

**CITY OF EL PASO, TEXAS
AGENDA ITEM
DEPARTMENT HEAD'S SUMMARY FORM**

AGENDA DATE: July 7, 2021
PUBLIC HEARING DATE: July 7, 2021

CONTACT PERSON(S) NAME AND PHONE NUMBER: Mario M. D'Agostino, (915) 212-5605

DISTRICT(S) AFFECTED: All Districts

STRATEGIC GOAL: 2 Set the Standard for a Safe and Secure City

SUBGOAL: Enhance city's capability to prepare for, respond to and recover from disasters

SUBJECT:

That the El Paso County Hazard Mitigation Action Plan Update is approved in its entirety; the City of El Paso will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies; the Office of Emergency Management shall inform all parties of this action, assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually, and that any needed adjustments will be presented to the City Council for consideration; and the City of El Paso will take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

BACKGROUND / DISCUSSION:

The Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes. FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes.

PRIOR COUNCIL ACTION:

On December 1, 2015, City Council approved the 2015 El Paso County Multi-Jurisdictional Hazard Mitigation Action Plan.

AMOUNT AND SOURCE OF FUNDING:

N/A

HAVE ALL AFFECTED DEPARTMENTS BEEN NOTIFIED? YES NO

PRIMARY DEPARTMENT: Fire Department

SECONDARY DEPARTMENT: N/A

*****REQUIRED AUTHORIZATION*****

DEPARTMENT HEAD:



RESOLUTION

WHEREAS, natural hazards in the City of El Paso area historically have caused significant disasters with losses of life and property and natural resources damage; and

WHEREAS, the Federal Disaster Mitigation Act of 2000 and Federal Emergency Management Agency (FEMA) require communities to adopt a hazard mitigation action plan to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, FEMA requires that communities update hazard mitigation action plans every five years in order to be eligible for the full range of pre-disaster and post-disaster federal funding for mitigation purposes; and

WHEREAS, the City of El Paso has assessed the community’s potential risks and hazards and is committed to planning for a sustainable community and reducing the long-term consequences of natural and human-caused hazards; and

WHEREAS, the El Paso County Hazard Mitigation Action Plan Update outlines a mitigation vision, with goals and objectives; assesses risk from a range of hazards; and identifies risk reduction strategies and actions for hazards that threaten the community.

NOW THEREFORE BE IT RESOLVED THAT:

1. The El Paso County Hazard Mitigation Action Plan Update is approved in its entirety;
2. The City of El Paso will pursue available funding opportunities for implementation of the proposals designated therein, and will, upon receipt of such funding or other necessary resources, seek to implement the actions contained in the mitigation strategies;
3. The Office of Emergency Management shall inform all parties of this action, assure that the Hazard Mitigation Action Plan Update will be reviewed at least annually, and that any needed adjustments will be presented to the City Council for consideration; and
4. The City of El Paso will take such other action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Action Plan Update and report on progress as required by FEMA and the Texas Division of Emergency Management (TDEM).

APPROVED this ____ day of _____, 2021.

(Signatures on the following page)


THE CITY OF EL PASO

Oscar Leeser
Mayor

ATTEST:


Laura D. Prine
City Clerk

APPROVED AS TO FORM:



Josette Flores
Senior Assistant City Attorney

APPROVED AS TO CONTENT:



Mario D'Agostino
Fire Chief

EL PASO COUNTY HAZARD MITIGATION ACTION PLAN



UPDATE 2021

Maintaining a Safe, Secure, and Sustainable Community



For more information, visit our website at:

Elpasoready.org

Written comments should be forwarded to:

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SECTION 1: INTRODUCTION

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BACKGROUND

El Paso County is the westernmost county of Texas. Bounded on the southwest by the Rio Grande and Mexico, on the north and west by the state of New Mexico, and on the east by Hudspeth County, Texas, El Paso County is approximately 650 miles west of Dallas and 575 miles northwest of San Antonio. El Paso County and neighboring Hudspeth County are the only Texas counties on Mountain Time.

Texas is prone to extremely heavy rains and flooding with half of the world record rainfall rates (48 hours or less).¹ While flooding is a well-known risk, El Paso County is susceptible to a wide range of natural hazards, including but not limited to drought, extreme heat, hail, and winter storms. These life-threatening hazards can destroy property, disrupt the economy, and lower the overall quality of life for individuals.

While it is impossible to prevent an event from occurring, the effect from many hazards to people and property can be lessened. This concept is known as hazard mitigation, which is defined by the Federal Emergency Management Agency (FEMA) as *sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.*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 2015, the Rio Grande Council of Governments (RGCOG) prepared the El Paso County, Texas Multi-Hazard Mitigation Action Plan. That plan was to update the previous hazard mitigation action plan that was adopted by El Paso County and participating municipalities in 2007. The Rio Grande Council of Governments developed the plan for El Paso County as well as for the other five Texas counties in the Far West Texas region.

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 El Paso County, Texas Multi-Hazard Mitigation Action Plan in 2015, 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.

This Plan Update, hereinafter titled: “El Paso County Hazard Mitigation Action Plan Update 2021: Maintaining a Safe, Secure, and Sustainable Community” (Plan or Plan Update) was developed

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

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specifically for El Paso County, and is a multi-jurisdictional Plan. The participating jurisdictions include El Paso County, the City of El Paso, the City of San Elizario, the City of Socorro, the Town of Anthony, the Town of Clint, the Town of Horizon City, and the Town of Vinton.

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 to 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 El Paso County and the participating jurisdictions. 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 El Paso County, participating jurisdictions, 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 participating jurisdictions within El Paso County, 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 El Paso 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."*

Participating jurisdictions within El Paso County, 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:

- Minimize disruption to participating jurisdictions within El Paso County 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 participating jurisdictions within El Paso County to take advantage of rapidly developing mitigation grant opportunities as they arise; and
- Ensure that participating jurisdictions within El Paso County maintain eligibility for the full range of future Federal disaster relief.

SECTION 1: INTRODUCTION

AUTHORITY



The Plan is tailored specifically for participating jurisdictions within El Paso County 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 El Paso County’s population and economy.

Sections 4 through 20 present a hazard overview and information on individual natural hazards in the planning area. The hazards generally appear in order of priority based on potential losses to life and property, and other community concerns. For each hazard, the Plan Update presents a description of the hazard, a list of historical hazard events, and the results of the vulnerability and risk assessment process.

Section 21 presents hazard mitigation goals and objectives. Section 22 gives an analysis for the previous actions and Section 23 presents hazard mitigation actions for El Paso County and the participating jurisdictions. Section 24 identifies Plan maintenance mechanisms.

The list of planning team members and stakeholders is located in Appendix A. Public survey results are analyzed and presented in Appendix B. Appendix C contains a detailed list of critical facilities for the area, and Appendix D is dam locations. Appendix E contains information regarding workshops and meeting documentation. Capability Assessment results for participating jurisdictions within El Paso County are in Appendix F. Appendix G contains a flood map for the City of El Paso.³

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

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PLAN PREPARATION AND DEVELOPMENT

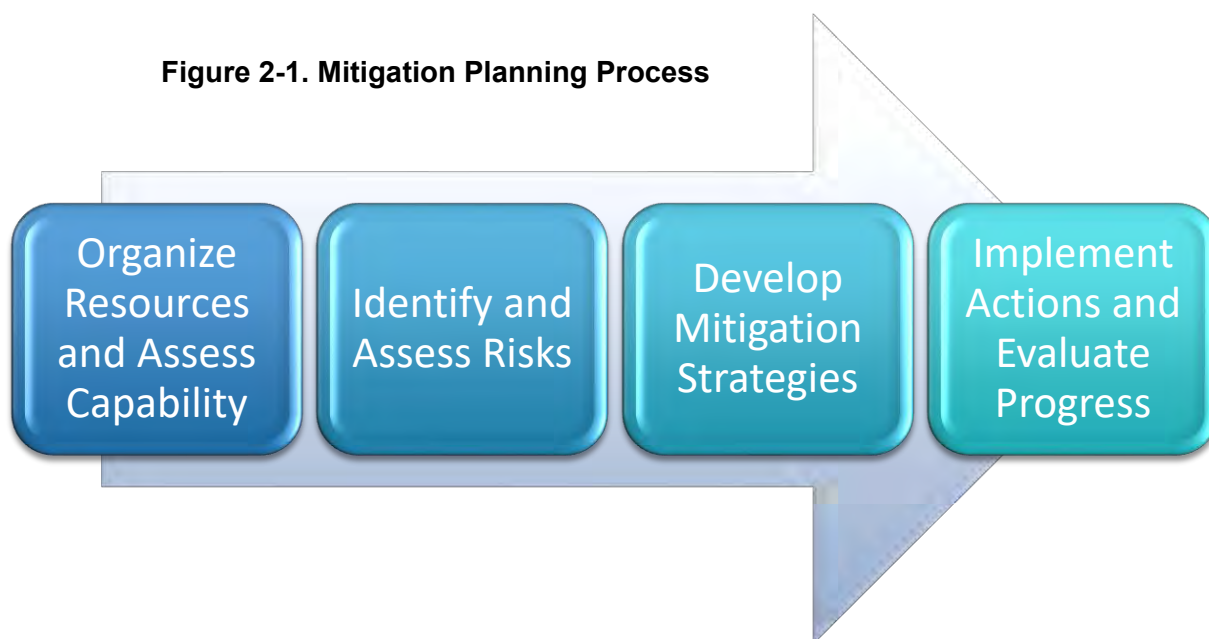
Hazard mitigation planning involves coordination with various constituents and stakeholders to develop a more disaster-resistant community. Section 2 provides an overview of the planning process including the identification of key steps and a detailed description of how stakeholders and the public were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

OVERVIEW OF THE PLAN

The City of El Paso hired H2O Partners, Inc. (Consultant Team), to provide technical support and oversee the development of the El Paso County Hazard Mitigation Action Plan Update 2021. 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.

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Figure 2-1. Mitigation Planning Process



El Paso County, participating jurisdictions, and the Consultant Team met in September 2020 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 each of the participating jurisdictions within El Paso County, 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 area organizations and departments from the participating jurisdictions within El Paso County that participated throughout the planning process.

Table 2-1. Executive Planning Team

| ORGANIZATION / DEPARTMENT | TITLE |
|---------------------------|---------------------------------|
| El Paso City / County OEM | AEMC – Battalion Chief |
| El Paso City / County OEM | Emergency Management Specialist |
| El Paso County | Chief Administrator |
| El Paso County | Public Policy Analyst |
| El Paso County | Chief Aide |

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| ORGANIZATION / DEPARTMENT | TITLE |
|---------------------------|------------------------------|
| El Paso County | Governmental Affairs Manager |
| City of El Paso | Mayor |
| City of San Elizario | Mayor |
| City of San Elizario | City Administrator |
| City of San Elizario | City Clerk |
| City of Socorro | Mayor |
| City of Socorro | City Manager |
| City of Socorro | Chief of Police |
| City of Socorro | Director |
| City of Socorro | Grants Coordinator |
| City of Socorro | Lieutenant |
| Town of Anthony | Mayor |
| Town of Anthony | Deputy Clerk |
| Town of Clint | Mayor |
| Town of Clint | Town Clerk |
| Town of Horizon City | Mayor |
| Town of Horizon City | Chief |
| Town of Vinton | Mayor |
| Town of Vinton | Village Administrator |

Table 2-2. Advisory Planning Team

| ORGANIZATION / DEPARTMENT | TITLE |
|---------------------------|-------------------------------------|
| El Paso City / County OEM | Emergency Management Coordinator |
| El Paso City / County OEM | Assistant EMC / Special Operations |
| El Paso County | Director of Infrastructure Services |
| El Paso County | Director of Public Works |
| El Paso County | Sergeant |
| El Paso County | Deputy (1) |

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| ORGANIZATION / DEPARTMENT | TITLE |
|---------------------------|-------------------------------------|
| El Paso County | Deputy (2) |
| El Paso County | Golf Professional |
| El Paso County | Chief of Operations |
| El Paso County | Deputy Chief Investigator |
| El Paso County | Chief Investigator ME Office |
| El Paso County | Marketing Coordinator |
| El Paso County | Aquatics Manager |
| El Paso County | Senior Grant Analyst |
| City of El Paso | 211 TX RGAIC Director |
| City of El Paso | ARFF Battalion Chief |
| City of El Paso | Emergency Management Specialist (1) |
| City of El Paso | Emergency Management Specialist (2) |
| City of El Paso | Emergency Management Specialist (3) |
| City of El Paso | Battalion Chief |
| City of El Paso | PHEP Program Manager |
| City of El Paso | Officer |
| City of El Paso | Streetcar Safety Manager |
| City of San Elizario | Aldersperson |
| City of Socorro | Building Official |
| City of Socorro | Coordinator |
| Town of Anthony | Town Clerk |

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 participating jurisdictions within El Paso County by organization and title.

Based on results of completed Capability Assessment, participating jurisdictions within El Paso County described methods for achieving future hazard mitigation measures by expanding existing capabilities. For example, several of the jurisdictions do not have a community wildfire protection plan in place. Other options for improving capabilities include the following:

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- 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 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, hail, and extreme heat. The actions include but are not limited to drainage improvement projects, installing generators at critical facilities, and educating citizens to practice hazard mitigation techniques.

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 El Paso County's identified vulnerabilities, specific mitigation strategies were discussed and developed at the Mitigation Strategy Workshop. Finally, Plan maintenance and implementation procedures were developed and are included in Section 24. 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 participating jurisdictions within El Paso County, agencies, and partners will participate in implementing the Plan Update.

KICKOFF WORKSHOP

The Kickoff Workshop was held on October 20, 2020 via webinar. 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 ISDs, the University of Texas at El Paso, the Rio Grande Council of Governments, Fort Bliss Emergency Management, and several local Medical Centers and Hospitals. In addition to the kickoff presentation, participants received the following information:

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

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

HAZARD IDENTIFICATION

At the Kickoff Workshop, and through e-mail and phone correspondence, the Planning Team conducted preliminary hazard identification. The Planning Team in coordination with the Consultant Team reviewed and considered a full range of natural hazards. Once identified, the teams narrowed the list to significant hazards by reviewing hazards affecting the area as a whole, the 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.

RISK ASSESSMENT

An initial risk assessment for participating jurisdictions within El Paso County was completed in December 2020 and results were presented to Planning Team members at the Risk Assessment Workshop held on December 10, 2020 via webinar. 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 20.

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 December 10, 2020 via webinar in conjunction with the Risk Assessment Workshop. 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 thunderstorm wind projects. Additionally, the

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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 23.

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 made available to the general public for review on the County's website, along with the participating jurisdictions' websites, with the chance to comment via sending an email.

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.

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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 the participating jurisdictions within El Paso County 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, the City of El Paso Water has several projects that reduce flooding and replace aging infrastructure: Sam Snead conduits from Lee Trevino to Pico Norte Pond, San Lorenzo pipe replacement and wastewater improvements, and Doniphan/Frontera inlet rehabilitation. In the past decade, El Paso Water completed construction of the Gateway ponds, Magnolia pond, Morenci pond, Pollard pond, and Austin pond. The ponds collectively hold 38 million gallons of stormwater. These projects helped reduce the risk of flooding on I-10 and removed the flooding risks from high traffic areas that could potentially save lives. Additionally, the City of Socorro has engaged in mitigation actions via the Sparks Arroyo Drainage Study; TxCDBG funded Sparks Arroyo Drainage Improvement Projects and the Onion Field Basin construction projects.

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 Plan, 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 El Paso County Hazard Mitigation Action Plan Update 2021.

INCORPORATION OF THE HMAP INTO OTHER PLANNING MECHANISMS

Planning Team members will integrate implementation of the Plan Update with other planning mechanisms for El Paso 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 the participating jurisdictions within El Paso County. 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.

Participating jurisdictions within El Paso County will be responsible for implementing hazard mitigation actions contained in Section 23. Each hazard mitigation action has been assigned to

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a specific County City, or Town 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.

Participating jurisdictions within El Paso County 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. El Paso County will work closely with area organizations to coordinate implementation of hazard mitigation actions that benefit the planning area in terms of financial and economic impact.

Upon formal adoption of the Plan 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. Participating jurisdictions within El Paso County 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, El Paso County 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 participating jurisdictions within El Paso County 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 | Participating jurisdictions within El Paso County have a Capital Improvement Plan (CIP) in place. Prior to any revisions to the CIP, County, City, and |

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| Planning Mechanism | Incorporation of Plan |
|-----------------------------|--|
| | Town 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 | Participating jurisdictions within El Paso County have Long-term Comprehensive Development Plans 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 participating jurisdictions within El Paso County update their management plans or develops new plans. |
| Grant Applications | The Plan will be evaluated by participating jurisdictions within El Paso County 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 | Currently, participating jurisdictions within El Paso County 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, City, and Town 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.

Additionally, the Hazard Mitigation Action Plan will be utilized to apply or meet reporting requirements for various grants such as Assistance to Firefighter Grants (AFG), Regional Catastrophic Preparedness Grant Program (RCPGP), Emergency Management Performance Grant (EMPG), and Building Resilient Infrastructure and Communities (BRIC). The Hazard

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Mitigation Action Plan will also be useful when the El Paso City/County Office of Emergency Management applies for reaccreditation through Emergency Management Accreditation Program (EMAP).

