VICTORIA COUNTY AND CITY OF VICTORIA

HAZARD MITIGATION ACTION PLAN

UPDATE 2023

March 13th, 2023 - March 12th, 2028

Maintaining a Safe, Secure, and Sustainable Community

For more information, visit our website at:

vctx.org

Written comments should be forwarded to:

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FEMA

March 13, 2023

Josh Davies, State Hazard Mitigation Officer
Texas Division of Emergency Management
P.O. Box 285
Del Valle, TX 78617-9998

RE: Approval of the Victoria County, Texas Multi-Jurisdiction Hazard Mitigation Plan
Funding Source: HMGP; FEMA-4223-DR-TX; 36

Dear Mr. Davies:

This office has concluded its review of the referenced plan and we are pleased to provide our approval of this plan in meeting the criteria set forth by 44 CFR § 201.6. By receiving this approval, eligibility for the Hazard Mitigation Assistance Grants will be ensured for five years from the date of this letter, expiring on March 12, 2028.

This approval does not demonstrate approval of projects contained in the plan. This office has provided the enclosed Local Hazard Mitigation Planning Tool with reviewer's comments, to further assist the community in refining the plan going forward. Please advise the referenced community of this approval.

If you have any questions, please contact David Freeborn, HM Community Planner, at (940) 898-5323.

Sincerely,

Ronald C. Wanhanen
Chief, Risk Analysis Branch

Enclosure

cc: Marty Chester, R6-MT-HM

Approved Participants

Attached is the list of approved participating governments included in the March 13, 2023 review of the referenced Hazard Mitigation plan.

	Community Name
1)	Victoria city
2)	Victoria County

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SECTION 1: INTRODUCTION

BACKGROUND

Victoria County is located on the Coastal Plain in southeastern Texas, consisting of almost level to gently rolling coastal prairie. The county's seat is Victoria, the county's largest town, and is nicknamed the "crossroads of South Texas." This is due to roads converging there 120 miles from Houston, 102 miles from San Antonio, 110 miles from Austin, and 75 miles from Corpus Christi. Victoria County is surrounded by the following counties: Lavaca and Dewitt to the north, Jackson to the east, Calhoun to the southeast, Refugio to the south, and Goliad to the west.

Texas is prone to extremely heavy rains and flooding with half of the world's record rainfall rates (48 hours or less).[1] While flooding is a well-known risk, Victoria County and City of Victoria are susceptible to a wide range of natural hazards, including but not limited to drought, flood, hurricane, and thunderstorm winds. 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 of 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.*[2] Communities participate in hazard mitigation by developing hazard mitigation plans. The Texas Division of Emergency Management (TDEM) is required to review the plan and FEMA has the authority to review and approve hazard mitigation plans through the Disaster Mitigation Act of 2000.

In 2016, Victoria County and the participating jurisdictions began work on their Hazard Mitigation Action Plan (HMAP) as an investment in their community's safety and sustainability. The Disaster Mitigation Act requires that hazard mitigation plans be reviewed and revised every five years to maintain eligibility for Hazard Mitigation Assistance (HMA) grant funding. Since FEMA approved the Victoria County HMAP in 2018, the County began the process of developing a Hazard Mitigation Action Plan Update in order to maintain eligibility for grant funding within the five-year window.

The HMAP Update planning process provided an opportunity for Victoria County and City of Victoria to evaluate successful mitigation actions and explore opportunities to avoid future disaster loss. The 2018 HMAP will expire in 2023, therefore Victoria County and City of Victoria selected H2O Partners, Inc. to write and develop the 2023 HMAP Update, hereinafter titled: "Victoria

[1] http://www.floodsafety.com/texas/regional-info/san-antonio-flooding/
[2] http://www.fema.gov/hazard-mitigation-planning-resources

SECTION 1: INTRODUCTION

County and City of Victoria Hazard Mitigation Action Plan Update 2023: Maintaining a Safe, Secure, and Sustainable Community" (Plan or Plan Update). This is a multi-jurisdictional plan; the participating jurisdictions include Victoria County and City of Victoria.

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 review of a hazard mitigation plan addresses hazard vulnerability that exists 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.

SCOPE

The focus of the Plan Update 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 City of Victoria. The hazard classification enables the participating jurisdictions to prioritize mitigation actions based on hazards which can present the greatest risk to lives and property in the geographic scope.

PURPOSE

The Plan Update was prepared by Victoria County, City of Victoria, and H2O Partners, Inc. The purpose of the Plan Update is to protect people and structures and to minimize the costs of disaster response and recovery. The goal of the Plan Update is to minimize or eliminate long-term risks to human life, property, operations, and the environment from known hazards by identifying risks and implementing cost-effective hazard mitigation actions. The planning process is an opportunity for Victoria County, City of Victoria, 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 Victoria County.

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

Victoria County, City of Victoria, and planning participants identified eleven natural hazards and five man-made hazards to be addressed by the Plan Update. The specific goals of the Plan Update are to:

- Provide a comprehensive update to the 2018 HMAP;
- Minimize disruption to Victoria County and City of Victoria 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 City of Victoria to take advantage of rapidly developing mitigation grant opportunities as they arise; and

- Ensure that Victoria County and City of Victoria maintain eligibility for the full range of future Federal disaster relief.

AUTHORITY

The Plan is tailored specifically for Victoria County, City of Victoria, and plan participants including Planning Team members, stakeholders, and the general public who participated in the Plan Update 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). Additionally, the Plan is 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 Update 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 Victoria County's and City of Victoria's population and economy.

Sections 4 through 15 present a hazard overview and information on individual natural and man-made 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 Update 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. Section 17 gives an analysis for the previous actions and Section 18 presents hazard mitigation actions for Victoria County and City of Victoria. Section 19 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. Appendix D contains information regarding Dam locations within Victoria County. Appendix E contains workshops and meeting documentation. Capability Assessment results for Victoria County and the City of Victoria are in Appendix F. A profile of several man-made hazards is located in Appendix G.[3]

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

SECTION 2: PLANNING PROCESS

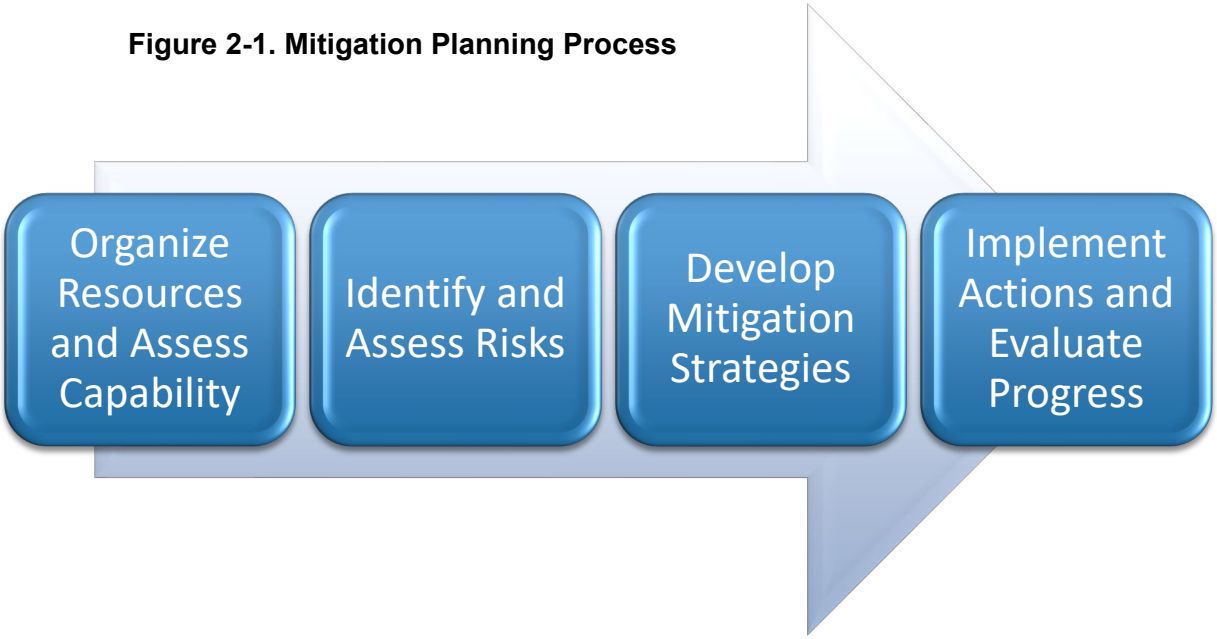
PLAN PREPARATION AND DEVELOPMENT

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 and City of Victoria hired H2O Partners, Inc. (Consultant Team), to provide technical support and oversee the development of the Victoria County and City of Victoria Hazard Mitigation Action Plan Update 2023. 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 Update. The overall planning process is shown in Figure 2-1 below.

Figure 2-1. Mitigation Planning Process



Victoria County, City of Victoria, and the Consultant Team met in April 2022 to begin organizing resources, identify Planning Team members, and conduct a Capability Assessment.

PLANNING TEAM

Key members of H2O Partners, Inc. developed the Plan Update 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. An Executive Planning Team consisting of key personnel from Victoria County and City of Victoria, shown in Table 2-1, was formed to coordinate planning efforts and request input and participation in the planning process. Table 2-2 reflects the Advisory Planning Team, consisting of additional representatives from departments from Victoria County and City of Victoria that participated throughout the planning process.

Table 2-1. Executive Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Victoria County / City of Victoria Office of Emergency Management	Emergency Management Coordinator
Victoria County / City of Victoria Office of Emergency Management	Deputy Emergency Management Coordinator
Victoria County / City of Victoria Office of Emergency Management	Emergency Management Specialist

Table 2-2. Advisory Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Victoria County	Commissioner Precinct 1

ORGANIZATION / DEPARTMENT	TITLE
Victoria County	Commissioner Precinct 2
Victoria County	Commissioner Precinct 3
Victoria County	Commissioner Precinct 4
Victoria County	County Engineer
Victoria County	County Judge
Victoria County	County IT
Victoria County	County Sheriff
Victoria County	County Lieutenant
Victoria County	County Dam Coordinator for Coleto Creek Reservoir
Victoria County	Disaster Recovery Coordinator
Victoria County	Environmental Inspector
Victoria County	Fire Marshal
Victoria County	Floodplain Manager
Victoria County	Floodplain Supervisor
Victoria County	Grant Administrator
Victoria County	Public Health Emergency Preparedness Coordinator
City of Victoria	Assistant City Manager
City of Victoria	Building Inspector
City of Victoria	CDBG Planner
City of Victoria	Chief of Police
City of Victoria	City Manager
City of Victoria	City Secretary
City of Victoria	Deputy Police Chief
City of Victoria	Deputy Sergeant
City of Victoria	Director of Development Services
City of Victoria	Director of Public Works
City of Victoria	Fire Chief

ORGANIZATION / DEPARTMENT	TITLE
City of Victoria	GIS Manager
City of Victoria	Grant Administrator
City of Victoria	IT Specialist
City of Victoria	Mayor
City of Victoria	Operations and Maintenance Manager
City of Victoria	Planning and Development Services Manager
City of Victoria	Public Works Director

Additionally, a Stakeholder Group was invited to participate in the planning process via e-mail. The Consultant Team, Planning Teams, 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 from Victoria County and City of Victoria by organization and title.

Based on the results of the completed Capability Assessment, Victoria County and City of Victoria described methods for achieving future hazard mitigation measures by expanding existing capabilities. For example, Victoria County does not have a Comprehensive Master 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 preparingtexas.org.
- Reviewing current floodplain ordinances for opportunities to increase resiliency such as modifying permitting or building codes.
- Developing ordinances that will require all new developments to conform to the highest mitigation standards.

Sample hazard mitigation actions developed with similar hazard risk were shared at the meetings. These important discussions resulted in the development of multiple mitigation actions that are included in the Plan Update 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 winter storms. These actions include but are not limited to providing additional means of access to include entrances, egresses, and emergency rights-of-way into single entry riverine basins/public lands, implementing enhanced area-wide emergency notification system, and establishing heating and cooling centers.

PLANNING PROCESS

The process used to prepare the Plan Update 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 and City of Victoria'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 19. 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 Update;
- Implementation problems, such as technical, political, legal, and coordination issues that may hinder development;
- Anticipated outcomes; and
- How Victoria County, City of Victoria, agencies, and partners will participate in implementing the Plan Update.

KICKOFF WORKSHOP

The Kickoff Workshop was held on April 28, 2022, at the Victoria Office of Emergency Management. The initial workshop informed participating 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 local emergency service districts (ESDs), local independent school districts, and surrounding counties. 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, the 2018 State of Texas Hazard Mitigation Plan, 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 and five man-made hazards which pose a significant threat to the planning area. The man-made hazards are profiled in Appendix G.

SECTION 2: PLANNING PROCESS

RISK ASSESSMENT

An initial risk assessment for Victoria County and City of Victoria was completed in June 2022 and results were presented to Planning Team members at the Risk Assessment Workshop held on June 28, 2022, at the Victoria Office of Emergency Management. 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.

Property and crop damages were estimated by gathering data from the National Centers for Environmental Information (NCEI) and National Oceanic and Atmospheric Administration (NOAA). The assessment also examined the impact of various hazards on the built environment, including general building stock, 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 on August 24, 2022, at the Victoria Office of Emergency Management. 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 and hurricane projects. Additionally, the participating jurisdictions were proactive in identifying mitigation actions to lessen the risk of all the identified hazards included in the Plan Update.

An inclusive and structured process was used to develop and prioritize new hazard mitigation actions for the Plan Update. 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 18.

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 Update, 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 Update was maintained on file by the Victoria Office of Emergency Management and was made available to the general public for review.

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 5-20) 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 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 Update development requirements.

INCORPORATION OF EXISTING PLANS INTO THE HMAP PROCESS

A Capability Assessment was completed by key departments from Victoria County and City of Victoria which provided information pertaining to existing plans, policies, ordinances, and regulations to be integrated into the goals and objectives of the Plan Update. 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, Victoria County developed the SWIFT 911 program, allowing constituents to be contacted with important information and announcements by the Office of Emergency Management.

Additionally, policies and ordinances were reviewed by several of the participating jurisdictions. These jurisdictions have included actions to develop and adopt higher building code standards. Other plans were reviewed, such as Emergency Operations Plans, to identify any additional mitigation actions. Finally, the 2018 State of Texas Hazard Mitigation Plan, 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 2018 State Plan was also used as a guidance document, along with FEMA materials, in the development of the Victoria County and City of Victoria Hazard Mitigation Action Plan Update 2023.

INCORPORATION OF THE HMAP INTO OTHER PLANNING MECHANISMS

Planning Team members will integrate implementation of the Plan Update with other planning mechanisms for Victoria County, such as the Emergency Operations Plan. Existing plans for participating jurisdictions will be reviewed and incorporated into the Plan Update, as appropriate. This section discusses how the Plan will be implemented by Victoria County and City of Victoria. 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 City of Victoria will be responsible for implementing hazard mitigation actions contained in Section 18. Each hazard mitigation action has been assigned to a specific County or 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 City of Victoria will integrate hazard mitigation actions contained in the Plan Update with existing planning mechanisms such as ordinances, Emergency Operations or Management Plans, and other local and area planning efforts. Victoria County and City of Victoria 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 Update, Planning Team members from 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 Update 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 revisions or updates in light of the approved Plan Update. Victoria County and City of Victoria 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 Update.

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 Update.

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

Table 2-3 identifies types of planning mechanisms and examples of methods for incorporating the Plan into other planning efforts.

Table 2-3. Examples of Methods of Incorporation

Planning Mechanism	Incorporation of Plan
Annual Budget Review	Various departments and key personnel that participated in the planning process for Victoria County and City of Victoria 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.
Capital Improvement Plans	Victoria County and City of Victoria have Capital Improvement Plans (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	The City of Victoria 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 Update discussing the people and property at risk to flood will be reviewed and revised when Victoria County and City of Victoria update their management plans or develops new plans.
Grant Applications	The Plan will be evaluated by Victoria County and City of Victoria when grant funding is sought for mitigation projects. If a project is not in the Plan Update, a Plan Revision may be necessary to include the action in the Plan.

Planning Mechanism	Incorporation of Plan
Regulatory Plans	Currently, Victoria County and City of Victoria have regulatory plans in place, such as Emergency Management Plans, Continuity of Operations Plans, and Evacuation Plans. The Plan Update 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.

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.

It should be noted for the purposes of the Plan Update that the HMAP has been used as a reference when reviewing and updating all plans and ordinances for the entire planning area, including all participating jurisdictions. The Emergency Management Plans developed for Victoria County and City of Victoria are updated every 5 years and incorporate goals, objectives and actions identified in the mitigation plan.

PLAN REVIEW AND PLAN UPDATE

As with the development of Plan Update, Victoria County and City of Victoria will oversee the review and update process for relevance and if 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 once a year, by conference call or presentation, to re-evaluate prioritization of the hazard mitigation actions.

TIMELINE FOR IMPLEMENTING MITIGATION ACTIONS

Both the Executive Planning Team (Table A-1, Appendix A) and the Advisory Planning Team (Table A-2, 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 Update for Victoria County and City of Victoria.

Both the Executive and Advisory 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 participating jurisdictions' comprehensive planning process, budgetary constraints, and community needs. Victoria County and City of Victoria are committed to addressing and implementing hazard mitigation actions that may be aligned with and integrated into the Plan Update.

Overall, the Planning Team is in agreement that goals and actions of the Plan Update 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 the Victoria County and City of Victoria Hazard Mitigation Action Plan Update 2023 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 Update available for public review on participating jurisdictions' websites.

The draft Plan Update was made available to the general public for review and comment on participating jurisdictions' websites. The public was notified at the public meetings that the draft Plan Update would be available for review. No feedback was received on the draft Plan Update, although it was given on the public survey, and all relevant information was incorporated into the Plan Update. Public input was utilized to assist in identifying hazards that were of most concern to the citizens of the County and City and what actions they felt should be included and prioritized.

The Plan Update will be advertised and posted on Victoria County and City of Victoria's websites upon approval from FEMA, and a copy will be kept at the Victoria Office of Emergency Management.

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 Update. The Stakeholder Group (Table A-3 in Appendix A, and Table 2-4, below), included a broad range of representatives from both the public and private sector and served as a key component in Victoria County and City of Victoria's outreach efforts for development of the Plan Update. Documentation of stakeholder meetings is found in Appendix E. A list of organizations invited to attend via e-mail is found in Table 2-4.

Table 2-4. Stakeholder Working Group

AGENCY	TITLE	PARTICIPATED
AEP	External Affairs	
American Red Cross	Disaster Program Manager	X

AGENCY	TITLE	PARTICIPATED
American Red Cross	Representative (1)	X
American Red Cross	Representative (2)	X
Bloomington Independent School District	Superintendent	
Calhoun County	Emergency Management Coordinator	
Caterpillar	EHS Manager	
Citizens Medical Center	Emergency Services Coordinator	
Citizens Medical Center	Trauma Program Manager	
City of Victoria	District 1 Council Member	
City of Victoria	District 2 Council Member	
City of Victoria	District 3 Council Member	
City of Victoria	District 4 Council Member	
City of Victoria	District 5 Council Member	
City of Victoria	District 6 Council Member	
DeTar Healthcare Systems	Trauma Program Manager	
Dewitt County	Emergency Management Coordinator	
Environmental Protection Agency	Region 6 Administrator	
Golden Crescent Regional Planning Commission (GCRPC)	Regional Manager	
Goliad County	County Sheriff	
Jackson County	Emergency Management Coordinator	
Lavaca County	Emergency Management Coordinator	
NOAA	Chief of Planning & Communication	
Nursey Independent School District	Superintendent	
Port of Victoria	Executive Director	
Sportsman Church	Pastor	
South Texas Electric Cooperative (STEC)	Lead Security Officer	
Texas A&M AgriLife Extension	District Representative	

AGENCY	TITLE	PARTICIPATED
Texas Commission on Environmental Quality	Regional Coordinator	
Texas Department of Emergency Management	District Coordinator	
Texas Department of Transportation	Area Engineer	
Texas Forest Service	Mitigation and Prevention Specialist	
Texas House Representative	District 30	
Texas House Senate	District 18	
Texas Parks and Wildlife	District Leader	
Texas Water Board	Deputy Executive Administrator	
Texas Windstorm Associations	County Representative	
University of Houston – Victoria County	Risk / Emergency Management Coordinator	
U.S. Fish and Wildlife	Regional Director	
U.S. Army Corps of Engineers	Southwest Division Representative	
Victoria Chamber of Commerce	President / CEO	
Victoria Christian Assistance Ministry (VCAM)	Representative	
Victoria College	Director of Police	
Victoria County Long Terms Recovery Group (VCLTR)	Program Manager	
Victoria Economic Development Corporation	Director	
Victoria Independent School District	Director of Administration	X
Victoria Regional Airport	Airport Manager	

Stakeholders and participants from neighboring communities that attended the Planning Team and public meetings played a key role in the planning process. For example, drought was one of the concerns to stakeholders, so participating jurisdictions included actions to purchase and install rainwater collection systems at county facilities to include low-flow water-saving devices.

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. Victoria County and City of Victoria released information regarding the public meetings in their area to increase public participation in the Plan Update development process, through posting on their website, on social media sources including Facebook and Twitter, through the local media, and/or posting the information on bulletin boards

in public facilities. A sampling of these notices can be found in Appendix E, along with the documentation on the public meetings. Representatives from area neighborhood associations and area residents were invited to participate.

Public meetings were held on the following dates and locations:

- April 28, 2022, Victoria Office of Emergency Management
- June 28, 2022, Victoria Office of Emergency Management
- August 24, 2022, 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 participating jurisdictions' websites. A total of 31 surveys were completed online. The survey results are analyzed in Appendix B. Victoria County and City of Victoria 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 floods and suggested drainage improvements. In response, several actions were added to the Plan to increase the dimensions of drainage culverts in areas prone to flooding.

SECTION 3: COUNTY AND CITY PROFILE

OVERVIEW

Victoria County was a part of the original twenty-three counties created by the First Congress of the Republic of Texas in 1836. In 1846, the Texas Legislature defined its current boundaries, settling claim disputes between Victoria, Lavaca, Jackson, and Calhoun counties in Victoria's favor. Due to important trade routes, Victoria was heavily traveled by merchants and immigrants, many of whom settled in the county.

Although there were many points of access where traders and travelers could cross the Guadalupe River, upon which Victoria sits, the county commissioners approved the creation of a municipal ferry in 1840 to handle traffic. In addition to this, the Republic of Texas passed legislation authorizing river improvements to make the river more navigable.

Until the discovery of oil in the 1930s, Victoria County's economy was heavily agrarian and ranching. The county ranked in the top 5 producers of corn, cotton, and molasses until the Civil War. In 1861, Victoria County voted to secede from the Union and gave approximately 300 county men to serve in the Confederate Army. After the Union victory, federal troops occupied the county from 1867 to 1869.

By 1873, a series of railways connected Victoria County with Cuero and the coast, and in 1882 Italian immigrants connected railways to New York and Mexico. These passages, together with Victoria's location on old trade roads, helped to develop the county as a commercial center for its surrounding counties.

Victoria County has a total area of 889 square miles, of which 882 square miles is land and 6.7 square miles is water. Its terrain varies from nearly level to gently rolling coastal plains, surfaced with dark clay loams and sands that support tall grasses, pecan trees, and oak forests. Major rivers and waterways include the Guadalupe River, Garcitas Creek, Arenosa Creek, Placedo Creeks, and the San Antonio River.

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

SECTION 3: COUNTY AND CITY PROFILE

Figure 3-1. Location of Victoria County and City of Victoria

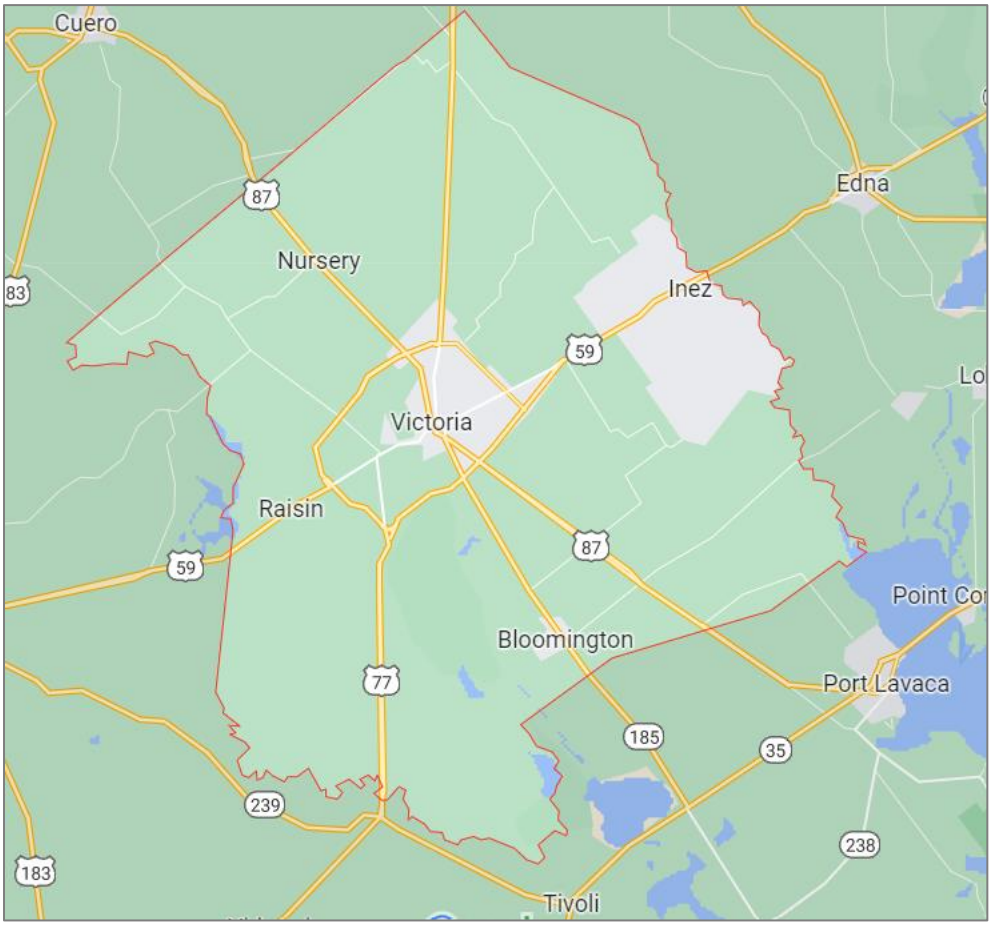
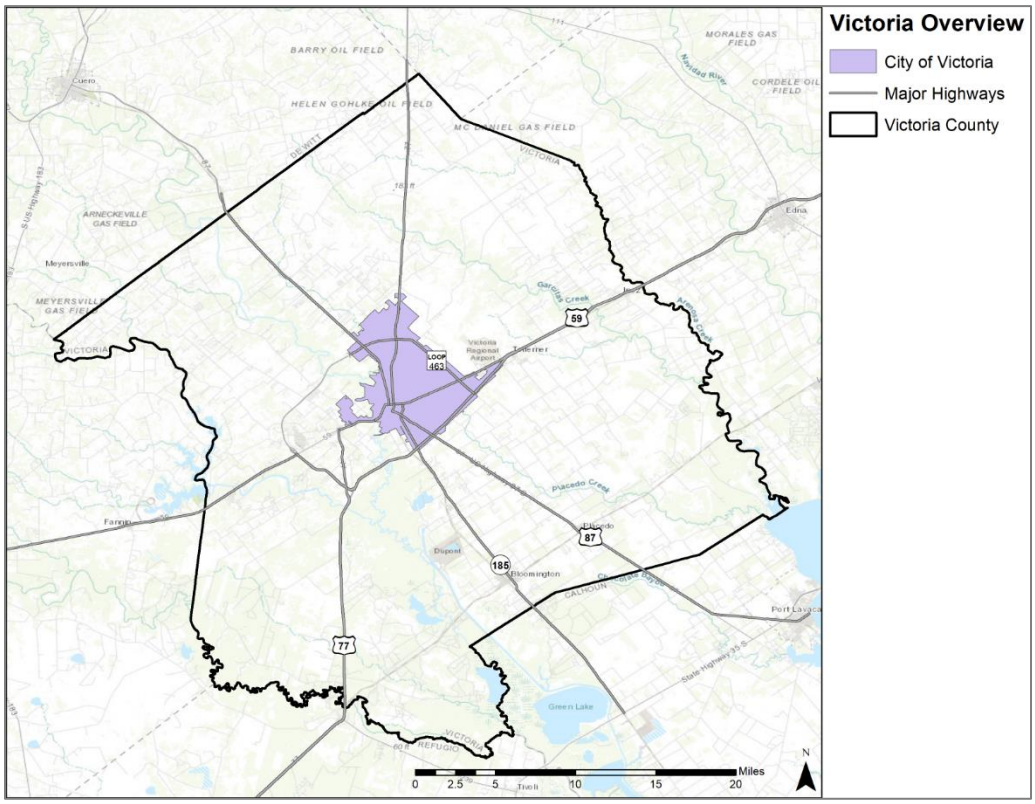


Figure 3-2 shows the participating jurisdictions within Victoria County that are covered in the risk assessment analysis of the Plan Update.

Figure 3-2. Victoria County and City of Victoria Planning Area



Provided in Table 3-1 below is a listing of the jurisdictions in Victoria County that participated in the Victoria County and City of Victoria Hazard Mitigation Action Plan Update 2023.

Table 3-1. Participating Jurisdictions

PARTICIPATING JURISDICTIONS
Victoria County
City of Victoria

POPULATION AND DEMOGRAPHICS

In the official Census population count, as of April 1, 2020, Victoria County has a population of 91,319 residents. Table 3-2 provides the population distribution by jurisdiction within Victoria County based on the 2010 and 2020 Census information.[1]

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.

[1] Source: https://demographics.texas.gov/Data/Decennial/2010/ ; https://www.census.gov/ ; and https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2020/

Table 3-2. Population Distribution by Jurisdiction

JURISDICTION	TOTAL 2010 POPULATION	TOTAL 2020 POPULATION	PERCENTAGE (based on 2020 Population)	ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS[2]		
				Youth (Under 5)	Elderly (Over 65)	Below Poverty Level
City of Victoria	62,592	65,534	72%	4,983	9,926	11,921
Unincorporated Victoria County	24,201	25,785	28%	1,404	4,921	2,530
Victoria County	**86,793**	**91,319**	**100%**	**6,387**	**14,847**	**14,451**

POPULATION GROWTH

The official 2010 Victoria County population is 86,793. By 2020, the census is 91,319. Overall, Victoria County experienced an increase in population between 1980 and 2020 by 33%, or an increase of 22,512. Both City of Victoria and unincorporated Victoria County experienced an increase from 1980 to 2020. Between 2010 and 2020, City of Victoria and Victoria County as a whole experienced a population growth. Table 3-3 provides historic growth rates in Victoria County.

Table 3-3. Population of Victoria County, 1980-2020

JURISDICTIONS	1980	1990	2000	2010	2020	POP CHANGE 1980-2020	PERCENT OF CHANGE	POP CHANGE 2010-2020	PERCENT OF CHANGE
City of Victoria	50,695	55,076	60,603	62,592	65,534	14,839	29%	2,942	5%
Unincorporated Victoria County	18,112	19,285	23,485	24,201	25,785	7,673	42%	1,584	7%
Victoria County	**68,807**	**74,361**	**84,088**	**86,793**	**91,319**	**22,512**	**33%**	**4,526**	**5%**

FUTURE DEVELOPMENT

To better understand how future growth and development in the County and City 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 and economic impacts.

Population projections from 2010 to 2050 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

[2] The Estimated Vulnerable or Sensitive Populations are based off the 2020 American Community Survey 5-Year Estimates Data Profiles.

