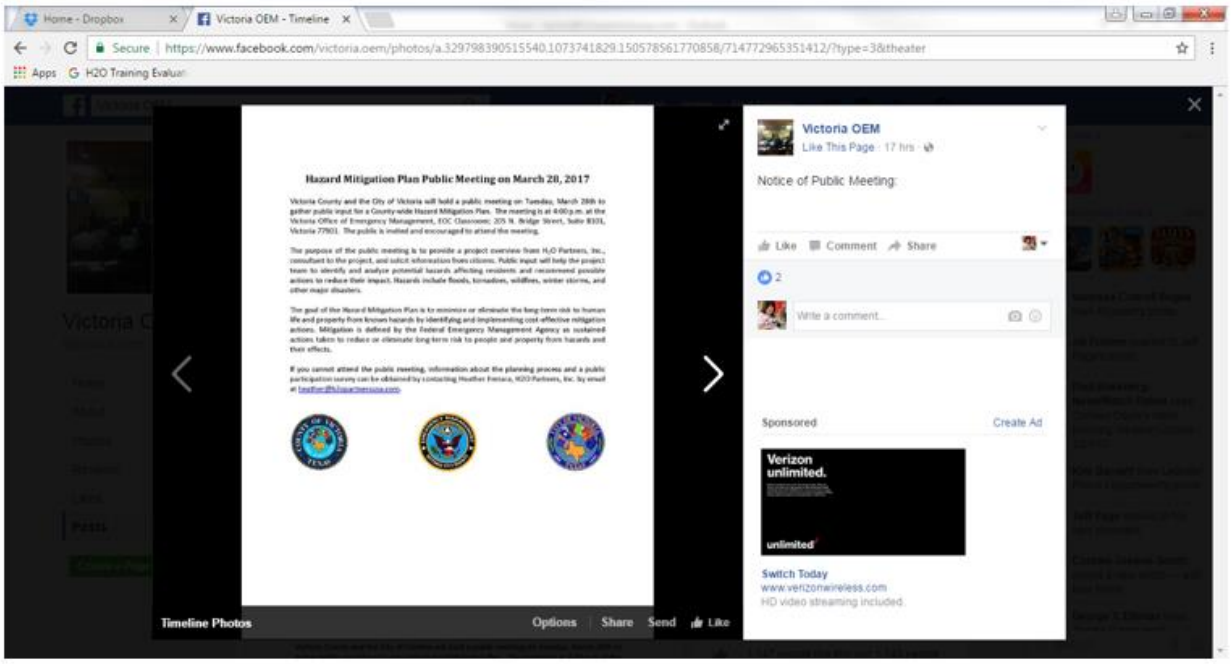
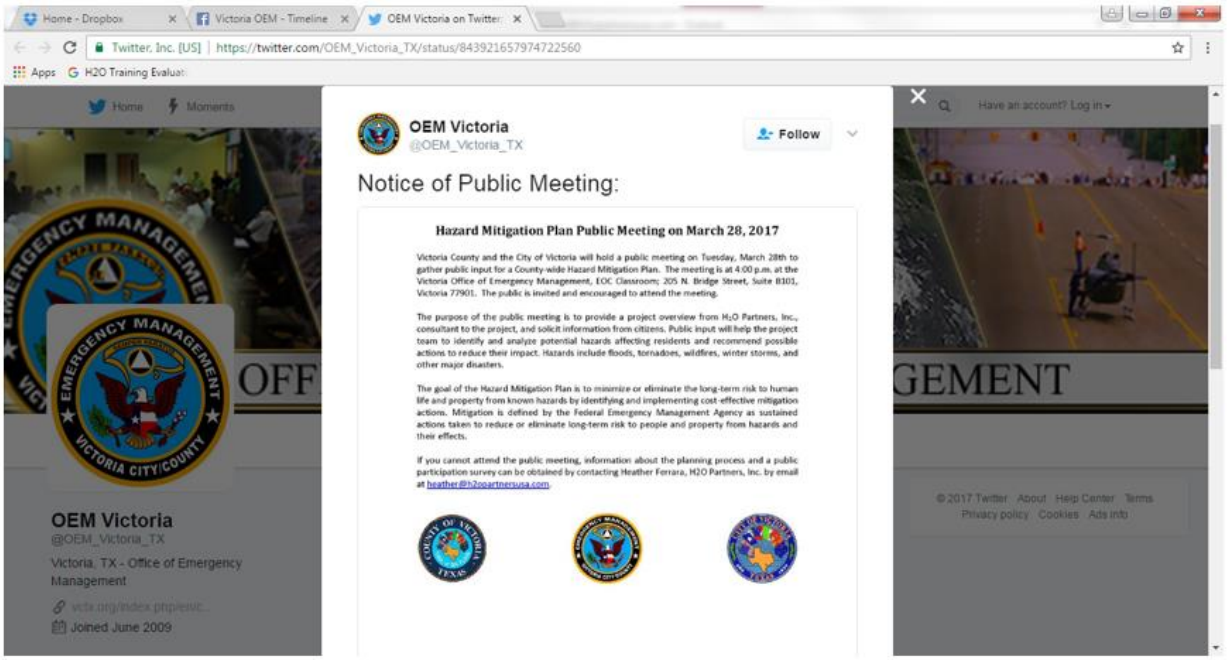