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 El Paso County, the City of El Paso, the City of San Elizario, the City of Socorro, and the Town of Horizon City are updated every 5 years and incorporates goals, objectives and actions identified in the mitigation plan.

PLAN REVIEW AND PLAN UPDATE

As with the development of Plan Update, participating jurisdictions within El Paso County 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 twice a year, by conference call or presentation, to re-evaluate prioritization of the hazard mitigation actions. One meeting will be internal among the individual jurisdictions, while a second meeting will include all of the participating jurisdictions along with the public.

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 participating jurisdictions within El Paso County. Short-term goals are defined as less than a year; medium-term goals are defined as between 1 and 3 years; and long-term goals are defined as between 3 and 5 years.

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. Participating jurisdictions within El Paso County 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

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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 El Paso County Hazard Mitigation Action Plan Update 2021 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 what actions they felt should be included and prioritized.

The Plan Update will be advertised and posted on El Paso County and participating jurisdictions' websites upon approval from FEMA, and a copy will be kept at the El Paso County courthouse.

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 El Paso County'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 |
|---------------------------------------|--------------------------|--------------|
| American Red Cross | Disaster Program Manager | x |
| Anthony Water and Sanitation District | Office Manager | x |
| Anthony Water and Sanitation District | Superintendent | |
| Anthony Water and Sanitation District | Lead Operator | |
| Border RAC | Executive Director | |
| Border RAC | HPP Specialist TSA-1 | |
| Bureau of Reclamation | Civil Engineer | x |
| Community Options | Program Manager | x |

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| AGENCY | TITLE | PARTICIPATED |
|---|--|--------------|
| Customs and Border Patrol (DHS) | CBP AMO | |
| Customs and Border Patrol | BP Agent | |
| Cyber and Critical Infrastructure Security Agency | PSA | x |
| Del Sol Medical Center | Security Director | x |
| Del Sol Medical Center | Safety Officer | x |
| Department of State Health Service | Epidemiologist | |
| Department of State Health Service | Training Specialist / Preparedness & Epidemiology Response Program | |
| Department of State Health Service | R.N., Manager Epidemiology Response Team | |
| Department of State Health Service | MD, MPH Regional Medical Director Region 9/10 | |
| Department of State Health Service | Regional Planner | |
| D&H | Environmental Sales Representative | |
| Education Service Center (ESC) Region 19 | Executive Director | |
| El Paso County / City IT Security | Information Security Assurance Manager | x |
| El Paso County Tornillo WID | Business Manager | |
| El Paso County Tornillo WID | Field Manager | |
| El Paso County Water Improvement District No.1 | District Engineer | |
| El Paso Electric | Senior Risk Analyst | x |
| El Paso Fire Department | ARFF Battalion Chief | x |
| El Paso Fire Department | Fire Marshall Office / Deputy Chief | |
| El paso Fire Department | Chief Deputy | |
| El Paso Fire Department | Battalion Chief | x |
| El Paso Fire Department | Communications | |
| El Paso International Airport | Airport Security Coordinator | |
| El Paso Police Department | Sergeant | x |
| El Paso Police Department | Officer | x |

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| AGENCY | TITLE | PARTICIPATED |
|---|--|--------------|
| El Paso Public Affairs | Strategic Communications Director | |
| El Paso Public Affairs | JIC | |
| El Paso Streets and Maintenance | Streets and Maintenance Director | |
| El Paso Water District 1 | Maintenance Manager | |
| El Paso Water | Utility Security & Emergency Response Coordinator | x |
| El Paso Water Utility | Emergency Management Specialist | x |
| Emergence Health Network | Chief Nursing Officer | |
| EPISD | Safe and Secure Schools Manager | |
| Fabens Water District | General Manager | |
| Fabens Water District | Office Manager | |
| Fort Bliss Emergency Management | Fort Bliss Emergency Manager | x |
| Fort Bliss Fire Department | Ft. Bliss Fire Safety | |
| Horizon PD | Horizon PD | |
| Horizon PD | HCPD | |
| Horizon Regional MUD | Operations Manager | |
| International Boundary and Water Commission | Chief, Security Services Division (Emergency Management) | |
| International Boundary and Water Commission | Operations Department / Principal Engineer | |
| Las Palmas Medical Center | Safety Officer | x |
| Las Palmas Medical Center | Facilities Director | x |
| Lower Valley Water District | General Manager | x |
| NWS El Paso | Warning Coordination Meteorologist | x |
| Parkhill | Engineer | x |
| Peseo Del Este Municipal Water District | General Manager | |
| Rio Grande Council of Governments | Regional Services Coordinator | x |
| Rio Grande Council of Governments | Regional Services Director | |
| Salvation Army | Social Services Manager | |

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| AGENCY | TITLE | PARTICIPATED |
|---|---|--------------|
| Sheriff's Office | Sergeant | x |
| Sheriff's Office | Deputy | x |
| SISD | Superintendent of Schools | |
| SISD | SISD PD | |
| SISD | RN | x |
| Sun Metro | Sun Metro Safety-Security | |
| TCEQ | Support Contractor / BIO Watch | |
| TDEM | TDEM Assistant Chief Region 4 | |
| TDEM | Administrative Associate | x |
| TDEM – DC8 | District Coordinator | |
| TSA (DHS) | TSA/FAMS | x |
| TXDOT | Transportation Engineer | |
| Union Pacific Railroad | Hazardous Material Manager SW Region | x |
| United Way | Vice President of Community Impact | |
| University Medical Center / Children's Hospital | Safety and Emergency Management Specialist | x |
| University of Texas at El Paso | Assistant Professor | x |
| University of Texas at El Paso | Environmental Health & Safety Assistant, Vice President | |
| University of Texas at El Paso | Safety Manager | |
| USIBWC | GIS Geographer | |
| Urgent Care Hospice | LMSW | x |
| Volunteer Organizations Active in Disasters (VOAD) | Vice President of Community Impact | |
| Ysleta Del Pueblo Sur (YDPS) | Director of Community Development | |
| Ysleta Del Pueblo Sure (YDPS) PD | Chief of Police | |
| Ysleta Del Pueblo Sure (YDPS) FD | YDSP Fire | |
| Ysleta Del Pueblo Sur (YDPS) – Tribal Department of Public Safety | Emergency Management Coordinator | x |

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| AGENCY | TITLE | PARTICIPATED |
|--------------|--------------------------------|--------------|
| Ysleta ISD | Director, Emergency Operations | x |
| 311 | Unit Coordinator | |
| 911 District | CAD 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, extreme heat was one of the concerns to stakeholders, so participating jurisdictions included actions to conduct a fan drive to prepare for periods of extreme heat, and to open cooling centers during extreme heat events.

PUBLIC MEETINGS

A series of public meetings were held throughout the El Paso County 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. Each participating jurisdiction within El Paso County 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:

- October 20, 2020, Adobe Connect Webinar
- December 10, 2020, Adobe Connect Webinar

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 9 surveys were completed online. The survey results are analyzed in Appendix B. Participating jurisdictions within El Paso County reviewed the input from the surveys and decided which information to incorporate into the Plan as hazard mitigation actions. For example, many citizens mentioned concerns about flood, and suggested using additional funding to improve the arroyos. In response, several actions were added to the Plan to inspect, monitor and educate owners of arroyos to prevent illegal dumping, remove overgrown vegetation and re-establish flow paths within private property, and to stabilize arroyos in steep locations that show signs of erosion with native vegetation.

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OVERVIEW

The Spanish name El Paso del Norte denotes a historically important geographical point, the channel cut by the Rio Grande through the mountains to form a natural passageway for travelers to the north or south, east or west. The name El Paso appears in print as early as 1610, in the narrative of Gaspar Pérez de Villagr , poet-historian of the O ate expedition of 1598. This large colonizing expedition claimed for the king of Spain all the vast territory of the upper Rio Grande. In 1680 an Indian uprising drove the Spaniards out of New Mexico. Many of them found refuge in the El Paso valley, bringing with them members of two Indian tribes, the Tiguas and the Piros.

The people of El Paso had little involvement with the Republic of Texas. As an old and valued part of the Republic of Mexico, the El Paso area went its own way. Then came the Mexican War, and the resulting Treaty of Guadalupe Hidalgo in 1848, which made all the area north of the Rio Grande a part of the United States. Suddenly the historic gateway at the pass became important to Texas and the state almost immediately attempted to assert its right to the area. On March 15, 1848, the Texas legislature proclaimed Santa Fe County, which included the area of present-day El Paso County as well as other parts of west Texas and much of the present-day state of New Mexico.

In January 1850, the Texas legislature subdivided Santa Fe County into four smaller counties, one of which was named El Paso County and in February 1850, another attempt to organize the area was made. This time it was successful, and San Elizario, the ancient Spanish presidio town, was chosen to be the county seat. At the time, San Elizario was the county’s largest town and possibly the largest settlement between San Antonio and the West Coast.

In 1866 the county’s government was moved from San Elizario to Ysleta, one of the oldest settlements in the county. Then, in 1868, San Elizario again became the county seat; it retained the role until 1873, when another election made Ysleta county seat. In 1883, after yet another hotly contested election, El Paso became the county seat.

The decision to make El Paso the seat of government reflected the city’s growing importance as an international transportation hub during a period of rapid economic development in the county. In 1881, four railroads built their way into the county. The arrival of the railroads helped El Paso County, already a crossroads of transportation, burgeon into a major metropolitan area.

Just across the Rio Grande is another metropolitan area, Ciudad Ju rez, Chihuahua, the largest Mexican city on the border. The blending of two cultures is everywhere present on both sides of the border. Mexico, beset in the 1980s by inflation and unemployment, saw its citizens moving,

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legally and illegally, towards an anticipated better life in the United States. Thousands of aliens crossing the river without authorization were captured monthly and sent back to their own country, but a large number succeeded in entering Texas. On the positive side, border commerce gives rich benefits to both countries.

El Paso County comprises of 1,015 square miles (of which 1,013 miles is land and 2.3 square miles is water) of desert and irrigated land that rises from an elevation of 3,500 feet at the Rio Grande to 7,000 feet at the summits of the Franklin Mountains. The Rio Grande valley in this area has been irrigated since prehistoric times and produces bountiful harvests. Agriculture depends entirely upon irrigation from the river. Some 240 square miles of the county is occupied by the City of El Paso, the largest United States city on the Mexican border and the sixth-largest city in Texas.^{1 2}

Figure 3-1 shows the general location of El Paso County along the border of the United States and Mexico.

Figure 3-1. Location of El Paso County



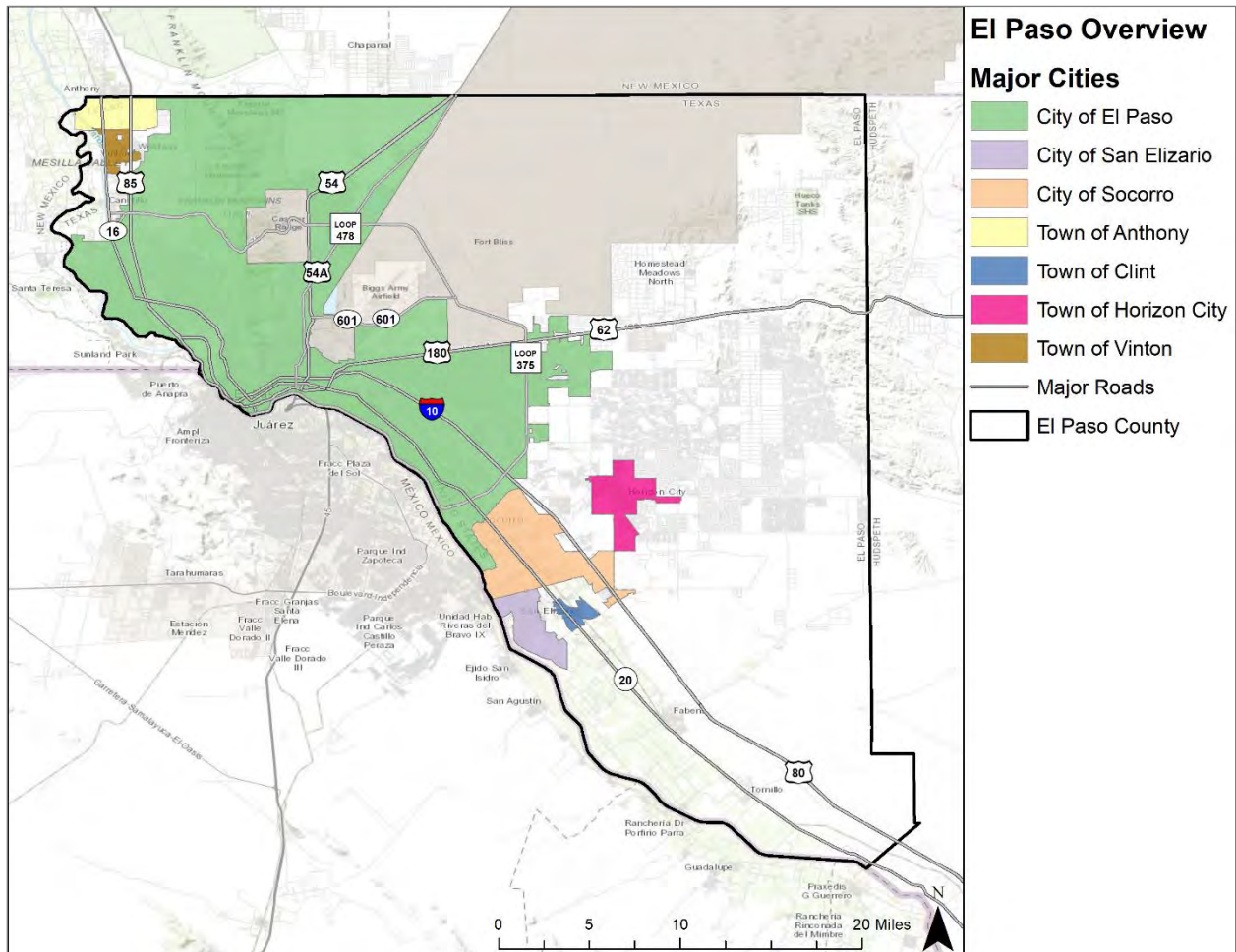
Figure 3-2 shows the participating jurisdictions within El Paso County that are covered in the risk assessment analysis of the Plan Update.

¹ Source: <https://www.tshaonline.org/handbook/entries/el-paso-county>

² Source: <https://www.elpasotexas.gov/economic-development/>

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Figure 3-2. El Paso County Planning Area



Provided in Table 3-1 below is a listing of the jurisdictions in El Paso County that participated in the El Paso County Hazard Mitigation Action Plan Update 2021.

Table 3-1. Participating Jurisdictions

| PARTICIPATING JURISDICTIONS |
|-----------------------------|
| El Paso County |
| City of El Paso |
| City of San Elizario |
| City of Socorro |
| Town of Anthony |
| Town of Clint |
| Town of Horizon City |
| Town of Vinton |

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POPULATION AND DEMOGRAPHICS

In the official Census population count, as of April 1, 2010, El Paso County has a population of 800,647 residents. By 2018, the number was estimated at 837,654. Table 3-2 provides the population distribution by jurisdiction within El Paso County based on the 2010 Census information.³

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

Table 3-2. Population Distribution by Jurisdiction

| JURISDICTION | TOTAL 2010 POPULATION | PERCENTAGE (based on 2010 Population) | 2018 POPULATION ESTIMATE | ESTIMATED VULNERABLE OR SENSITIVE POPULATIONS ⁴ | | |
|-------------------------------|-----------------------|---------------------------------------|--------------------------|--|-------------------|---------------------|
| | | | | Youth (Under 5) | Elderly (Over 65) | Below Poverty Level |
| City of El Paso | 649,121 | 81.1% | 680,354 | 51,165 | 84,690 | 136,071 |
| City of San Elizario | 13,603 | 1.7% | 9,197 | 748 | 1,157 | 3,467 |
| City of Socorro | 32,013 | 4.0% | 33,923 | 2,814 | 3,902 | 9,125 |
| Town of Anthony | 5,011 | 0.6% | 5,578 | 394 | 494 | 1,361 |
| Town of Clint | 926 | 0.1% | 718 | 65 | 237 | 139 |
| Town of Horizon City | 16,735 | 2.1% | 19,479 | 1,878 | 982 | 2,260 |
| Town of Vinton | 1,971 | 0.2% | 1,773 | 143 | 97 | 624 |
| Unincorporated El Paso County | 81,267 | 10.2% | 86,632 | 7,975 | 5,905 | 25,373 |
| El Paso County | 800,647 | 100% | 837,654 | 65,182 | 97,464 | 178,420 |

POPULATION GROWTH

The official 2010 El Paso County population is 800,647. Overall, El Paso County experienced an increase in population between 1980 and 2010 by 66.8%, or an increase by 320,748. The Town of Clint experienced a decrease in population between 1980 and 2010. Between 2000 and 2010, the Town of Clint was the only participating jurisdictions to experience a population decline; the other participating jurisdictions, including El Paso, as a whole, experienced a population growth. Table 3-3 provides historic growth rates in El Paso County.

³ Source:

<https://www.census.gov/quickfacts/fact/table/elpasocountytexas,elpasocitytexas,sanelizariocitytexas,socorrocitytexas,anthonytowntexas,horizoncitycitytexas/PST120219> and <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2018/>

⁴ The Estimated Vulnerable or Sensitive Populations are based off the 2018 American Community Survey.