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 3-4. Victoria County Population Projections

LAND AREA (SQ MI)	2010		2020		2030		2040		2050	
	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)	Total Number	Density (Land Area, SQ MI)
882.14	86,793	98.4	97,744	110.8	109,048	123.6	118,098	133.9	125,663	142.5

ECONOMIC IMPACT

Building and maintaining infrastructure depends on the economy, and therefore, protecting infrastructure from risk due to natural hazards in the planning area is important to Victoria County and City of Victoria. 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's primary retail and economic area encompasses over 30 communities within the region, representing a population of over 130,000 people. These communities house a wide range of industries, as well as many opportunities for the provision of goods and services.

EXISTING AND FUTURE LAND USE AND DEVELOPMENT TRENDS

Victoria County and the City of Victoria have land use restrictions as well as subdivision regulations. These plans, regulations, and restrictions are an important part of mitigation planning for the existing use and future planning of the community. These can ensure that current and future land use is beneficial, a smart investment, and safe for the community.

The City of Victoria has also developed a 2035 Comprehensive Plan designed to enhance the livability of the city. The tool assists the city in future planning needs such as land use, parks and recreation, transportation, utilities, and a variety of other livability measures.

SECTION 4: RISK OVERVIEW

HAZARD DESCRIPTION

Section 4 is the first phase of the Risk Assessment, providing background information for the hazard identification process and descriptions for the hazards identified. The Risk Assessment continues with Sections 5 through 20, 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 City of Victoria identified eleven natural hazards and five man-made hazards that are addressed in the Hazard Mitigation Plan Update. Of the natural hazards identified, ten natural hazards and one quasi-technological[1] 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 2018 State of Texas Hazard Mitigation Plan (State Plan). 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 natural 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 Planning Area include lightning, thunderstorm wind, tornado, winter storm, extreme heat, hail, and hurricane wind (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 this hazard is not considered atmospheric, hydrologic, nor technological.

The man-made hazards are profiled in Appendix G and include: infectious disease, technological disruptions, hazardous material, pipeline failure, and terrorism.

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	Hailstorms are a potentially damaging outgrowth of severe thunderstorms. Early in 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 subsequent cooling of the air mass.
Hurricane Wind	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.
MAN-MADE	
Infectious Disease	A clinically evident disease resulting from the presence of pathogenic microbial agents. These infecting agents may be transmitted through liquids, food, bodily fluids, contaminated objects, airborne inhalation, or through vector-borne dissemination.
Technological Disruption	A cyber-attack is any type of offensive maneuver employed by individuals or whole organizations that targets computer information systems, infrastructures, computer networks, and/or personal computer devices by various means of malicious acts usually originating from an anonymous source that either steals, alters, or destroys a specified target by hacking into a susceptible system.
Hazardous Materials	A hazardous material (solid, liquid, or gaseous contaminants) of flammable or poisonous material that would be a danger to life or to the environment if released without precaution.
Pipeline Failure	Fuel pipeline breach or pipeline failure addresses the rare, but serious hazard of an oil or natural gas pipeline that, when breached, has the potential to cause extensive property damage and loss of life.

HAZARD	DESCRIPTION
Terrorism	Incidents involving the application of one or more modes of harmful force to the built environment. These modes may include contamination (chemical, biological, radiological, or nuclear), energy (explosives, arson, electromagnetic waves), or denial of service (sabotage, infrastructure breakdown, and transportation service disruption) Terrorism is categorized as either domestic or international.

Hazards that weren't considered significant and were not included in the Plan Update are located in Table 4-2. Hazards not identified for inclusion at this time may be addressed during future evaluations and updates.

Table 4-2. Other Hazards Deferred

HAZARD CONSIDERED	REASON FOR DETERMINATION
Coastal Erosion	The planning area is not located on the coast, therefore coastal erosion does not pose a risk.
Earthquake	According to the State Plan, an earthquake occurrence for the Victoria County planning area is considered exceedingly rare. Although a small event is possible, it would pose little to no risk for the area. There is no history of impact to critical structures, systems, populations or other community assets or vial services as a result of earthquakes and none are 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.
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 a historical analysis and a statistical approach. Both methodologies provide an estimate of potential impact by using a common, systematic framework for evaluation.

Records retrieved from National Centers for Environmental Information (NCEI) and National Oceanic and Atmospheric Administration (NOAA) were reported for Victoria County and City of Victoria. Remaining records identifying the occurrence of hazard events in the planning area and the maximum recorded magnitude of each event were also evaluated.

The use of geographic information system (GIS) technology to identify and assess risks for Victoria County and City of Victoria and evaluate community assets and their vulnerability to the hazards.

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. Risk and consequences will be addressed and covered within each hazard profile under the Vulnerability and Impact section as well as under the Assessment of Impact sections, where applicable.

To better understand how future growth and development in the Victoria County region 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. Hazard vulnerability for Victoria County and City of Victoria was reviewed based on recent development changes that occurred throughout the planning area. Victoria County has increased slightly between 2010 and 2020 according to the U.S. Census Bureau, therefore there has been no significant factors or development trends with a consequential effect or increase in vulnerability to the population, infrastructure and buildings for hazards.

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.

Table 4-5. Hazard Risk Ranking

HAZARD	FREQUENCY OF OCCURENCE	POTENTIAL SEVERITY
Flood	Highly Likely	Substantial
Hurricane Wind	Occasional	Major
Extreme Heat	Highly Likely	Minor
Thunderstorm Wind	Highly Likely	Minor
Lightning	Highly Likely	Limited
Drought	Highly Likely	Limited
Tornado	Highly Likely	Minor
Hail	Highly Likely	Minor
Winter Storm	Highly Likely	Limited
Wildfire	Highly Likely	Minor
Dam and Levee Failure	Unlikely	Limited

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. 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 the Victoria County planning area, which includes City of Victoria, based on the Digital Flood Insurance Rate Maps (DFIRM) from FEMA are illustrated in Figures 5-1 to 5-2.

Figure 5-1. Estimated Flood Zones in Victoria County

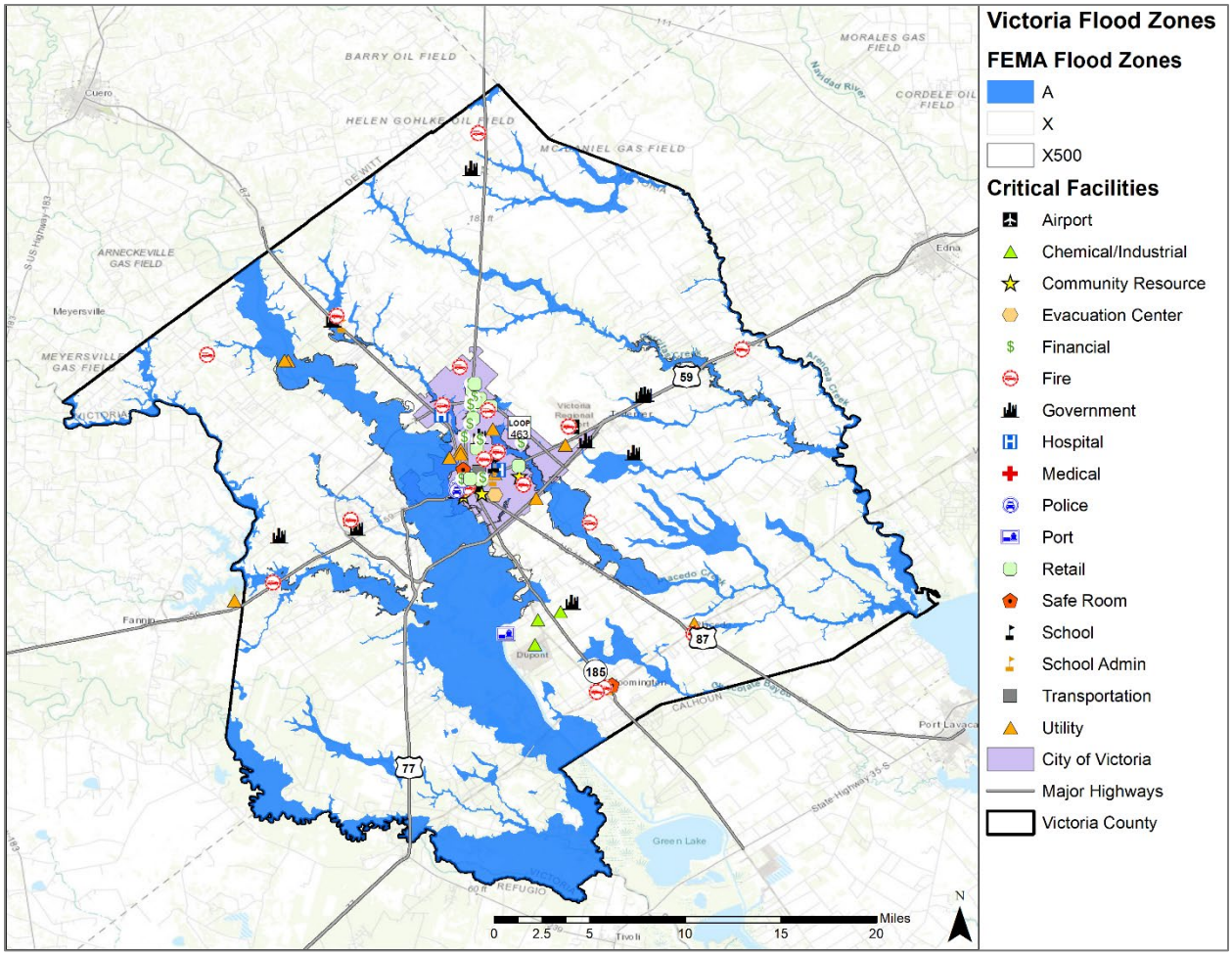
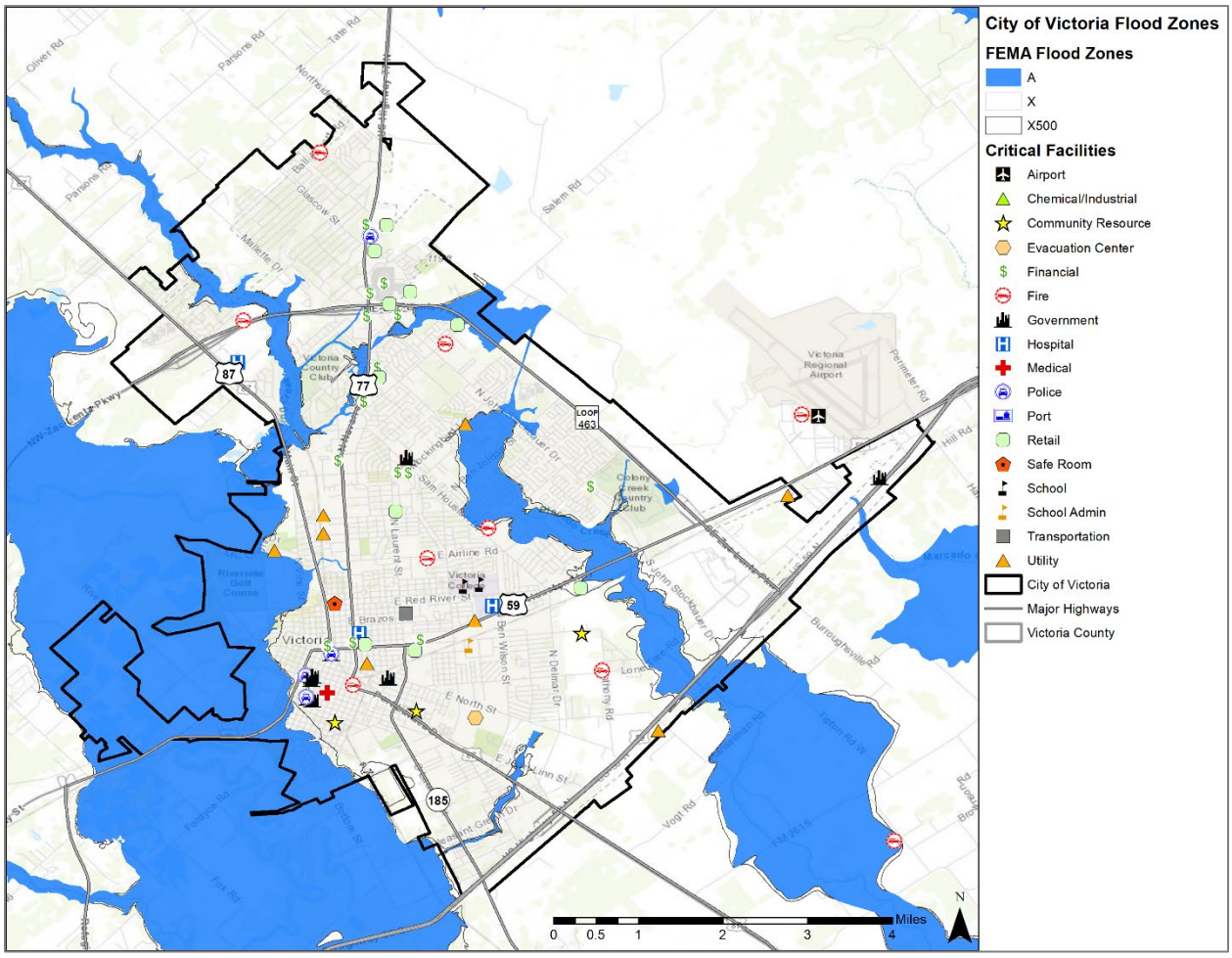


Figure 5-2. Estimated Flood Zones in City of Victoria



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 5-2 should be read in conjunction with the extent for flooding in Tables 5-1 and 5-2 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.
HIGH COASTAL	ZONE VE, V1-30	Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26 percent chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones.

INTENSITY	ZONE	DESCRIPTION
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 describes the stream gauge data provided by the United States Geological Survey (USGS).

Table 5-2. Extent for Victoria County[1]

JURISDICTION[2]	PEAK FLOOD EVENT
Victoria County	Garcitas Creek near Inez, Victoria County, Texas reached an overflow elevation of 33.43 feet in October of 1994. The average peak flow for Garcitas Creek is 19.47 feet at this site.
City of Victoria	Guadalupe River at Victoria, Texas reached an overflow elevation of 34.04 feet in October of 1998. The average peak flow for Guadalupe River is 24.96 feet at this site.

The range of flood intensity that the planning area can experience is high, or Zone A. Based on historical occurrences, the planning area could expect to experience up to 6.0 inches of rainfall within a 4-hour period, resulting in flash flooding.

The data described in Tables 5-1 and 5-2, together with Figures 5-1 through 5-2, and historical occurrences for the area, provides an estimated potential magnitude and severity for the County.

[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.

For example, 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 Victoria County and City of Victoria 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 5-3 identifies historical flood events that resulted in damages, injuries, or fatalities within Victoria County and City of Victoria. Table 5-4 provides the historical flood event summary by jurisdiction. Historical data is provided by the Storm Prediction Center (NOAA), NCEI database for Victoria County.

Table 5-3. Historical Flood Events, 1996-2022[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	$1,094,747	$0
City of Victoria	7/2/2007	4:10 AM	0	0	$1,421,855	$0
Victoria County	5/15/2010	6:00 AM	0	0	$950,232	$0
Victoria County	5/26/2014	9:30 AM	0	0	$124,494	$0
Victoria County	8/27/2017	6:00 PM	0	0	$24,126,117	$0
Victoria County	9/22/2020	2:05 AM	0	0	$113,789	$0
Victoria County	9/22/2020	4:00 AM	0	0	$113,789	$0
Victoria County	5/1/2021	4:30 AM	0	0	$33,006	$0
Victoria County	5/16/2021	4:27 PM	1	1	$0	$0
TOTALS			**1**	**1**	**$27,978,030**	**$0**

Table 5-4. Summary of Historical Flood Events, January 1996-2022

JURISDICTION	NUMBER OF EVENTS	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	40	1	1	$26,556,175	$0
City of Victoria	26	0	0	$1,421,855	$0
TOTAL LOSSES	**66**	**1**	**1**	**$27,978,030**	

[3] Only recorded events with fatalities, injuries, and/or damages are listed, values are in 2022 dollars. Historical events are reported from January 1996 through May 31, 2022.

Based on the list of historical flood events for Victoria County and City of Victoria (listed above) 10 of the events have occurred since the 2018 Plan.

SIGNIFICANT EVENTS

Flash Flood on October 18, 1998 – Victoria County[4]

Severe flooding in parts of south-central Texas resulted from a major storm during October 17–18, 1998. The flooding occurred in parts of the major streams and tributaries of the San Jacinto, San Benard, Colorado, Lavaca, Guadalupe, and San Antonio River Basins.

In the early hours of October 17, extreme atmospheric instability over western Bexar County extending northward caused rapid uplift of low-level moisture, forming heavy thunderstorms extending throughout the area. Reports indicate that about 2,300 square miles in 12 counties received at least 12 inches of rain, and about 5,000 square miles in 19 counties received at least 8 inches of rain. Substantial flood peaks were documented for 27 streamflow gaging stations operated by the USGS in the Guadalupe and San Antonio River Basins. Perhaps the most historically significant peaks occurred at site 10, Guadalupe River at Cuero, and site 11, Guadalupe River at Victoria. The October 1998 peak streamflow was 2.6 times the previous maximum streamflow at the Victoria station. The previous maximum streamflow had been the highest since before 1833.

According to the Texas Department of Public Safety 31 people drowned during the floods, and total property damage was estimated to be about $750 million. Forty-three counties in Texas received Presidential Disaster Declarations.

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

[4] Floods in the Guadalupe and San Antonio River Basins in Texas, October 1998 (https://pubs.usgs.gov/fs/FS-147-99/pdf/fs-147-99.pdf)

inches fell across the northern half of the county, with isolated amounts between 8 and 11 inches. Flooding was reported at Benbow Road and 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 24hrs, 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. All told, 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 damage sustained to governmental infrastructure: Damage was done to the Victoria County Sheriff's Office Communications Center 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 stormwater/drainage outfall was damaged by floodwater.

Flash Flood on May 16, 2021 – Victoria County
A series of disturbances moving across South Texas produced a line of showers and thunderstorms that moved across the Coastal Bend and towards the Middle Texas Coast throughout the day on the 16th. Locally heavy rainfall led to flooding of roads in Beeville, Port Aransas, and Rockport. Fast-moving water from heavy rain in a drainage ditch in Victoria resulted in one direct fatality.

PROBABILITY OF FUTURE EVENTS

Based on 66 recorded historical occurrences within a 26-year reporting period within Victoria County and City of Victoria, flooding is highly likely with two to three events per year anticipated.

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. Victoria County and City of Victoria encourages development outside of the floodplain, and the impact for flood for the entire planning area is limited as facilities and services would be shut down for 24 hours or less, depending on the scale of the storm. However, with one historical death, the potential impact is considered "Substantial" with multiple deaths possible depending on the size of the event.

Table 5-5 includes the critical facilities identified in Appendix C that were determined to be located within the SFHA by FIRM mapping and further by each participating jurisdiction.

Table 5-5. Critical Facilities in the Floodplain

JURISDICTION	CRITICAL FACILITIES
Victoria County and City of Victoria	2 VFD, 1 Public Works Facility, 2 Utility Facilities, 1 Electric Cooperative, 1 Grocery Distribution Stores

Historic loss estimates due to flood are presented in Table 5-6 below. Considering 66 flood events over a 26-year period, frequency is approximately two to three events every year.

Table 5-6. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County	$26,556,175	$1,021,391
City of Victoria	$1,421,855	$54,687
Planning Area	**$27,978,030**	**$1,076,078**

While all citizens are at risk to the impacts of a flood, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 15.7% of the planning area population live below the poverty level (Table 5-7).

Table 5-7. Populations at Greatest Risk by Jurisdiction[5]

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Victoria County	14,451
City of Victoria	11,921

The severity of a flooding event varies depending on the relative risk to citizens and structures located within the County and City. Table 5-8 depicts the level of impact for Victoria County and City of Victoria.

Table 5-8. Impact by Jurisdiction

JURISDICTION	IMPACT	DESCRIPTION
Victoria County	Substantial	It is anticipated that Victoria County could anticipate an impact of "limited" with critical facilities including school campuses shut down for 24 hours or less, and less than 10 percent of property would be destroyed or damaged. However, with a historical death, the potential impact is considered "Substantial" with multiple deaths possible depending on the size of the event.

[5] US Census Bureau 2020 American Community Survey data for Victoria County and City of Victoria

JURISDICTION	IMPACT	DESCRIPTION
City of Victoria	Limited	It is anticipated that City of Victoria could anticipate an impact of "limited" with critical facilities including school campuses shut down for 24 hours or less, and less than 10 percent of property would be destroyed or damaged.

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 such as hiking and bird watching at locations such as Athey Nature Trail or Greenbelt Park 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 damage 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 City of Victoria are currently participating in the NFIP and are in good standing.

SECTION 5: FLOOD

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

The flood hazard areas throughout the planning area 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 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 Victoria County and City of Victoria 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 all 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 City of Victoria have developed mitigation actions that relate to either NFIP maintenance or compliance. Compliance and maintenance actions can be found in Section 23.

Flood was identified 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. Participating 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.

Victoria County and City of Victoria have a designated floodplain administrator. The 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. One of the goals of the FMA program is to reduce the burden of repetitive loss and severe repetitive loss properties on the NFIP through mitigation activities that significantly reduce or eliminate the threat of future flood damages.

Repetitive Loss properties are defined as structures that are:

- Any insurable building for which 2 or more claims of more than $1,000 each, paid by the National Flood Insurance Program (NFIP) within any 10-year period, since 1978;
- May or may not be currently insured under the NFIP.

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.[6] Table 5-9 shows repetitive loss and severe repetitive loss properties for each participating jurisdiction in the planning area.

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

JURISDICTION	BUILDING TYPE	NUMBER OF STRUCTURES	NUMBER OF LOSSES
Victoria County	Non-Residential	2	4
	Single Family	17	60
City of Victoria	2-4 Family	1	5
	Non-Residential	1	2
	Single Family	12	42

[6] Source: Texas Water Development Board

SECTION 6: HURRICANE WIND

HAZARD DESCRIPTION

Hurricanes often begin as tropical depressions that intensify into tropical storms when maximum sustained winds increase to between 35-64 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 becomes a tropical storm. Once sustained winds reach or exceed 74 mph, the storm becomes a hurricane.

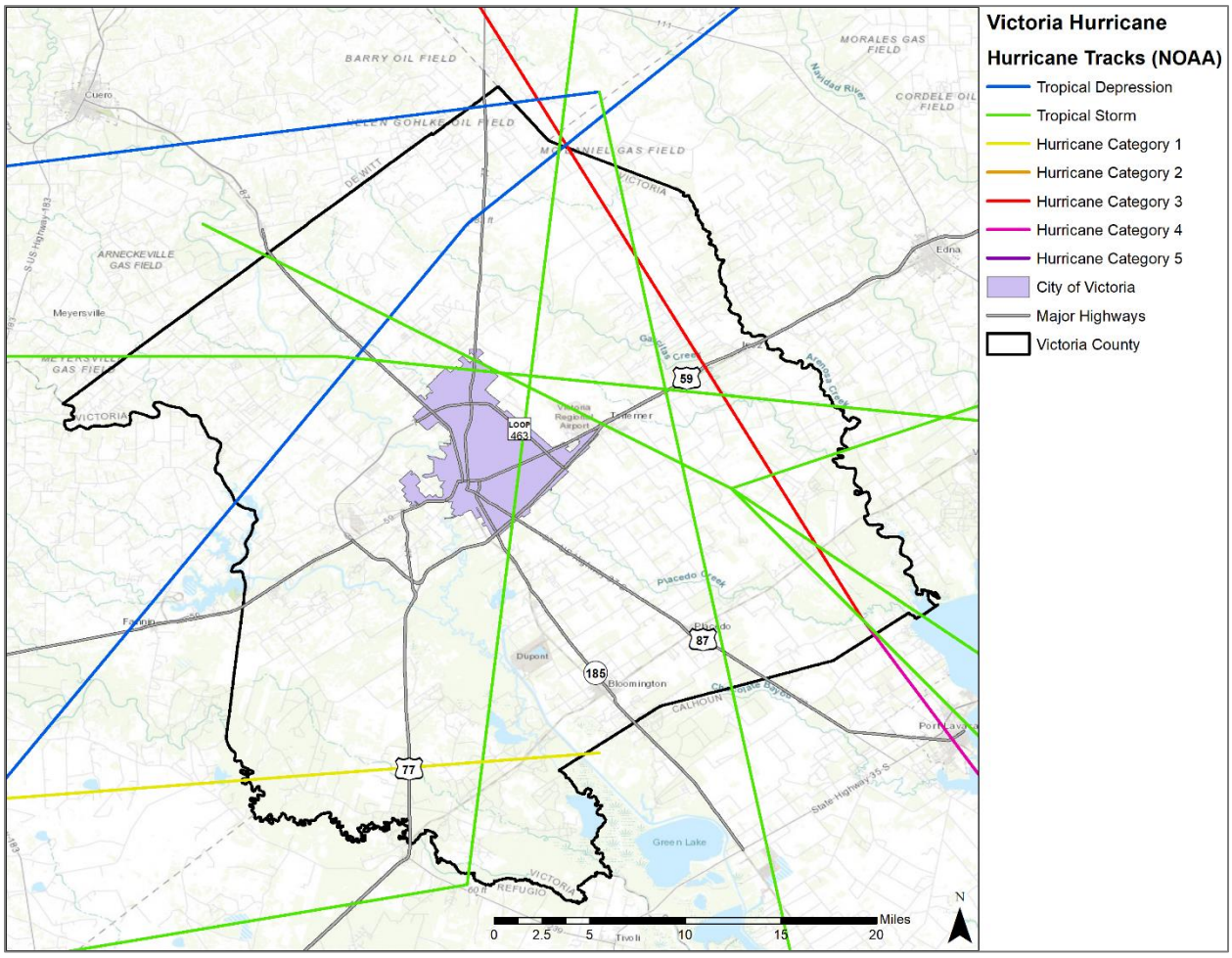
The intensity of a land falling hurricane is expressed in categories relating wind speeds and potential damage. Tropical storm-force winds are strong enough to be dangerous to those caught in them. For this reason, emergency managers plan to have evacuations completed and personnel sheltered before winds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

Victoria County and City of Victoria are 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. Victoria County and City of Victoria are located in a moderate to high risk area for hurricane wind speeds of 96 to 130 miles per hour (mph). In Figure 6-1 below, hurricane tracks are reflective of their strength in the Victoria County planning area.

Figure 6-1. Location of Historic Storm Tracks



EXTENT

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. When maximum sustained winds reach or exceed 39 miles per hour, 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 miles per hour the storm is deemed a hurricane.

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

SECTION 6: HURRICANE WIND

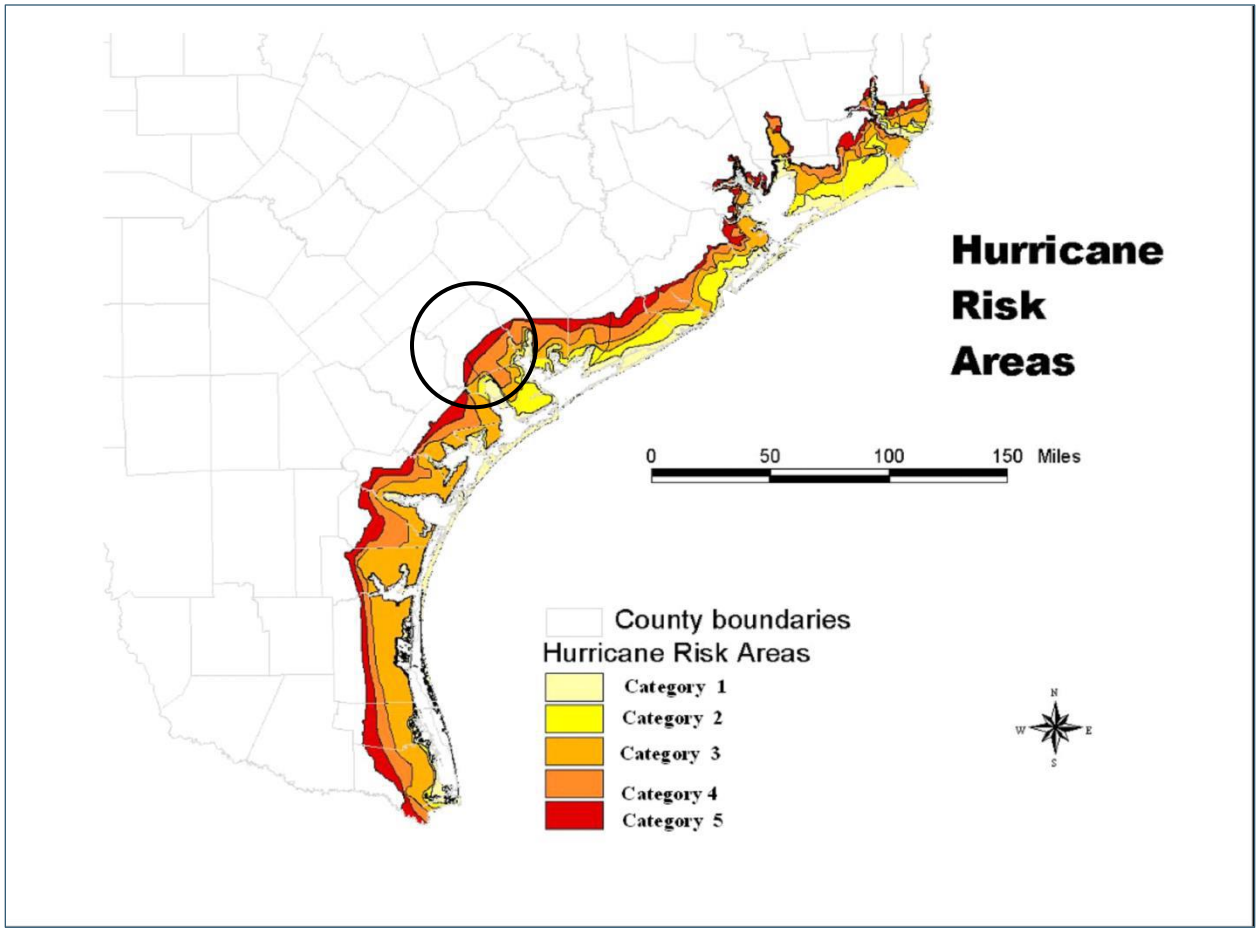
Table 6-1. Extent Scale for Hurricanes[1]

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 the location of Victoria County and City of Victoria, the highest extent to be mitigated is for a Category 4 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. However, the historical occurrences show a Category 4 is the highest that can be expected. 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.

[1] Source: National Hurricane Center

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



HISTORICAL OCCURRENCES

Previous occurrences include storms that had a direct path through the Victoria County and City of Victoria or storm events that passed close enough in proximity to the planning area to create damage. Table 6-2 below lists the storms that have impacted the Victoria County planning area during the years of 1960-2022. Historical hurricane data for Victoria County, including the City of Victoria, is provided on a County-wide basis per the National Centers for Environmental Information (NCEI) and National Oceanic and Atmospheric Administration (NOAA) databases.

Table 6-2. Historic Hurricane Events for the Victoria County Planning Area, 1960-2022[2]

DATE	NAME	CATEGORY[3]	PROPERTY DAMAGE	CROP DAMAGE
9/9/1961	Carla	Category 4	$0	$0
9/24/1963	Cindy	Tropical Depression	$0	$0
8/5/1964	Abby	Tropical Storm	$0	$0

[2] Values are reported in 2022 dollars.

[3] Category at time of landfall.

DATE	NAME	CATEGORY[3]	PROPERTY DAMAGE	CROP DAMAGE
9/6/1998	Frances	Tropical Storm	$0	$0
7/15/2003	Claudette	Category 1	$7,813,740	$0
9/2005	Katrina	Category 4	$310,967	$0
9/2005	Rita	Category 3	$63,196	$0
9/2008	Ike	Category 2	$219,508	$0
9/9/2015	Bill	Tropical Storm	$0	$0
8/26/2017	Harvey	Category 4	$168,882,816	$24,126,117
9/21/2020	Beta	Tropical Storm	$0	$0
9/13/2021	Nicholas	Tropical Storm	$0	$0
TOTAL			**$201,416,344**	

Based on the list of historical hurricane and tropical storm events for Victoria County and City of Victoria (listed above) three of the events have occurred since the 2018 Plan.