Figure E-9. Victoria OEM Twitter Page, 3.20.17 Public Meeting



APPENDIX F: CAPABILITY ASSESSMENT

OVERVIEW

A Community Capability Assessment is an integral component of the Hazard Mitigation Planning Process. It is an invaluable tool in assessing a community's existing planning and regulatory capabilities to support implementation of mitigation strategy objectives.

Beginning on Page 2, a completed Capability Assessment Checklist provides information on existing policies, plans, and regulations in place for Planning Team members at the local level or that may be provided by the County on an as-needed basis. ***Participation is denoted with an "x" on the Checklist.***

COMMUNITY CAPABILITY ASSESSMENTS

COMMUNITY CAPABILITY CHECKLIST	*Victoria County*	*City of Victoria*	*Victoria ISD*
Plans			
Capital Improvements Plan	X	X	X
Master or Comprehensive Plan	X	X	X
Community Wildfire Protection Plan	X		
Emergency Operations Plan	X	X	X
Hazard Mitigation Plan	X	X	
Post-disaster Recovery Plan	X	X	
Continuity of Operations	X	X	
Evacuation Plan	X	X	X
Flood Response Plan	X	X	X
Floodplain Management Plan	X	X	
Stormwater Management Plan	X	X	
Economic Development Plan	X	X	
Historic Preservation Plan	X	X	
Land Use Plan			X
Open Space Plan		X	
Redevelopment Plan		X	
Transportation Plan	X	X	X
Watershed Protection Plan	X		
Policies/Ordinances			
Building Codes		X	

COMMUNITY CAPABILITY CHECKLIST	*Victoria County*	*City of Victoria*	*Victoria ISD*
Zoning Ordinance/Land Use Restrictions		X	
Floodplain Ordinance	X	X	
Watershed Ordinance		X	
Stormwater Ordinance	X	X	
Property Set-Back Ordinance		X	
Site Plan Review Requirements		X	
Real Estate Disclosure Requirements	X	X	
Subdivision Regulations		X	
Programs			
National Flood Insurance Program Participant	X	X	
NFIP Community Rating System Participant	X	X	
Property Acquisition Program		X	
Public Education/Awareness Programs	X	X	X
Fire Code	X	X	
Floodplain Maps/Flood Insurance Studies	X	X	
Stream Maintenance Program		X	
Storm Drainage Systems Maintenance Program	X	X	
Hydrologic/Hydraulic Studies	X	X	
Mutual Aid Agreement	X	X	X
Staff/Departments			
Planner	X	X	X
Building Code Official		X	

COMMUNITY CAPABILITY CHECKLIST	*Victoria County*	*City of Victoria*	*Victoria ISD*
GIS and/or HAZUS Specialist	X	X	
Emergency Manager	X	X	X
Engineer/Public Works Official	X	X	
Environmental Conservation Specialist		X	
Floodplain Administrator	X	X	
Public Information Official	X	X	X
Resource Development/Grant Writer	X	X	X