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Table 3-3. Population for El Paso County, 1980-2010

| JURISDICTIONS | 1980 | 1990 | 2000 | 2010 | POP CHANGE 1980-2010 | PERCENT OF CHANGE | POP CHANGE 2000-2010 | PERCENT OF CHANGE |
|-------------------------------|----------------|----------------|----------------|----------------|----------------------|-------------------|----------------------|-------------------|
| City of El Paso | 426,647 | 516,574 | 564,841 | 649,121 | 222,474 | 52.14% | 84,280 | 14.92% |
| City of San Elizario | 1,548 | 4,385 | 11,046 | 13,603 | 12,055 | 778.75% | 2,557 | 23.15% |
| City of Socorro | - | 22,995 | 27,152 | 32,013 | - | - | 4,861 | 17.90% |
| Town of Anthony | 2,640 | 3,328 | 3,850 | 5,011 | 2,371 | 89.81% | 1,161 | 30.16% |
| Town of Clint | 1,314 | 1,035 | 980 | 926 | -388 | -29.53% | -54 | -5.51% |
| Town of Horizon City | - | 2,308 | 5,233 | 16,735 | - | - | 11,502 | 219.80% |
| Town of Vinton | 372 | 605 | 1,892 | 1,971 | 1,599 | 429.84% | 79 | 4.18% |
| Unincorporated El Paso County | 47,378 | 40,380 | 64,628 | 81,267 | 33,889 | 71.53% | 16,639 | 25.75% |
| El Paso County | 479,899 | 591,610 | 679,622 | 800,647 | 320,748 | 66.84% | 121,025 | 18.69% |

FUTURE DEVELOPMENT

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

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

Table 3-4. El Paso County Population Projections

| County | LAND AREA (SQ MI) | 2010 | | 2020 | | 2030 | | 2040 | |
|---------|-------------------|--------------|----------------------------|--------------|----------------------------|--------------|----------------------------|--------------|----------------------------|
| | | Population | | | | | | | |
| | | Total Number | Density (Land Area, SQ MI) | Total Number | Density (Land Area, SQ MI) | Total Number | Density (Land Area, SQ MI) | Total Number | Density (Land Area, SQ MI) |
| El Paso | 1,013 | 800,647 | 790.4 | 922,609 | 910.8 | 1,049,546 | 1,036.1 | 1,163,720 | 1,148.8 |

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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 the participating jurisdictions within El Paso County. 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. El Paso County is the largest metro area on the Texas/Mexico border. As a best in-class-location, El Paso offers one of North America's most efficient business environments while affording a great living experience. El Paso County is strategically located on the U.S. / Mexico border with its sister city, Ciudad Juarez, making it the largest bi-national region in the world. El Paso County has seen a transformation in its commercial and urban setting as major investors have taken note of its great location, favorable business climate, and world class infrastructure including:

- Large clusters of manufacturing: automotive, electronics, and biomedical
- State-of-the-art technology infrastructure
- Access to a regional market of more than 3 million
- Five ports of entry serving U.S./Mexico trade
- El Paso International Airport linking industry to global markets, and
- One of only eight international communication gateways in the U.S.

El Paso County's Economic Development department's mission is to create job opportunities for new and existing industrial and commercial development that expands the tax base, thereby improving the quality of life and prosperity of the county.

As the sixth-largest city in Texas, the City of El Paso is a top 20% U.S. performing economy and continues to experience positive economic growth by attracting new businesses and helping existing companies to grow. The City's focus is to create new employment opportunities in the 21st century industries, maintain a great quality of life, and facilitate business growth at the local and international levels.

EXISTING AND FUTURE LAND USE AND DEVELOPMENT TRENDS

The following jurisdictions have a Master or Comprehensive Plan in place: El Paso County, City of El Paso, City of San Elizario, City of Socorro, Town of Anthony, Town of Horizon City, and Town of Vinton. These plans are part of a continuous process to provide an environment for the citizens and to consider the general desire of the community to conserve, preserve, and protect the natural environment of their jurisdiction. These plans are used to guide individuals in making decisions which affect the community with the understanding of the long-term effects.

Plan El Paso, the City of El Paso's Comprehensive Plan, provides the basis for El Paso's regulations and policies that guide its physical and economic development. Plan El Paso establishes priorities for public action and direction for complementary private decisions. Plan El Paso contains illustrative plans, diagrams, maps, and pictures to make its concepts clear and accessible to City officials, residents, developers, community groups, and other stakeholders.

SECTION 3: COUNTY PROFILE

The City of San Elizario Comprehensive Plan is the official land use and development policy statement of the City. This comprehensive plan offers a unified vision as well as specific goals and objectives to guide the City of San Elizario in achieving the desired vision: San Elizario's vision for the future is one which aims to preserve and protect the community's priceless historic and agricultural resources and basic community character while at the same time seizing opportunities for sustainable economic growth consistent with that character. The city's policies in furtherance of this vision shall strive to achieve sustainable development that improves the quality of life of its citizens.

The City of Socorro's Comprehensive Master Plan details existing conditions and determines future needs in the following areas: land use, transportation, housing, historic preservation, economic development, natural and cultural resources, community facilities and services, neighborhood redevelopment and parks.

The Town of Anthony's Comprehensive Master Plan holistically evaluates key issues facing the community. The plan addresses: long term economic and environmental sustainability, affordable housing, economic development, community safety recreation and youth concerns, infrastructure needs and pedestrian amenities. The resulting Master Plan will guide future land use regulations, development patterns and government policy.

The Town of Horizon City's Comprehensive Plan's purpose is to establish a sustainable plan of action for the future physical and economic development of the community. The plan is intended to articulate community desires for the future by providing predictable, achievable, and affordable policies, as well as desired future land uses. The plan identifies opportunities and issues for housing market trends, parks, city services, land use, transportation, and environmental factors.

The Town of Vinton's Comprehensive Plan highlights key planning considerations for the years ahead and focus areas include: Land Use and Growth, Transportation and Mobility, Economic Opportunity, and Parks Master Plan Update.

SECTION 4: RISK OVERVIEW

Hazard Description 1
Natural Hazards and Climate Change 4
Overview of Hazard Analysis 5
Hazard Ranking and THIRA Analysis 6

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, participating jurisdictions within El Paso County 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-technological¹ 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 extreme heat, extreme wind, hail, lightning, tornado, and winter storm (Table 4-1).

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

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

For the Risk Assessment, the earthquake and wildfire hazards are considered “other,” since this hazard is not considered atmospheric, hydrologic, nor technological.

The man-made hazards include: cyber-attack, hazardous materials, infectious disease, mass migration, and terrorism.

¹ While dam failure is generally considered a quasi-technological hazard, it is profiled in the Plan Update as a natural hazard, i.e. a breach caused by extensive rainfall or flooding or from an earthquake.

SECTION 4: RISK OVERVIEW

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. |
| Extreme Wind | Extreme winds can have gusts of 100 mph or more and are often accompanied by hail or rain. Windstorms have a broader path that is several miles wide and can cover several counties. |
| 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. |
| 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. |
| 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. |

SECTION 4: RISK OVERVIEW

| 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 | |
| Earthquake | An earthquake is the sudden, rapid, shaking of the earth, caused by the breaking and shifting of subterranean rock as it releases strain that has accumulated over a long time. Initial mild shaking may strengthen and become extremely violent within seconds. |
| 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 | |
| Cyber Attack | 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. |
| 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. |

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| HAZARD | DESCRIPTION |
|-----------------------|---|
| Mass Migration | A migration of undocumented aliens that is of such magnitude and duration that it poses a risk to the national security of the United States along the border as well as a humanitarian crisis. |
| 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, along with the evaluation process used for determining the significance of each of these hazards. Hazards not identified for inclusion at this time may be addressed during future evaluations and updates.

Table 4-2. 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. |
| 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. |
| Hurricane | The planning area is not located within 200 miles of the coast; therefore, hurricanes do not pose a risk. Any remnants of a hurricane or tropical storm system would only include thunderstorm winds and rainfall and would be covered under flood or thunderstorm wind mitigation measures. |
| 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

SECTION 4: RISK OVERVIEW

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 participating jurisdictions within El Paso County. 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 El Paso County, 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. |

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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 consequence analysis 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 El Paso 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 all participating jurisdictions within El Paso County was reviewed based on recent development changes that occurred throughout the planning area. El Paso County has increased slightly between 2010 and 2018 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.

HAZARD RANKING AND THIRA ANALYSIS

Table 4-5 portrays the results of the County's self-assessment for hazard ranking, based on the preliminary results of the risk assessment presented at the Risk Assessment Workshop. This

SECTION 4: RISK OVERVIEW

table also takes into account local knowledge regarding frequency of occurrence and the potential impact of each hazard.

Table 4-5. Hazard Risk Ranking

| HAZARD | FREQUENCY OF OCCURENCE | POTENTIAL SEVERITY | RANKING |
|--------------------|------------------------------|--------------------|----------|
| Flood | Highly Likely | Substantial | High |
| Extreme Wind | Highly Likely | Substantial | High |
| Extreme Heat | Highly Likely | Limited | High |
| Drought | Highly Likely | Limited | Moderate |
| Lightning | Highly Likely | Limited | Moderate |
| Hail | Highly Likely | Minor | Moderate |
| Winter Storm | Likely | Limited | Moderate |
| Cyber Attack | Highly Likely ^[1] | Major | Moderate |
| Mass Migration | Highly Likely | Major | Moderate |
| Dam Failure | Unlikely | Limited | Low |
| Tornado | Occasional | Limited | Low |
| Wildfire | Likely | Limited | Low |
| Earthquake | Unlikely | Limited | Low |
| Terrorism | Unlikely | Major | Low |
| Hazardous Material | Occasional | Limited | Low |
| Infectious Disease | Unlikely | Substantial | Low |

Table 4-6 portrays the THIRA and Consequence Analysis from the Rio Grande Council of Government's 2020 Threat and Hazard Identification and Risk Assessment (THIRA). The THIRA helps communities understand their risk and determine the level of capability they need in order to address those risks. The outputs from the process lay the foundation for determining a community's capability gaps during the Stakeholder Preparedness Review (SPR) process.

^[1] There are several types of cyber-attack that are discussed in Section 20, all of which have individual frequency of occurrence determined.

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Table 4-6. THIRA and Consequence Analysis²

| HAZARD | LIKELIHOOD | IMPACT ON: | | | | | | | | |
|---------------------|---------------|--------------------------|----------------|------------|--------------------------|--------------------------------|-------------------------------|---------------|---------------|---------------------------------|
| | | Public Health and Safety | Property | Responders | Continuity of Operations | Continued Delivery of Services | Facilities and Infrastructure | Economic Cost | Environment | Public Confidence in Governance |
| Drought | Highly Likely | Moderate | Moderate | Moderate | Limited | Limited | Moderate | Moderate | Major | Limited-Moderate |
| Earthquake | Occasional | Moderate | Moderate | Limited | Moderate | Moderate | Moderate | Moderate | Major | Major |
| Lightning | Highly Likely | Moderate | Limited | Moderate | Limited | Limited | Limited | Limited | Limited | Limited |
| Flood | Highly Likely | Major | Moderate-Major | Moderate | Moderate | Moderate-Major | Moderate | Moderate | Moderate | Major |
| Thunderstorm Wind | Highly Likely | Moderate | Major | Major | Limited | Limited | Moderate | Moderate | Moderate | Limited |
| Hail | Likely | Moderate | Major | Major | Limited | Limited | Moderate | Major | Limited | Limited |
| Tornado | Likely | Moderate | Moderate | Moderate | Moderate | Limited | Moderate | Limited | Moderate | Limited |
| Wildfire | Occasional | Moderate | Moderate | Moderate | Limited | Limited | Limited | Limited | Moderate | Moderate |
| Winter Storm | Likely | Moderate | Moderate | Major | Moderate | Moderate | Moderate | Moderate | Limited | Moderate |
| Extreme Heat | Highly Likely | Major | Moderate | Major | Moderate | Limited | Limited | Moderate | Limited | Limited |
| Dam/Levee Failure | Occasional | Major | Major | Major | Major | Moderate | Moderate | Major | Major | Major |
| Hazardous Materials | Highly Likely | Moderate | Moderate | Limited | Limited | Moderate | Moderate | Moderate | Major | Major |
| Terrorism | Likely | Moderate | Moderate | Major | Major | Major | Moderate | Major | Limited-Major | Major |
| Infectious Disease | Likely | Major | Limited | Major | Moderate | Moderate | Moderate | Major | Limited | Major |
| Cyber-Attack | Likely | Limited | Limited | Moderate | Moderate | Limited | Limited | Moderate | Limited | Major |
| Mass Migration | Likely | Limited | Limited | Moderate | Limited | Limited | Moderate | Major | Limited | Moderate |

² The terms used in this table are reflective of the THIRA and not the Hazard Mitigation Plan.

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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 Flood Insurance Rate Map (FIRM) data provided by FEMA for El Paso County and all participating jurisdictions shows the following flood hazard areas:

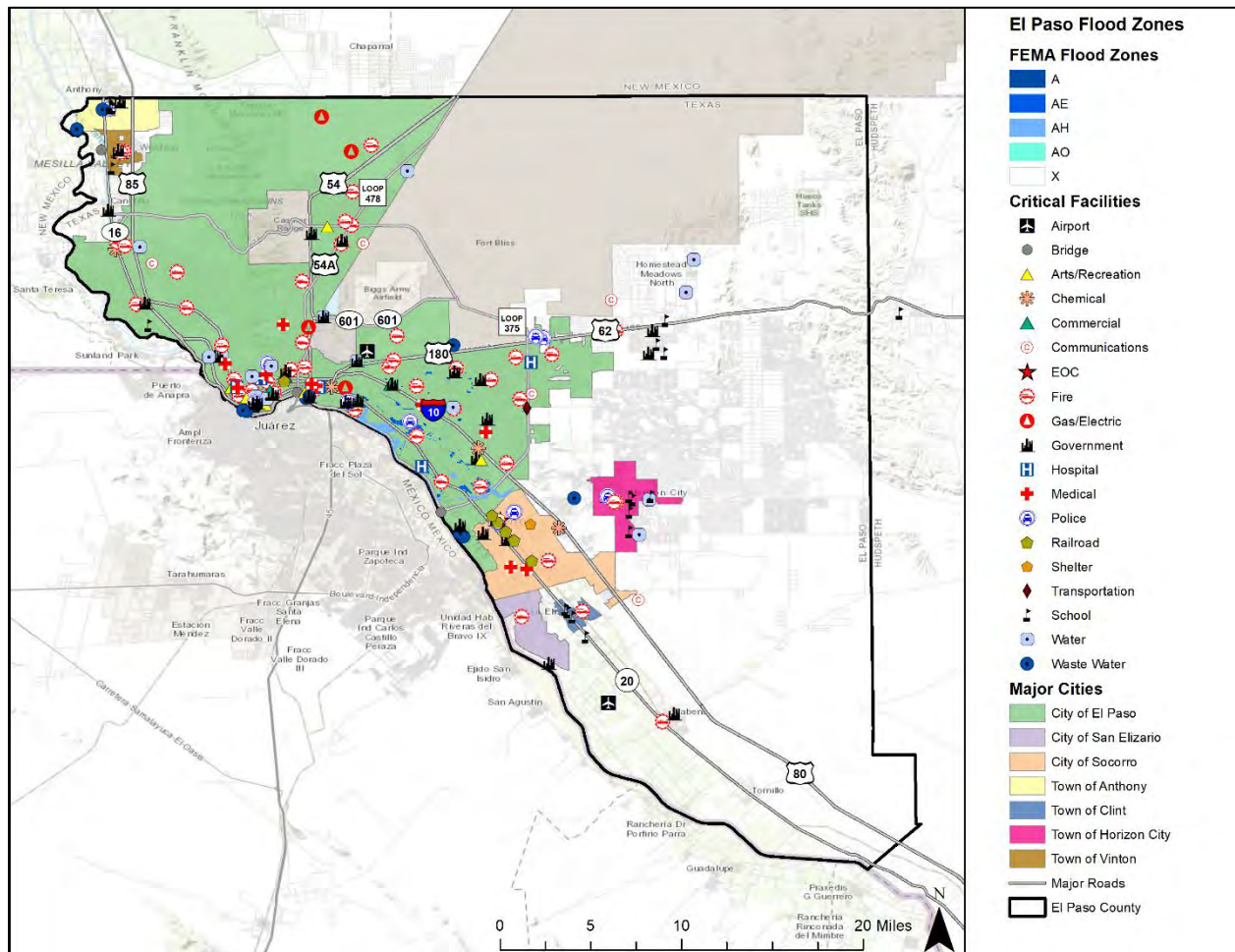
- Zone A: Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance requirements and floodplain management standards apply.
- Zone AE: Areas subject to inundation by 1-percent-annual-chance shallow flooding. It is the base floodplain where BFEs are provided. AE zones are now used on new format FIRMs instead of A1-30 zones.

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- Zone AO: Areas subject to 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet.
- Zone X (Previously known as B): 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.