SIGNIFICANT EVENTS

Hurricane Claudette on July 15, 2003 – Victoria County

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 on the Saffir/Simpson Scale near Port O'Connor, Texas (Calhoun County) on Tuesday July 15th around 10:30AM. Just prior to landfall, the 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, 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 at the time of this writing stood at 45.7 million dollars in uninsured losses and 90 million in insured losses. 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 26, 2017 – Victoria County
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 severely affected the cities of Rockport, Fulton, Port Aransas, Aransas Pass, Ingleside, Holiday Beach, and Refugio. Minor to moderate damage occurred in cities of Portland, Corpus Christi, Seadrift, Woodsboro, Port Lavaca, Goliad, and Victoria.

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. Harvey was the first major hurricane to make landfall on the Middle Texas coast since Hurricane Celia in August of 1970.

In Victoria County, widespread minor to moderate roof damage occurred in the city of Bloomington. Several mobile homes were destroyed. All but three facilities within the Bloomington school district suffered wind and water damage. Widespread minor roof damage occurred in the City of Victoria. Several trees and a few power poles were blown down. Fences and street signs were blown down across the city. The maximum wind gust recorded in Victoria was 85 mph. Maximum wind gusts in the southern part of the county were around 110 mph. Twenty-seven homes were destroyed. Around 75 percent of residential and commercial properties in the county were damaged. Hundreds of acres of unharvested cotton were damaged in the field. Harvested cotton in modules and bales were damaged also. A few barns and storage buildings were blown down across the county.

PROBABILITY OF FUTURE EVENTS

Due to the location near the Gulf Coast, and the previous history of 12 events over a 62-year reporting period for the area, the likelihood or future probability of a tropical storm or hurricane in Victoria County and City of Victoria 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. Most structures in the planning area can resist the effects of all but the most severe wind storms. Victoria County and City of Victoria feature multiple mobile or manufactured home parks throughout the planning area. These parks are typically more vulnerable to hurricane events than typical site-built structures. In addition, manufactured homes are located sporadically throughout the planning area which would also be more vulnerable. The US Census data indicates a total of 4,150 (11.1%) manufactured homes located in Victoria County (Table 6-3). In addition, 52.2% (approximately 19,445 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 hurricane events.

Table 6-3. Victoria County Structures at Greater Risk

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Victoria County	4,150	19,445
City of Victoria	1,652	14,908

The following critical facilities would be vulnerable to hurricane events in the planning area:

Table 6-4. Victoria County and City of Victoria Critical Facilities at Risk

JURISDICTION	CRITICAL FACILITIES
Victoria County and City of Victoria	1 EOC, 7 Fire Stations, 10 VFD, 4 Law Enforcement Agencies, 5 Government Buildings, 4 Federal Buildings, 5 Schools, 1 Evacuation Center, 2 Safe Rooms, 1 Recovery Center, 3 Hospitals, 1 Municipal Utility District, 2 Water Districts, 5 Public Works Facility, 10 Utility Facilities, 4 Precinct Equipment Barns, 1 Electric Cooperative, 1 Chemical Plant, 2 Compressor Stations, 1 Public Transportation Service, 2 Airports, 4 Commercial Lumber Facilities, 2 Community Food Services, 7 Grocery Distribution Stores, 15 Financial Institutions

Storm track data was available for the past 150 years; and property and crop loss data is only available from 1960 through March 2022. Table 6-5 shows impact or loss estimation for storms impacting the county. Damages are reported on a countywide basis and are not available for the City of Victoria. Annual loss estimates were based on the 62-year reporting period for such damages (Table 6-5). The average annualized loss estimate for the Victoria County planning area is estimated to be approximately $3,248,651.

Table 6-5. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County	$201,416,344	$3,248,651

While all citizens are at risk to the impacts of a hurricane, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 15.7% of the planning area population live below the poverty level (Table 6-6).

Table 6-6. Populations at Greatest Risk by Jurisdiction[4]

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Victoria County	14,451
City of Victoria	11,921

While the potential severity of impact from a hurricane for Victoria County and City of Victoria 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 damages.

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. The impact of climate change could produce larger, more severe hurricane events, exacerbating the current hurricane impacts. Worsening hurricane conditions can be frequently associated with a variety of impacts, including:

- 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.
- Driving conditions in all jurisdictions 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 along the coast.
- Emergency evacuations may be necessary prior to a hurricane landfall, requiring emergency responders, evacuation routing and temporary shelters in the planning area.
- 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.

[4] US Census Bureau 2020 American Community Survey data for Victoria County

- 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 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 community, local businesses and citizens will also contribute to the overall economic and financial conditions in the aftermath of any hurricane event.

SECTION 7: 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 7-1 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 7-1. 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.

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

LOCATION

Droughts occur regularly throughout Texas and in Victoria County and City of Victoria 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 abnormally dry drought conditions throughout the county (Figure 7-1). However, the planning area has experienced a range of conditions from normal to exceptional drought conditions over the last twenty years (Figure 7-2). There is no distinct geographic boundary to drought; therefore, it can occur throughout Victoria County and City of Victoria equally.

Figure 7-1. U.S. Drought Monitor, October 2022

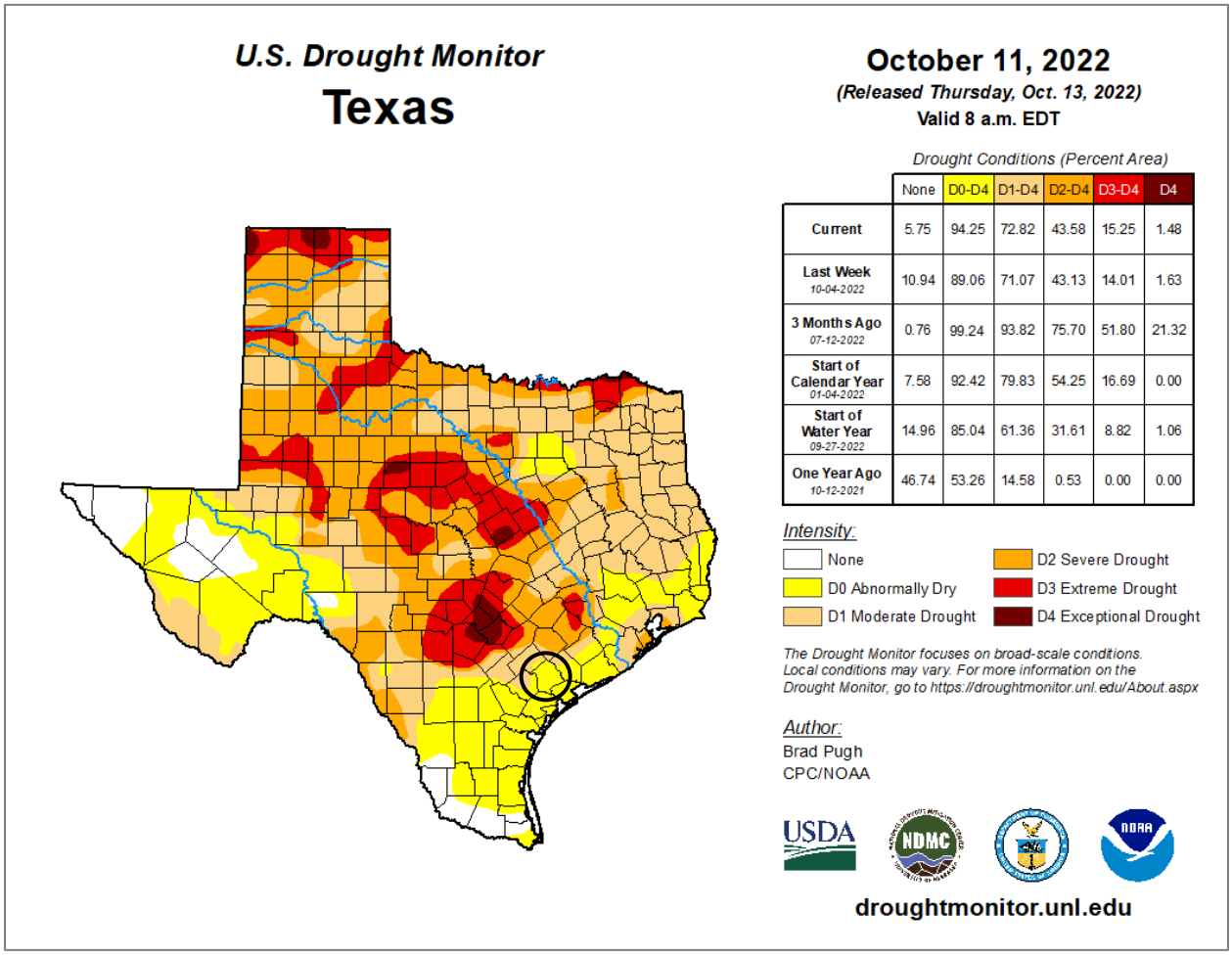
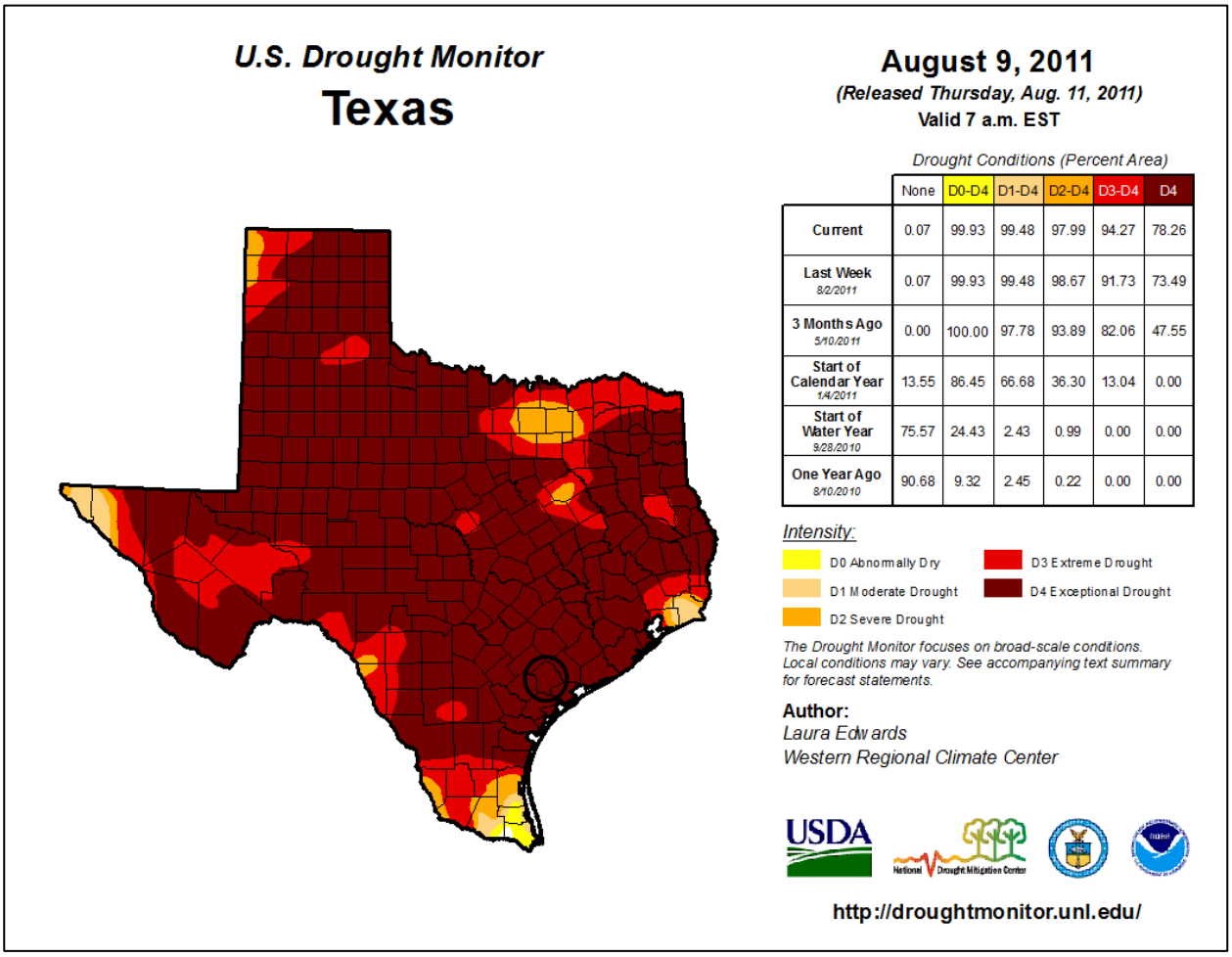


Figure 7-2. U.S. Drought Monitor, August 2011



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 7-2 depicts magnitude of drought, while Table 7-3 describes the classification descriptions.

Table 7-2. 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

DROUGHT INDEX	DROUGHT CONDITION CLASSIFICATIONS						
	Extreme	Severe	Moderate	Normal	Moderately Moist	Very Moist	Extremely Moist
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 7-3. 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.

Based on the historical occurrences for drought and the location of Victoria County and City of Victoria, the area can anticipate a range of drought from abnormally dry to exceptional, or D0 to D4, based on the Palmer Drought Category. The entire planning area has experienced exceptional drought conditions. This is the most extreme drought conditions the planning area can anticipate in the future.

[2] Source: National Drought Mitigation Center

HISTORICAL OCCURRENCES

The Victoria County planning area may typically experience a severe drought. Table 7-4 and 7-5 list historical events that have occurred in the Victoria County planning area 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 Victoria County and City of Victoria are provided on a county-wide basis per the NCEI database.

Table 7-4. Historical Drought Years, 1996-2022

DROUGHT YEAR
1996
2006
2008 - 2009[3]
2011 - 2012[4]
2012
2013
2014 - 2015[5]
2018[6]
2019
2020[7]
2021
2022
16 unique events

Table 7-5. Historical Drought Events, 1996-2022[8]

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	4/1/1996	0	0	$0	$0

[3] Event spanned May 2008 – December 2009
[4] Event spanned April 2011 – April 2012
[5] Three unique events recorded in 2014; January – March 2014; April 2014 – July 2014; and August 2014 – March 2015
[6] Two unique events recoded in 2018; February 2018 and May 2018 – June 2018
[7] Two unique events recorded in 2020; January 2020 – May 2020 and November 2020
[8] Data collected up to May 31, 2022

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
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
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

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
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
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

JURISDICTION	DATE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
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
Victoria County	3/1/2015	0	0	$0	$0
Victoria County	2/1/2018	0	0	$0	$0
Victoria County	5/22/2018	0	0	$0	$0
Victoria County	6/1/2018	0	0	$0	$0
Victoria County	10/5/2019	0	0	$0	$0
Victoria County	11/1/2019	0	0	$0	$0
Victoria County	1/1/2020	0	0	$0	$0
Victoria County	2/1/2020	0	0	$0	$0
Victoria County	3/1/2020	0	0	$0	$0
Victoria County	4/1/2020	0	0	$0	$0
Victoria County	5/1/2020	0	0	$0	$0
Victoria County	11/10/2020	0	0	$0	$0
Victoria County	2/20/2021	0	0	$0	$0
Victoria County	3/1/2021	0	0	$0	$0
Victoria County	4/1/2021	0	0	$0	$0
Victoria County	5/1/2021	0	0	$0	$0
Victoria County	4/1/2022	0	0	$0	$0
Victoria County	5/1/2022	0	0	$0	$0
Victoria County	6/1/2022	0	0	$0	$0
TOTALS		**0**	**0**	**$0**	**$0**

Based on the list of historical drought events for Victoria County and City of Victoria (listed above) 18 events over 7 periods have occurred since the 2018 Plan.

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 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. For the month of August the Corpus Christi International Airport only received 0.45 of rainfall, which was 13% of the normal rainfall for 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.

April 2011 – April 2012
The Texas State Climatologist declared the current drought as the most severe one-year drought ever for Texas. 2011 Yearly rainfall totals at Corpus Christi and Victoria placed as the second driest on record, since 1888 and 1898 respectively. Monetary losses from diminished crops and fading grazing pastures due to the drought in 2011 was estimated to be around 135 million dollars across South Texas.

Fire danger and poor agriculture conditions were the main impacts. Several wildfires and critical fire weather days occurred during the drought period. Many crops were showing signs of stress. Planting of other crops was delayed. Many farmers lost there first cutting of hay due to lack of rain. Hay production was severely limited or insignificant. Livestock producers sold portions of their herds due to feed shortages and supplemented their remaining herd's feed. Cattle, swine, sheep and goat prices were at an all time high.

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, there have been 16 extended time periods of drought (ranging in length from approximately 30 days to over 600 days) within a 26-year reporting period, which provides a probability of one event every year. This frequency supports a Highly Likely probability of future events for Victoria County and City of Victoria.

VULNERABILITY AND IMPACT

Loss estimates were based on 26 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 7-6 shows annualized exposure.

Table 7-6. Potential Annualized Losses for Victoria County and City of Victoria

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County and City of Victoria	$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, socioeconomics and environment are all vulnerable to drought in Victoria County and City of Victoria. Typical demand can deplete water resources during extreme drought conditions. As resources are depleted, potable water is in short supply and overall water quality can suffer, elevating health concerns for all residents but especially vulnerable populations – typically children, the elderly, and the ill. In addition, potable water is used for drinking, sanitation, patient care, sterilization, equipment, heating and cooling systems, and many other essential functions in medical facilities.

The average person will survive only a few days without potable 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 16.1% of the total population, and children under the age of 5 are estimated at 6.9% or an estimated total of 21,234 potentially vulnerable residents in the planning area based on age. In addition, an estimated 15.7% of planning area population live below the poverty level (Table 7-7) which may contribute to overall health impacts of a drought.

Table 7-7. Populations at Greater Risk by Jurisdiction[9]

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Victoria County	14,847	6,387	14,451
City of Victoria	9,926	4,983	11,921

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 entire 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.

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 Victoria County and City of Victoria 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 26-year reporting period in the Victoria County planning area is considered negligible.

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 7-8

[9] US Census Bureau 2020 American Community Survey data for Victoria County

lists the drought impacts to Victoria County from January 2005 through May 2022 based on reports received by the Drought Impact Reporter.

Table 7-8. Drought Impacts, 2005-2022

DROUGHT IMPACTS 2005-2022	
Agriculture	94
Business & Industry	2
Energy	1
Fire	19
Plants & Wildlife	57
Relief, Response & Restrictions	20
Society & Public Health	6
Tourism & Recreation	1
Water Supply & Quality	27

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.
- 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 8: 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 entire planning area 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

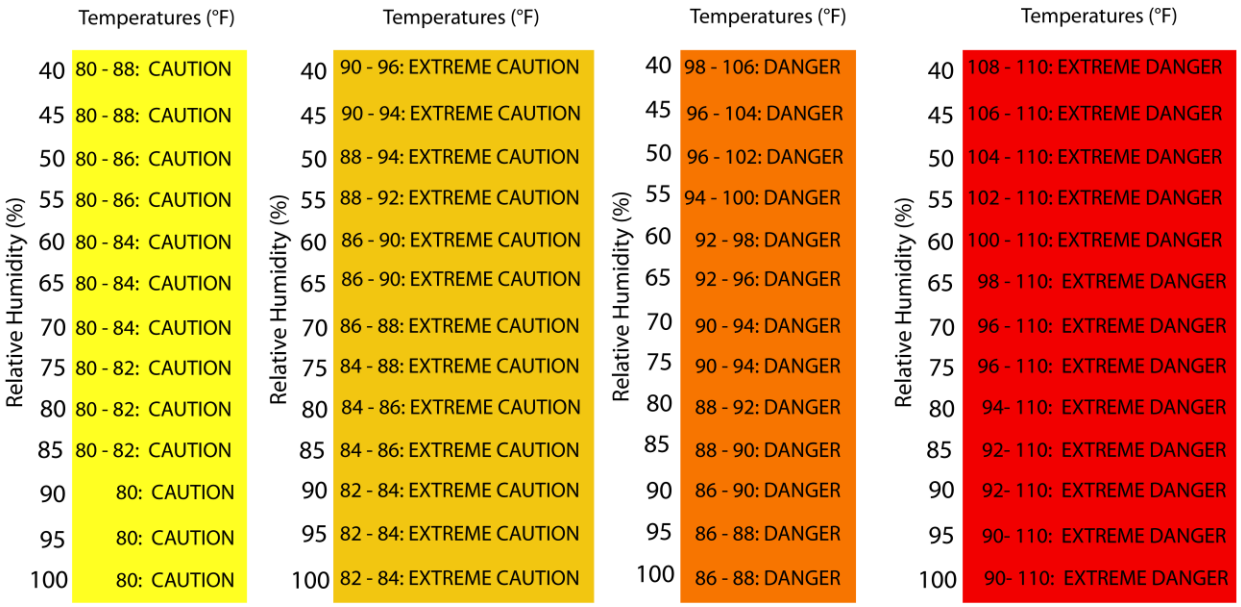
While there have been no deaths reported from extreme heat in the County, there is no specific geographic scope to the extreme heat hazard. Extreme heat could occur anywhere within Victoria County and City of Victoria.

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 8-1. This index measures how hot it feels outside when humidity is combined with high temperatures.

SECTION 8: EXTREME HEAT

Figure 8-1. Extent Scale for Extreme Summer Heat[1]



Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

The Extent Scale in Figure 8-1 displays varying categories of caution depending on the relative humidity combined with the temperature. For example, when the temperature is at 90 degrees Fahrenheit (°F) 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 8-1.

Table 8-1. 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.	
Extreme Caution	90 – 103°F	Sunstroke, muscle cramps, and/or heat exhaustion possible	An Excessive Heat Warning is issued if the Heat Index

[1] Source: NOAA

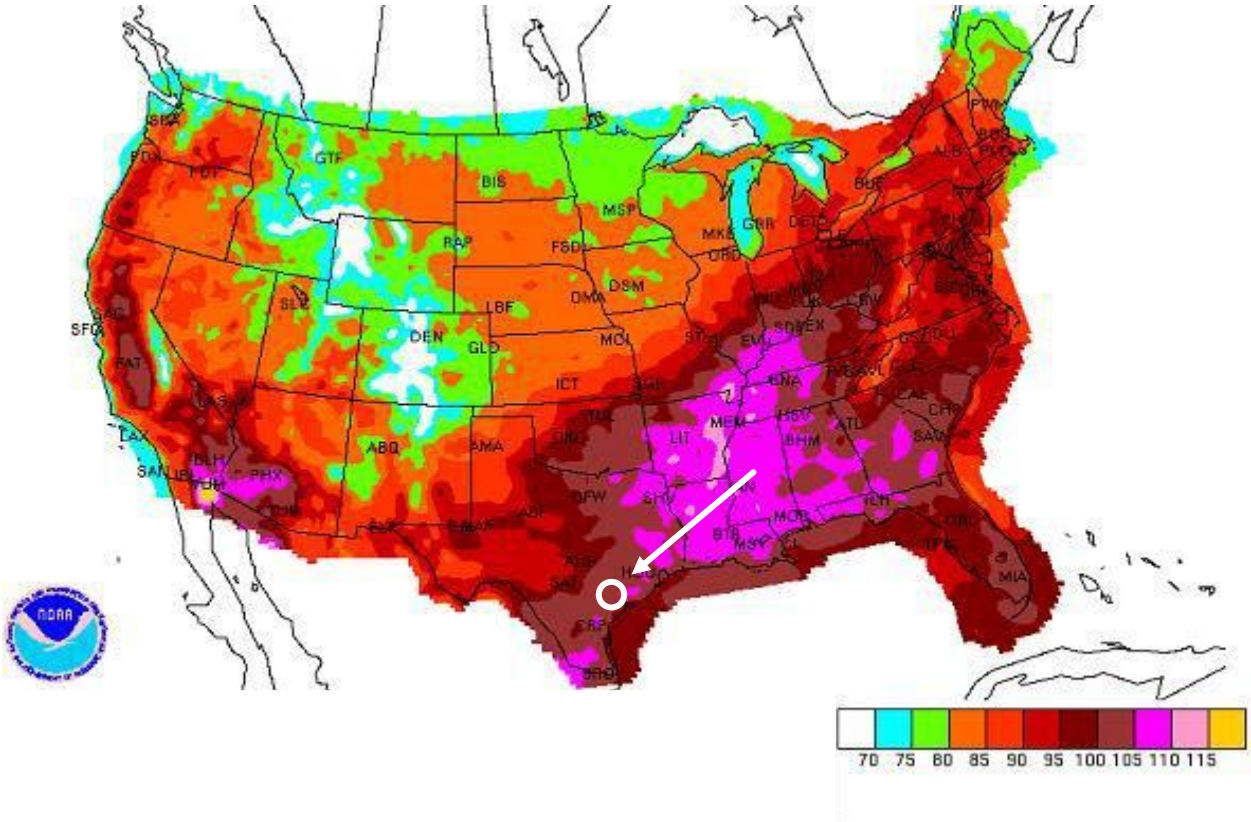
CATEGORY	HEAT INDEX	POSSIBLE HEAT DISORDERS	WARNING TYPE
		with prolonged exposure and/or physical activity.	rises above 105°F at least 3 hours during the day or above 80°F at night.
Caution	80 – 90°F	Fatigue is possible with prolonged exposure and/or physical activity.	

Victoria County's terrain is mostly flat to slightly rolling land with an average elevation of 102 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 its warm, sunny, humid subtropical climate, the Victoria County planning area, can expect at least one extreme heat event each summer.

Figure 8-2 displays the daily maximum heat index as derived from NOAA based on data compiled from 1838 to 2015. The white circle shows the Victoria County planning area. The dark red and brown color indicates a daily maximum heat index of 95° to 105°F. Victoria County and City of Victoria can 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 8-2. 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. Table 8-2 depicts historical occurrences of mortality from heat from 1994 to 2004 from the Texas Department of State Health Services and 2005 through June 2021 from the NCEI database.

Table 8-2. Extreme Heat Related Deaths in Texas

YEAR	DEATHS
1994	1
1995	12
1996	10
1997	2

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

YEAR	DEATHS
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	46
2012	3
2013	2
2014	0
2015	5
2016	6
2017	3
2018	2
2019	3
2020	2
2021	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 only three heat waves[3] on record for the Victoria County planning area (Table 8-3). 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 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 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 highly likely additional extreme heat occurrences have gone unreported before and during the recording period. Due to the limited number of reported events, average high temperatures have been analyzed in order to determine the probability of future events.

Table 8-3. Historical Extreme Heat Events, 1996-2022[4]

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
Victoria County	6/12/2022	0	0	$0	$0
TOTALS		**0**	**0**	**$0**	**$0**

Based on the list of historical extreme heat events for Victoria County and City of Victoria (listed above) one of the reported events occurred since the 2018 Plan.

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 and City of Victoria 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. In addition, populations living below the poverty level are

[3] Even though the County experiences heat waves each summer, NCEI data only records events reported. Based on reports, only three events are on record.
[4] Historical events are reported from January 1, 1996, through May 31, 2022.

unable to run air-conditioning on a regular basis and are limited in their ability to seek medical treatment. 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 16.1%, and the total population of children under the age of 5 are estimated at 6.9%, or an estimated total of 21,234 potentially vulnerable residents in the planning area based on age. In addition, an estimated 15.7% of the planning area population live below the poverty level (Table 8-5).

Table 8-4. Populations at Greater Risk by Jurisdiction[5]

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Victoria County	14,847	6,387	14,451
City of Victoria	9,926	4,983	11,921

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 would not result in permanent disability. In terms of vulnerability to structures, the impact from extreme heat would be negligible for Victoria County and City of Victoria. 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. Based on historical records over a 26-year period, annualized losses for the Victoria County planning area are negligible.

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, infants, children under five, can face serious or life-threatening health problems from exposure to extreme heat including hyperthermia, heat cramps, heat exhaustion, and heat stroke (or sunstroke).
- Residents that live below the poverty line are often more vulnerable as they may not have access to air conditioning.
- 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.

[5] US Census Bureau 2020 American Community Survey data for Victoria County

- 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.
- 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.

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 9: 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

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 9-1 through 9-2). It is estimated that 52.5 percent of the total population in Victoria County live within the WUI. However, the entire Victoria County planning area is at some risk for wildfires.

Figure 9-1. Wildland Urban Interface Map – Victoria County

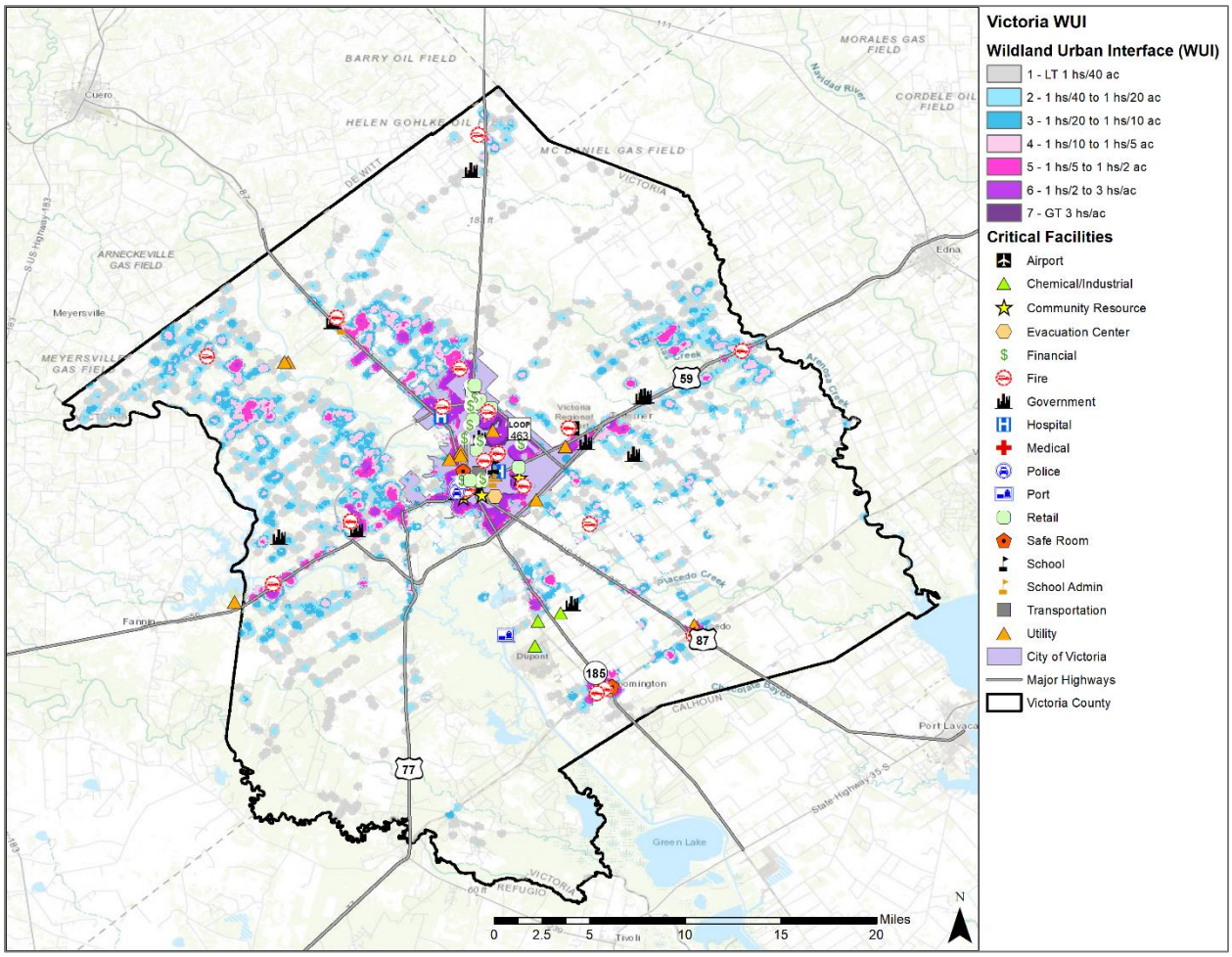
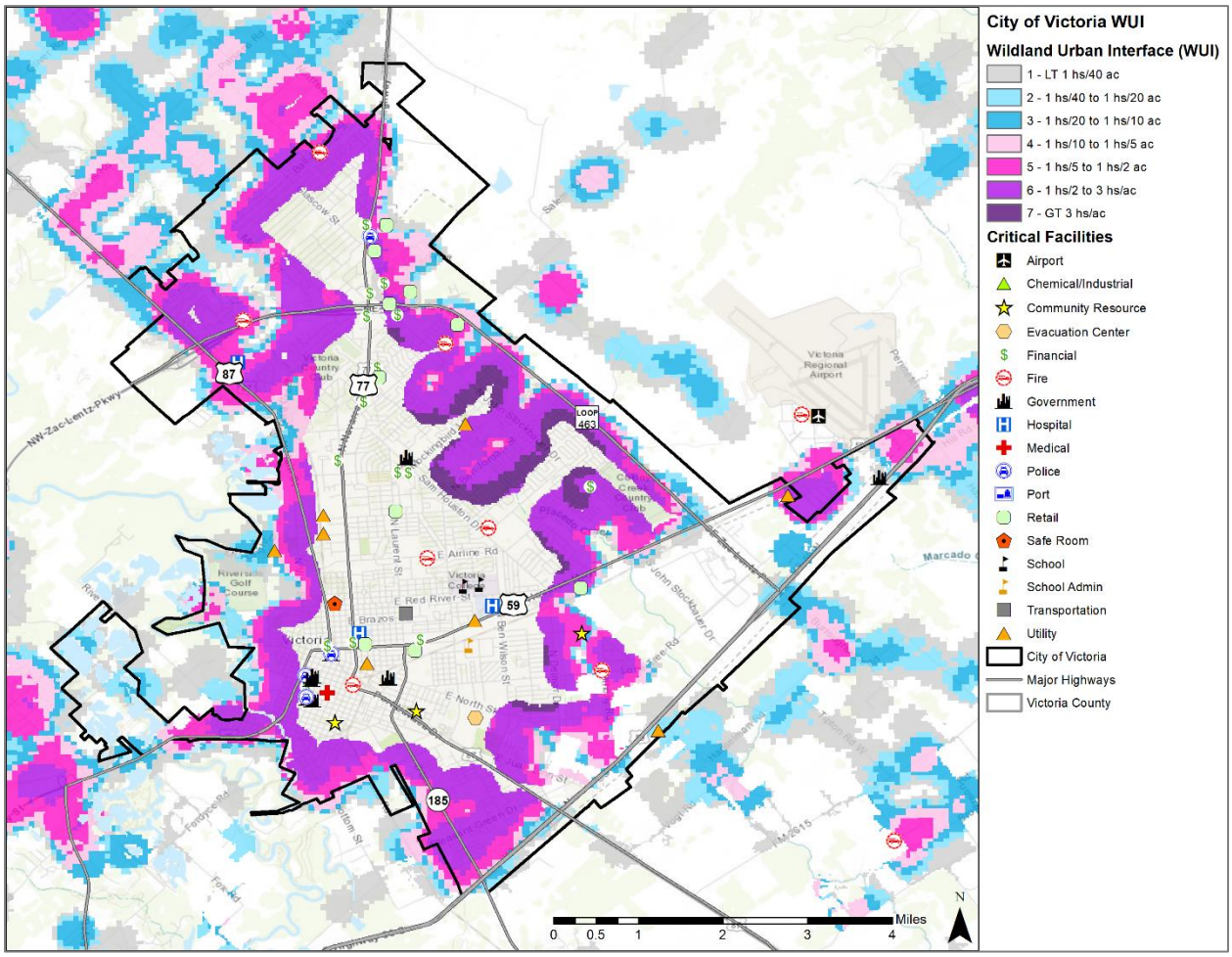


Figure 9-2. Wildland Urban Interface Map – City of Victoria

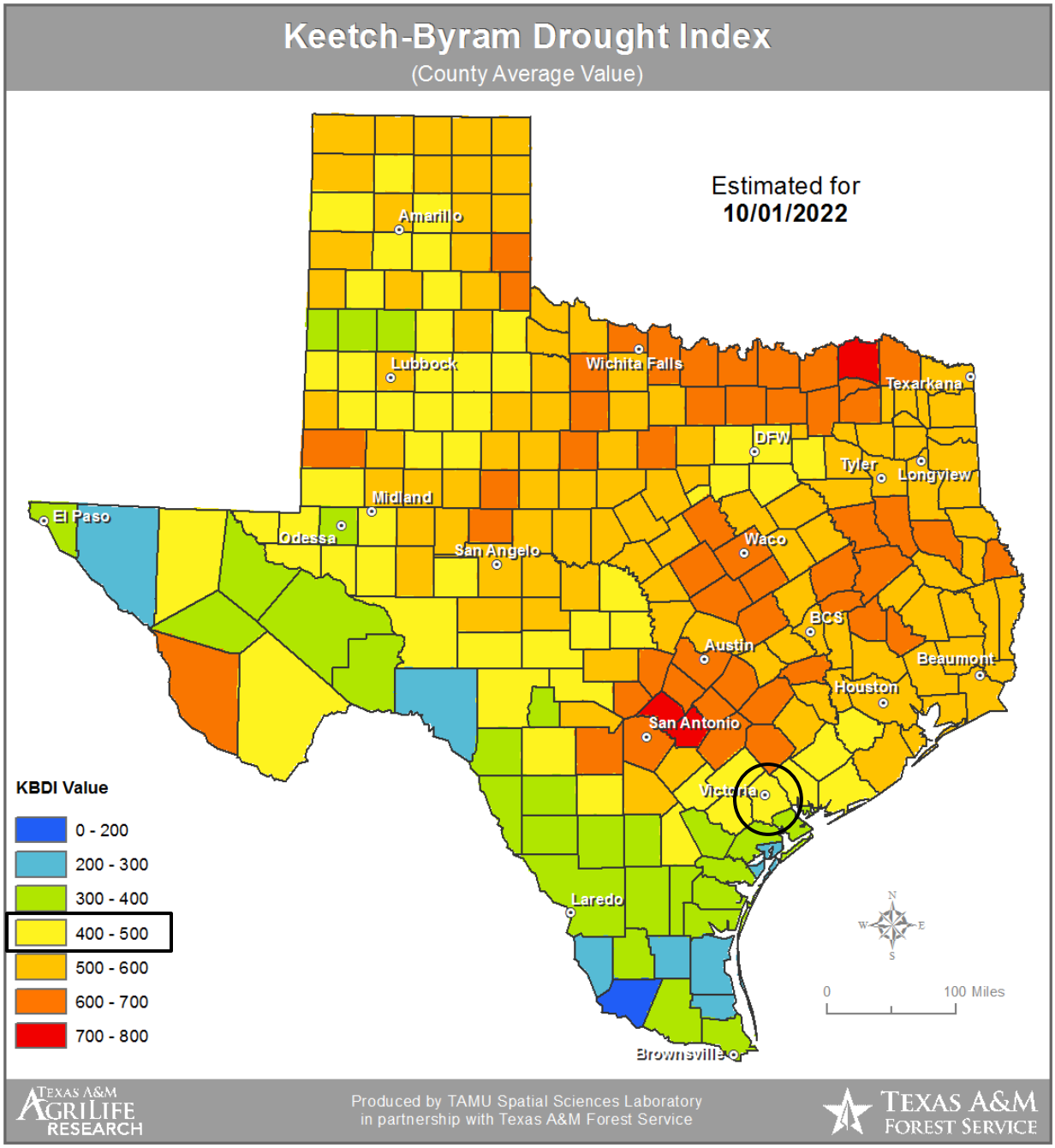


It is estimated that 37.9 percent of the total population in the City of Victoria live within the WUI. However, the entire City of Victoria is at some risk for wildfires.

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.

Figure 9-3. Keetch-Byram Drought Index (KBDI) for the State of Texas, 2022[1]



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.

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

- **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 the Victoria County planning area in a wildfire event is within 377 to 528. The average extent to be mitigated for Victoria County and City of Victoria is a KBDI of 461. At this level fires intensity begins to significantly increase. Fire will readily burn in all directions exposing mineral soils in some locations. The worst the planning area can anticipate based on historical occurrences and readily available fuel is 400 to 600 as 528 falls within this range.

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 moderate wildfire intensities. Figures 9-4 through 9-5 identify the wildfire intensity for the Victoria County planning area.

Figure 9-4. Fire Intensity Scale Map – Victoria County

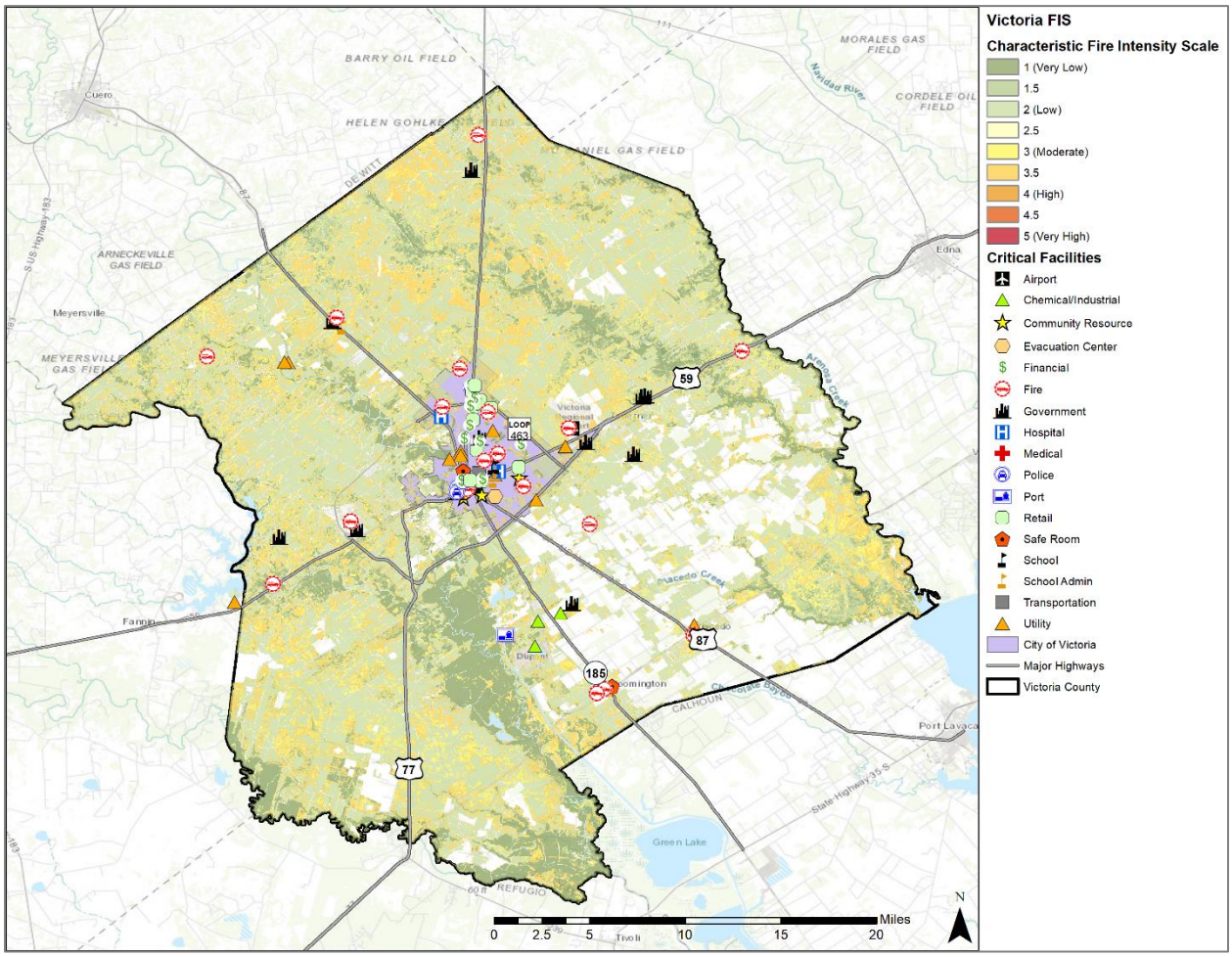
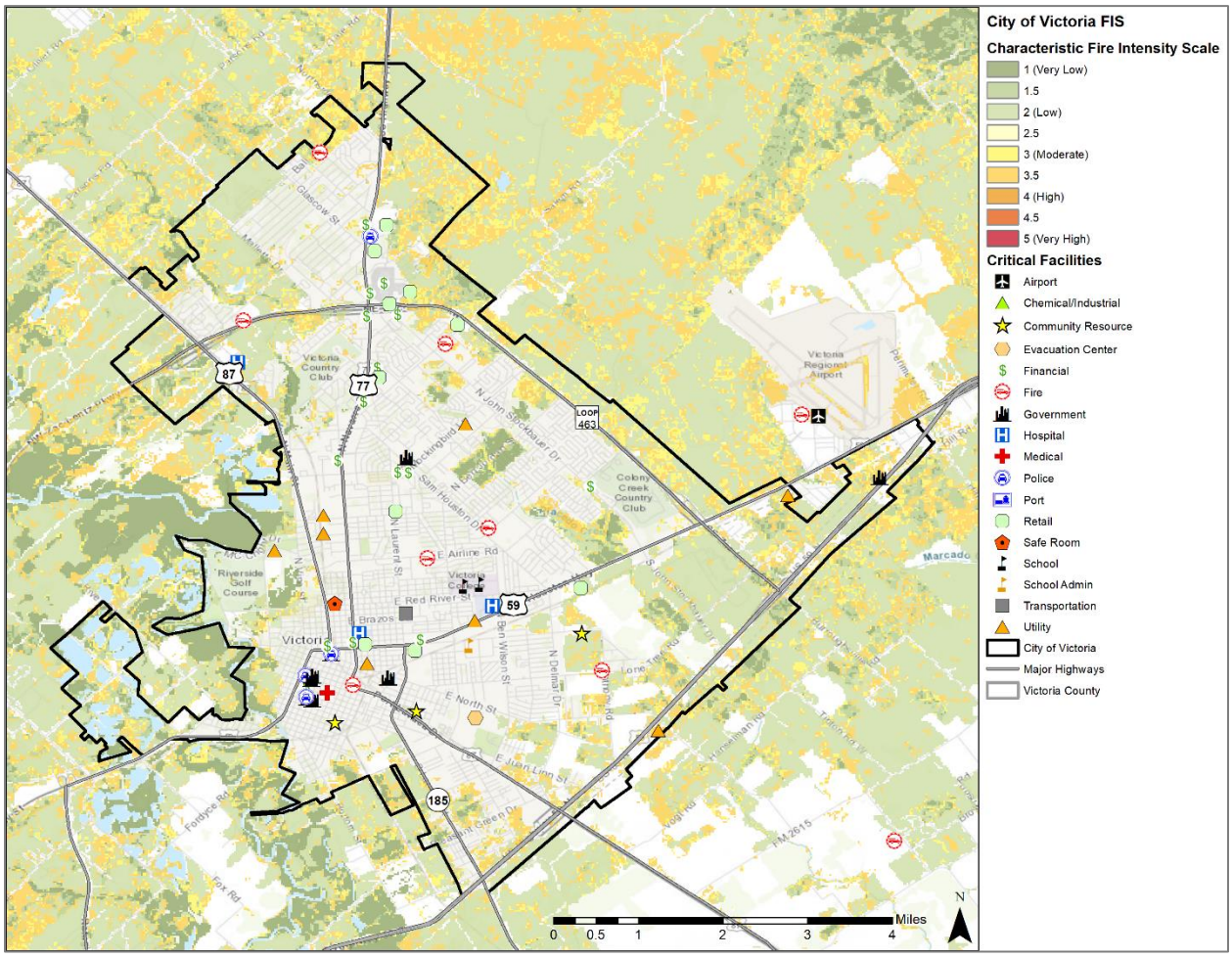


Figure 9-5. Fire Intensity Scale Map – City of Victoria



HISTORICAL OCCURRENCES

The Texas Forest Service reported 1,614 wildfire events between 2005 and 2020. The National Centers for Environmental Information (NCEI) only reported two events from January of 1996 through May of 2022. Due to a lack of recorded data for wildfire events prior to 2005 and after 2020[2], frequency calculations are based on a sixteen-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 9-6). Table 9-1 identifies the number of wildfires by jurisdiction and total acreage burned.

[2] The Texas Forest Service data is currently only available through 2020.

Figure 9-6. Location and Historic Wildfire Events for Victoria County Planning Area

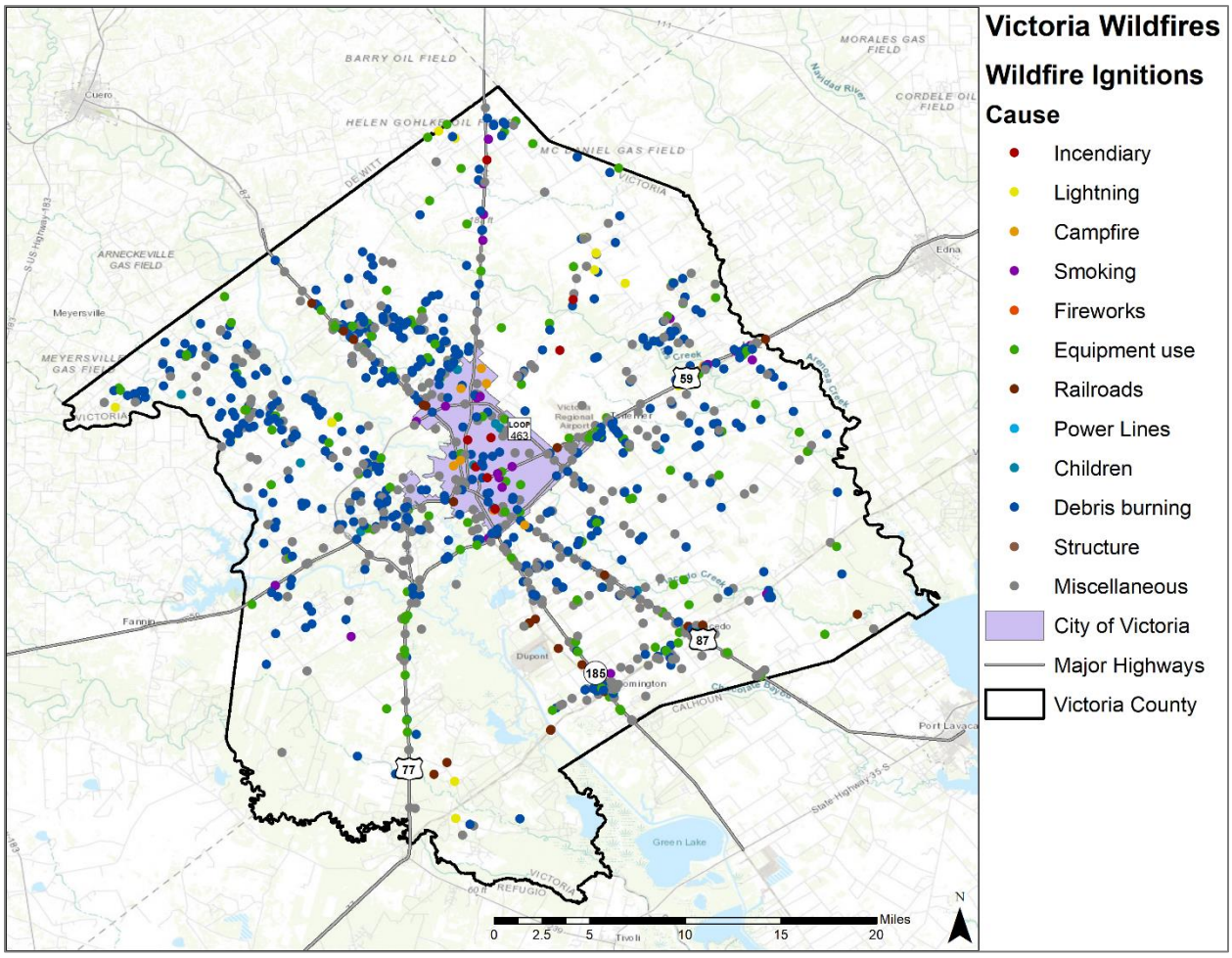


Table 9-1. Historical Wildfire Events Summary

JURISDICTION	NUMBER OF EVENTS	ACRES BURNED
Victoria County	1,443	19,711
City of Victoria	171	3,399

Table 9-2. Acreage of Suppressed Wildfire by Year

YEAR	VICTORIA COUNTY	CITY OF VICTORIA
2005	1,025	500
2006	739	0
2007	799	0
2008	1,820	321

YEAR	VICTORIA COUNTY	CITY OF VICTORIA
2009	4,548	1,914
2010	23	0
2011	2,097	225
2012	237	11
2013	1,013	58
2014	547	41
2015	585	0
2016	2,614	256
2017	1,749	16
2018	1,166	55
2019	535	1
2020	214	1
TOTAL	**19,711**	**3,399**

Based on the list of historical wildfire events for Victoria County and City of Victoria (listed above) 805 of the events have occurred since the 2018 Plan.

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 1,443 events in a 16-year period, an event within Victoria County and City of Victoria 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 in the unincorporated portions of Victoria County are vulnerable, including rural areas such as Highway 87 between Victoria and Cuero, Highway 77 between Victoria and Fordtran, and Highway 236. 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 9-1 through 9-2 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 9-3. Critical Facilities Located in WUI by Jurisdiction

JURISDICTION	CRITICAL FACILITIES
Victoria County and City of Victoria	4 Fire Stations, 6 VFD, 1 Law Enforcement Agency, 1 School, 1 Safe Room, 1 Hospital, 1 Water District, 4 Public Works Facilities, 3 Utility Facilities, 3 Precinct Equipment Barns, 2 Commercial Lumber Facilities, 1 Community Food Services, 3 Grocery Distribution Stores, 3 Financial Institutions

Within Victoria County, a total of 1,614 fire events were reported from 2005 to 2020. All of these events were suspected wildfires. Historic loss and annualized estimates due to wildfires are presented in Table 9-4 below. The frequency is approximately 101 events every year.

Table 9-4. Potential Annualized Losses by Jurisdiction[3]

JURISDICTION	ACRES BURNED	ANNUAL ACRE LOSSES
Victoria County	19,711	1,232
City of Victoria	3,399	212

Figures 9-7 through 9-8 show the threat of wildfire to the planning area of Victoria County and City of Victoria.

[3] Events divided by 16 years of data.

Figure 9-7. Wildfire Ignition Density – Victoria County

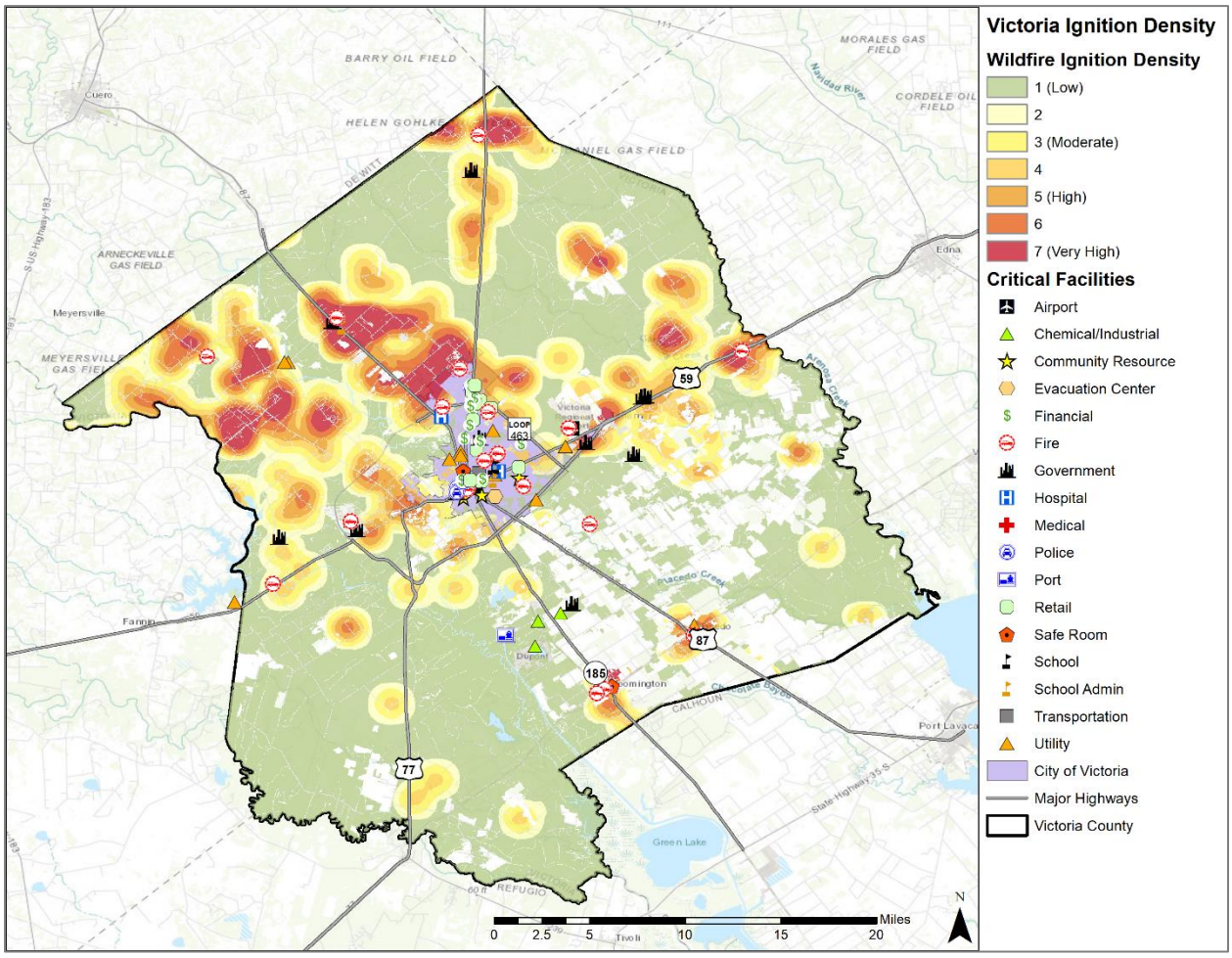
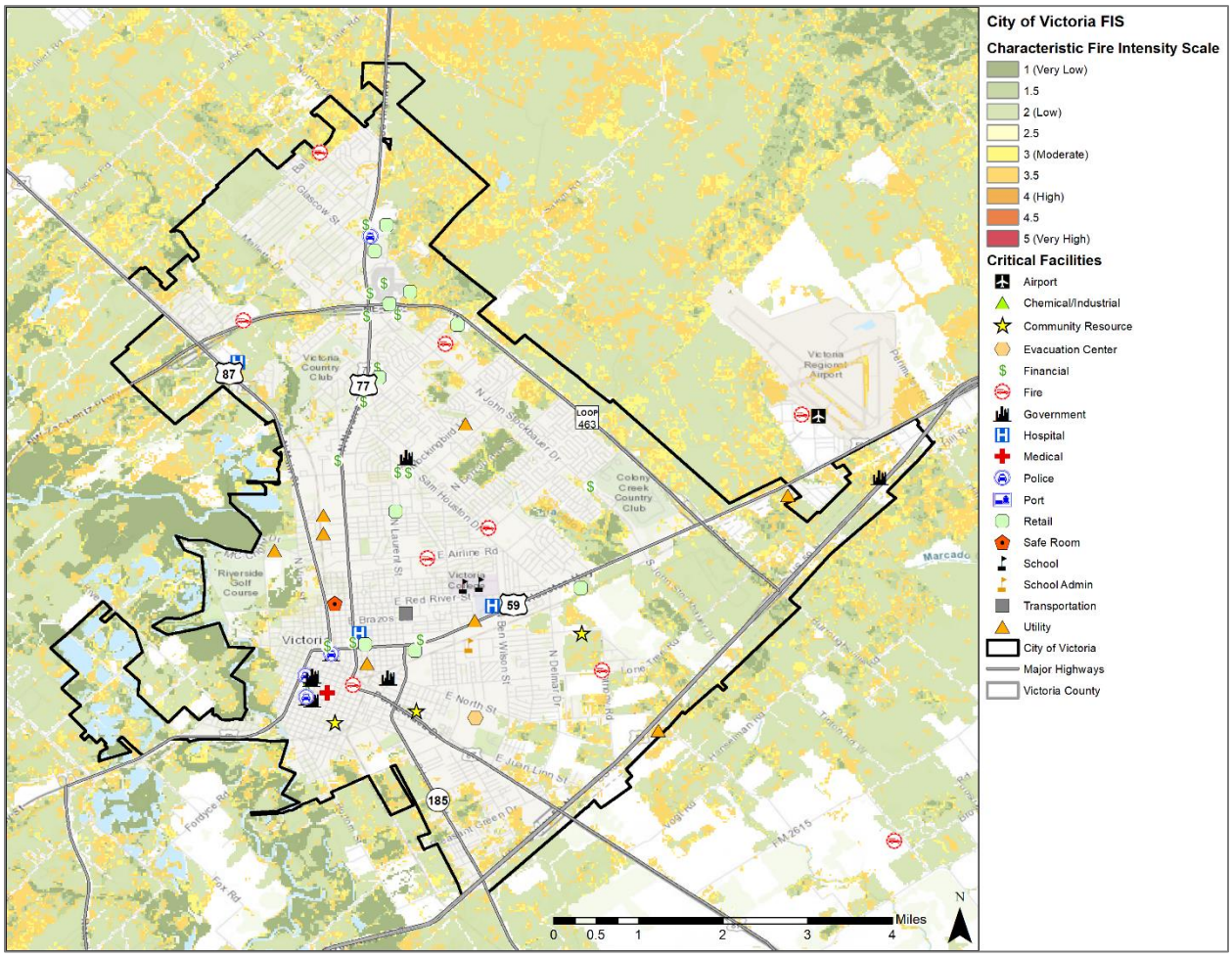


Figure 9-8. Wildfire Ignition Density – City of Victoria



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 illnesses do not result in permanent disability, a complete shutdown of

critical facilities for more than one week, and more than 10 percent of property 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 Victoria County and City of Victoria is listed below in Table 9-5.

Table 9-5. Impact by Jurisdiction

JURISDICTION	IMPACT	DESCRIPTION
Victoria County	Minor	Victoria County has an estimated 46,099 people or 52.5% 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	Limited	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.

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.
- 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 10: 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 and City of Victoria, as these storms develop randomly and are not confined to any geographic area within the County. It is assumed that the entire Victoria County and City of Victoria are uniformly exposed to the threat of thunderstorms winds.

SECTION 10: THUNDERSTORM WIND

EXTENT

The extent or magnitude of a thunderstorm wind event is measured by the Beaufort Wind Scale. Table 10-1 describes the different intensities of wind in terms of speed and effects, from calm to violent and destructive.