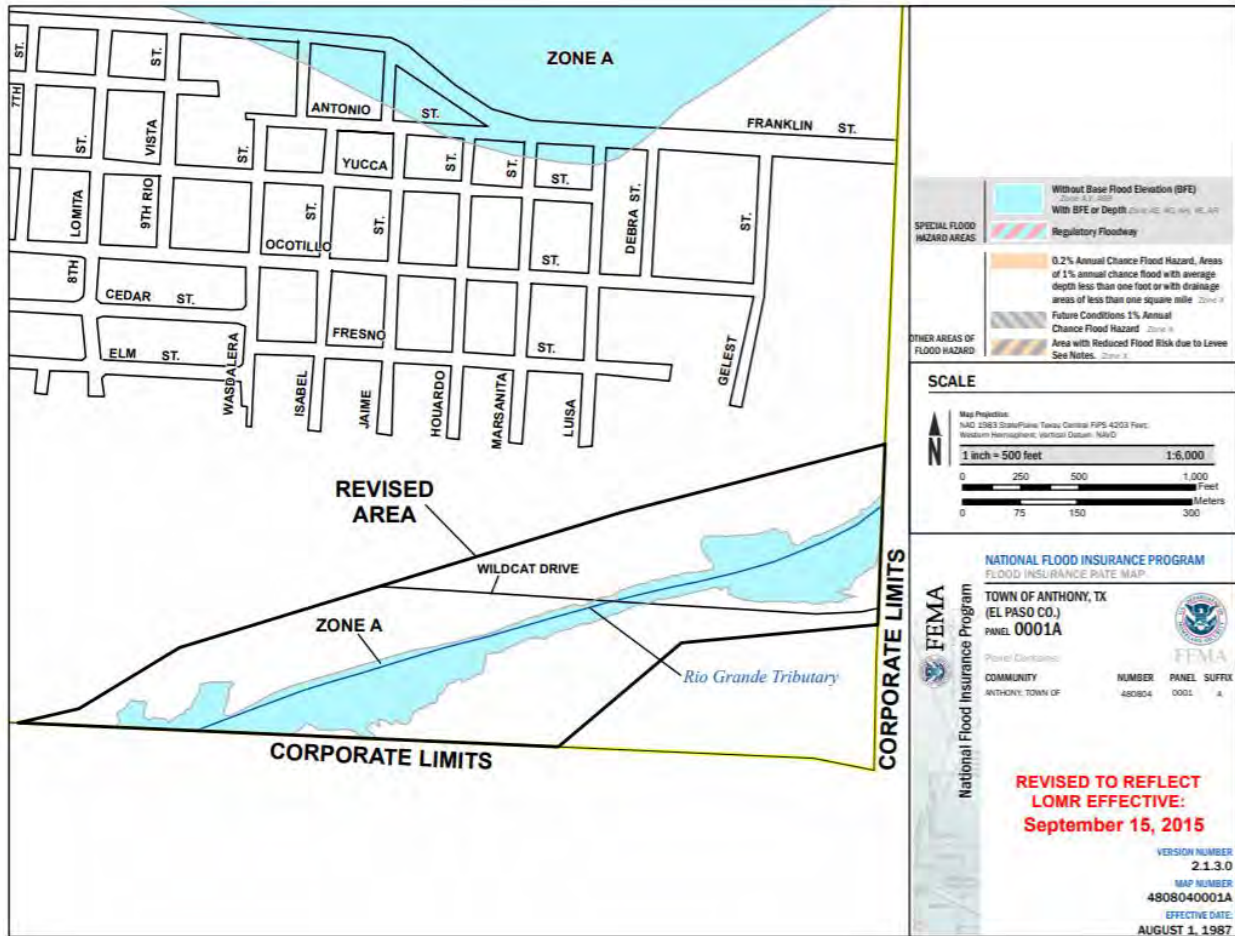
Locations of flood zones in El Paso County and all participating jurisdictions are based on the Flood Insurance Rate Map (FIRM) from FEMA are detailed below (Figure 5-1 through 5-8).

Figure 5-1. Estimated Flood Zones in the El Paso County



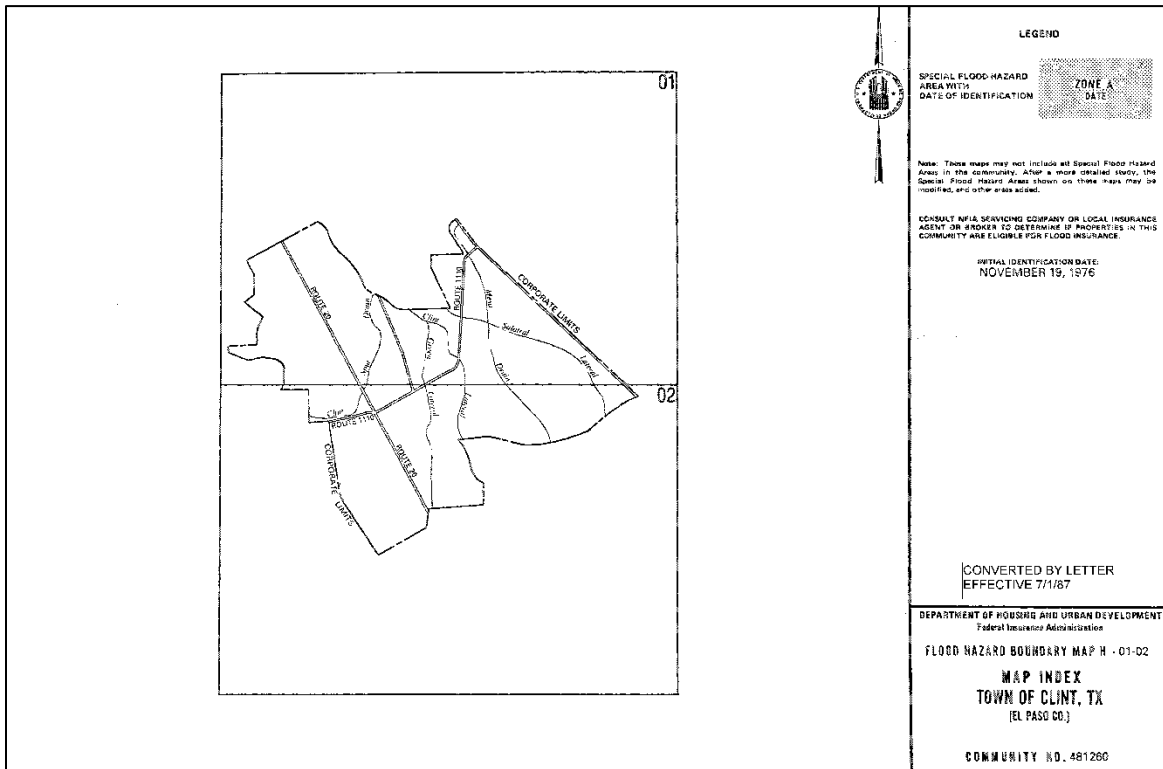
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Figure 5-2. Estimated Flood zones in the Town of Anthony



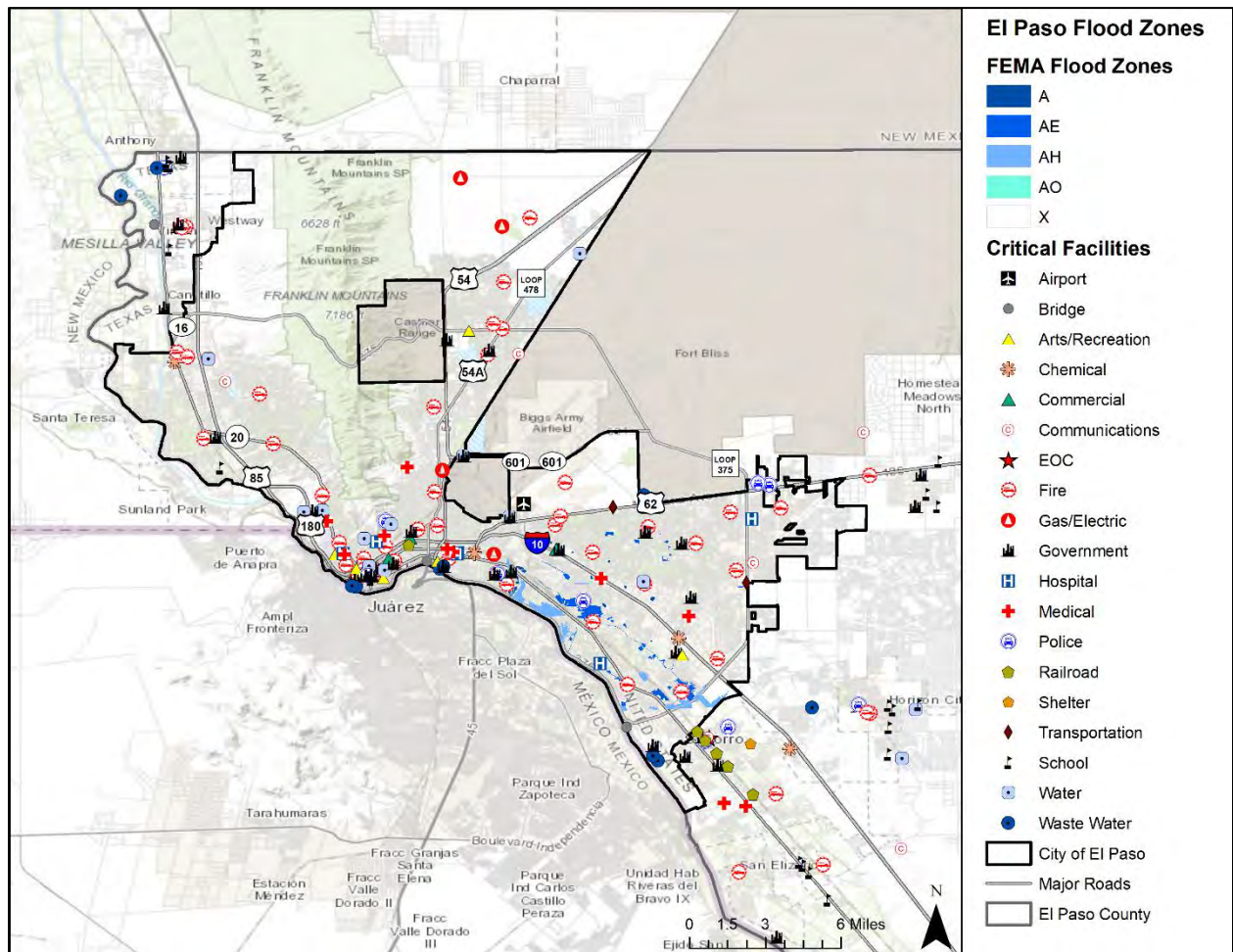
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Figure 5-3. Estimated Flood Zones in the Town of Clint



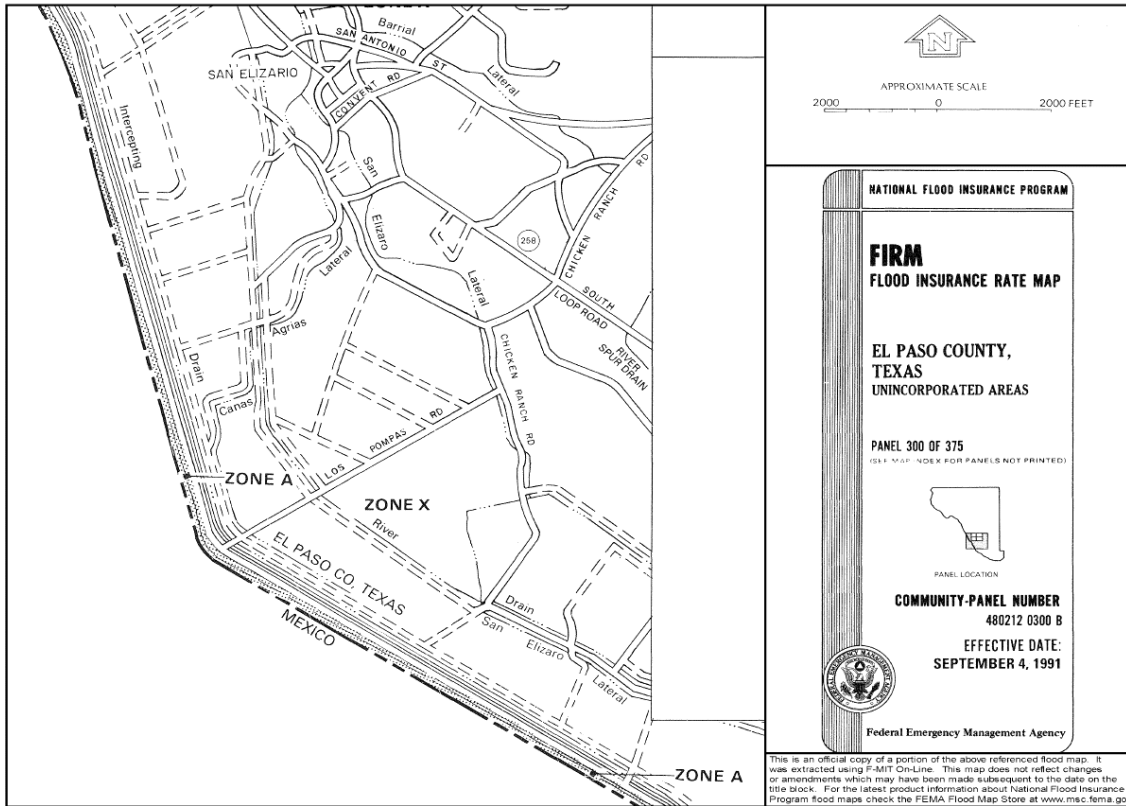
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Figure 5-4. Estimated Flood Zones in the City of El Paso



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Figure 5-5. Estimated Flood Zones in the City of San Elizario¹

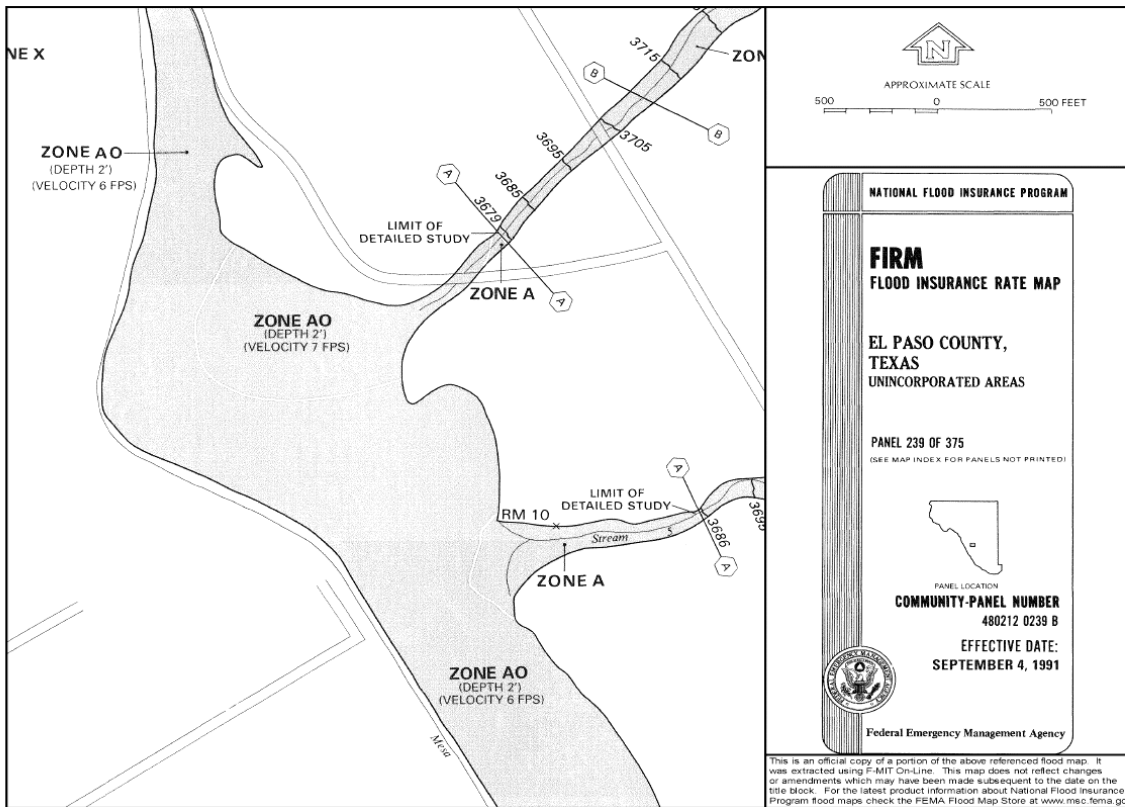
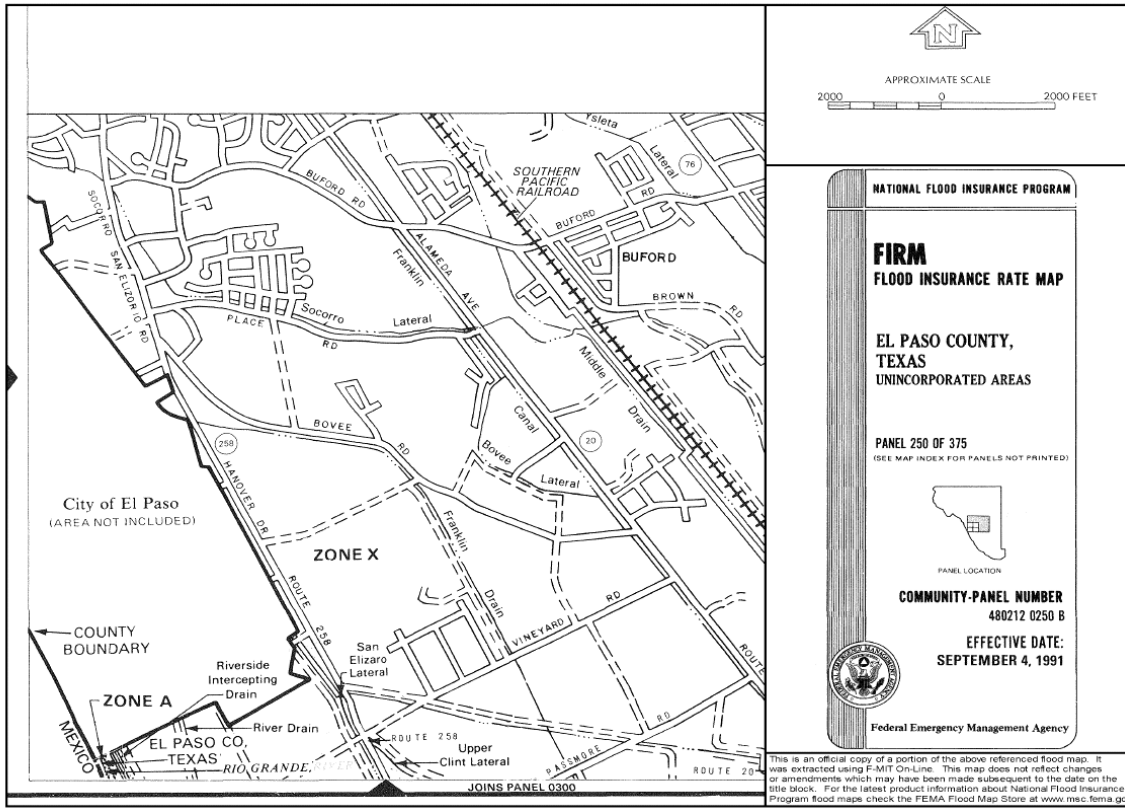


The community has a narrow designated floodplain (X zone) that runs along the banks of the Rio Grande River and may impact a small residential neighborhood along Valle Bajo Road. In addition, there is a significant area of ponding (AO zone) that runs along the east side of Alameda Avenue through the entire city. There is significant development along this road that could be minimally impacted including more than 35 commercial structures, three small residential neighborhoods, two manufactured home parks and a school.