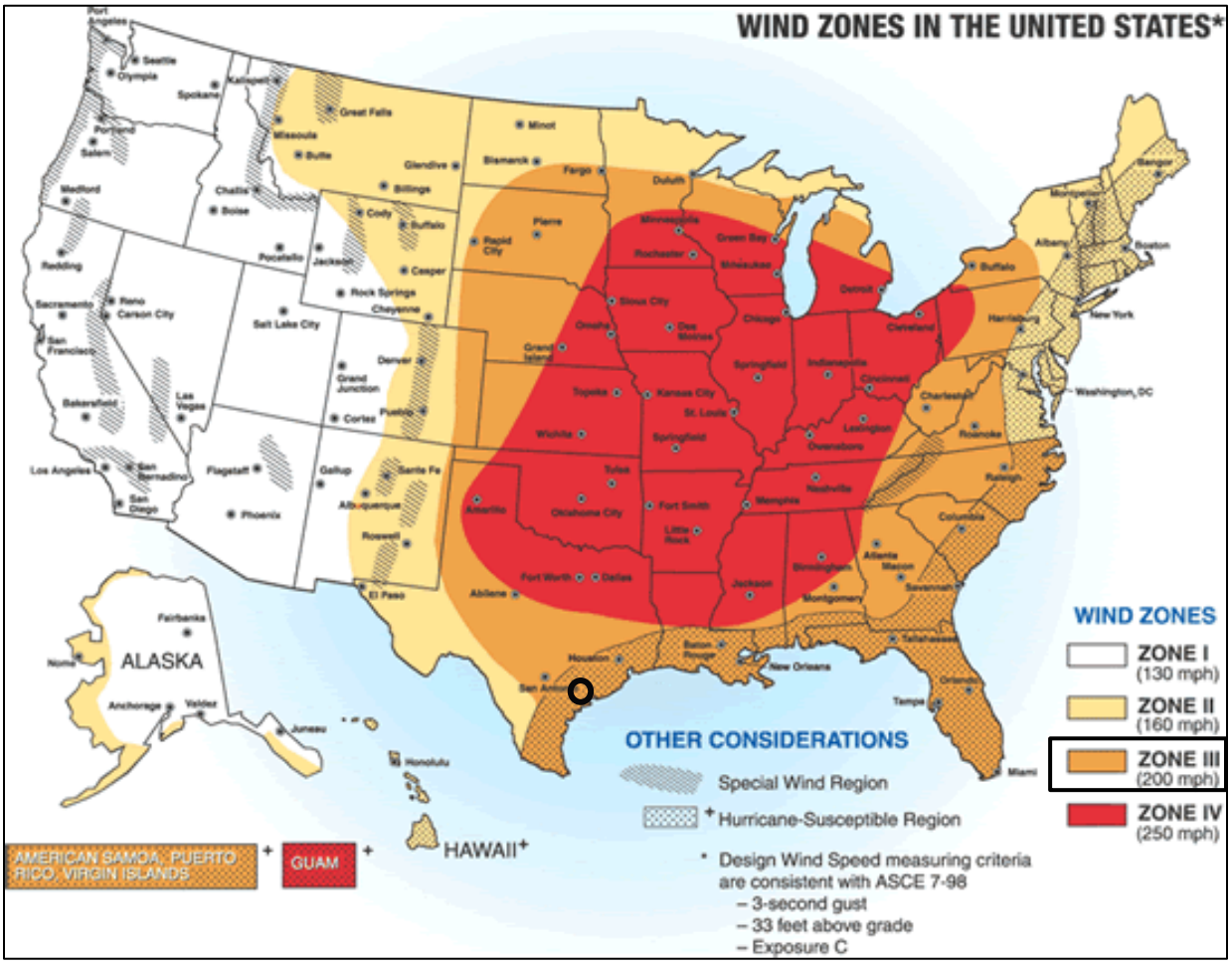
Table 10-1. Beaufort Wind Scale[1]

FORCE	WIND (MHP)	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	4-8	Light Breeze	Wind felt on face, leaves rustle, vanes begin to move
3	9-14	Gentle Breeze	Leaves and small twigs constantly moving, light flags extended
4	15-21	Moderate Breeze	Dust, leaves and loose paper lifted, small tree branches move
5	22-28	Fresh Breeze	Small trees in leaf begin to sway
6	29-36	Strong Breeze	Larger tree branches moving, whistling in wires
7	37-44	Near Gale	Whole trees moving, resistance felt walking against wind
8	45-53	Gale	Whole trees in motion, resistance felt walking against wind
9	54-62	Strong Gale	Slight structural damage occurs, slate blows off roofs
10	63-72	Storm	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	73-83	Violent Storm	If experienced on land, widespread damage
12	84+	Hurricane	Violence and destruction

Figure 10-1 displays the wind zones as derived from NOAA.

[1] Source: World Meteorological Organization

Figure 10-1. Wind Zones in the United States[2]



On average, the planning area experiences one to two thunderstorm wind events every year. The planning area 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 at or above 84 mph. This is the most significant event that can be expected in the future for all participating jurisdictions.

HISTORICAL OCCURRENCES

Tables 10-2, 10-3, and 10-4 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, 133 thunderstorm wind events are known to have impacted the Victoria County planning area, based upon NCEI records. Table 10-3 presents information on known historical events impacting the Victoria County planning area with resulting damages, injuries or fatalities. It is important to note that high wind events associated with other hazards, such as tornadoes, are not accounted for in this section.

[2] Victoria County is indicated by the circle.

SECTION 10: THUNDERSTORM WIND

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 recorded are those that are reported to the NCEI from January 1955 through May 2022 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. Where an estimate has been provided in a table for losses, the dollar amounts have been altered to indicate the damage in 2022 dollars. Historical thunderstorm wind data for all participating jurisdictions are provided on a County-wide basis per the NCEI database.

Table 10-2. Historical Thunderstorm Wind Events 1955-2022[3]

MAXIMUM WIND SPEED RECORDED (MPH)	NUMBER OF REPORTED EVENTS
0-30	32
31-40	1
41-50	18
51-60	66
61-70	13
71-80	1
81-90	2
91-100	0
Unknown	0

Table 10-3. Historical Thunderstorm Wind Events, 1955-2022[4]

JURISDICTION	DATE	TIME	MAGNITUDE (MPH)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Victoria	4/30/1993	4:05 PM	0	0	0	$0	$1,028
Victoria County	5/5/1993	6:15 PM	0	0	0	$0	$1,027
City of Victoria	5/31/1993	12:10 AM	0	0	0	$0	$1,027
City of Victoria	5/31/1993	12:25 AM	0	0	0	$0	$10,269
City of Victoria	5/31/1993	12:30 AM	0	0	0	$10,269	$1,027
City of Victoria	5/31/1993	12:35 AM	0	0	0	$102,695	$0

[3] Historical events are reported from January 1955 through May 2022.
[4] Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2022 dollars.

SECTION 10: THUNDERSTORM WIND

JURISDICTION	DATE	TIME	MAGNITUDE (MPH)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
City of Victoria	5/13/1994	3:25 PM	53	0	0	$10,040	$10,040
Victoria County	5/30/1994	12:58 AM	0	0	0	$10,040	$10,040
City of Victoria	5/30/1994	1:20 AM	0	0	0	$10,040	$10,040
Victoria County	5/15/2010	6:00 AM	52	0	0	$679	$0
Victoria County	1/9/2011	4:40 AM	61	0	0	$67,243	$0
Victoria County	1/9/2011	4:23 AM	52	0	0	$13,449	$0
Victoria County	1/9/2011	4:36 AM	61	0	0	$134,487	$0
Victoria County	1/9/2011	4:40 AM	61	0	0	$33,622	$0
City of Victoria	8/25/2011	12:30 PM	52	0	0	$13,073	$0
Victoria County	8/25/2011	12:47 PM	55	0	0	$13,073	$0
City of Victoria	8/25/2011	12:40 PM	43	0	0	$6,537	$0
City of Victoria	3/19/2012	5:15 AM	52	0	0	$25,822	$0
Victoria County	5/10/2012	10:46 PM	52	0	0	$32,218	$128,874
City of Victoria	6/7/2012	5:20 PM	52	0	0	$64,531	$0
Victoria County	6/26/2012	6:20 PM	52	0	0	$6,453	$0
City of Victoria	3/9/2016	9:05 AM	52	0	0	$12,437	$0
City of Victoria	3/9/2016	9:09 AM	52	0	0	$6,219	$0
City of Victoria	3/9/2016	8:55 AM	52	0	0	$6,219	$0
City of Victoria	7/15/2017	4:25 PM	56	0	0	$12,099	$0
City of Victoria	7/15/2017	5:25 PM	52	0	0	$30,248	$0
Victoria County	4/7/2019	7:49 AM	52	0	0	$5,795	$0
Victoria County	4/7/2019	7:50 AM	52	0	0	$5,795	$0
Victoria County	4/7/2019	8:10 AM	50	0	0	$5,795	$0
Victoria County	8/23/2019	4:06 PM	50	0	0	$5,772	$0
Victoria County	9/6/2020	6:20 PM	52	0	0	$28,447	$0
Victoria County	6/5/2021	6:40 PM	52	0	0	$10,901	$0
Victoria County	6/14/2021	4:48 PM	52	0	0	$10,901	$0

JURISDICTION	DATE	TIME	MAGNITUDE (MPH)	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	6/14/2021	4:25 PM	52	0	0	$32,702	$0
City of Victoria	5/22/2022	1:55 AM	52	0	0	$10,133	$0
City of Victoria	5/22/2022	2:00 AM	52	0	0	$2,027	$0
Victoria County	5/25/2022	12:47 AM	56	0	0	$10,133	$0
City of Victoria	5/25/2022	12:47 AM	56	0	0	$1,013	$0
TOTALS			**(Max Extent)**	**0**	**0**	**$750,905**	**$173,371**

Table 10-4. Summary of Historical Thunderstorm Wind Events, 1955-2022

JURISDICTION	NUMBER OF EVENTS	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	81	87 mph	0	0	$427,504	$139,940
City of Victoria	52	66 mph	0	0	$323,401	$33,431
TOTAL LOSSES	**133**	**(Max Extent)**	**0**	**0**	**$924,276**	

Based on the list of historical thunderstorm wind events for Victoria County and City of Victoria (listed above) 17 of the events have occurred since the 2018 Plan.

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 reported of trees damage were made from within the City. The Sheriff's Office reported power lines down on the Upper Mission Valley road.

June 7, 2012 – Victoria County, 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.

June 14, 2021 – Victoria County, City of Victoria
A weak boundary moved into southeast Texas during the morning of the 14th. Storms formed along this boundary and moved southwest along the Texas coast. The storms moved into a region of higher instability in the afternoon over the Middle Texas coast. The storms produced wind damage from Victoria and Port Lavaca southwest to Beeville and Lake Corpus Christi. Wind gusts from 60 to 70 mph blew trees and power poles down, broke tree limbs, and caused roof damage.

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 133 events in a 67-year reporting period. This frequency supports 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 Victoria County and City of Victoria.

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 in Victoria County and City of Victoria 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 US Census data indicates a total of 4,150 manufactured homes (approximately 11.1%) located in Victoria County (Table 10-5). In addition, 52.2% (approximately 19,445 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 10-5. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Victoria County[5]	4,150	19,445
City of Victoria	1,652	14,908

While all citizens are at risk to the impacts of thunderstorm wind, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 15.7% of the planning area population live below the poverty level (Table 10-6).

Table 10-6. Populations at Greatest Risk by Jurisdiction[6]

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Victoria County	14,451
City of Victoria	11,921

The following critical facilities would be vulnerable to thunderstorm wind events:

Table 10-7. Critical Facilities at Risk

JURISDICTION	CRITICAL FACILITIES
Victoria County and City of Victoria	1 EOC, 7 Fire Stations, 10 VFD, 4 Law Enforcement Agencies, 5 Government Buildings, 4 Federal Buildings, 5 Schools, 1 Evacuation Center, 2 Safe Rooms, 1 Recovery Center, 3 Hospitals, 1 Municipal Utility District, 2 Water Districts, 5 Public Works Facility, 10 Utility Facilities, 4 Precinct Equipment Barns, 1 Electric Cooperative, 1 Chemical Plant, 2 Compressor Stations, 1 Public Transportation Service, 2 Airports, 4 Commercial Lumber Facilities, 2 Community Food Services, 7 Grocery Distribution Stores, 15 Financial Institutions

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 entire Victoria County planning area would be “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. Overall, the average loss estimate (in 2022 dollars) is $924,276 having an approximate annual loss estimate of $13,795 (Table 10-8).

[5] County totals includes all incorporated jurisdictions and unincorporated areas.
[6] US Census Bureau 2020 American Community Survey data for Victoria County

Table 10-8. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County	$567,444	$8,469
City of Victoria	$356,832	$5,326
Planning Area	**$924,276**	**$13,795**

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.
- 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 11: 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.

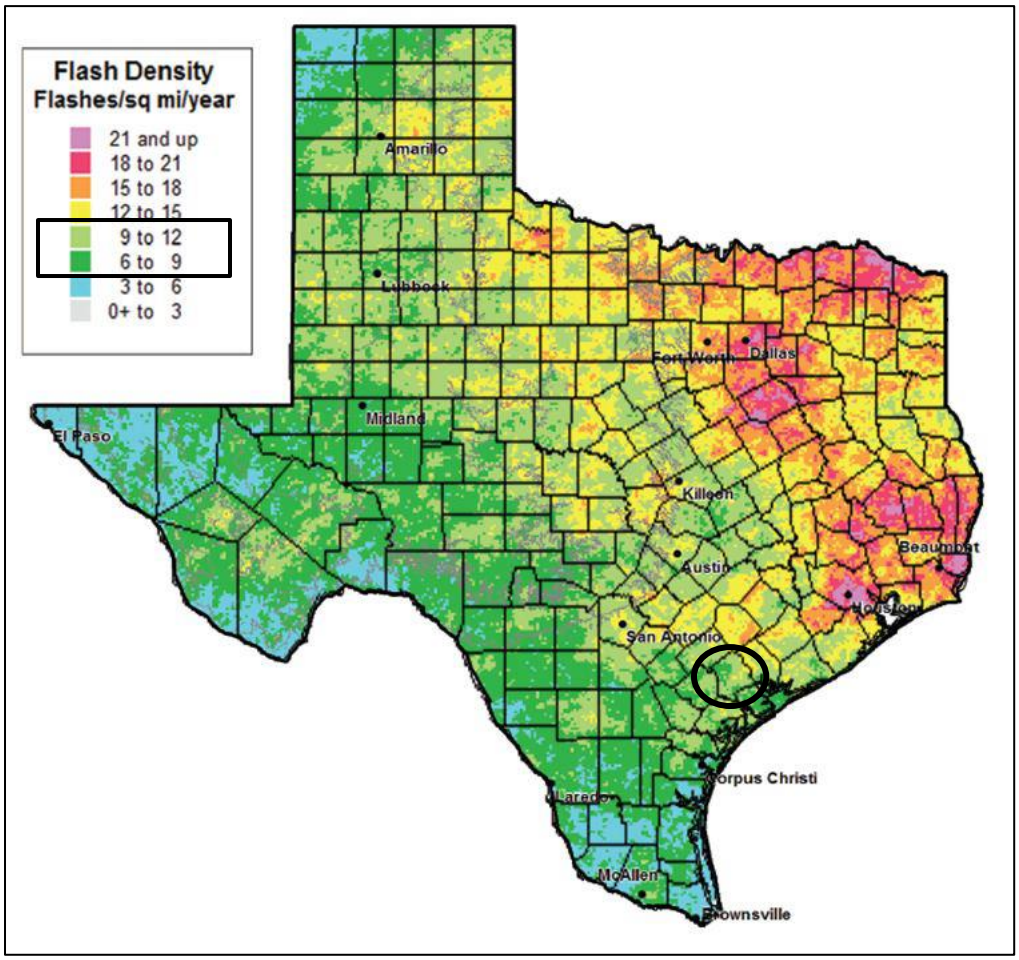
LOCATION

Lightning can strike in any geographic location and is considered a common occurrence in Texas. Victoria County and City of Victoria are 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 and City of Victoria 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 11-1) 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 11-1. 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 11-1).

Table 11-1. 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

LAL	CLOUD & STORM DEVELOPMENT	LIGHTNING STRIKES/ 15 MIN
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
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 flashes per square mile were divided by the number[1] of thunderstorm events that occur annually in the planning area. Victoria County and City of Victoria, 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. The highest being a 3 on the LAL for all participating jurisdictions in the future.

HISTORICAL OCCURRENCES

Since January 1996, there has been six recorded lightning events reported as having impacted the Victoria County Planning Area, based upon NCEI records. It is highly likely multiple 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 and considered a reliable resource for hazards. However, the flash density for the planning area along with input from local team members indicates regular lightning occurrences that simply have not been reported.

Table 11-2. Historical Lightning Events, 1996-2022[2]

JURISDICTION	DATE	TIME	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	5/16/2005	7:00 PM	0	0	$0	$0
Victoria County	8/14/2005	12:30 PM	0	0	$15,080	$0
Victoria County	4/27/2009	5:15 PM	0	0	$1,389	$0
Victoria County	8/25/2011	1:00 PM	0	0	$26,147	$0
Victoria County	9/13/2012	1:20 PM	0	0	$6,399	$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] Historical events are reported from January 1996 through May 31, 2022. Values are in 2022 dollars.

JURISDICTION	DATE	TIME	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	9/17/2014	6:10 PM	0	0	$12,443	$0
TOTALS			**0**	**0**	**$61,458**	

Based on the list of historical lightning events for Victoria County and City of Victoria (listed above), no events have occurred since the 2018 Plan.

SIGNIFICANT PAST EVENTS

August 25, 2011 – Victoria County, City of Victoria

On Thursday afternoon, August 25th, 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 the annual lightning flash density and input from the planning team the probability of occurrence for future lightning events in Victoria County and City of Victoria 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, the Victoria County planning area 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 damage throughout the planning area.

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 damage depending on the strike location. Due to the randomness of these events, all existing and future structures and facilities in the entire Victoria County planning area could potentially be impacted and remain vulnerable to possible injury and property loss from lightning strikes.

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 and City of Victoria 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.

The entire general building stock and all infrastructure of Victoria County and City of Victoria 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.

SECTION 11: LIGHTNING

While all citizens are at risk to the impacts of lightning, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 15.7% of the planning area population live below the poverty level (Table 11-3).

Table 11-3. Populations at Greatest Risk by Jurisdiction[3]

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Victoria County	14,451
City of Victoria	11,921

The following critical facilities would be vulnerable to lightning events:

Table 11-4. Critical Facilities

JURISDICTION	CRITICAL FACILITIES
Victoria County and City of Victoria	1 EOC, 7 Fire Stations, 10 VFD, 4 Law Enforcement Agencies, 5 Government Buildings, 4 Federal Buildings, 5 Schools, 1 Evacuation Center, 2 Safe Rooms, 1 Recovery Center, 3 Hospitals, 1 Municipal Utility District, 2 Water Districts, 5 Public Works Facility, 10 Utility Facilities, 4 Precinct Equipment Barns, 1 Electric Cooperative, 1 Chemical Plant, 2 Compressor Stations, 1 Public Transportation Service, 2 Airports, 4 Commercial Lumber Facilities, 2 Community Food Services, 7 Grocery Distribution Stores, 15 Financial Institutions

Impact of lightning experienced in Victoria County and City of Victoria has resulted in no injuries or fatalities. Impact of lightning events experienced in Victoria County and City of Victoria 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 and city (in 2022 dollars) is $61,458, having an approximate annual loss estimate of $2,364 (Table 11-5).

Table 11-5. Potential Annualized Losses for Victoria County

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATE
Victoria County	$61,458	$2,364
City of Victoria	$0	$0
Planning Area	**$61,458**	**$2,458**

[3] US Census Bureau 2020 American Community Survey data for Victoria County.

SECTION 11: LIGHTNING

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. The impact of climate change could produce more frequent and severe lightning events, exacerbating the current lightning impacts. Additional 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.
- 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 12: 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 and City of Victoria 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 12-1, Victoria County and City of Victoria are located in USDA Hardiness Zones 8b and 9a, with annual minimum temperatures between 15° and 25°. During times of ice and snow accumulation, response times will increase until public works road crews are able to make major roads passable. Table 12-1 describes the types of winter storms possible to occur in Victoria County and City of Victoria.

Figure 12-1. Annual Minimum Temperature

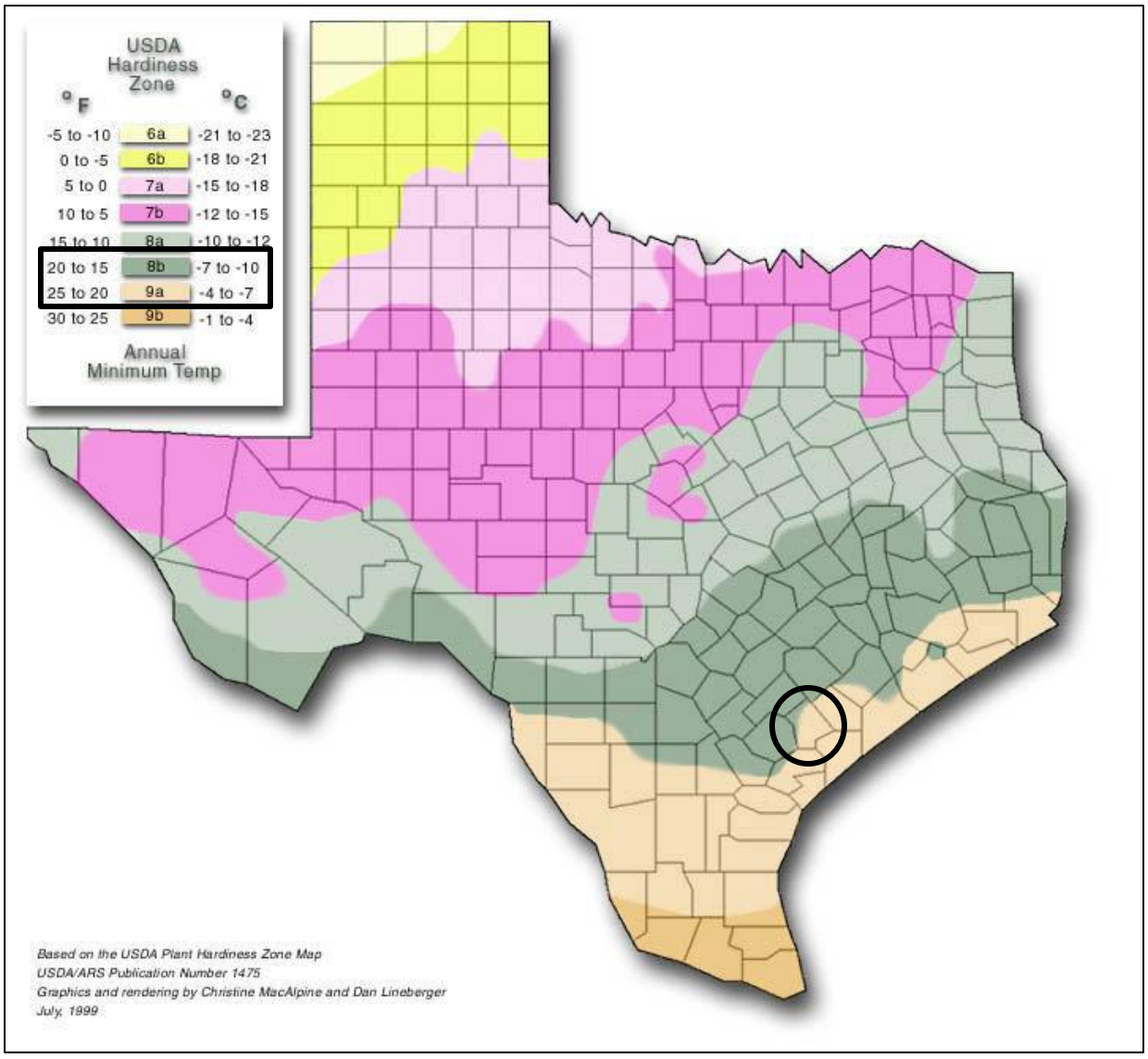


Table 12-1. Types of Winter Storms

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.

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 Victoria County and City of Victoria are considered to be exposed to a winter storm hazard and could potentially be impacted.

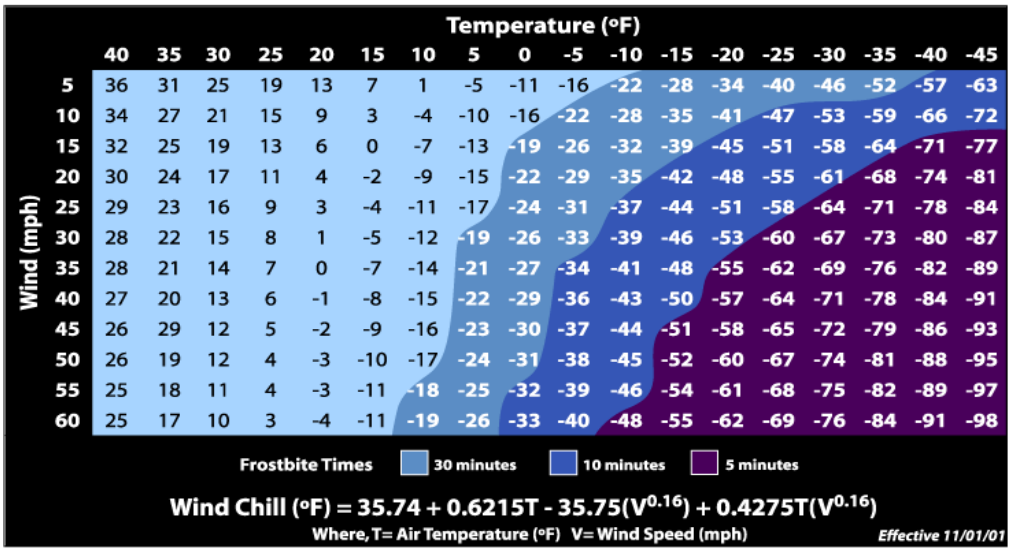
EXTENT

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 12-2. Table 12-2 should be read in conjunction with the wind-chill factor described in Figure 12-2 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 12-2. 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 12-2. Wind Chill Chart



Wind (mph)	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	29	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

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. Victoria County and City of Victoria has never experienced a blizzard, but based on 13 previous occurrences recorded from 1996 through May 2022, 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. 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 12-2. The entire Victoria County planning area can expect anywhere between 0.1 to 3.0 inches of ice and snow during a winter storm event and temperatures between 15 and 25 degrees with winds ranging from 0 to 20 mph. This is the worst that can be anticipated to mitigate against in the future for all participating jurisdictions.

HISTORICAL OCCURRENCES

Table 12-3 shows historical occurrences for Victoria County from 1996 through May 2022 provided by the NCEI database. There have been 13 recorded winter storm events in Victoria County, including City of Victoria. 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 and city are provided on a County-wide basis per the NCEI database. Table 12-3 shows historical incident information for the planning area.

Table 12-3. Historical Winter Storm Events, 1996-2022[1]

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	$63,307	$0
Victoria County	12/7/2017	0	0	$0	$0
Victoria County	2/14/2021	0	0	$0	$0
Victoria County	2/14/2021	0	0	$0	$0
Victoria County	2/16/2021	0	0	$0	$0
Victoria County	2/3/2022	0	0	$0	$0
TOTALS		**0**	**0**	**$63,307**	

Based on the list of historical winter storm events for Victoria County and City of Victoria (listed above) 5 of the events have occurred since the 2018 Plan.

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 freezing 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

[1] Values are in 2022 dollars. Historical events are reported from January 1996 through May 31, 2022.

Regional Airport. Power outages were also reported. Ice accumulations on overpasses caused several motor vehicle accidents on the north side of Victoria.

February 14, 2021 – Victoria County
Arctic air mass moved into south Texas on February 11th. The cold air deepened over the region on the 14th. A deep upper trough was over Texas with a strong upper-level jet moving into south Texas late on the 14th and during the morning hours of the 15th. Freezing rain developed during the afternoon over south Texas. The freezing rain changed to snow during the evening of the 14th and continued during the morning hours of the 15th across northern portions of the Brush Country to the Victoria Crossroads. Snow accumulations of 1 to 2 inches occurred across the northern part of the county.

February 4, 2022 – Victoria County
Arctic air mass surged into south Texas on February 3rd and continued through the 5th. Areas of freezing rain and sleet occurred over the Victoria Crossroads on the afternoon and evening of the 3rd. Temperatures fell by the morning of the 4th to the lower 20s in the Victoria Crossroads to around 30 along the coast and along the Rio Grande. With strong winds, wind chill temperatures fell to around 10 degrees to the upper teens on the morning of the 4th. Arctic air remained over the region on the 4th with temperatures falling to the upper teens to upper 20s on the morning of the 5th. The long duration cold spell affected the green turtle population along the Middle Texas coast. Agencies rescued cold stunned turtles along the coast. Over 220 green turtles were rescued while 8 turtles were found dead. A boil water notice was issued for the North Victoria Utilities due to power outages that affected 234 people.

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 Victoria County and City of Victoria is highly likely, with a winter storm likely to occur within the next year.

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 and City of Victoria are vulnerable to severe winter events.

The following critical facilities would be vulnerable to Winter Storm events:

Table 12-4. Critical Facilities

JURISDICTION	CRITICAL FACILITIES
Victoria County and City of Victoria	1 EOC, 7 Fire Stations, 10 VFD, 4 Law Enforcement Agencies, 5 Government Buildings, 4 Federal Buildings, 5 Schools, 1 Evacuation Center, 2 Safe Rooms, 1 Recovery Center, 3 Hospitals, 1 Municipal Utility District, 2 Water Districts, 5 Public Works Facility, 10 Utility Facilities, 4 Precinct Equipment Barns, 1 Electric Cooperative, 1 Chemical Plant, 2 Compressor Stations, 1 Public Transportation Service, 2 Airports, 4 Commercial Lumber Facilities, 2 Community Food Services, 7 Grocery Distribution Stores, 15 Financial Institutions

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. In addition, populations living below the poverty level may not be able to afford to run heat on a regular basis

Population over 65 in the entire Victoria County planning area is estimated at 16.1% of the total population or an estimated total of 14,847 potentially vulnerable residents in the planning area based on age. Children under five in the planning area is estimated at 6.9%, or approximately 6,387. An estimated 15.7% of the planning area population live below the poverty level (Table 12-5).

Table 12-5. Population at Greater Risk by Jurisdiction[2]

JURISDICTION	POPULATION 65 AND OLDER	POPULATION UNDER 5	POPULATION BELOW POVERTY LEVEL
Victoria County	14,847	6,387	14,451
City of Victoria	9,926	4,983	11,921

Historic loss, in 2022 dollars, is estimated at $63,307 in damages over the 26-year recording period giving an approximate loss of $2,435 in damages annually (Table 12-6). The potential severity of impact for Victoria County and City of Victoria, 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.

Table 12-6. Potential Annualized Losses for Victoria County Planning Area

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County	$63,307	$2,435

[2] US Census Bureau 2020 American Community Survey data for Victoria County

SECTION 12: WINTER STORM

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 young children, 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.
- 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 13: 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 13-1. Variations among Tornadoes

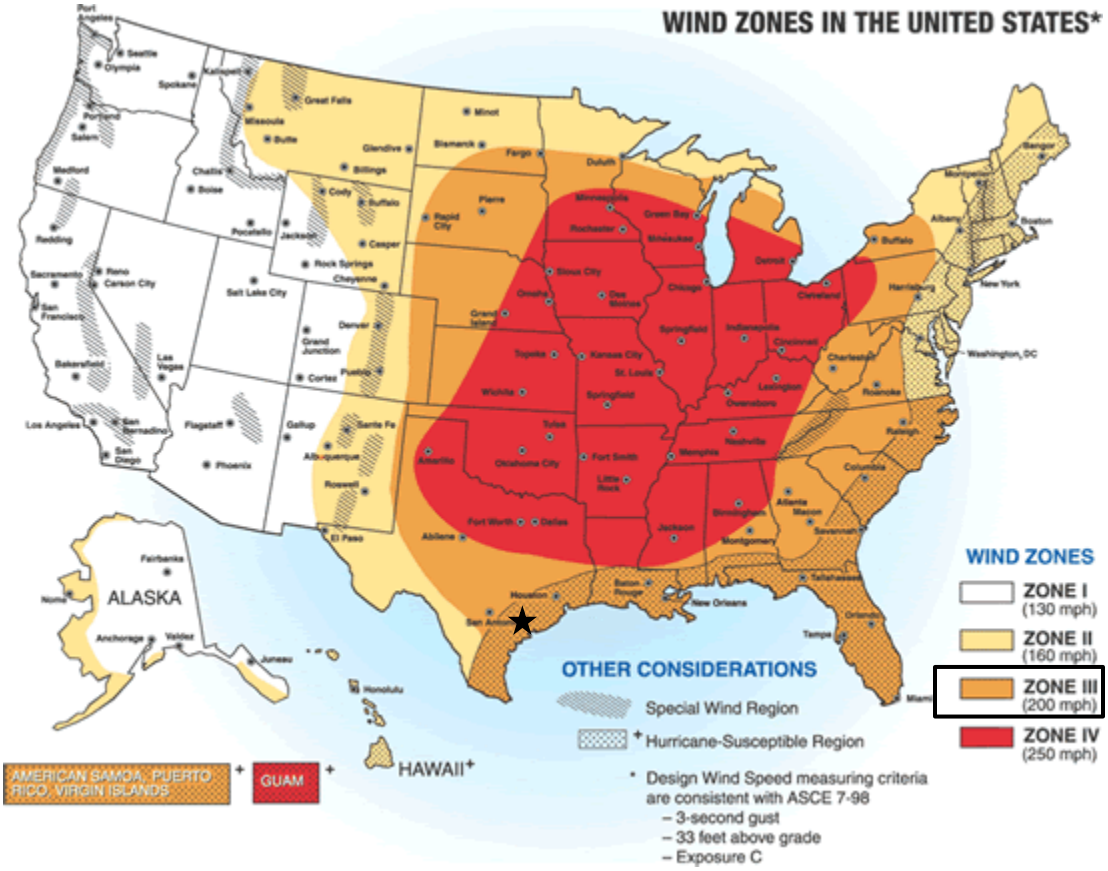
WEAK TORNADOES	STRONG TORNADOES	VIOLENT TORNADOES
• 69% of all tornadoes • Less than 5% of tornado deaths • Lifetime 1-10+ minutes • Winds less than 110 mph	• 29% of all tornadoes • Nearly 30% of all tornado deaths • May last 20 minutes or longer • Winds 110 – 205 mph	• 2% of all tornadoes • 70% of all 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 Victoria County planning area uniformly. It is assumed that the entire Victoria County and City of Victoria

are uniformly exposed to tornado activity. The entire Victoria County planning area is located in Wind Zone III (Figure 13-1), where tornado winds can be as high as 200 mph.

Figure 13-1. 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 13-2. 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%

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

SECTION 13: TORNADO

Tornado magnitudes prior to 2005 were determined using the traditional version of the Fujita Scale (Table 13-2). Since February 2007, the Fujita Scale has been replaced by the Enhanced Fujita Scale (Table 13-3), 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.

Table 13-3. 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 an F3 on the Fujita Scale, a “Severe Tornado.” Based on the planning area’s location in Wind Zone III, the planning area could experience anywhere from an EF0 to EF4 depending on the wind speed.

The events in Victoria County have been between EF0 and EF5 (Table 13-4). Therefore, the range of intensity that Victoria County and City of Victoria would be expected to mitigate is a tornado event that would be a low to severe risk, an EF0 to EF5. Historically, the strongest tornado to strike the planning area was an F3, which would be an EF5 on the Enhanced Fujita Scale with the highest wind speed. This is the strongest event the planning area can anticipate in the future.

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 68 years. Historical tornado data for the county and city are provided within a jurisdiction-wide basis per the NCEI database.

Figure 13-2 identifies the locations of previous occurrences in the Victoria County planning area from 1954 through May 2022. A total of 46 events have been recorded by the Storm Prediction Center (NOAA) and NCEI databases for the entire Victoria County and City of Victoria.

Figure 13-2. Spatial Historical Tornado Events, 1954-2022[3]

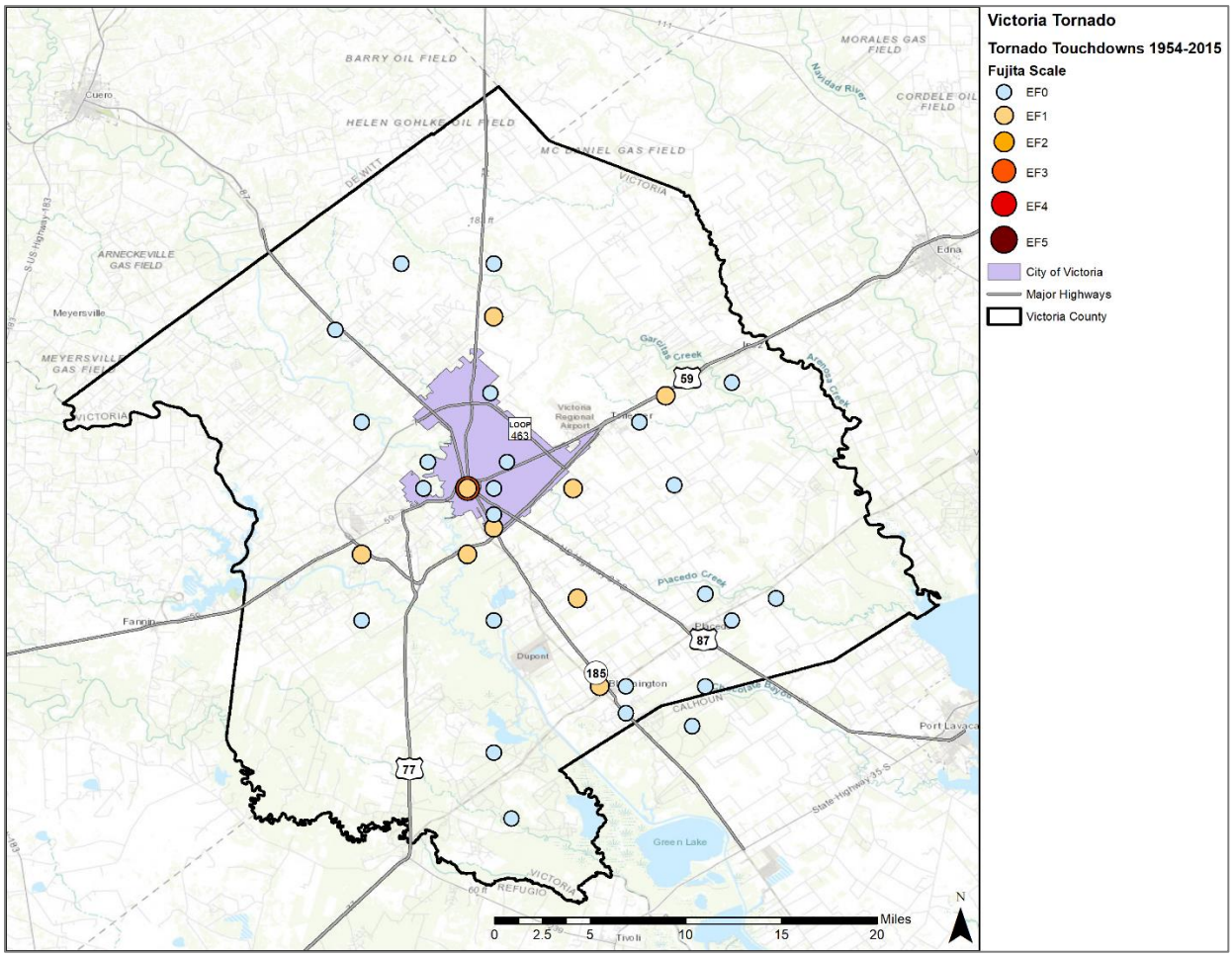


Table 13-4. Historical Tornado Events, 1954-2022[4]

JURISDICTION	DATE	TIME	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	10/22/1954	5:00 PM	F1	0	1	$276,279	$0
Victoria County	6/9/1961	2:30 PM	F0	0	0	$2,485	$0
Victoria County	4/27/1962	6:15 AM	F1	0	0	$245,175	$0
Victoria County	9/20/1967	3:00 AM	Unknown	0	1	$220,365	$0
Victoria County	9/20/1967	4:40 PM	Unknown	0	0	$2,204	$0
Victoria County	11/5/1968	8:30 PM	F3	0	2	$2,091,603	$0
Victoria County	4/11/1969	5:10 AM	F1	0	0	$2,040	$0

[3] Historical events are reported from January 1954 through May 2022. Source: NOAA Records
[4] Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2022 dollars.

JURISDICTION	DATE	TIME	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	5/10/1972	5:05 AM	F1	0	0	$17,799	$0
Victoria County	9/4/1975	6:05 PM	F0	0	0	$1,356	$0
Victoria County	10/15/1975	12:11 PM	F0	0	0	$1,349	$0
Victoria County	5/7/1976	10:50 AM	F1	0	0	$131,049	$0
Victoria County	8/10/1980	8:30 AM	F1	0	0	$88,887	$0
Victoria County	10/18/1981	9:53 PM	F0	0	0	$7,927	$0
Victoria County	5/13/1982	12:50 PM	F1	0	0	$772,889	$0
Victoria County	3/26/1983	4:00 AM	F0	0	0	$75,631	$0
Victoria County	3/12/1984	4:00 AM	F0	0	1	$72,166	$0
Victoria County	5/18/1993	1:00 PM	F0	0	0	$1,027	$0
Victoria County	11/20/2004	7:25 PM	F1	0	0	$38,766	$0
TOTALS			**(Max Extent)**	**0**	**5**	**$4,048,996**	**$0**

Table 13-5. Summary of Historical Events, 1954-2022[5]

JURISDICTION	NUMBER OF EVENTS	MAGNITUDE	DEATHS	INJURIES	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	40	F3	0	5	$4,048,996	$0
City of Victoria	6	EF0	0	0	$0	$0
TOTAL LOSSES	**46**	**(Max Extent)**	**0**	**5**	**$4,048,996**	

Based on the list of historical tornado events for the Victoria County planning area (listed above) no events have occurred since the 2018 Plan.

SIGNIFICANT EVENTS

November 20, 2004 – Victoria County

A NWS survey concluded an HP supercell produced a tornado in the Hidden Valley subdivision, just west of Docasta and approximately 6 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 2 miles.

[5] Damages reported in 2022 dollars.

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 and City of Victoria, can experience a tornado touchdown approximately once every year. This frequency supports a highly likely probability of future events for Victoria County and City of Victoria.

VULNERABILITY AND IMPACT

Because tornadoes often cross jurisdictional boundaries, all existing and future buildings, facilities, and populations in the entire Victoria County and City of Victoria 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 residents and visitors, as well as to patients in hospitals.

Victoria County and City of Victoria feature multiple mobile or manufactured home parks throughout the planning area. 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 areas of the county which would also be more vulnerable.

The US Census data indicates a total of 4,150 manufactured homes located in the Victoria County planning area (11.1%), including all jurisdictions and unincorporated areas of the county (Table 13-6). In addition, 52.2% (approximately 19,445 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 damage during significant tornado events.

Table 13-6. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Victoria County[6]	4,150	19,445
City of Victoria	1,652	14,908

While all citizens are at risk to the impacts of a tornado, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 15.7% of the planning area population live below the poverty level (Table 13-7).

Table 13-7. Populations at Greatest Risk by Jurisdiction[7]

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Victoria County	14,451
City of Victoria	11,921

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

Table 13-8. Critical Facilities at Risk

JURISDICTION	CRITICAL FACILITIES
Victoria County and City of Victoria	1 EOC, 7 Fire Stations, 10 VFD, 4 Law Enforcement Agencies, 5 Government Buildings, 4 Federal Buildings, 5 Schools, 1 Evacuation Center, 2 Safe Rooms, 1 Recovery Center, 3 Hospitals, 1 Municipal Utility District, 2 Water Districts, 5 Public Works Facility, 10 Utility Facilities, 4 Precinct Equipment Barns, 1 Electric Cooperative, 1 Chemical Plant, 2 Compressor Stations, 1 Public Transportation Service, 2 Airports, 4 Commercial Lumber Facilities, 2 Community Food Services, 7 Grocery Distribution Stores, 15 Financial Institutions

The average loss estimate of property and crop is $4,048,996 (in 2022 dollars), having an approximate annual loss estimate of $59,544 (Table 13-9). Based on historic loss and damages, the impact of tornado on the Victoria County planning area, including the City of Victoria, 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.

[6] County totals includes all incorporated jurisdictions and unincorporated areas.
[7] US Census Bureau 2020 American Community Survey data for Victoria County

Table 13-8. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATES
Victoria County	$4,048,996	$59,544
City of Victoria	$0	$0
Planning Area	**$4,048,996**	**$59,544**

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 14: 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, Victoria County and City of Victoria 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 14-1.

Table 14-1. 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 14-1 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, Victoria County and City of Victoria may experience hailstorms ranging from an H0 to an H7. The County and City can mitigate a storm from low risk or hard hail to very destructive with golf ball size hail that leads to severe roof damage and risk of serious injuries. The largest hail event in Victoria County and City of Victoria resulted in hail measuring 2.75 inches in diameter, or a H7, which is considered very destructive. This is the worst extent the planning area can anticipate in the future.

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

HISTORICAL OCCURRENCES

Historical evidence shown in Figure 14-1 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 14-2. A total of 99 reported historical hail events impacted Victoria County and City of Victoria between January 1960 and May 2022 (Summary Table 14-3). These events were reported to NCEI and NOAA databases and may not represent all hail events to have occurred during the past 62 years. Only those events for Victoria County and City of Victoria with latitude and longitude available were plotted (Figure 14-1).

Figure 14-1. Spatial Historical Hail Events, 1960-2022[2]

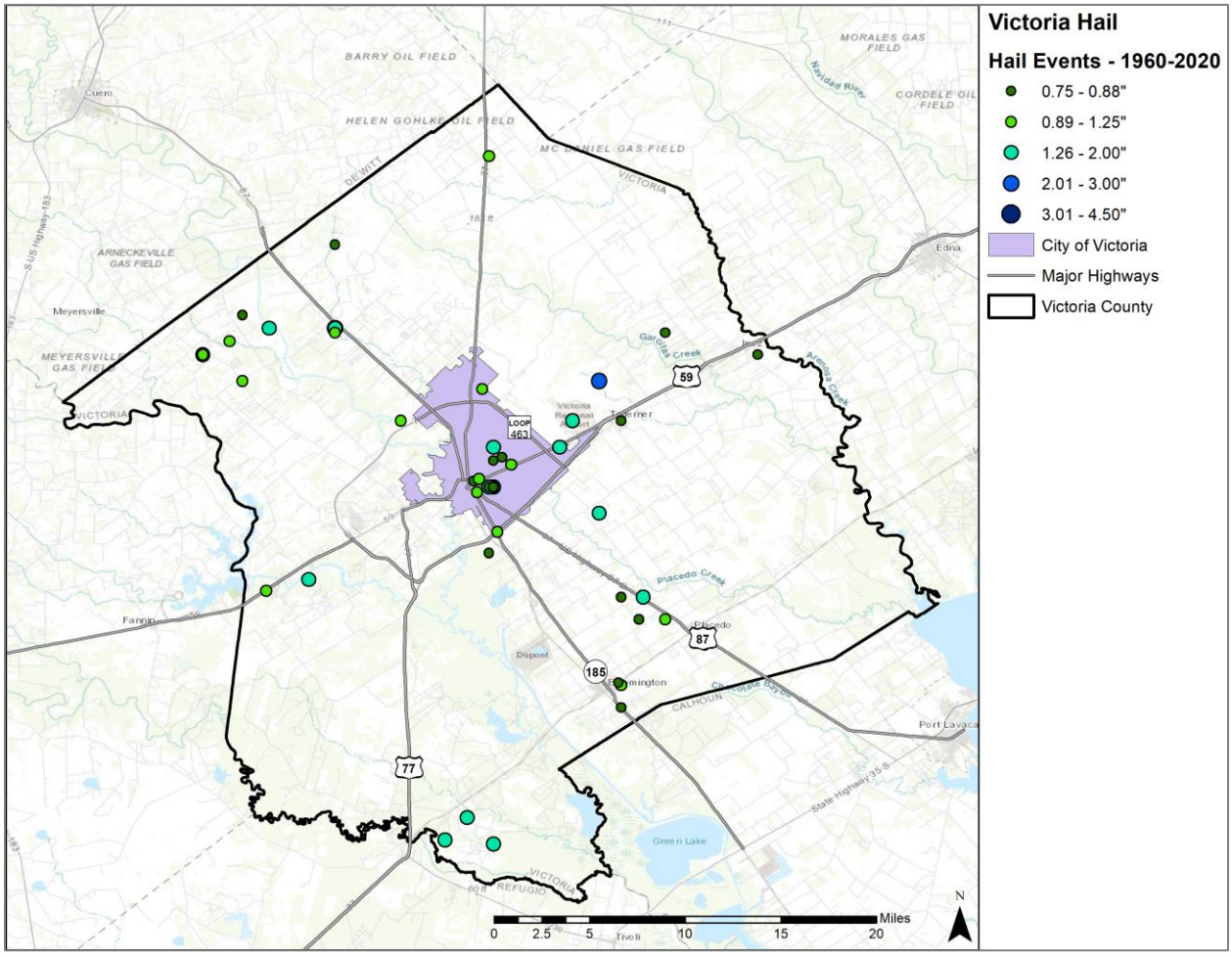


Table 14-2. Historical Hail Events, 1960-2022[3]

JURISDICTION	DATE	MAGNITUDE	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	4/15/1994	1.75	0	0	$100,465	$100,465
Victoria County	4/15/1994	1.75	0	0	$100,465	$100,465

[2] Historical events reported from January 1960 through May 2022.
[3] Only recorded events with fatalities, injuries, and/or damages are listed.

JURISDICTION	DATE	MAGNITUDE	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	5/12/1994	0.88	0	0	$10,040	$10,040
City of Victoria	4/15/2012	1	0	0	$12,872	$0
TOTALS		**(Max Extent)**	**0**	**0**	**$223,842**	**$210,970**

Table 14-3. Historical Hail Events Summary, 1960-2022

JURISDICTION	NUMBER of EVENTS	MAGNITUDE	INJURIES	DEATHS	PROPERTY DAMAGE	CROP DAMAGE
Victoria County	58	2.75 inches	0	0	$210,970	$210,970
City of Victoria	41	2.75 inches	0	0	$12,872	$0
TOTAL LOSSES	**99**	**(Max Extent)**	**0**	**0**	**$434,812**	

Based on the list of historical hail events for Victoria County and City of Victoria, 3 of the events have occurred since the 2018 Plan.

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 hail up to golf ball size 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 County, producing quarter-sized hail in Duval County. Stripes Convenience store employee reported quarter-sized hail at U.S. Highway 59 and North Laurent Street.

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, 99 events in a 62-year reporting period for Victoria County provides a probability of one or two events per year. This frequency supports a highly likely probability of future events for Victoria County and City of Victoria.

VULNERABILITY AND IMPACT

Damage from hail approaches 1 billion dollars 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 critical facilities would be vulnerable and could be damaged. Hail could cause a significant threat to people as they could be struck by hail and falling trees and branches. Outdoor activities and events may elevate the risk to residents and visitors when a hailstorm strikes with little warning. Portable buildings typically utilized by schools and commercial sites such as construction areas would be more vulnerable to hail events than the typical site-built structures.

Victoria County and City of Victoria feature 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 which would also be more vulnerable. The US Census data indicates a total of 4,150 (11.1%) manufactured homes located in Victoria County, (Table 14-4). In addition, 52.2% (approximately 19,445 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 damage during significant hail events.

Table 14-4. Structures at Greater Risk by Jurisdiction

JURISDICTION	MANUFACTURED HOMES	SFR STRUCTURES BUILT BEFORE 1980
Victoria County[4]	4,150	19,445
City of Victoria	1,652	14,908

While all citizens are at risk to the impacts of hail, forced relocation and disaster recovery drastically impacts low-income residents who lack the financial means to travel, afford a long-term stay away from home, and to rebuild or repair their homes. An estimated 15.7% of the planning area population live below the poverty level (Table 14-5).

Table 14-5. Populations at Greatest Risk by Jurisdiction[5]

JURISDICTION	POPULATION BELOW POVERTY LEVEL
Victoria County	14,451
City of Victoria	11,921

The following critical facilities would be vulnerable to hail events:

Table 14-6. Critical Facilities at Risk

JURISDICTION	CRITICAL FACILITIES
Victoria County and City of Victoria	1 EOC, 7 Fire Stations, 10 VFD, 4 Law Enforcement Agencies, 5 Government Buildings, 4 Federal Buildings, 5 Schools, 1 Evacuation Center, 2 Safe Rooms, 1 Recovery Center, 3

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

[5] US Census Bureau 2020 American Community Survey data for Victoria County

JURISDICTION	CRITICAL FACILITIES
	Hospitals, 1 Municipal Utility District, 2 Water Districts, 5 Public Works Facility, 10 Utility Facilities, 4 Precinct Equipment Barns, 1 Electric Cooperative, 1 Chemical Plant, 2 Compressor Stations, 1 Public Transportation Service, 2 Airports, 4 Commercial Lumber Facilities, 2 Community Food Services, 7 Grocery Distribution Stores, 15 Financial Institutions

Hail has been known to cause injury to humans and occasionally has been fatal. Overall, the average loss estimate of property and crops (in 2022 dollars) is $434,812, having an approximate annual loss estimate of $7,013. Based on historic loss and damages, the impact of hail damages on Victoria County and City of Victoria, 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.

Table 14-7. Potential Annualized Losses by Jurisdiction

JURISDICTION	PROPERTY & CROP LOSS	ANNUAL LOSS ESTIMATE
Victoria County	$421,940	$6,806
City of Victoria	$12,872	$208
Planning Area	**$434,812**	**$7,013**

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 15: DAM AND LEVEE FAILURE

Portions of the Victoria County and City of Victoria Hazard Mitigation Plan are considered confidential and not for release to the public. The information in this section is covered under Privacy Act of 1974 (5 U.S.C. Section 552a).

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. This involved utilizing the results of both assessments and reviewing the goals and objectives that were included in the previous 2018 Plan Update. At the Mitigation Workshop in January 2022, Planning Team members reviewed the mitigation strategy from the previous 2018 Plan Update. The consensus among all members present was that the strategy developed for the 2018 Plan did not require changes, as it identified overall improvements to be sought in the Plan Update. However, the order and priority of the goals and objectives were reorganized.

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 and city 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.

SECTION 16: MITIGATION STRATEGY

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: PREVIOUS ACTIONS

SUMMARY

Planning Team members were given copies of the previous mitigation actions submitted in the 2018 Plan at the mitigation workshop. Victoria County and City of Victoria reviewed the previous actions and provided an analysis as to whether the action had been completed, should be deferred as an ongoing activity, or be deleted from the Plan Update. The actions from the 2018 Plan are included in this section as they were written in 2018, with the exception of the “2023 Analysis” section.

VICTORIA COUNTY

	Victoria County– Action #1
Proposed Action:	Provide additional means of access into single entry riverine basins/public lands.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

		Victoria County– Action #2
	Proposed Action:	Purchase and implement enhanced area-wide emergency notification system.
	BACKGROUND INFORMATION	
	Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

		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	
	Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

	Victoria County– Action #4
Proposed Action:	Purchase and install rainwater collection systems at precinct barns and other county facilities.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

		Victoria County– Action #5
	Proposed Action:	Install emergency generators and quick connects on all public buildings, critical infrastructure, and government buildings.
	BACKGROUND INFORMATION	
	Site and 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 Systems 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

2023 ANALYSIS:
Completed and Defer to Plan Update.

SECTION 17: PREVIOUS ACTIONS

		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	
	Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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 Improvement Plan

2023 ANALYSIS:
Defer to Plan Update.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Completed and Defer to Plan Update. Completed erosion control project along Guadalupe River in March 2019 for $1,060,000 with funding from NRCS and City participation.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update.

SECTION 17: PREVIOUS ACTIONS

	Victoria County– Action #11
Proposed Action:	Implement a voluntary acquisition program for repetitive flood properties.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action location to be updated to include additional site locations.

SECTION 17: PREVIOUS ACTIONS

	Victoria County– Action #12
Proposed Action:	Improve drainage around County EOC and flood- proof facilities as necessary.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action location to be updated.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Completed and Defer to Plan Update. Completed on SWTP in 2021 for $150,000.

SECTION 17: PREVIOUS ACTIONS

	Victoria County– Action #14
Proposed Action:	Implement safe room construction practices within new county buildings to prevent injuries and protect property.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

		Victoria County– Action #15
	Proposed Action:	Upgrade existing 911, PSAP, and communication systems to eliminate duplications and system failures.
	BACKGROUND INFORMATION	
	Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update.

	Victoria County– Action #18
Proposed Action:	Strengthen and improve emergency response and recovery through the purchase of specialized equipment.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

		Victoria County– Action #19
	Proposed Action:	Purchase and install tornado sirens.
	BACKGROUND INFORMATION	
	Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

	Victoria County– Action #20
Proposed Action:	Implement program to reduce fuel loads/fuels reduction program to reduce wildfire risk.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

	Victoria County– Action #21
Proposed Action:	Establish, adopt, and implement burning standards throughout the community.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

	Victoria County– Action #22
Proposed Action:	Properly train personnel on wildland firefighting techniques and equip with fast attack vehicles.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

	Victoria County– Action #25
Proposed Action:	Purchase and implement enhanced county wide rain intensity and river forecasting capability equipment.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

		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	
	Site and Location:	County-wide incorporated and unincorporated address
	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 Systems 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

2023 ANALYSIS:
Delete Action.

		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	
	Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

		Victoria County– Action #31
	Proposed Action:	Study, design, develop, enhanced, and rehab water, wastewater, surface water reservoirs, water wells, lift stations, and aqua storage recovery systems.
	BACKGROUND INFORMATION	
	Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

		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	
	Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update.

SECTION 17: PREVIOUS ACTIONS

		Victoria County– Action #33
	Proposed Action:	Acquire/build survivable location for Victoria County Fire Department responders & apparatuses.
	BACKGROUND INFORMATION	
	Site and Location:	Victoria County
	Risk Reduction Benefit (Current 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update.

	Victoria County– Action #34
Proposed Action:	Incorporate hazard mitigation practices and education for pandemic response in all public buildings.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

		Victoria County– Action #36
	Proposed Action:	Hardening of public building and critical infrastructure from severe winter events.
	BACKGROUND INFORMATION	
	Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be updated.

CITY OF VICTORIA

	City of Victoria– Action #1
Proposed Action:	Provide additional means of access into single entry neighborhoods.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

	City of Victoria– Action #2
Proposed Action:	Purchase and implement enhanced area-wide emergency notification system.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

SECTION 17: PREVIOUS ACTIONS

	City of Victoria– Action #3
Proposed Action:	Design and implement methods of improving Aquifer Storage & Recovery (ASR) systems.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Completed and Defer to Plan Update. City completed the conversion of Well #190 into a functioning ASR Well. Project construction completed in late 2017 at a cost of $375,000 from VSTDC. Action description to be updated.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update.

	City of Victoria– Action #5
Proposed Action:	Install emergency generators and quick connects on all buildings, critical infrastructure, and government buildings.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

	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	
Site and 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 Systems 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:	$10,000,000
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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

SECTION 17: PREVIOUS ACTIONS

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria and site location within Plan Update.

SECTION 17: PREVIOUS ACTIONS

	City of Victoria– Action #10
Proposed Action:	Implement a voluntary acquisition program for repetitive flood properties.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria and site locations within Plan Update.

SECTION 17: PREVIOUS ACTIONS

		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	
	Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

SECTION 17: PREVIOUS ACTIONS

	City of Victoria– Action #12
Proposed Action:	Implement safe room construction practices within new city buildings to prevent injuries and protect property.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

SECTION 17: PREVIOUS ACTIONS

	City of Victoria– Action #13
Proposed Action:	Upgrade existing 911, PSAP, and communication systems to eliminate duplications and system failures.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

SECTION 17: PREVIOUS ACTIONS

		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	
	Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

SECTION 17: PREVIOUS ACTIONS

	City of Victoria– Action #15
Proposed Action:	Implement study to include GIS mapping of areas that are at risk to wind hazards.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

	City of Victoria– Action #17
Proposed Action:	Construct stand-alone or build interior Safe Rooms at designated existing public structures.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

	City of Victoria– Action #18
Proposed Action:	Purchase and install tornado sirens.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

	City of Victoria– Action #19
Proposed Action:	Strengthen and improve emergency response and recovery through the purchase of specialized equipment.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

SECTION 17: PREVIOUS ACTIONS

		City of Victoria– Action #20
	Proposed Action:	Implement program to reduce fuel loads/fuels reduction program to reduce wildfire risk.
	BACKGROUND INFORMATION	
	Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

	City of Victoria – Action #21
Proposed Action:	Establish, adopt, and implement burning standards throughout the community.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

	City of Victoria– Action #22
Proposed Action:	Properly train personnel on wildland firefighting techniques and equip with fast attack vehicles.
BACKGROUND INFORMATION	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be revised in Plan Update.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Defer to Plan Update. Action description to be revised in Plan Update.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

	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	
Site and 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 Systems 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

2023 ANALYSIS:
Duplicate Action to County. Remove and include City of Victoria within Plan Update.

SECTION 18: 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 Update. 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 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 for Victoria County and City of Victoria.

SECTION 18: MITIGATION ACTIONS

Table 18-1. Victoria County and City of Victoria Mitigation Action Matrix

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

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

VICTORIA COUNTY AND CITY OF VICTORIA ACTIONS

		Victoria County and City of Victoria – Action #1
	Proposed Action:	Provide additional means of access to include entrances and egresses and emergency rights-of-way into single entry riverine basins/public lands.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including 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 Systems Protection, or Education and Awareness)*	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Drought, Wildfire, Thunderstorm Wind, Winter Storm, Tornado, Dam Failure (County only)
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on New/Existing Buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$2,500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Dam Safety Plan, Emergency Management Plan

COMMENTS:
Deferred County and City Action: #1
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

SECTION 18: MITIGATION ACTIONS

		Victoria County and City of Victoria – Action #2
	Proposed Action:	Purchase and implement enhanced area-wide emergency notification system to include WEA/IPAWS capability.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Increase emergency notification capabilities in the event of a natural hazard. Reduce risk through improved communications and early warning.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Drought, Extreme Heat, Wildfire, Thunderstorm Wind, Lightning, Winter Storm, Tornado, Hail, Dam Failure (County only), Infectious Disease, Technological Disruptions, Hazardous Material, Pipeline Failure, Terrorism
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Communication
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County & City Action: #2
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

SECTION 18: MITIGATION ACTIONS

		Victoria County and City of Victoria – Action #3
	Proposed Action:	Conduct All-Hazards Education and Awareness Programs to educate citizens of hazards, risks, and mitigation measures to employ to protect lives and property (All-hazards preparedness activities to include natural, technological and man-made hazards)
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including City of Victoria
	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 Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Drought, Extreme Heat, Wildfire, Thunderstorm Wind, Lightning, Winter Storm, Tornado, Hail, Dam Failure (County only), Infectious Disease, Technological Disruptions, Hazardous Material, Pipeline Failure, Terrorism
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Communication
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County Action: #3 City Action: #14
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

		Victoria County and City of Victoria – Action #4
	Proposed Action:	Purchase and install rainwater collection systems at county facilities to include low-flow water-saving devices.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce impacts of drought through reduction is water loss, replenishing of ground water reserves and reduces the need for imported water during extreme weather events.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Extreme Heat
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce impact to existing structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County Action: #4

	Victoria County and City of Victoria – Action #5
Proposed Action:	Acquire and install emergency generators with quick connections at all critical facilities and infrastructure, public buildings, key resources, and government facilities.
BACKGROUND INFORMATION	
Site and Location:	County-wide including City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Provide power for critical facilities during power outages and ensure continuity of critical services
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure (County only), Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security, Energy (Power/Fuel)
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County and City Action: #5
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Helps ensure critical facilities continue to provide services during a power outage caused by unforeseen events.