¹ Map only depicts area in the City with flood zones.

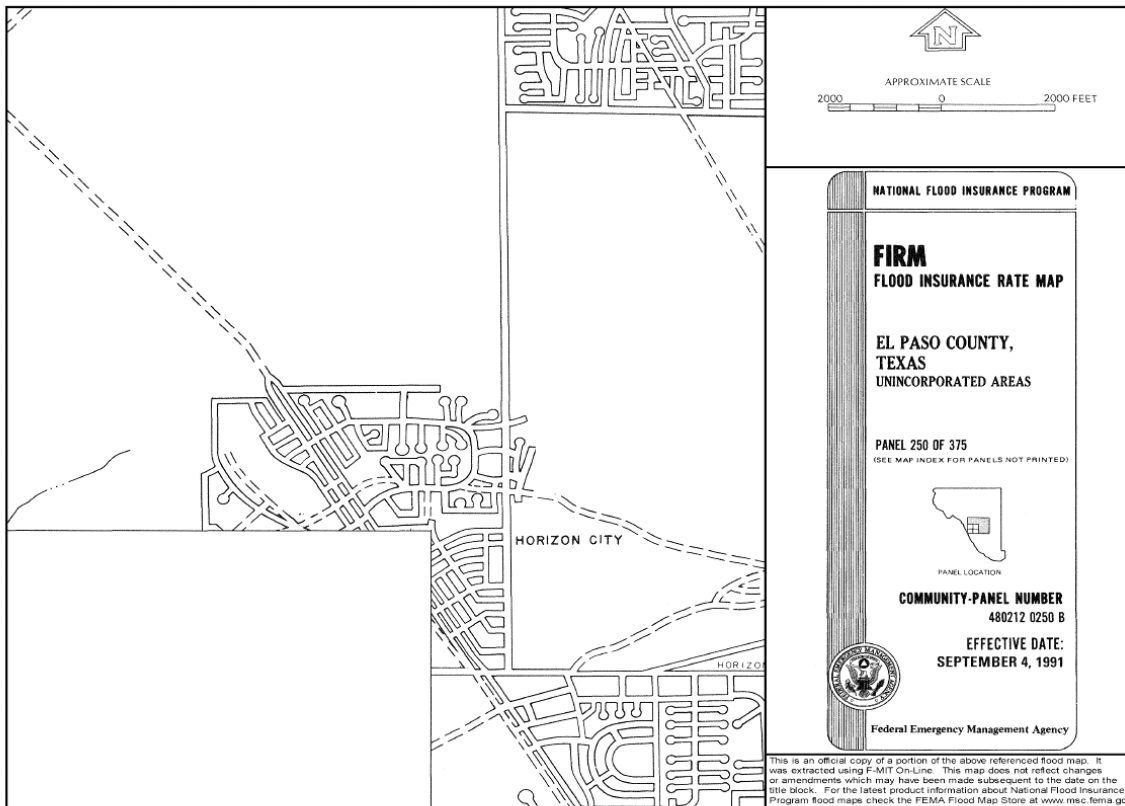
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Figure 5-6. Estimated Flood Zones in the City of Socorro



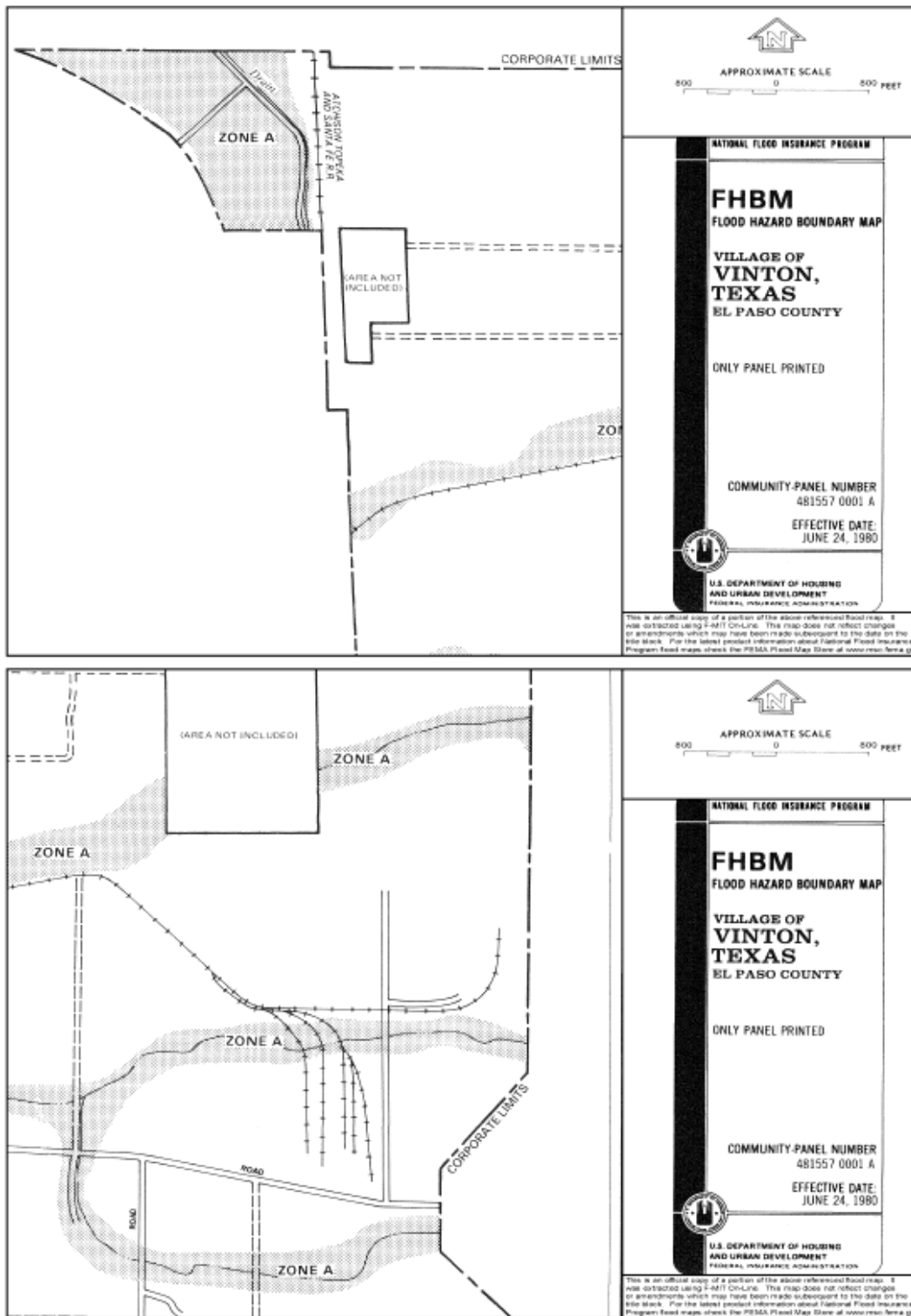
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Figure 5-7. Estimated Flood Zones in the Town of Horizon City



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Figure 5-8. Estimated Flood Zones in the Town of Vinton²



² Map only depicts area in the City with flood zones.

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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, AE, AO, 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. |

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| INTENSITY | ZONE | DESCRIPTION |
|------------------------|-----------------------|---|
| | 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. |
| 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 El Paso County³

| JURISDICTION ⁴ | PEAK FLOOD EVENT |
|---------------------------|--|
| City of El Paso | The McKelligon Canyon at El Paso, Texas reached an overflow elevation of 5.65 feet in July 1973. The ravine is typically dry with no average peak flow at this site. |
| City of El Paso | The Government Ditch at El Paso, Texas reached an overflow elevation of 2.6 feet in September 1958. The average peak flow for the Government Ditch is 1.7 feet at this site. |

³ 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.

⁴ Severity is provided for jurisdictions where peak data was provided.

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| JURISDICTION ⁴ | PEAK FLOOD EVENT |
|---------------------------|--|
| City of El Paso | The Rio Grande River at El Paso, Texas reached an overflow elevation of 10.9 feet in September 1958. The average peak flow for the Rio Grande is 6.6 feet at this site. |
| El Paso County | The unnamed tributary to the Pow Wow Canyon Arroyo near El Paso, Texas reached an overflow elevation of 16.8 feet in September 2014. The average peak flow for this tributary is 15.6 feet at this site. |
| El Paso County | The Rio Grande River at Island Street, near El Paso, Texas reached an overflow elevation of 17.9 feet in September 1975. The average peak flow for the Rio Grande is 13.4 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, including all participating jurisdictions could expect to experience up to 2.7 inches of rainfall within a 2-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 planning area. For example, the City of El Paso, as shown in Figure 5-4, has areas designated as Zone AE. Reading this figure in conjunction with Table 5-1 means the area is an area of high risk for flood.

HISTORICAL OCCURRENCES

Historical evidence indicates that areas within the planning area, including all participating jurisdictions, 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 within the El Paso County planning area, including all participating jurisdictions. Table 5-4 provides the historical flood event summary by jurisdiction. Historical data is provided by the Storm Prediction Center (NOAA), NCEI database for El Paso County.

Table 5-3. Historical Flood Events, 1996-2020⁵

| JURISDICTION | DATE | TIME | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|-----------------|-----------|---------|--------|----------|-----------------|-------------|
| City of El Paso | 9/14/1997 | 5:00 PM | 0 | 1 | \$0 | \$0 |
| City of El Paso | 6/21/1999 | 5:00 PM | 0 | 1 | \$78,303 | \$0 |
| City of El Paso | 7/1/2000 | 7:00 PM | 0 | 0 | \$112,969 | \$0 |

⁵ Only recorded events with fatalities, injuries, and/or damages are listed, values are in 2020 dollars. Historical events are listed from January 1996 through July 2020.

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| JURISDICTION | DATE | TIME | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|-----------------|-----------|----------|--------|----------|-----------------|-------------|
| City of El Paso | 6/25/2001 | 5:30 PM | 0 | 0 | \$43,867 | \$0 |
| City of El Paso | 8/2/2002 | 3:00 PM | 1 | 0 | \$288,080 | \$0 |
| City of El Paso | 6/19/2004 | 5:15 PM | 0 | 0 | \$0 | \$11,833 |
| El Paso County | 9/29/2004 | 5:20 PM | 0 | 0 | \$6,853 | \$0 |
| City of El Paso | 8/12/2005 | 10:15 AM | 0 | 0 | \$13,253 | \$0 |
| City of El Paso | 9/6/2005 | 9:10 PM | 0 | 0 | \$26,185 | \$0 |
| El Paso County | 7/27/2006 | 6:30 PM | 0 | 0 | \$12,790 | \$0 |
| El Paso County | 7/27/2006 | 8:00 PM | 0 | 0 | \$127,902 | \$0 |
| El Paso County | 7/28/2006 | 8:20 PM | 0 | 0 | \$12,790 | \$0 |
| El Paso County | 8/1/2006 | 8:00 AM | 0 | 0 | \$229,771,457 | \$0 |
| El Paso County | 8/1/2006 | 2:00 PM | 0 | 0 | \$25,530,162 | \$0 |
| El Paso County | 8/3/2006 | 12:45 AM | 0 | 0 | \$127,651 | \$0 |
| El Paso County | 8/4/2006 | 2:00 PM | 0 | 0 | \$638,254 | \$0 |
| El Paso County | 8/15/2006 | 2:00 PM | 0 | 0 | \$25,530 | \$0 |
| City of El Paso | 8/16/2006 | 1:15 PM | 0 | 0 | \$127,651 | \$0 |
| El Paso County | 9/4/2006 | 8:00 AM | 0 | 0 | \$128,280 | \$0 |
| El Paso County | 9/13/2006 | 9:50 PM | 0 | 0 | \$25,656 | \$0 |
| City of El Paso | 5/2/2007 | 12:50 PM | 0 | 0 | \$6,258 | \$0 |
| City of El Paso | 5/8/2007 | 2:20 AM | 0 | 0 | \$12,517 | \$0 |
| City of El Paso | 7/13/2007 | 9:00 PM | 0 | 0 | \$12,495 | \$0 |
| City of El Paso | 8/2/2007 | 11:00 AM | 0 | 0 | \$62,592 | \$0 |
| City of Socorro | 8/2/2007 | 5:00 PM | 0 | 0 | \$6,259 | \$0 |
| El Paso County | 7/8/2008 | 5:15 PM | 0 | 0 | \$141,994 | \$0 |
| El Paso County | 7/26/2008 | 8:40 AM | 0 | 0 | \$59,164 | \$0 |
| City of Socorro | 9/14/2008 | 9:30 AM | 0 | 0 | \$5,948 | \$0 |
| City of El Paso | 6/23/2009 | 1:35 PM | 0 | 0 | \$60,336 | \$0 |
| El Paso County | 6/28/2009 | 6:30 PM | 0 | 0 | \$181,007 | \$0 |

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| JURISDICTION | DATE | TIME | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|-----------------|-----------|----------|----------|----------|----------------------|-----------------|
| City of Socorro | 9/11/2009 | 2:55 PM | 0 | 0 | \$24,103 | \$0 |
| El Paso County | 9/19/2009 | 7:46 PM | 0 | 0 | \$60,259 | \$0 |
| El Paso County | 4/14/2010 | 2:30 PM | 0 | 0 | \$35,817 | \$0 |
| City of El Paso | 6/29/2010 | 8:30 PM | 0 | 0 | \$29,853 | \$0 |
| Town of Clint | 7/16/2010 | 2:15 PM | 0 | 0 | \$179,083 | \$0 |
| City of El Paso | 7/24/2010 | 2:00 PM | 0 | 0 | \$11,939 | \$0 |
| City of El Paso | 9/22/2010 | 6:00 PM | 0 | 0 | \$11,915 | \$0 |
| El Paso County | 7/23/2013 | 3:16 PM | 0 | 0 | \$27,856 | \$0 |
| City of El Paso | 9/12/2013 | 6:12 AM | 0 | 0 | \$1,778,560 | \$0 |
| City of El Paso | 9/12/2013 | 7:32 AM | 0 | 0 | \$2,667,840 | \$0 |
| City of El Paso | 9/17/2014 | 7:55 PM | 0 | 1 | \$0 | \$0 |
| El Paso County | 9/22/2014 | 4:40 AM | 1 | 0 | \$0 | \$0 |
| City of El Paso | 9/1/2016 | 8:20 AM | 0 | 0 | \$10,781 | \$0 |
| City of Socorro | 7/15/2017 | 12:36 PM | 0 | 0 | \$53,164 | \$0 |
| El Paso County | 7/19/2017 | 3:12 PM | 0 | 0 | \$5,316 | \$0 |
| Town of Clint | 8/14/2017 | 11:24 PM | 0 | 0 | \$106,012 | \$0 |
| Town of Vinton | 9/28/2017 | 3:19 AM | 0 | 0 | \$221,091 | \$0 |
| El Paso County | 5/21/2018 | 5:15 PM | 0 | 0 | \$5,173 | \$0 |
| City of El Paso | 5/21/2018 | 5:15 PM | 0 | 0 | \$20,691 | \$0 |
| TOTALS | | | 2 | 3 | \$262,895,660 | \$11,833 |

SECTION 5: FLOOD

Table 5-4. Summary of Historical Flood Events, January 1996-2020

| JURISDICTION | NUMBER OF EVENTS | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|----------------------|------------------|----------|----------|----------------------|-------------|
| El Paso County | 35 | 1 | 0 | \$256,923,912 | \$0 |
| City of El Paso | 65 | 2 | 3 | \$5,376,088 | \$11,833 |
| City of San Elizario | 1 | 0 | 0 | \$0 | \$0 |
| City of Socorro | 10 | 0 | 0 | \$89,474 | \$0 |
| Town of Anthony | 1 | 0 | 0 | \$0 | \$0 |
| Town of Clint | 3 | 0 | 0 | \$285,095 | \$0 |
| Town of Horizon City | 0 | 0 | 0 | \$0 | \$0 |
| Town of Vinton | 5 | 0 | 0 | \$221,091 | \$0 |
| TOTAL LOSSES | 120 | 3 | 3 | \$262,907,493 | |

SIGNIFICANT EVENTS

Flash Flood on August 1, 2006 – Northwest Portion

Thunderstorms within a saturated atmosphere repeatedly developed and moved over mainly the northwest third of El Paso County, concentrating in an area over and near the Franklin Mountains. Rainfall reports varied from 4 to more than 6 inches within 15 hours in this area, with an isolated report of about 8 inches on the western slope of the mountain range. Antecedent conditions from 4 days of heavy rains, combined with terrain effects of the mountains led to excessive runoff and flooding not seen on such a large scale in the El Paso area in more than 100 years. The power of raging arroyos and street flooding on sloped terrain moved dozens of vehicles and trees through the west side of El Paso. There was considerable structural damage as well to residences and businesses. Numerous roads were closed due to high water and roadbed damage, with several rescues made from trapped vehicles. Interstate 10 was closed just east of downtown El Paso. Water reached a depth of 4 feet in many homes in west El Paso, especially in the upper valley section. By early evening the Rio Grande River crested at 9.3 feet, the highest stage in 50 years, and nearly breached the levee system. Residents in the downtown area near the river were evacuated. Other evacuations took place in Vinton, Canutillo and northeast El Paso. At least 800 people were put up in temporary shelters, some remaining for several days. Amazingly, there were no deaths or serious injuries.