	Victoria County and City of Victoria – Action #6
Proposed Action:	Develop and adopt plans and regulations to reduce risk and adverse impacts of extreme heat/winter storm, implement projects on public/county facilities & structures, and promote community resiliency with emphasis on vulnerable populations.
BACKGROUND INFORMATION	
Site and Location:	County-wide public buildings / structures, including public buildings / structures within City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce urban heat zones. Reduce risk to vulnerable populations during extreme events.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure, Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Winter Storm
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works
Implementation Schedule:	Within 36-48 months of plan adoption
Incorporation into Existing Plans:	Local Ordinances, Capital Improvement Plan

COMMENTS:
Deferred County and City Action: #6

	Victoria County and 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	
Site and Location:	Designed buildings within Victoria County and City of Victoria
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 Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Extreme Heat, Winter Storm
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$25,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County and City Action: #7

	Victoria County and City of Victoria – Action #8
Proposed Action:	Increase dimensions and capacity of drainage culverts in areas prone to flooding and/or drainage problems, in various county-wide locations.
BACKGROUND INFORMATION	
Site and Location:	County-wide, including City of Victoria, with emphasis on Red River Heights, Ben Wilson drainage, Northcrest, Mayfair, and additional specified locations, in addition to including critical drainage channel improvements
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works
Implementation Schedule:	Within 24-60 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan, Capital Improvement Plan

COMMENTS:
Deferred County & City Action: #8
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Victoria County and City of Victoria – Action #9
Proposed Action:	Increase dimensions of drainage culverts in areas prone to flooding and/or drainage problems, in various county locations.
BACKGROUND INFORMATION	
Site and Location:	Erosion and Critical Drainage Channel Improvements
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$4,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works
Implementation Schedule:	Within 24-60 months of plan adoption
Incorporation into Existing Plans:	Storm Drainage Master Plan Update

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Victoria County and City of Victoria – Action #10
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	
Site and Location:	County-wide, including City of Victoria with emphasis on areas near Spring Creek, Garcitas Creek, Coleto Creek, and Arenosa Creek, and Guadalupe River, Lone Tree Outfalls and other areas as deemed necessary
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce damages caused by flooding by maintaining or restoring drainage capacity.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works
Implementation Schedule:	Within 12-60 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan

COMMENTS:
Deferred County & City Action: #9
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

SECTION 18: MITIGATION ACTIONS

		Victoria County and City of Victoria – Action #11
	Proposed Action:	Guadalupe River erosion project at the Regional WWTP: Implement a stream restoration / stabilization improvement.
	BACKGROUND INFORMATION	
	Site and Location:	Guadalupe River
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	High
Estimated Cost:	$15,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works, Regional WWTP
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Storm Drainage Master Plan Update

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Victoria County and City of Victoria – Action #12
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	
Site and 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, others as deemed necessary
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce flood damages through improved construction improvements in flood-prone areas. Reduce degradation of infrastructure.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works
Implementation Schedule:	Within 12-36 months of plan adoption
Incorporation into Existing Plans:	Drainage Plan, Capital Improvement Plan

COMMENTS:
Deferred County Action: #10
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #13
Proposed Action:	Implement a voluntary acquisition program for repetitive flood properties.
BACKGROUND INFORMATION	
Site and Location:	County and City-wide repetitive loss properties located within the Guadalupe River basin, Spring Creek, Garcitas Creek, Quail Creek, Greens Addition, Old Town and other natural waterway sources as deemed necessary
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 Systems Protection, or Education and Awareness)	Structure and Infrastructure, Natural Systems Protection

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety and Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County Action: #11 City Action: #10
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #14
Proposed Action:	Improve drainage around the County / City and public buildings/structures and flood-proof facilities as necessary.
BACKGROUND INFORMATION	
Site and Location:	County-wide, including City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce flooding occurrences and concerns and ensure continuity of operations. Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structure
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Operations Plan, Capital Improvement Plan, Drainage Plan

COMMENTS:
Deferred County Action: #12
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

SECTION 18: MITIGATION ACTIONS

		Victoria County and City of Victoria – Action #15
	Proposed Action:	Harden county/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	
	Site and Location:	County-wide facilities as identified, including facilities within City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Drought, Extreme Heat, Wildfire, Thunderstorm Wind, Lightning, Winter Storm, Tornado, Hail, Dam Failure (County only), Infectious Disease, Technological Disruptions, Hazardous Material, Terrorism
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety and Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division and County / City Public Works
Implementation Schedule:	Within 36-48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County Action: #13 City Action: #11
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #16
Proposed Action:	Implement safe room construction practices within new county/city buildings to prevent injuries and protect property.
BACKGROUND INFORMATION	
Site and Location:	County-wide new and existing structures, including structures within City of Victoria
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 Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Drought, Extreme Heat, Wildfire, Thunderstorm, Lightning, Winter Storm, Tornado, Hail
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety and Security
Effect on new/existing buildings:	Reduce risk to new structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan, Emergency Management Plan

COMMENTS:
Deferred County Action: #14 City Action: #12
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #17
Proposed Action:	Upgrade emergency communications systems to include existing 911, PSAP, and other communication systems to provide for redundancy, resiliency, and reliable communications platforms.
BACKGROUND INFORMATION	
Site and Location:	County-wide, including City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce risk to citizens through improved communications and early warning. Eliminate redundant systems, improve emergency communications and coordination, reduce risk to citizens by providing timely emergency notifications.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure (County only), Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Communication
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County Action: #15 City Action: #13
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Victoria County and City of Victoria – Action #18
Proposed Action:	Implement programs 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	
Site and Location:	County-wide, including City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce damages to infrastructure. Decrease utility damage, power outages and associated risks. Ensure continuity of services during and after event. Reduce damages associated with power outages. Reduce risk of injuries or fatalities to vulnerable populations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure, Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane Wind, Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security, Energy (Power/Fuel)
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Standard Operating Procedures – Public Works

COMMENTS:
Deferred County & City Action: #16
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #19
Proposed Action:	Demolish, renovate, and harden various county buildings deemed to be substandard and/or detrimental to the public and environment.
BACKGROUND INFORMATION	
Site and Location:	County-wide including City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce damages at critical facilities; Reduce risk of injury to residents and personnel; Reduce environmental and public health hazards
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure – Non-mitigation restoration – Other

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Hurricane Wind, Flood, Thunderstorm Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Low
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Funds, Bonds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Engineer
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Capital Improvement Plan

COMMENTS:
Deferred County Action: #17
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

		Victoria County and City of Victoria – Action #20
	Proposed Action:	Strengthen and improve emergency response and recovery through the purchase of specialized equipment and the implementation of collaborative training and exercises.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Improve response and recovery capabilities.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness – Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning, Dam Failure (County only)
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$500,000
Potential Funding Sources:	Local Funds, Bonds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
Deferred County Action: #18 City Action: #19
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Victoria County and City of Victoria – Action #21
Proposed Action:	Study, purchase, and install audible public alert and warning systems (i.e., tornado sirens).
BACKGROUND INFORMATION	
Site and Location:	County-wide including City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce risk to citizens through improved communications and early warning.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Communication
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$50,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
Deferred County Action: #19 City Action: #18

	Victoria County and City of Victoria – Action #22
Proposed Action:	Implement program to reduce fuel loads/fuels reduction program to reduce wildfire risk & create defensible spaces around residential and commercial structures.
BACKGROUND INFORMATION	
Site and Location:	County-wide and City of Victoria with emphasis on WUI
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce risk of wildfires and the spread of wildfire through targeted fuels reduction programs. 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 Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$200,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Fire Department
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	CWPP

COMMENTS:
Deferred County & City Action: #20

	Victoria County and City of Victoria – Action #23
Proposed Action:	Establish, adopt, and implement burning standards throughout the community to include enhancement of education and awareness campaigns.
BACKGROUND INFORMATION	
Site and Location:	County-wide including City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce risk and spread of wildfires through requirements/restrictions; Reduce risk of damages and injuries.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$2,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Building Permits
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	CWPP

COMMENTS:
Deferred County & City Action: #21

	Victoria County and City of Victoria – Action #24	
	Proposed Action:	Properly train personnel on wildland firefighting techniques and equip firefighters with specialized fire suppression equipment and apparatuses.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce risk of damages and injuries through improved training practices amongst first responders. Increase response capabilities.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness – Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Wildfire
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
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:	County / City Fire Department
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	CWPP

COMMENTS:
Deferred County and City Action: # 22

		Victoria County and City of Victoria – Action #25
	Proposed Action:	Equip emergency response agencies with specialized equipment for proper response and alleviation of dangerous conditions on roadways, parking areas, and access and egress points as a result of extreme weather.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce risk of damages and injuries through improved training practices amongst first responders.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure – Preparedness / Response

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Drought, Extreme Heat, Wildfire, Thunderstorm Wind, Lightning, Winter Storm, Tornado, Hail, Dam Failure (County only), Infectious Disease, Technological Disruptions, Hazardous Material, Pipeline Failure, Terrorism
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
Deferred County & City Action: #23
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

		Victoria County and City of Victoria – Action #26
	Proposed Action:	Conduct studies for the development and implementation of county-wide planning, development standard, subdivision rules, infrastructure rules, building & construction codes.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce loss of property and infrastructure in all-hazards.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness, Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Drought, Extreme Heat, Wildfire, Thunderstorm Wind, Lightning, Winter Storm, Tornado, Hail, Dam Failure (County only), Infectious Disease, Technological Disruptions, Hazardous Material, Pipeline Failure, Terrorism
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$100,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Victoria County and City of Victoria – Action #27	
	Proposed Action:	Conduct preliminary flood risk analysis and subsequently purchase, implement, and enhance county-wide rain intensity and river forecasting capability and specialized equipment.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including City of Victoria
	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 Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$200,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division and Victoria County
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County Action: #25
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Victoria County and City of Victoria – Action #28
Proposed Action:	Harden, elevate, and improve existing levee system, including the installation of a Railroad Levee Closer System along Victoria Barge Canal serving Victoria Navigation District and Port of Victoria.
BACKGROUND INFORMATION	
Site and Location:	South Victoria County along the Victoria Barge Canal to the County Line
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hazardous Material
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$2.6 million
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Navigation District
Implementation Schedule:	Within 12 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County Action: #26
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Victoria County and City of Victoria – Action #29
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	
Site and 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 Systems Protection, or Education and Awareness)	Local Plans and Regulations, Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security, Communication
Effect on new/existing buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria County and the City of Victoria
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County Action: #27
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding. Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #30
Proposed Action:	Study, design, and construct county / city wide safe rooms in all critical infrastructure / key resource (CI/KR) locations, to include government / non-government organizations and non-profit locations.
BACKGROUND INFORMATION	
Site and Location:	County and 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 Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Tornado, Thunderstorm Wind, Hurricane Wind, Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$10,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria County and the City of Victoria
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, MAP

COMMENTS:
Deferred County Action: #28 City Action: #17
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

		Victoria County and City of Victoria – Action #31
	Proposed Action:	Study, develop, design, construct, and enhance water delivery systems to accommodate the risk associated to various natural hazards through the incorporation of high-volume capacity water sources, dry wells, deep wells, and other specialized equipment.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide incorporated and unincorporated areas, including City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce risk of injury and fatalities. Reduces loss of infrastructure. Ensures continuity of critical services during and after a severe weather event.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Drought, Wildfire, Thunderstorm Wind, Tornado, Lightning, Hurricane Wind, Hail, Winter Storm
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria County and the City of Victoria
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, MAP

COMMENTS:
Deferred County Action: # 30
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

		Victoria County and City of Victoria – Action #32
	Proposed Action:	Study, design, develop, enhanced, and rehab water, wastewater, surface water reservoirs, water wells, lift stations, and aqua storage recovery systems.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide incorporated and unincorporated areas, including City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce infrastructure loss, eliminate breaks, leaks, and loss of delivery systems. Ensures continuity of critical services.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Drought, Wildfire, Thunderstorm Wind, Tornado, Lightning, Hurricane Wind, Hail, Winter Storm
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$5,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria County and the City of Victoria
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, MAP

COMMENTS:
Deferred County Action: #31 City Action: #25
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Victoria County and City of Victoria – Action #33
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	
Site and Location:	County-wide incorporated and unincorporated areas, including City of Victoria
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 Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to new and existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$3,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Floodplain Administrator(s)
Implementation Schedule:	Within 24-36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County Action: #32 City Action: #27
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #34
Proposed Action:	Acquire/build survivable location for County / City Fire Department responders & apparatuses.
BACKGROUND INFORMATION	
Site and Location:	County-wide including City of Victoria
Risk Reduction Benefit (Current 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 Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Thunderstorm Wind, Hail, Winter Storm, Tornado, Wildfire, Lightning
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria County Fire Marshal
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvement Plan

COMMENTS:
Deferred County Action: #33
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

		Victoria County and City of Victoria – Action #35
	Proposed Action:	Incorporate hazard mitigation practices and education campaigns for pandemic response to include accommodation for vulnerable populations.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide public buildings including City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Promote hazard awareness and protect citizens from potential injuries and damages. 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 Systems Protection, or Education and Awareness)	Education and Awareness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Drought, Extreme Heat, Wildfire, Thunderstorm Wind, Lightning, Winter Storm, Tornado, Hail, Dam Failure (County only), Infectious Disease, Technological Disruptions, Hazardous Material, Pipeline Failure, Terrorism
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security, Communication
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$500,000
Potential Funding Sources:	Local Funds, State and Federal Grants, 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:
Deferred County Action: #34
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes public safety.

	Victoria County and City of Victoria – Action #36	
	Proposed Action:	Hardening, retrofitting, and insulation of windows, doors, entrances to critical buildings and structures within the County and City of Victoria.
	BACKGROUND INFORMATION	
	Site and Location:	County and City-wide facilities, including but not limited to: Victoria County Sheriff's Office, Victoria County Jail, and additional buildings/structures as identified
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure (County only), Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$600,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria County. County Sheriff's office, and the City of Victoria
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Response Plan

COMMENTS:
Deferred County Action: #35
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #37
Proposed Action:	Hardening and/or relocation of public buildings/structures and critical infrastructure/key resources from severe winter weather events and those locations susceptible to flooding.
BACKGROUND INFORMATION	
Site and Location:	County and City-wide facilities and public buildings
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce damages at critical infrastructure and key resources (CI/KR) during and after severe winter weather events. Ensure continuity of critical services. Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure (County only), Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works and Maintenance, Victoria Emergency Management Division
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
Deferred County Action: #36
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #38
Proposed Action:	Harden / Retrofit critical facilities to a hazard-resistant level.
BACKGROUND INFORMATION	
Site and Location:	SCADA Upgrade to SWTP and WWTP
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure (County only), Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structure and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$3,500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works, Victoria Emergency Management Division
Implementation Schedule:	Within 12-26 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #39
Proposed Action:	Harden / Retrofit critical facilities to a hazard-resistant level, including connect high service pressure plane to connect low pressure plane for redundancy between pressure zones.
BACKGROUND INFORMATION	
Site and Location:	High Service Waterline Connection at Mockingbird and Vine
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce damages at critical facilities; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Dam Failure (County only), Extreme Heat, Flood, Hail, Hurricane Wind, Lightning, Thunderstorm Wind, Tornado, Wildfire, Winter Storm
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structure and infrastructure
Priority (High, Moderate, Low):	High
Estimated Cost:	$600,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works, Victoria Emergency Management Division
Implementation Schedule:	2023-2024
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #40
Proposed Action:	Study, design, develop, implement, rehabilitate, repair, or replace regular drainage maintenance programs to include sediment and debris clearance, detection, and prevention of discharges into riverine basins. Establish and maintain riparian buffers to include vegetative replacement, floodwalls, berms, and other structural/non-structural activities and projects to prevent erosion, embankment loss, and floodplain intrusions.
BACKGROUND INFORMATION	
Site and Location:	County and City-wide including: Riverside Park, Patriot Park, off-channel reservoirs, and other various riverine basins
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Mitigation of riverine erosion and embankment loss and additional embankment stabilization, effective floodplain alterations.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure, Natural Systems Protection

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City Public Works
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

	Victoria County and City of Victoria – Action #41
Proposed Action:	Study, develop, design, and implement methods of improving Aquifer Storage & Recovery (ASR) systems for Victoria County and surrounding region-wide watersheds.
BACKGROUND INFORMATION	
Site and Location:	County-wide including City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce infrastructure loss, and loss of systems. Ensures continuity of critical services. Reduces deficient in financial resources with the need to purchase water during periods of drought. Ensure adequate supply of water to mitigate agricultural financial loss during periods of drought.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought, Wildfire
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security, Health/Medical
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$6 million per well (approximately 10 wells)
Potential Funding Sources:	Local Funds, State and Federal Grants, Texas Comptroller/GCRPC
Lead Agency/Department Responsible:	County / City of Victoria Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	ASR Regional Plan

COMMENTS:
Deferred City Action: #3

	Victoria County and City of Victoria – Action #42	
	Proposed Action:	Perform, study, and assess vulnerability to drought risk. Adopt and enforce drought tolerant practices and regulations, including the revision of City ordinance to require drought resistant vegetation and potential buyout of property with high-use landscaping.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including 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 Systems Protection, or Education and Awareness)	Local Plans and Regulations

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structures and infrastructures
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$5,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City of Victoria Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Local Ordinances

COMMENTS:
Deferred City Action: #4

	Victoria County and City of Victoria – Action #43
Proposed Action:	Conduct study to implement GIS mapping of areas susceptible to wind hazards related to severe weather.
BACKGROUND INFORMATION	
Site and Location:	County-wide including City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce risk of damages and injuries through more efficient mapping and risk of vulnerabilities.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Education and Awareness – Preparedness

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Thunderstorm Wind, Tornado
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Communication
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Low
Estimated Cost:	$5,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	Victoria Emergency Management Division
Implementation Schedule:	Within 48 months of plan adoption
Incorporation into Existing Plans:	N/A

COMMENTS:
Deferred County Action: #24 City Action: #15
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding. Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

	Victoria County and City of Victoria – Action #44
Proposed Action:	Study, design, construct, rehabilitate, repair, or replace existing flood gates and storm water management system.
BACKGROUND INFORMATION	
Site and Location:	County-wide including City of Victoria and areas along the Guadalupe River.
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce flooding in low lying areas with the county and city.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$700,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City of Victoria Public Works
Implementation Schedule:	Within 24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan, Capital Improvement Plan

COMMENTS:
Deferred City Action: #24, 26
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects communities and reduces risk of flooding.

		Victoria County and City of Victoria – Action #45
	Proposed Action:	Study, design, and construct, rehabilitate, replace, or repair a storm water management, off-channel reservoirs, wastewater management, wells, and water delivery & storage systems to include insurance of availability and conservation of potable water, including but not limited to installation of pumping stations and retrofitting supply systems.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including City of Victoria and areas along the Guadalupe River.
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce flooding in low lying areas with the county and city.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	Reduce risk to existing structures
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,000,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City of Victoria Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Protects infrastructure, reduces cost of reparation, and prevents injury to residents.

		Victoria County and City of Victoria – Action #46
	Proposed Action:	Study, design, construct, and implement plan for emergency access routes and signal timing processes to reduce travel time for evacuation and emergency response.
	BACKGROUND INFORMATION	
	Site and Location:	County-wide including City of Victoria
	Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduces response time for evacuation / emergency response. Reduce risk of injury and fatalities to residents.
	Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Flood, Hurricane Wind, Tornado, Wildfire
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	Moderate
Estimated Cost:	$350,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City of Victoria Public Works and TXDOT
Implementation Schedule:	Within 12-24 months of plan adoption
Incorporation into Existing Plans:	Emergency Management / Response Plan

COMMENTS:
NFIP & WHY MITIGATION ACTION IS APPROPRIATE:
Promotes safety.

	Victoria County and City of Victoria – Action #47
Proposed Action:	Study, design, develop, implement, and construct alternative methods to secure water and water rights to include a desalinization plant and/or additional methods to mitigate against drought conditions and subsequent agricultural loss.
BACKGROUND INFORMATION	
Site and Location:	County-wide including City of Victoria
Risk Reduction Benefit (Current Cost/Losses Avoided)**:**	Reduce risk of water shortage during times of drought and low river levels which hinder the efficiency of drawing water from primary sources.
Type of Action: (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness)	Structure and Infrastructure, Natural Systems Protection

MITIGATION ACTION DETAILS	
Hazard(s) Addressed:	Drought
Community Lifeline (Safety/Security, Health/Medical, Energy (Power/Fuel), Communication):	Safety/Security
Effect on new/existing buildings:	N/A
Priority (High, Moderate, Low):	High
Estimated Cost:	$1,500,000
Potential Funding Sources:	Local Funds, State and Federal Grants
Lead Agency/Department Responsible:	County / City of Victoria Public Works
Implementation Schedule:	Within 36 months of plan adoption
Incorporation into Existing Plans:	Emergency Management Plan

COMMENTS:

SECTION 19: PLAN MAINTENANCE

PLAN MAINTENANCE PROCEDURES

The following is an explanation of how Victoria County, City of Victoria, and the general public will be involved in implementing, evaluating, and enhancing the Plan over time. When the plan is discussed in all maintenance procedures it includes mitigation actions and hazard assessments. The sustained hazard mitigation planning process consists of four main parts:

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

INCORPORATION

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

PROCESS OF INCORPORATION

Once the Plan Update is adopted, Victoria County and City of Victoria will implement actions based on priority and the availability of funding. The Planning Area currently implements policies and programs to reduce loss to life and property from hazards. The mitigation actions developed for this Plan Update 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.

SECTION 19: PLAN MAINTENANCE

Victoria County and City of Victoria 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 Update will further maximize funding and provide possible cost-sharing of key projects, thereby reducing loss of lives and property and mitigating hazards affecting the area.

Upon formal adoption of the Plan Update, 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 revisions in light of the approved Plan. The planning team will review all capital improvement plans, annual budget reviews, emergency operations or management plans, and transportation plans 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 Update to reduce the long-term risk to life and property from all hazards. Within one year of formal adoption of the hazard mitigation Plan Update, existing planning mechanisms will be reviewed by each jurisdiction.

Victoria County is committed to supporting City of Victoria as they implement their mitigation actions. 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 Planning Area will work to advance the goals of this hazard mitigation plan through its routine, ongoing, long-range planning, budgeting, and work processes.

Table 19-1 identifies types of planning mechanisms and examples of methods for incorporating the Plan Update into other planning efforts. The team members, listed in Table 19-2 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 19-1. Methods of Incorporation of the Plan

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
Annual Budget Review	Victoria County: Emergency Management Coordinator City of Victoria: Emergency Management Coordinator	Various departments and key personnel that participated in the planning process for Victoria County and City of Victoria 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.

SECTION 19: PLAN MAINTENANCE

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
Capital Improvement Plans	Victoria County: Emergency Management Coordinator City of Victoria: Emergency Management Coordinator	Victoria County and City of Victoria 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	City of Victoria: Emergency Management Coordinator	City of Victoria 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: Emergency Management Coordinator City of Victoria: Emergency Management Coordinator	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 Update discussing the people and property at risk to flood will be reviewed and revised when Victoria County and City of Victoria update their management plans or develops new plans.
Grant Applications	Victoria County: Emergency Management Coordinator City of Victoria: Emergency Management Coordinator	The Plan will be evaluated by Victoria County and City of Victoria when grant funding is sought for mitigation projects. If a project is not in the Plan Update, a Plan Revision may be necessary to include the action in the Plan.
Regulatory Plans	Victoria County: Emergency Management Coordinator City of Victoria: Emergency Management Coordinator	Currently, Victoria County and City of Victoria have regulatory plans in place, such as Emergency Management Plans, Continuity of Operations Plans, Land Use Plans, and Evacuation Plans. The Plan Update will be consulted when County and City departments review or revise their current regulatory planning

PLANNING MECHANISM	DEPARTMENT / TITLE RESPONSIBLE	INCORPORATION OF PLAN
		mechanisms, or in the development of regulatory plans that are not currently in place.

MONITORING AND EVALUATION

Periodic revisions of the Plan are required to ensure that goals, objectives, and mitigation actions are kept current. When the plan is discussed in these sections it includes the risk assessment and mitigation actions as a part of the monitoring, evaluating, updating and review process. 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. Table19-2 indicates the department and title of the party responsible for Plan monitoring, evaluating, updating, and review of the Plan.

Table 19-2. Team Members Responsible for Plan Monitoring, Evaluating, Updating, and Review of the Plan

JURISDICTION	TITLE
Victoria County	Emergency Management Coordinator
City of Victoria	Emergency Management Coordinator

MONITORING

Designated Planning Team members are responsible for monitoring, evaluating, updating, and reviewing the Plan, as shown in Table 19-2. Individuals holding the title listed in Table 19-2 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 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 include 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.

SECTION 19: PLAN MAINTENANCE

The Planning Team will meet on an annual basis to evaluate the Plan and 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 REVISIONS

At any time, minor technical changes may be made to update the Victoria County and City of Victoria Hazard Mitigation Action Plan Update 2023. 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 participating jurisdictions.

Victoria County and City of Victoria will review proposed revisions and vote to accept, reject, or amend the proposed change. Upon ratification, the Revision will be transmitted to TDEM.

In determining whether to recommend approval or denial of a Plan Revision request, participating jurisdictions will consider the following factors:

- Errors or omissions made in the identification of issues or needs during the preparation of the Plan Update;
- New issues or needs that were not adequately addressed in the Plan Update; and
- Changes in information, data, or assumptions from those on which the Plan Update 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 Victoria County and City of Victoria 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 Executive and Advisory Planning Team (Section 2, Tables 2-1 and 2-2) 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 Revision process outlined herein. Upon completion of the review, update, and revision 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 evaluation, monitoring, reviews 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 the participating jurisdictions' websites, where officials and the public are invited to provide ongoing feedback, via email.

The Planning Team may also designate voluntary citizens from the planning area 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

Victoria County and the City of Victoria Hazard Mitigation Action Plan 2023 was organized using a direct representative model. An Executive Planning Team from the participating jurisdictions, shown in Table A-1, was formed to coordinate planning efforts and request input and participation in the planning process. Table A-2 reflects the Advisory Planning Team, consisting of area organizations and departments that participated throughout the planning process. Table A-3 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. Executive Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Victoria County / City of Victoria Office of Emergency Management	Emergency Management Coordinator
Victoria County / City of Victoria Office of Emergency Management	Deputy Emergency Management Coordinator
Victoria County / City of Victoria Office of Emergency Management	Emergency Management Specialist

Table A-2. Advisory Planning Team

ORGANIZATION / DEPARTMENT	TITLE
Victoria County	Commissioner Precinct 1
Victoria County	Commissioner Precinct 2
Victoria County	Commissioner Precinct 3
Victoria County	Commissioner Precinct 4
Victoria County	County Engineer
Victoria County	County Judge
Victoria County	County IT
Victoria County	County Sheriff
Victoria County	County Lieutenant
Victoria County	County Dam Coordinator for Coleto Creek Reservoir
Victoria County	Disaster Recovery Coordinator

APPENDIX A: PLANNING TEAM

ORGANIZATION / DEPARTMENT	TITLE
Victoria County	Environmental Inspector
Victoria County	Fire Marshal
Victoria County	Floodplain Manager
Victoria County	Floodplain Supervisor
Victoria County	Grant Administrator
Victoria County	Public Health Emergency Preparedness Coordinator
City of Victoria	Assistant City Manager
City of Victoria	Building Inspector
City of Victoria	CDBG Planner
City of Victoria	Chief of Police
City of Victoria	City Manager
City of Victoria	City Secretary
City of Victoria	Deputy Chief
City of Victoria	Deputy Sargent
City of Victoria	Director of Development Services
City of Victoria	Director of Public Works
City of Victoria	Fire Chief
City of Victoria	GIS Manager
City of Victoria	Grant Administrator
City of Victoria	IT Specialist
City of Victoria	Mayor
City of Victoria	Operations and Maintenance Manager
City of Victoria	Planning and Development Services Manager
City of Victoria	Public Works Director

STAKEHOLDERS

The following groups listed in Table A-3 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. Many of the invited organizations and stakeholders participated and were integral to providing comments and data for the Plan. For a list of attendees at meetings, please see Appendix E[1].

Table A-3. Stakeholders

AGENCY	TITLE
AEP	External Affairs
American Red Cross	Disaster Program Manager
American Red Cross	Representative (1)
American Red Cross	Representative (2)
Bloomington Independent School District	Superintendent
Calhoun County	Emergency Management Coordinator
Caterpillar	EHS Manager
Citizens Medical Center	Emergency Services Coordinator
Citizens Medical Center	Trauma Program Manager
City of Victoria	District 1 Council Member
City of Victoria	District 2 Council Member
City of Victoria	District 3 Council Member
City of Victoria	District 4 Council Member
City of Victoria	District 5 Council Member
City of Victoria	District 6 Council Member
DeTar Healthcare Systems	Trauma Program Manager
Dewitt County	Emergency Management Coordinator
Environmental Protection Agency	Region 6 Administrator
Golden Crescent Regional Planning Commission (GCRPC)	Regional Manager
Goliad County	County Sheriff
Jackson County	Emergency Management Coordinator
Lavaca County	Emergency Management Coordinator

[1] Information contained in Appendix E is exempt from public release under the Freedom of Information Act (FOIA).

APPENDIX A: PLANNING TEAM

AGENCY	TITLE
NOAA	Chief of Planning & Communication
Nursey Independent School District	Superintendent
Port of Victoria	Executive Director
Sportsman Church	Pastor
South Texas Electric Cooperative (STEC)	Lead Security Officer
Texas A&M Agrilife Extension	District Representative
Texas Commission on Environmental Quality	Regional Coordinator
Texas Department of Emergency Management	District Coordinator
Texas Department of Transportation	Area Engineer
Texas Forest Service	Mitigation and Prevention Specialist
Texas House Representative	District 30
Texas House Senate	District 18
Texas Parks and Wildlife	District Leader
Texas Water Board	Deputy Executive Administrator
Texas Windstorm Associations	County Representative
University of Houston – Victoria County	Risk / Emergency Management Coordinator
U.S. Fish and Wildlife	Regional Director
U.S. Army Corps of Engineers	Southwest Division Representative
Victoria Chamber of Commerce	President / CEO
Victoria Christian Assistance Ministry (VCAM)	Representative
Victoria College	Director of Police
Victoria County Long Terms Recovery Group (VCLTR)	Program Manager
Victoria Economic Development Corporation	Director
Victoria Independent School District	Director of Administration
Victoria Regional Airport	Airport Manager

APPENDIX B: PUBLIC SURVEY RESULTS

OVERVIEW

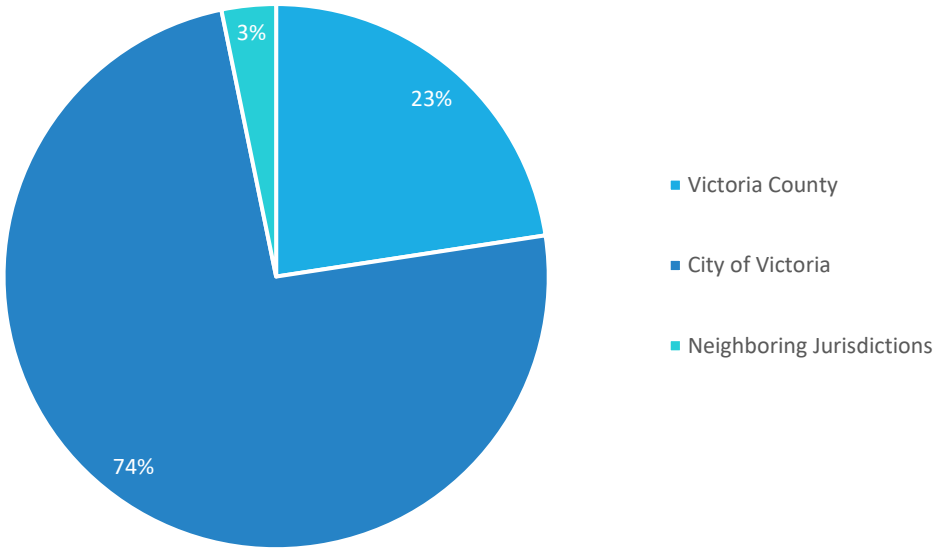
Victoria County and City of Victoria prepared a public survey that requested public opinion on a wide range of questions relating to natural hazards. The survey was made available via the County and City's websites. This survey link was also distributed at public meetings and stakeholder events throughout the planning process.

A total of 31 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.

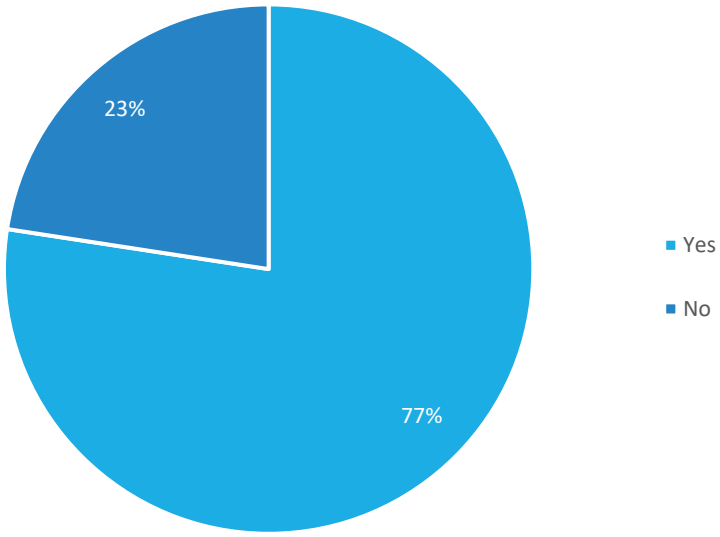
The following survey results depict the percentage of responses for each answer. Similar responses have been summarized for questions that did not provide a multiple-choice answer or that required an explanation.

PUBLIC SURVEY RESULTS

1. Please state the jurisdiction (city or community) where you reside.[1]

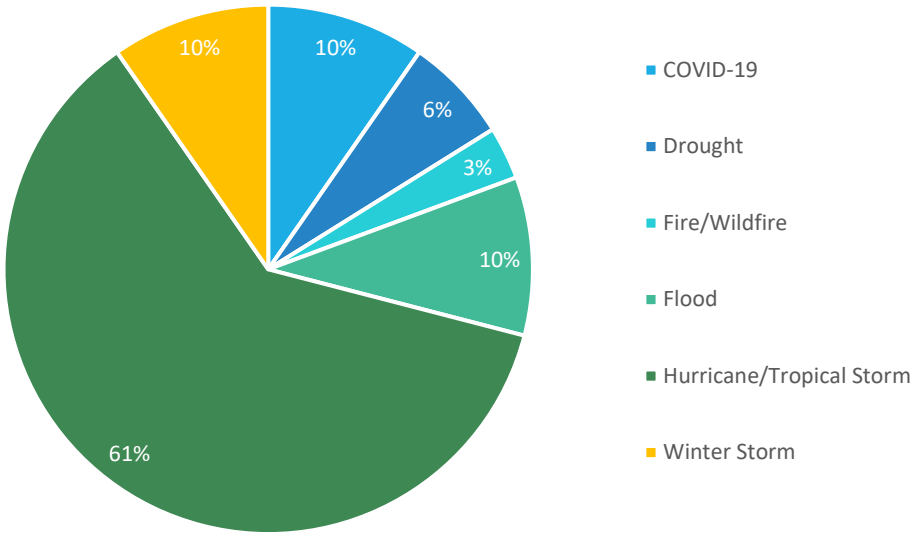


2. Have you ever experienced or been impacted by a disaster?

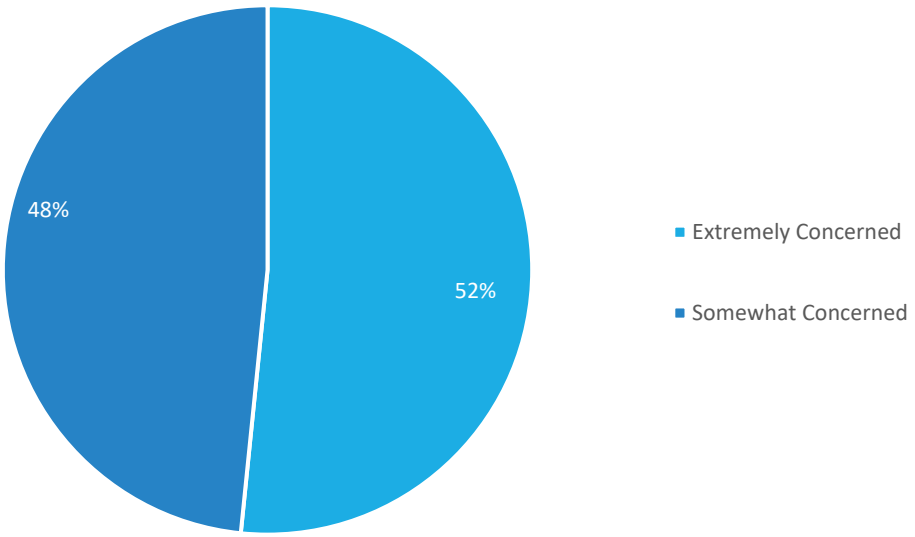


[1] Some respondents were in neighboring counties, however due to their proximity to Victoria County, their responses were included in the survey results.

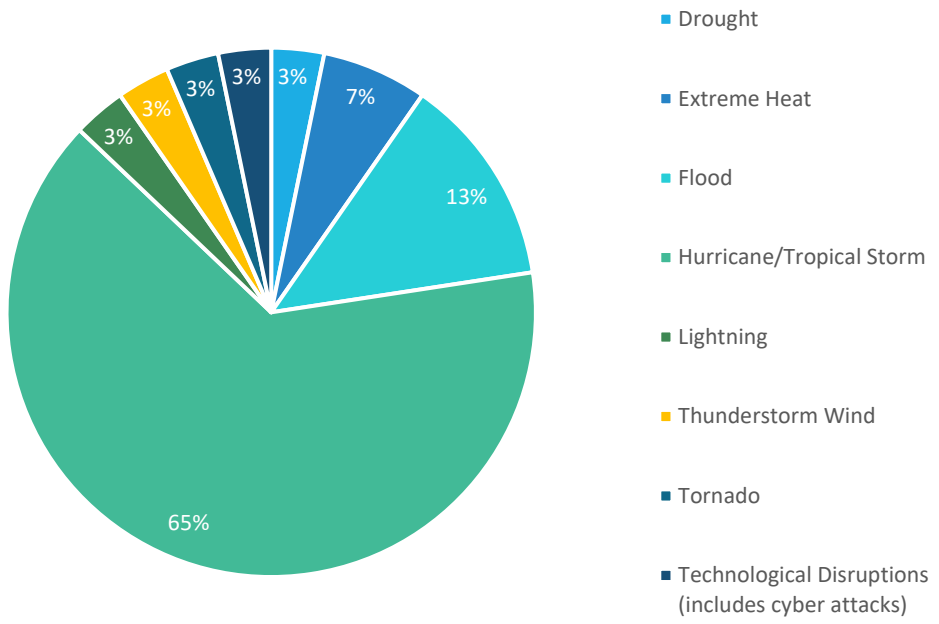
3. If you answered “Yes” to Question #2, please explain.



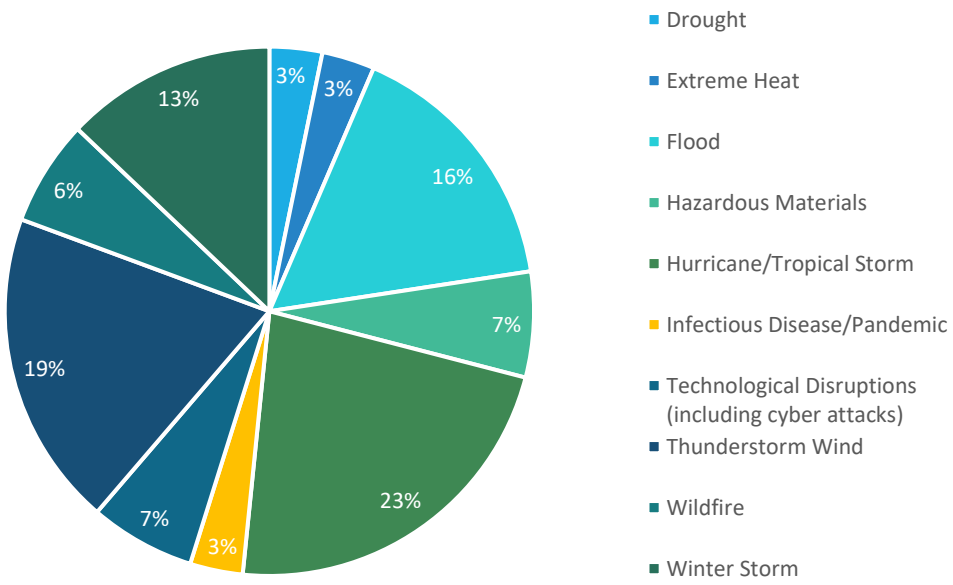
4. How concerned are you about the possibility of your community being impacted by a disaster?



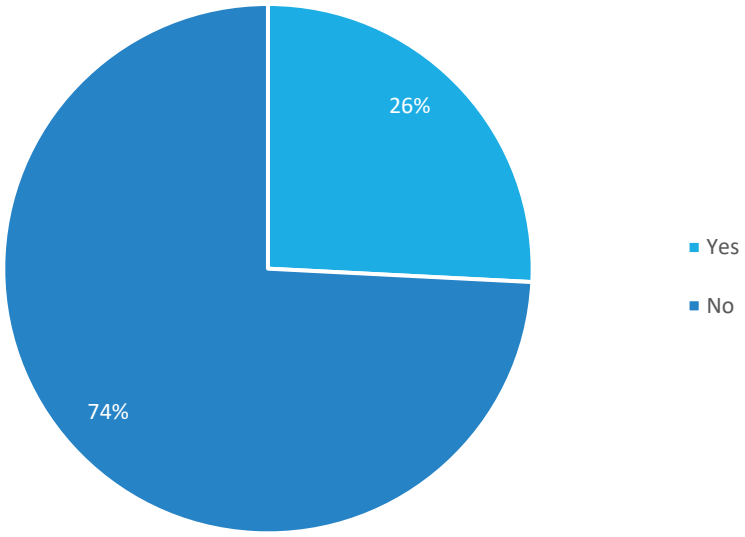
5. Please select the one hazard you think is the highest threat to your neighborhood:



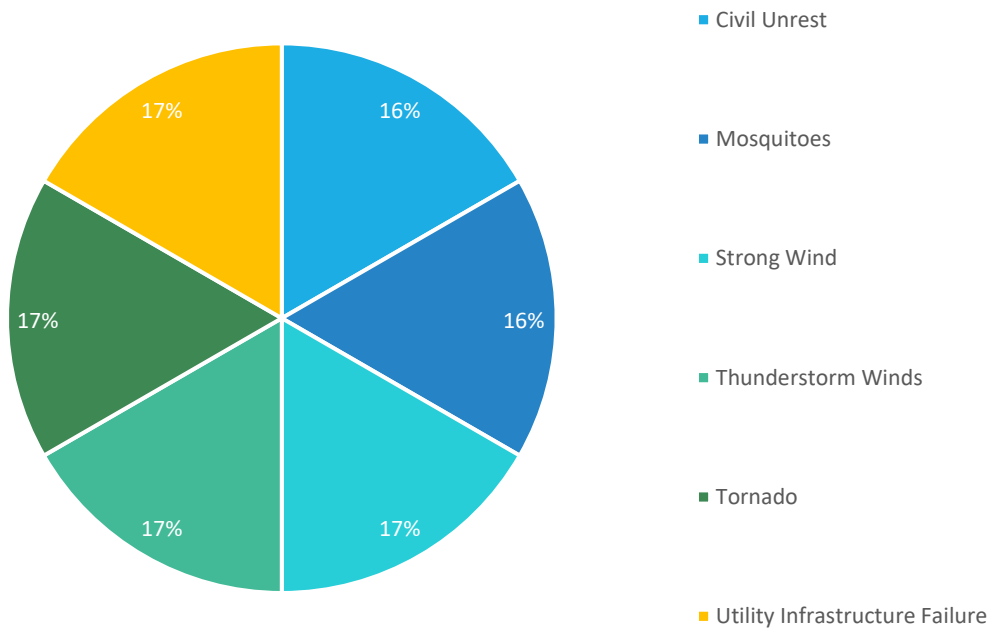
6. Please select the one hazard you think is the second highest threat to your neighborhood:



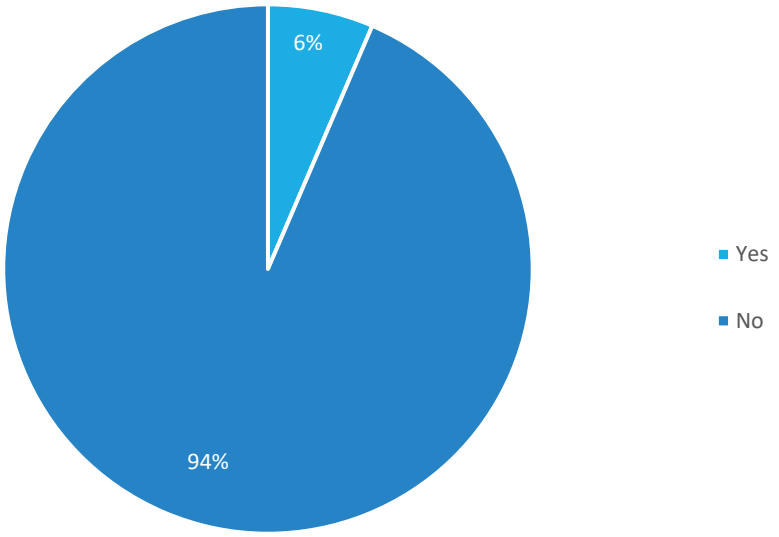
7. Is there another hazard not listed above that you this is a wide-scale threat to your neighborhood?



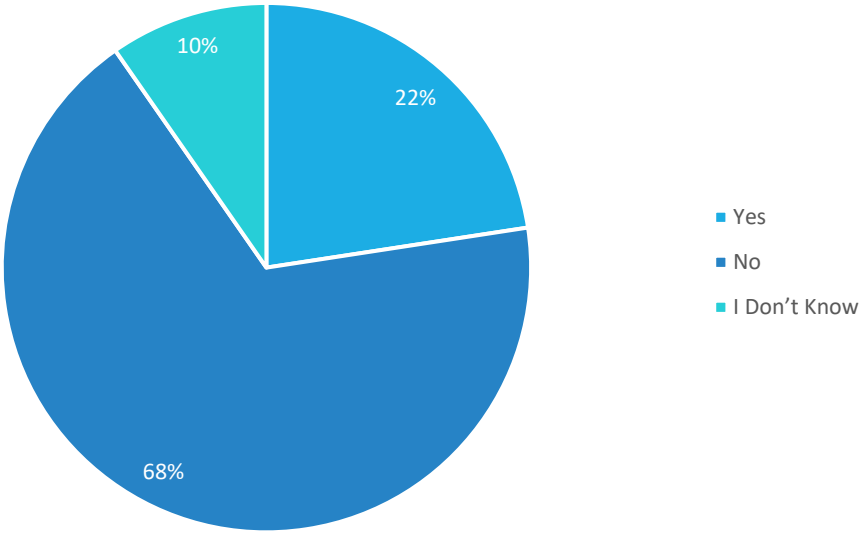
8. If you answered “Yes” to Question #7, please explain.



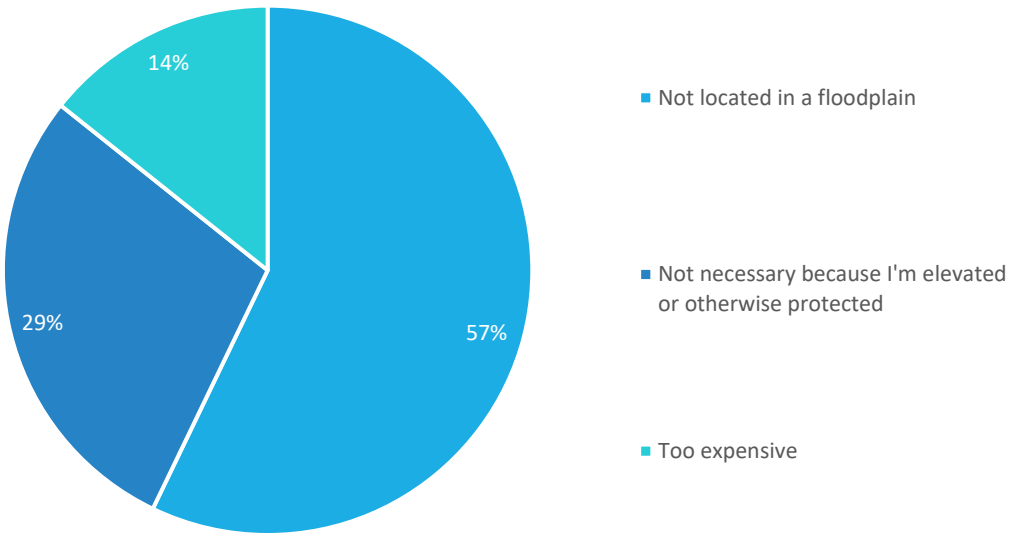
9. Is your home located in a floodplain?



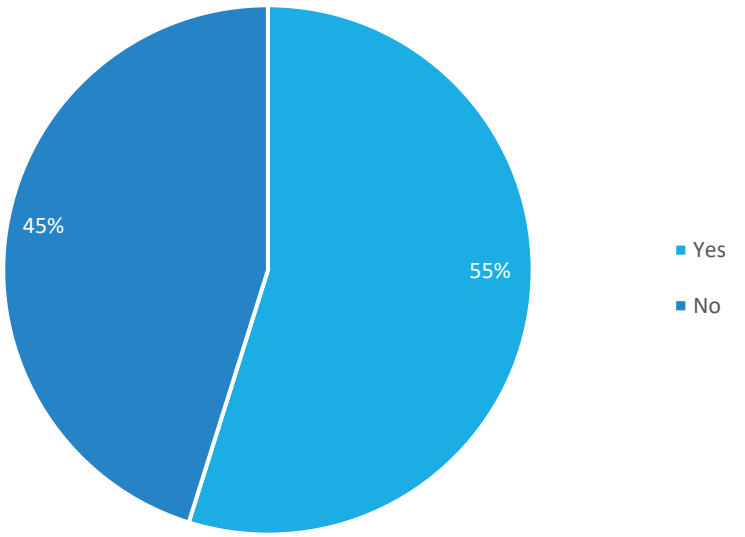
10. Do you have flood insurance?



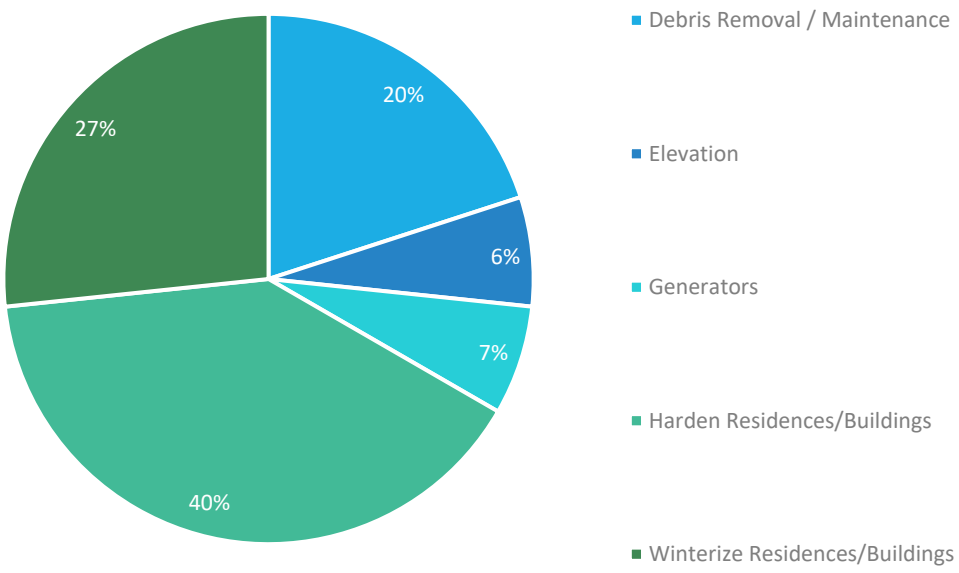
11. If you do not have flood insurance, why not?



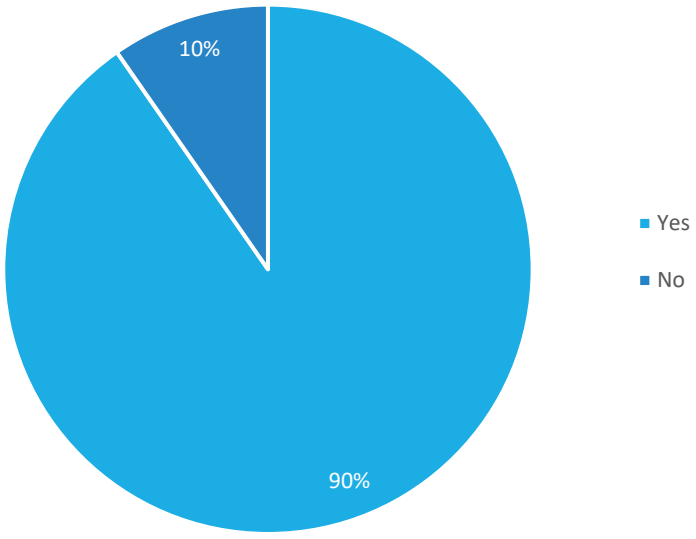
12. Have you taken any actions to make your home or neighborhood more resistant to hazards?



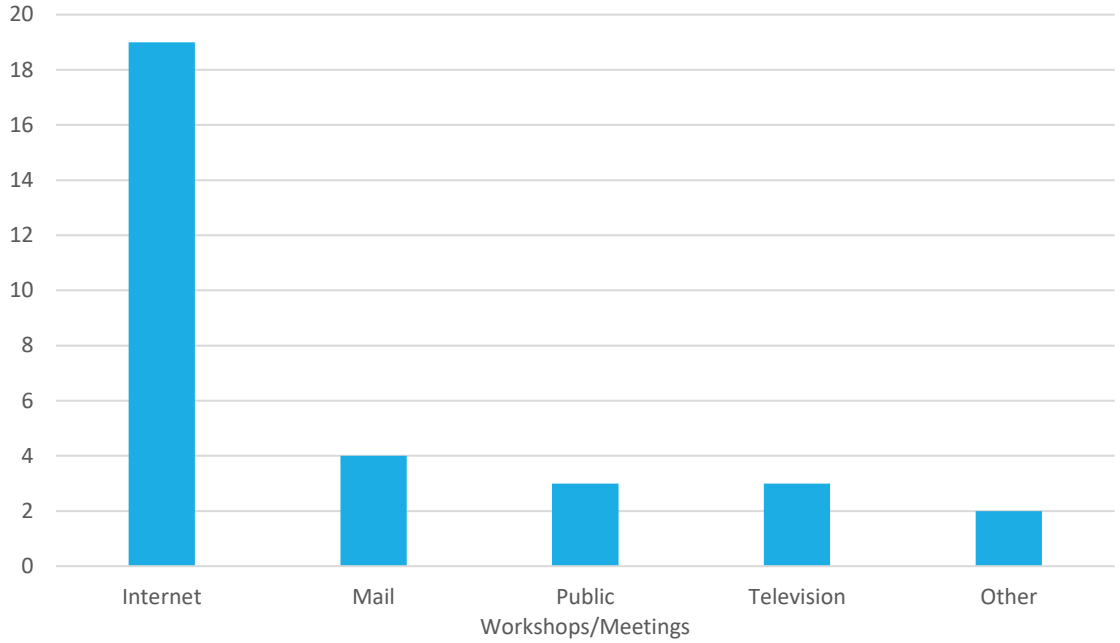
13. If you answered “Yes” to Question #12, please explain.



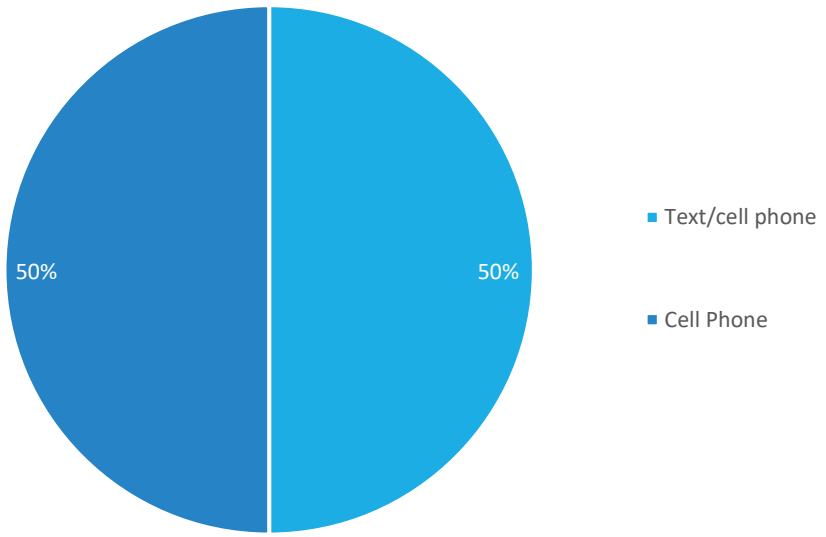
14. Are you interested in making your home or neighborhood more resistant to hazards?



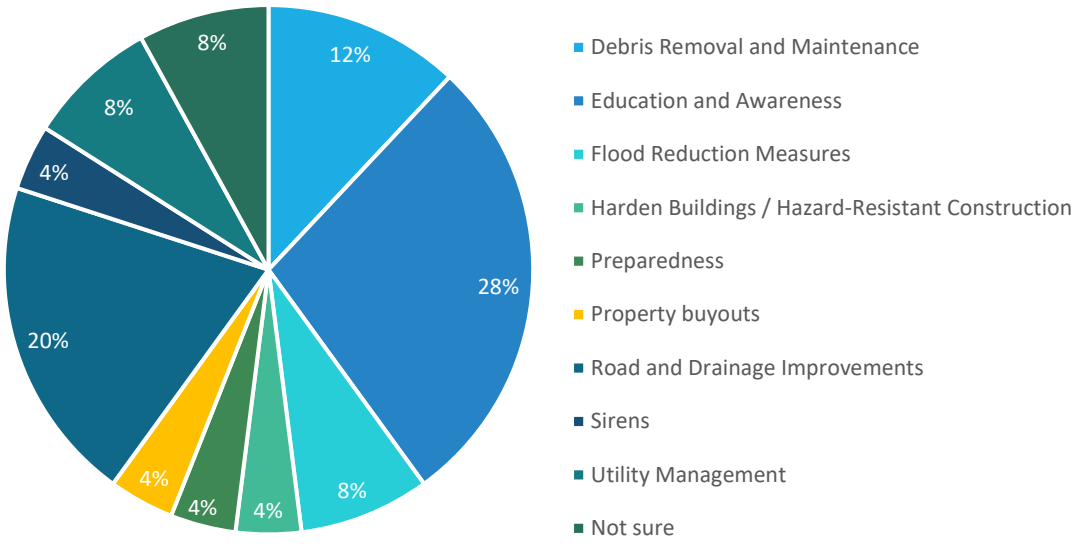
15. What is the most effective way for you to receive information about how to make your home and neighborhood more resistant to hazards?



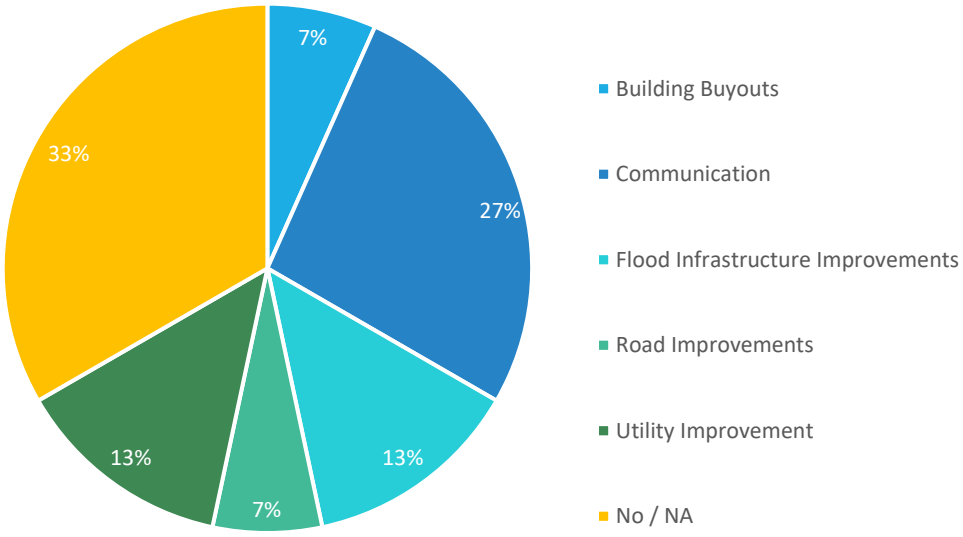
16. If you answered “Other” to Question #15, please explain.



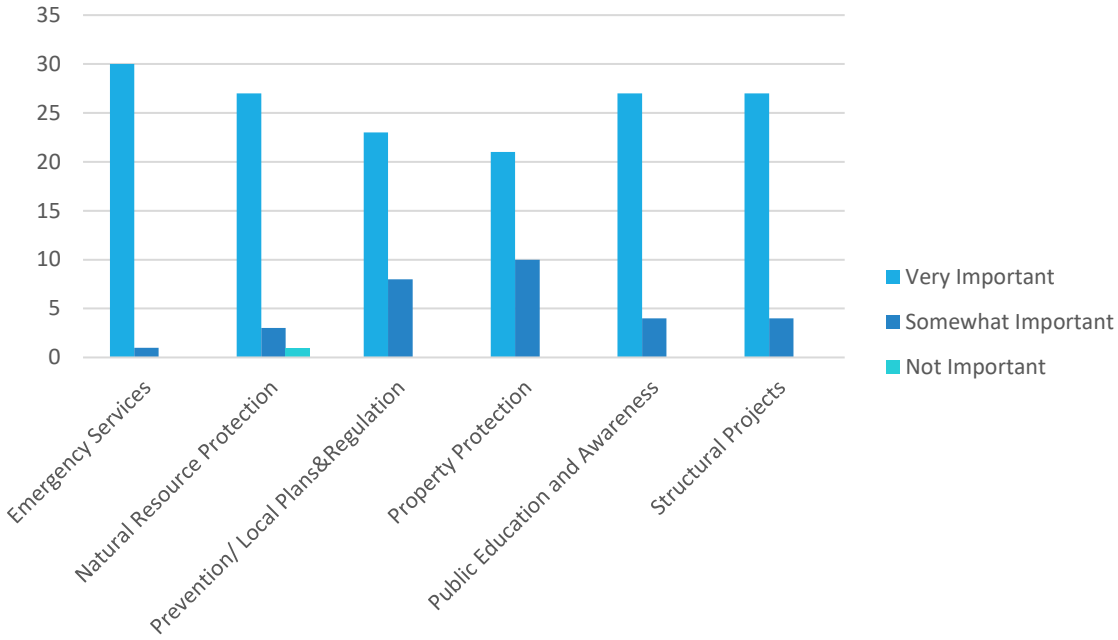
17. In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood?



18. Are there any other issues regarding the reduction of risk and loss associated with hazards or disaster in the community that you think are important?



19. 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.



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.

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.

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.

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.

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.

APPENDIX C: CRITICAL FACILITIES

Appendix C is For **Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

APPENDIX D: DAM LOCATIONS

Appendix D is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

APPENDIX E: MEETING DOCUMENTATION

Appendix E is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).

APPENDIX F: CAPABILITY ASSESSMENT

Appendix F is **For Official Use Only (FOUO)** and may be exempt from public release under the Freedom of Information Act (FOIA).