As a result of the incredible damage from extensive flash flooding, El Paso County was declared a federal disaster area. Because of this historic event and subsequent heavy rain events, large ponds of water would remain for weeks to come at the bottom of the valley (El Paso Upper Valley). Thus a few roads remained closed, mosquitoes flourished and spread West Nile Disease, and explosive weed growth brought misery to allergy sufferers. Some businesses were closed for weeks while repairs were made.

Flash Flood on September 12, 2013 – El Paso

Rainfall amounts of over 3 inches were reported on the west side of El Paso through the morning into the early afternoon. An electrical explosion and building fire in Downtown El Paso were also

SECTION 5: FLOOD

blamed on the heavy rain. Interstate 10 near the Piedras exit had to be closed due to water crossing the interstate. A deep south to southwest flow aloft continued to tap moisture from the Baja region while low level flow was tapping Gulf of Mexico moisture. Perceptible water values across the region were running over 150 percent of normal. Training storms developed over Far West Texas and produced record rainfall amounts. Street flooding was reported on the west side of Trans-Mountain Road with debris. Vehicles were having a difficult time driving through with a rock slide blocking westbound portions of the road at the mountain top. There were reports of cars overturned in arroyos near Executive Drive. Several homes and streets in the Vinton and Westway area were flooded with several inches of water.

PROBABILITY OF FUTURE EVENTS

Based on 120 recorded historical occurrences within a 24.5-year reporting period within the El Paso County planning area, including all participating jurisdictions, flooding is highly likely with 4 to 5 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. The County and all participating jurisdictions encourage development outside of the floodplain, and the impact for flood for the entire planning area is "Minor" as facilities and services would be shut down for one week or more, more than 10 percent of property destroyed or with major damage. However, the number of fatalities and injuries indicate a "Substantial" impact with multiple fatalities 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 by Jurisdiction

| JURISDICTION | CRITICAL FACILITIES |
|----------------------|--|
| El Paso County | None |
| City of El Paso | El Paso Fire Department Station No. 18 |
| City of San Elizario | None |
| City of Socorro | None |
| Town of Anthony | None |
| Town of Clint | None |
| Town of Horizon City | None |
| Town of Vinton | None |

Historic loss estimates due to flood are presented in Table 5-6 below. Considering 97 flood events over a 24-year period, frequency is approximately four to five events every year.

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Table 5-6. Potential Annualized Losses by Jurisdiction

| JURISDICTION | PROPERTY & CROP LOSS | ANNUAL LOSS ESTIMATES |
|----------------------|----------------------|-----------------------|
| El Paso County | \$256,923,912 | \$10,486,690 |
| City of El Paso | \$5,387,921 | \$219,915 |
| City of San Elizario | \$0 | \$0 |
| City of Socorro | \$89,474 | \$3,652 |
| Town of Anthony | \$0 | \$0 |
| Town of Clint | \$285,095 | \$11,637 |
| Town of Horizon City | \$0 | \$0 |
| Town of Vinton | \$221,091 | \$9,024 |
| Planning Area | \$262,907,493 | \$10,730,918 |

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 21.3% of the planning area population live below the poverty level (Table 5-7).

Table 5-7. Populations at Greatest Risk by Jurisdiction⁶

| JURISDICTION | POPULATION BELOW POVERTY LEVEL |
|----------------------|--------------------------------|
| El Paso County | 178,420 |
| City of El Paso | 136,071 |
| City of San Elizario | 3,467 |
| City of Socorro | 9,125 |
| Town of Anthony | 1,361 |
| Town of Clint | 139 |
| Town of Horizon City | 2,260 |
| Town of Vinton | 624 |

⁶ US Census Bureau 2018 data for El Paso County

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The severity of a flooding event varies depending on the relative risk to citizens and structures located within each city. Table 5-8 depicts the level of impact for El Paso County and each participating jurisdiction.

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Table 5-8. Impact by Jurisdiction

| JURISDICTION | IMPACT | DESCRIPTION |
|----------------------|-------------|--|
| El Paso County | Substantial | It is anticipated that El Paso County could anticipate an impact of “minor” with critical facilities shut down for one week or more and more than 10 percent of property would be destroyed or damaged. However, the number of fatalities and injuries indicate a “Substantial” impact, with multiple fatalities possible depending on the size of the event. |
| City of El Paso | Substantial | It is anticipated that the City of El Paso could anticipate an impact of “limited” with critical facilities shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged. However, the number of fatalities and injuries indicate a “Substantial” impact, with multiple fatalities possible depending on the size of the event. |
| City of San Elizario | Limited | It is anticipated that the City of San Elizario could anticipate an impact of “limited” with critical facilities shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged. |
| City of Socorro | Limited | It is anticipated that the City of Socorro could anticipate an impact of “limited” with critical facilities shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged. |
| Town of Anthony | Limited | It is anticipated that the Town of Anthony could anticipate an impact of “limited” with critical facilities shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged. |
| Town of Clint | Limited | It is anticipated that the Town of Clint could anticipate an impact of “limited” with critical facilities shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged. |
| Town of Horizon City | Limited | It is anticipated that the Town of Horizon City could anticipate an impact of “limited” with critical facilities shut down for 24 hours or less and less than 10 percent of property would be destroyed or damaged. |
| Town of Vinton | Limited | It is anticipated that the Town of Vinton could anticipate an impact of “limited” with critical facilities 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 El Paso County planning area. The impact of climate change could produce larger, more severe flood events, exacerbating the current flood impacts. Worsening flood conditions can be frequently associated with a variety of impacts, including:

- 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.

SECTION 5: FLOOD

- 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.

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- 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 fishing, boating, and camping activities at Franklin Mountain State Park, Ascarate Park and Lake, or along the Guadalupe River, may be unavailable and tourism can be unappealing for years following a large flood event, devastating directly related local businesses and negatively impacting economic recovery.
- Flooding may cause significant disruptions of clean water and sewer services, elevating health risks and delaying recovery efforts.
- The psycho-social effects on flood victims and their families can traumatize them for long periods of time, creating long term increases in medical treatment and services.
- Extensive or repetitive flooding can lead to decreases in property value for the affected community.
- Flood poses a potential catastrophic risk to annual and perennial crop production and overall crop quality leading to higher food costs.
- Flood related declines in production may lead to an increase in unemployment.
- Large floods may result in loss of livestock, potential increased livestock mortality due to stress and water borne disease, and increased cost for feed.

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

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) PARTICIPATION

Flood insurance offered through the National Flood Insurance Program (NFIP) is the best way for home and business owners to protect themselves financially against the flood hazard. El Paso County and all participating jurisdictions are currently participating in the NFIP and are in good standing.

El Paso County and all participating jurisdictions currently have in place minimum NFIP standards for new construction and substantial improvements of structures. All jurisdictions 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.

SECTION 5: FLOOD

It is the purpose of El Paso County and all participating jurisdictions to continue to promote the public health, safety and general welfare by minimizing public and private losses due to flood conditions in specific areas. The NFIP participating jurisdictions in the Plan are guided by their local Flood Damage Prevention Ordinance. Each community 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 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, El Paso County and all participating jurisdictions 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, El Paso County and all participating jurisdictions have developed mitigation actions that relate to either NFIP maintenance or compliance. Compliance and maintenance actions can be found in Section 21.

Flooding was identified by most participating communities as a high-risk hazard during hazard ranking activities at the Risk Assessment Workshop. As such, many of the mitigation actions were developed with flood mitigation in mind. A majority of these flood actions address compliance with the NFIP and implementing flood awareness programs. All 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 public flood awareness activities. This includes promoting the availability of flood insurance by placing NFIP brochures and flyers in public libraries or public meeting places in participating jurisdictions.

SECTION 5: FLOOD

Each NFIP participating jurisdiction has 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 jurisdictions outline 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.⁷ Table 5-9 shows repetitive loss and severe repetitive loss properties for the El Paso County planning area. It is noted that the following communities currently do not have any repetitive loss properties: El Paso County, City of San Elizario, City of Socorro, Town of Anthony, Town of Clint, Town of Horizon City and the Town of Vinton.

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

| JURISDICTION | BUILDING TYPE | NUMBER OF STRUCTURES | NUMBER OF LOSSES |
|-----------------|-----------------|----------------------|------------------|
| City of El Paso | Non-Residential | 5 | 21 |
| | Single Family | 7 | 14 |

⁷ Source: Texas Water Development Board

SECTION 6: DAM AND LEVEE FAILURE

| | |
|-----------------------------------|----|
| Hazard Description | 1 |
| Location | 2 |
| Extent..... | 7 |
| Historical Occurrences..... | 14 |
| Probability of Future Events..... | 14 |
| Vulnerability and Impact..... | 14 |
| Assessment of Impacts | 15 |

HAZARD DESCRIPTION

DAMS

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

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

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

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

One major issue with the safety of dams is their age. The average age of America's 84,000 dams is 52 years. According to statistics released in 2009 by the Association of State Dam Safety

SECTION 6: DAM AND LEVEE FAILURE

Officials¹, more than 2,000 dams near population centers are in need of repair. In addition to the continual aging of dams, there have not been significant increases in the number of safety inspectors resulting in haphazard maintenance and inspection.

The Association of State Dam Safety Officials estimate that \$16 billion will be needed to repair all high-hazard dams, but the total for all state dam-safety budgets is less than \$60 million². The current maintenance budget does not match the scale of America's long-term modifications of its watersheds. Worse still, more people are moving into risky areas. As the American population grows, dams that once could have failed without major repercussions are now upstream of cities and development.



LEVEE

A levee is simply a man-made embankment built to keep a river from overflowing its banks or to prevent ocean waves from washing into undesired areas. A levee is typically little more than a mound of less permeable soil, like clay, wider at the base and narrower at the top. These mounds run in a long strip in varying height, sometimes for many miles, along a river, lake, or ocean. But there's no set height for levees. Their measurements vary according to the storms the area receives, even if those storms occur only once every hundred or thousand years.

Living by the water provides humans with a number of advantages: fertile farmland, transportation, trade, and hydroelectric power. Levees allow humans to enjoy these assets without fear of flooding. But humans often forget how powerful waters behind a levee can be. In 1927, the Mississippi River swelled under heavy rains, charging through a line of levees and

¹ Association of State Dam Safety Officials, Journal of Dam Safety

² Source: www.damsafety.org

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flooding an area the size of Ireland. In 1953, the North Sea broke through the Netherland's ancient system of dikes and killed thousands.

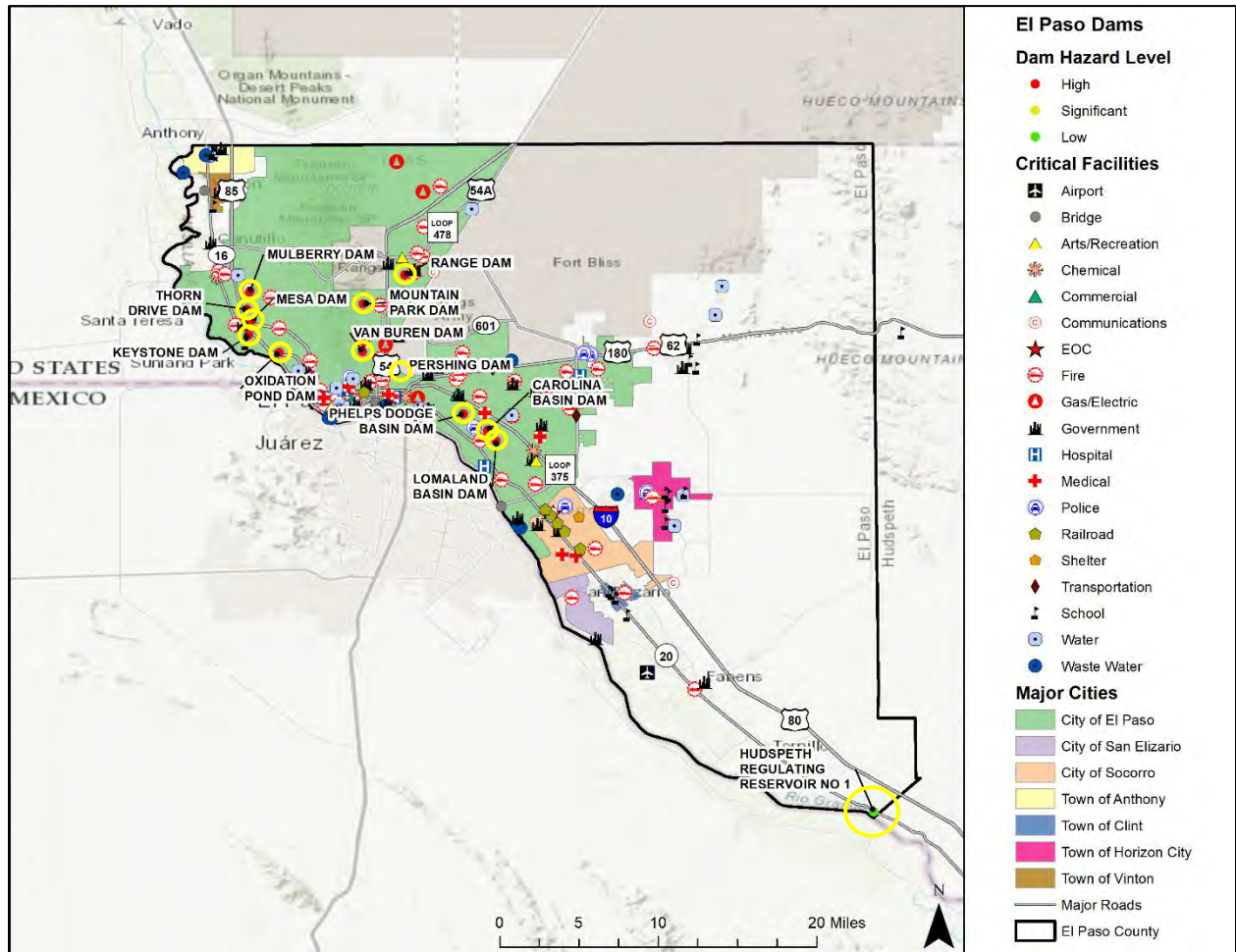
In 2005, New Orleans made international news when Hurricane Katrina breached its levees. Much of the city lies 10 feet (3 meters) below sea level. Over the course of the city's history, low-lying, boggy areas have been pumped dry to create new land. Much of this reclaimed land has sunk as it dried out. The entire city now depends on the levees, along with massive pumping stations, to keep the water out.

LOCATION

The State of Texas has 7,413 dams, all regulated by the Texas Commission on Environmental Quality (TCEQ). The National Dam Safety Review Board (in coordination with FEMA) and the National Inventory of Dams (NID) lists a total of forty-five dams or levees in or near the El Paso County planning area, including all participating jurisdictions (complete list located in Appendix D). Each of these dams were analyzed individually by location, volume, elevation, and condition (where available) when determining the risk, if any, for each dam. Each dam or levee site was further analyzed for potential risks utilizing FEMA's National Flood Hazard Layer (where available) to map locations and fully understand development near the dam or levee and topographical variations that may increase risk. Most of the dams listed were embankments for typically dry detention drainage areas, irrigation reservoirs, or shored up stream embankments. These types of structures are utilized for flood control and irrigation and do not pose a dam or levee failure risk. Other dams in the planning area feature such limited storage capacity that they pose no risk to structures, infrastructure, or citizens. Dams that were deemed to pose no past, current, or future risk to the planning area are not profiled in the plan as no loss of life or impact to critical facilities or infrastructure is expected in the event of a breach. Based on this detailed analysis, the planning team was able to determine that only thirteen of the forty-five dams pose a risk to the planning area. The only jurisdictions profiling dam or levee failure are El Paso County and the City of El Paso. These dams, listed in Table 6-1, are profiled in detail in the Extent section of this hazard profile. Figure 6-1 illustrates the general location for the critical dams in the planning area. While inundation maps are not available for the profiled dams, an estimated inundation radius has been included on the location map for each profiled dam or levee (indicated by the red circle). For dams with a maximum storage capacity of 100,000 acre-feet or more, all structures within five miles are considered to be at risk to potential dam or levee failure hazards. For dams with a maximum storage capacity between 10,000 and 100,000 acre-feet, all structures within three miles are considered to be at risk to potential dam or levee failure hazards. For dams with a maximum storage capacity of less than 10,000 acre-feet, all structures within one mile are considered to be at risk to potential dam or levee failure hazards. It should be noted that the City of San Elizario, City of Socorro, Town of Anthony, Town of Clint, Town of Horizon City, and the Town of Vinton are not located within any of the estimated inundation zones. These jurisdictions will not profile dam or levee failure as a hazard for their location.

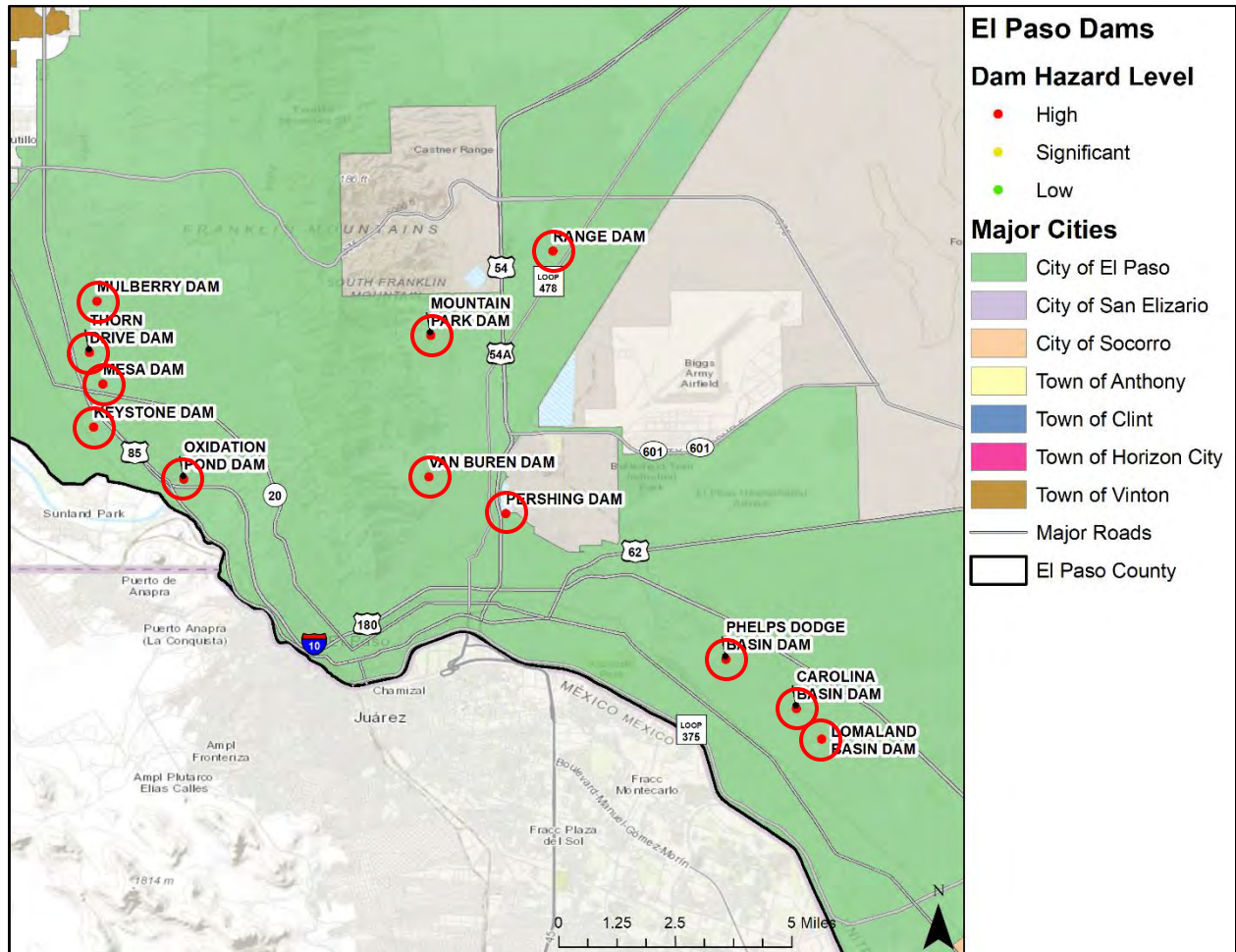
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Figure 6-1. Critical Dam and Levee Locations



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Figure 6-2. City of El Paso Critical Dam and Levee Locations



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Figure 6-3. El Paso County Critical Dam and Levee Locations

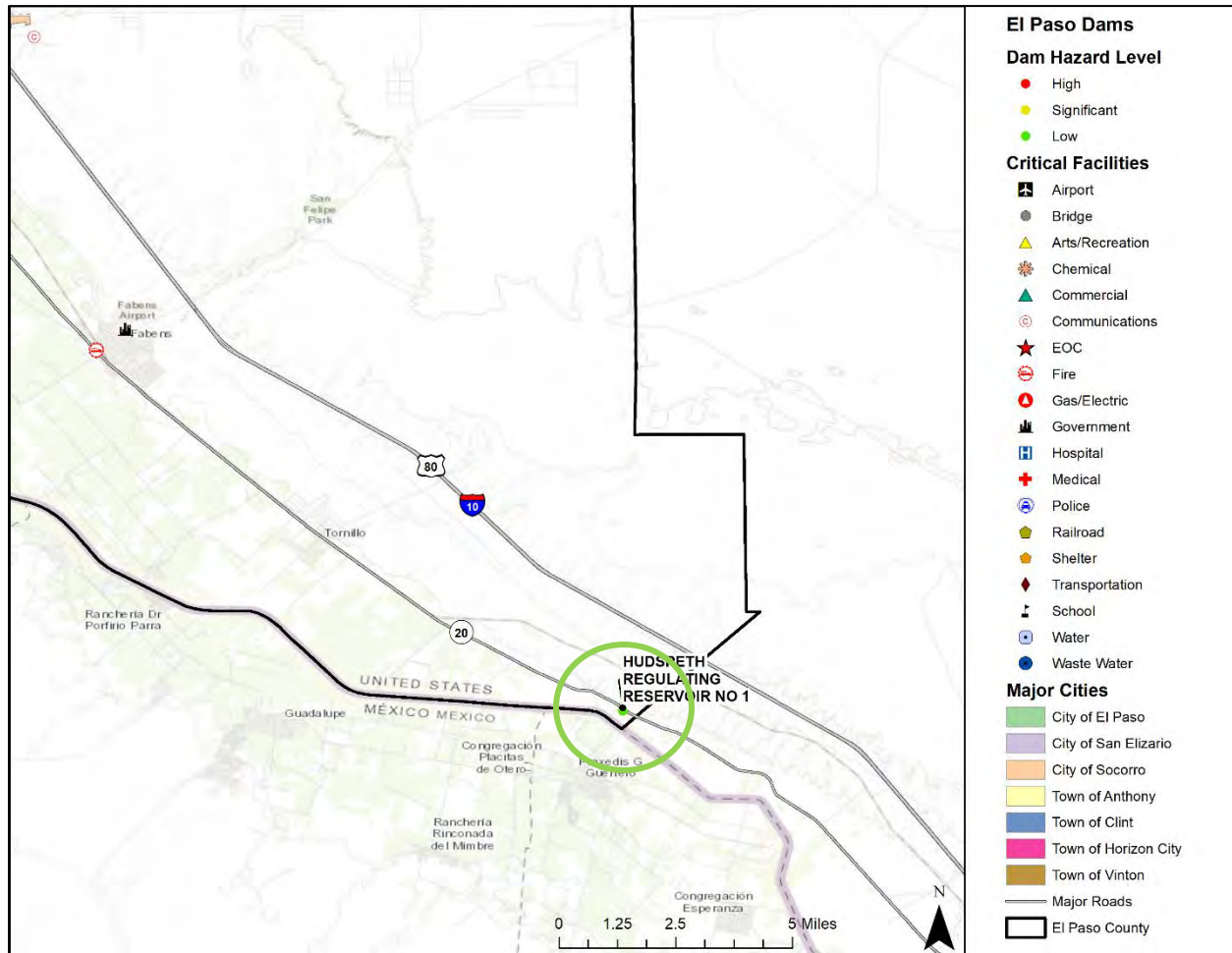


Table 6-1. El Paso County Dam and Levee Survey

| JURISDICTION | DAM OR LEVEE NAME | HEIGHT (Ft.) | STORAGE (Acre Ft.) | CONDITION | PROFILED |
|-----------------|------------------------|--------------|--------------------|-----------|----------|
| El Paso County | Carolina Basin Dam | 28 | 140 | Not Rated | Yes |
| City of El Paso | Van Buren Dam | 35 | 177.4 | Not Rated | Yes |
| City of El Paso | Mountain Park Dam | 63 | 235 | Not Rated | Yes |
| City of El Paso | Phelps Dodge Basin Dam | 32 | 330 | Not Rated | Yes |
| El Paso County | Lomaland Basin Dam | 27 | 439 | Not Rated | Yes |
| City of El Paso | Thorn Drive Dam | 50 | 773 | Not Rated | Yes |
| City of El Paso | Mesa Dam | 58 | 778 | Not Rated | Yes |
| City of El Paso | Keystone Dam | 50 | 1,020 | Not Rated | Yes |

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| JURISDICTION | DAM OR LEVEE NAME | HEIGHT (Ft.) | STORAGE (Acre Ft.) | CONDITION | PROFILED |
|-----------------|-------------------------------------|--------------|--------------------|-----------|----------|
| City of El Paso | Mulberry Dam | 60 | 1,113 | Not Rated | Yes |
| City of El Paso | Pershing Dam | 48 | 1,120 | Not Rated | Yes |
| City of El Paso | Oxidation Pond Dam | 85 | 2,114 | Not Rated | Yes |
| City of El Paso | Range Dam | 48 | 3,315 | Not Rated | Yes |
| El Paso County | Hudspeth Regulating Reservoir No. 1 | 12 | 10,405 | Not Rated | Yes |

EXTENT

The extent or magnitude of a dam or levee failure event is described in terms of the classification of damages that could result from a dam's failure, not the probability of failure. For dams with a maximum storage capacity of 100,000 acre-feet or more, all census blocks within five miles are considered to be at risk to potential dam or levee failure hazards. For dams with a maximum storage capacity between 10,000 and 100,000 acre-feet, all census blocks within three miles are considered to be at risk to potential dam or levee failure hazards. For dams with a maximum storage capacity of less than 10,000 acre-feet, all census blocks within one mile are considered to be at risk to potential dam or levee failure hazards.

Carolina Basin Dam:

Carolina Basin Dam is located in unincorporated El Paso County. The dam was constructed in 2004 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 250 residential structures and outbuildings, 20 commercial structures including a church and a school, and several major thoroughfares and access roads could be impacted by a breach. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 75.2 feet with a maximum breach flow of 12,290 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 10 feet with the highest depth in the immediate area of the dam breach.

Van Buren Dam:

Van Buren Dam is located in the City of El Paso on a channel off of the Rio Grande River and is used primarily for irrigation purposes. A breach should follow the path of the channel, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the channel for approximately one mile. It is owned by the City of El Paso and was constructed in 1948. The area located near the dam is densely populated within a one-mile radius. Approximately 150 residential structures and outbuildings, 15 commercial structures including 2 schools, and several access roads could be impacted by a breach. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 84.3 feet with a maximum breach flow of 17,030 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 10 feet with the highest depth in the immediate area of the dam breach.

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Mountain Park Dam:

Mountain Park Dam is located in the City of El Paso on a tributary of the Rio Grande River. A breach should follow the path of the tributary, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the tributary for approximately one mile. The dam was constructed in 1974 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 300 residential structures and outbuildings and several access roads could be impacted by a breach. No critical facilities would be impacted. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 104.8 feet with a maximum breach flow of 45,879 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 20 feet with the highest depth in the immediate area of the dam breach.

Phelps Dodge Basin Dam:

Phelps Dodge Basin Dam is located in the City of El Paso on a tributary of the Rio Grande River. A breach should follow the path of the tributary, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the tributary for approximately one mile. The dam was constructed in 1974 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 200 residential structures and outbuildings, 40 commercial structures and several access roads could be impacted by a breach. No critical facilities would be impacted. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 96.3 feet with a maximum breach flow of 10,155 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 10 feet with the highest depth in the immediate area of the dam breach.

Lomaland Basin Dam:

Lomaland Basin Dam is located in unincorporated El Paso County on the Jesuit Draw. A breach should follow the path of the tributary, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the tributary for approximately one mile. The dam was constructed in 2004 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 100 residential structures including a manufactured home park and an apartment complex, 45 commercial structures and several access roads could be impacted by a breach. No critical facilities would be impacted. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 99.1 feet with a maximum breach flow of 12,436 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 10 feet with the highest depth in the immediate area of the dam breach.

Thorn Drive Dam:

Thorn Drive Dam is located in the City of El Paso on a tributary of the Rio Grande River. A breach should follow the path of the tributary, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the tributary for approximately

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one mile. The dam was constructed in 1957 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 200 residential structures and outbuildings, 20 commercial structures, and several major thoroughfares and access roads could be impacted by a breach. No critical facilities would be impacted. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 133.2 feet with a maximum breach flow of 83,419 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 20 feet with the highest depth in the immediate area of the dam breach.

Mesa Dam:

Mesa Dam is located in the City of El Paso on a tributary of the Rio Grande River. A breach should follow the path of the tributary, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the tributary for approximately one mile. The dam was constructed in 1982 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 75 commercial structures including a post office, an apartment complex, and several major thoroughfares and access roads could be impacted by a breach. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 138.5 feet with a maximum breach flow of 109,388 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 20 feet with the highest depth in the immediate area of the dam breach.

Keystone Dam:

Keystone Dam is located in the City of El Paso on a tributary of the Rio Grande River. A breach should follow the path of the tributary, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the tributary for approximately one mile. The dam was constructed in 1984 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 30 commercial structures, 50 residential structures, and several major thoroughfares and access roads could be impacted by a breach. No critical facilities would be impacted. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 142.8 feet with a maximum breach flow of 60,109 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 20 feet with the highest depth in the immediate area of the dam breach.

Mulberry Dam:

Mulberry Dam is located in the City of El Paso on a tributary of the Rio Grande River. A breach should follow the path of the tributary, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the tributary for approximately one mile. The dam was constructed in 1957 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 20 commercial structures, 300 residential structures, and several major thoroughfares and access roads could be impacted by a breach. No critical facilities would be impacted. A dam failure could cause limited infrastructure damages, power outages, and utility

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systems disruptions. In the event of a breach, it is estimated the average breach width would be 152.7 feet with a maximum breach flow of 82,198 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 20 feet with the highest depth in the immediate area of the dam breach.

Pershing Dam:

Pershing Dam is located in the City of El Paso on a tributary of the Rio Grande River. A breach should follow the path of the tributary, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the tributary for approximately one mile. The dam was constructed in 1977 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 25 commercial structures, 300 residential structures, Highway 54, and several major thoroughfares and access roads could be impacted by a breach. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 144.7 feet with a maximum breach flow of 53,836 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 20 feet with the highest depth in the immediate area of the dam breach.

Oxidation Pond Dam:

Oxidation Pond Dam is located in the City of El Paso on a tributary of the Rio Grande River. A breach should follow the path of the tributary, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the tributary for approximately one mile. The dam was constructed in 1980 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 70 commercial structures, 50 residential structures, Highway 375, Interstate 10, and several major thoroughfares and access roads could be impacted by a breach. No critical facilities would be impacted. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 195.6 feet with a maximum breach flow of 119,758 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 25 feet with the highest depth in the immediate area of the dam breach.

Range Dam:

Range Dam is located in the City of El Paso on a tributary of the Rio Grande River. A breach should follow the path of the tributary, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the tributary for approximately one mile. The dam was constructed in 1973 and is used primarily for irrigation and flood control. It is owned by the City of El Paso. The area located near the dam is densely populated within a one-mile radius. Approximately 100 commercial structures, 75 residential structures, and several major thoroughfares and access roads could be impacted by a breach. No critical facilities would be impacted. No critical facilities would be impacted. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 189.7 feet with a maximum breach flow of 48,762 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 20 feet with the highest depth in the immediate area of the dam breach.

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Hudspeth Regulating Reservoir No. 1:

Hudspeth Regulating Reservoir No. 1 is located in unincorporated El Paso County on a channel off of the Rio Grande River and is used primarily for irrigation purposes. A breach should follow the path of the channel, but it is anticipated that the water released by the breach could temporarily exceed the capacity and overflow the banks of the channel for approximately three miles. It was constructed in 1924. The area located near the dam is semi-rural with limited development within a three-mile radius. Approximately 3 residential structures and outbuildings, Highway 20, Interstate 10, and several access roads could be impacted by a breach. A dam failure could cause limited infrastructure damages, power outages, and utility systems disruptions. In the event of a breach, it is estimated the average breach width would be 178.6 feet with a maximum breach flow of 2,003 cubic feet per second according to the National Weather Service (NWS) Dam Break Equation. A dam breach could result in an estimated depth up to 5 feet with the highest depth in the immediate area of the dam breach.

Table 6-2 represents the extent or magnitude of a dam or levee failure event that could be expected for the El Paso County planning area for each profiled dam.

Table 6-2. Extent by Jurisdiction

| JURISDICTION | PROFILED DAM | EXTENT (FLOW DEPTH) | LEVEL OF INTENSITY TO MITIGATE |
|--------------------------------|--------------------|---------------------|---|
| El Paso County/City of El Paso | Carolina Basin Dam | 0-10 Feet | Dam failure presents a low threat for the county and city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |
| City of El Paso | Van Buren Dam | 0-10 Feet | Dam failure presents a low threat for the city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |
| City of El Paso | Mountain Park Dam | 0-20 Feet | Dam failure presents a low threat for the city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be |

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| JURISDICTION | PROFILED DAM | EXTENT (FLOW DEPTH) | LEVEL OF INTENSITY TO MITIGATE |
|--------------------------------|------------------------|---------------------|--|
| | | | minimally impacted. Economic loss would be minimal. |
| City of El Paso | Phelps Dodge Basin Dam | 0-10 Feet | Dam failure presents a low threat for the city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |
| El Paso County/City of El Paso | Lomaland Basin Dam | 0-10 Feet | Dam failure presents a low threat for the county and city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |
| City of El Paso | Thorn Drive Dam | 0-20 Feet | Dam failure presents a low threat for the city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |
| City of El Paso | Mesa Dam | 0-20 Feet | Dam failure presents a low threat for the city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |
| City of El Paso | Keystone Dam | 0-20 Feet | Dam failure presents a low threat for the city. Loss of life is not expected. While some residential and commercial |

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| JURISDICTION | PROFILED DAM | EXTENT (FLOW DEPTH) | LEVEL OF INTENSITY TO MITIGATE |
|-----------------|--------------------|---------------------|---|
| | | | structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |
| City of El Paso | Mulberry Dam | 0-20 Feet | Dam failure presents a low threat for the city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |
| City of El Paso | Pershing Dam | 0-20 Feet | Dam failure presents a low threat for the city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |
| City of El Paso | Oxidation Pond Dam | 0-25 Feet | Dam failure presents a low threat for the city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |
| City of El Paso | Range Dam | 0-20 Feet | Dam failure presents a low threat for the city. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Critical facilities would not be impacted. Some infrastructure and utilities could be |

SECTION 6: DAM AND LEVEE FAILURE

| JURISDICTION | PROFILED DAM | EXTENT (FLOW DEPTH) | LEVEL OF INTENSITY TO MITIGATE |
|----------------|-------------------------------------|---------------------|--|
| | | | minimally impacted. Economic loss would be minimal. |
| El Paso County | Hudspeth Regulating Reservoir No. 1 | 0-5 Feet | Dam failure presents a low threat for the county. Loss of life is not expected. While some residential and commercial structures could be impacted, the greatest threat in the event of a breach would be localized flooding. Some infrastructure and utilities could be minimally impacted. Economic loss would be minimal. |

HISTORICAL OCCURRENCES

The State of Texas has not experienced loss of life or extensive economic damage due to a dam or levee failure since the first half of the twentieth century. However, there may be many incidents that are not reported and, therefore, the actual number of incidents is likely to be greater. There has not been a recorded dam or levee failure event for any of the participating jurisdictions in the El Paso County planning area.

PROBABILITY OF FUTURE EVENTS

No historical events of dam or levee failure have been recorded in the El Paso County planning area, though the risk of dam or levee failure is monitored closely. Due to the lack of historical occurrences, the probability of a future event is unlikely for those jurisdictions profiling dam or levee failure as a hazard, meaning an event is possible in the next ten years.

VULNERABILITY AND IMPACT

There are forty-five or levees in or near the El Paso County planning area. All dams or levees were evaluated in-depth to determine the risk, if any, associated with each dam. This analysis indicated thirteen dams or levees in the planning area that presents a risk to structures or infrastructure in the planning area.

Flooding is the most prominent effect of dam or levee failure. If the dam or levee failure is extensive, a large amount of water would enter the downstream waterways forcing them out of their banks. There may be significant environmental effects, resulting in flooding that could disperse debris and hazardous materials downstream that can damage local ecosystems. If the event is severe, debris carried downstream can block traffic flow, cause power outages, and disrupt local utilities, such as water and wastewater, which could result in school closures. For specific vulnerability, please refer to the narrative for each dam or levee under the Extent section of this profile.

Annualized loss-estimates for dam or levee failure are not available; neither is there a breakdown of potential dollar losses for critical facilities, infrastructure and lifelines, or hazardous-materials facilities. If a significant dam or levee should fail, however, the severity of impact for the planning area would likely be minimal.

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The severity of impact from a dam or levee breach would be “Limited,” meaning it could result in injuries that can be treated with first-aid, critical facilities being shut down for 24-hours or less and less than 10% of the property in the estimated breach inundation area destroyed or with major damage. For these reasons, creating mitigation actions to remove or protect people and structures from the path of destruction is necessary in order to minimize impact from dam or levee failure.

ASSESSMENT OF IMPACTS

Any individual dam or levee has a very specific area that will be impacted by a catastrophic failure. Dams identified as high or significant hazard can directly threaten the lives of individuals living or working in the inundation zone below the dam. The impact from any catastrophic failure would be similar to that of a flash flood. The impact of climate change could produce greater risk of dam or levee failures due to larger more frequent floods, exacerbating the current dam or levee failure impacts. Increased dam or levee failure threats can be associated with a variety of impacts, including:

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

The economic and financial impacts of dam or levee failure on the area will depend entirely on the location of the dam, scale of the event, what is damaged, and how quickly repairs to critical components of the economy can be implemented. The level of preparedness and pre-event

SECTION 6: DAM AND LEVEE FAILURE

planning done by the community, local businesses, and citizens will also contribute to the overall economic and financial conditions in the aftermath of any dam or levee failure event.

SECTION 7: EXTREME WIND

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HAZARD DESCRIPTION

Extreme wind events include thunderstorms, straight-line winds and occasional dust storms. 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 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 can have gusts of 100 mph or more and are often accompanied by hail or rain. Unlike tornadoes, windstorms have a broader path that is several miles wide and can cover several counties. Straight-line wind may down trees and power lines, overturn mobile homes and cause damage to well-built structures.

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.

Periodic dust storms in the southwestern regions of Texas, including the El Paso County planning area, present significant safety hazards to motorists. Dust storms arise when a gust front or other strong wind blows loose sand and dirt from a dry surface. Fine particles are transported by saltation and suspension, a process that moves soil from one place and deposits it in another.

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Under these circumstances drivers often encounter conditions of limited or zero visibility resulting in road closures, multiple vehicle crashes, injuries and fatalities.

West Texas may typically face extreme wind events throughout the year but especially from February to May. Sustained winds of 20 to 40 miles per hour are routine during this period. During the winter months, the jet stream moves south from Canada. This stream of fast-moving air, flowing from west to east, high in the atmosphere brings winter storms to regions north of El Paso County bringing significant winds to the planning area.

LOCATION

Extreme wind events can develop in any geographic location and are considered a common occurrence in Texas. Therefore, an extreme wind event could occur at any location within El Paso County's planning area, including all participating jurisdictions, as these storms develop randomly and are not confined to any geographic area within the County. It is assumed that the El Paso County planning area is uniformly exposed to the threat of extreme winds.

EXTENT

The extent or magnitude of an extreme wind event is measured by the Beaufort Wind Scale. Table 7-1 describes the different intensities of wind in terms of speed and the World Meteorological Organization (WMO) Classification of storm effects, from calm to violent and destructive.

Table 7-1. Beaufort Wind Scale¹

| 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" |

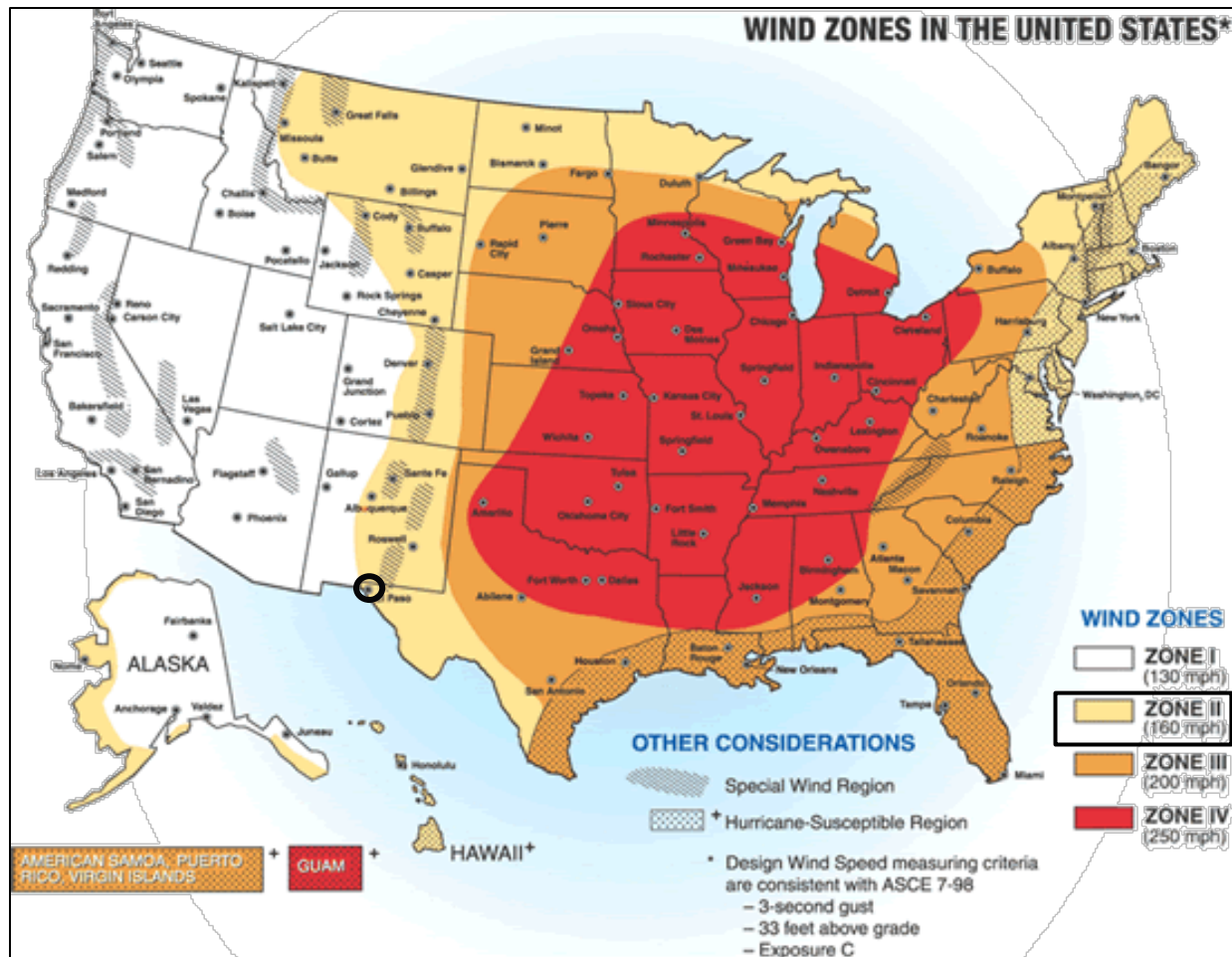
¹ Source: World Meteorological Organization

SECTION 7: EXTREME WIND

| | | | |
|----|-------|---------------|---|
| 11 | 73-83 | Violent Storm | If experienced on land, widespread damage |
| 12 | 84+ | Hurricane | Violence and destruction |

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

Figure 7-1. Wind Zones in the United States²



On average, the planning area experiences two to three extreme wind events every year. The County is located in Zone II, meaning they can experience winds up to 160 mph. El Paso County has experienced a significant wind event or an event with winds in the range of “Force 11” on the Beaufort Wind Scale with winds up to 83 mph. **Based on historical occurrences, a Force 11 on the Beaufort Wind scale is the maximum force anticipated for future events in the planning area.**

HISTORICAL OCCURRENCES

Tables 7-2, 7-3, and 7-4 depict historical occurrences of extreme wind events for the El Paso County planning area according to the National Centers for Environmental Information (NCEI) data. Since January 1955, 139 extreme wind events are known to have impacted the El Paso

² El Paso County is indicated by the circle.

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County planning area, including all participating jurisdictions, based upon NCEI records. Table 7-3 presents information on known historical events impacting the El Paso 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.

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 1960 through April 2020 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 2020 dollars.

Historical extreme wind data for all participating jurisdictions are provided on a County-wide basis per the NCEI database.

Table 7-2. Historical Extreme wind Events with Reported Damages, 1955-2020

| MAXIMUM WIND SPEED RECORDED (MPH) | NUMBER OF REPORTED EVENTS |
|-----------------------------------|---------------------------|
| 0-30 | 10 |
| 31-40 | 0 |
| 41-50 | 8 |
| 51-60 | 92 |
| 61-70 | 24 |
| 71-80 | 5 |
| 81-90 | 0 |
| 91-100 | 0 |
| Unknown | 0 |

Table 7-3. Historical Extreme wind Events, 1955-2020³

| JURISDICTION | DATE | TIME | MAGNITUDE (MPH) | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|-----------------|-----------|---------|-----------------|--------|----------|-----------------|-------------|
| El Paso County | 9/13/1987 | 6:30 PM | 0 | 0 | 3 | \$0 | \$0 |
| City of El Paso | 8/3/1993 | 3:36 PM | 0 | 1 | 0 | \$89,876 | \$0 |
| City of El Paso | 6/1/1994 | 8:53 PM | 60 | 0 | 0 | \$87,932 | \$0 |
| City of El Paso | 8/8/1995 | 5:23 PM | 0 | 0 | 27 | \$212,786 | \$0 |

³ Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2020 dollars. Historical events are reported from January 1955 through July 2020.

SECTION 7: EXTREME WIND

| JURISDICTION | DATE | TIME | MAGNITUDE (MPH) | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|----------------------|------------|----------|-----------------|--------|----------|-----------------|-------------|
| City of El Paso | 7/14/1997 | 6:00 PM | 50 | 0 | 0 | \$243,252 | \$0 |
| City of El Paso | 6/12/2000 | 6:36 PM | 51 | 0 | 0 | \$30,195 | \$0 |
| El Paso County | 8/30/2000 | 5:00 PM | 52 | 0 | 0 | \$15,063 | \$0 |
| El Paso County | 6/14/2002 | 8:05 PM | 52 | 0 | 0 | \$108,510 | \$0 |
| City of El Paso | 7/2/2002 | 4:30 PM | 66 | 0 | 0 | \$7,226 | \$0 |
| City of El Paso | 8/2/2002 | 4:00 PM | 60 | 0 | 0 | \$72,020 | \$0 |
| City of El Paso | 10/3/2003 | 3:40 PM | 52 | 0 | 0 | \$1,407 | \$0 |
| City of El Paso | 7/11/2005 | 4:50 PM | 59 | 0 | 0 | \$6,660 | \$0 |
| El Paso County | 8/27/2006 | 6:45 PM | 61 | 0 | 0 | \$12,765 | \$0 |
| City of El Paso | 6/20/2007 | 1:40 PM | 52 | 0 | 0 | \$1,249 | \$0 |
| El Paso County | 7/13/2007 | 8:40 PM | 56 | 0 | 0 | \$6,248 | \$0 |
| City of El Paso | 7/20/2007 | 3:22 PM | 52 | 0 | 0 | \$6,248 | \$0 |
| El Paso County | 8/6/2007 | 3:45 PM | 61 | 0 | 0 | \$12,518 | \$0 |
| City of El Paso | 9/28/2007 | 7:00 PM | 61 | 0 | 0 | \$124,841 | \$0 |
| City of Socorro | 8/20/2008 | 7:30 PM | 61 | 0 | 0 | \$23,761 | \$0 |
| City of Socorro | 7/22/2009 | 6:48 PM | 56 | 0 | 0 | \$12,086 | \$0 |
| El Paso County | 8/13/2010 | 2:20 PM | 56 | 0 | 0 | \$4,769 | \$0 |
| City of El Paso | 7/26/2011 | 7:48 PM | 68 | 0 | 0 | \$5,760 | \$0 |
| El Paso County | 9/15/2011 | 6:56 PM | 52 | 0 | 0 | \$2,294 | \$0 |
| El Paso County | 12/19/2012 | 12:00 PM | 62 | 0 | 0 | \$1,134 | \$0 |
| City of San Elizario | 6/2/2013 | 5:24 PM | 52 | 0 | 0 | \$3,344 | \$0 |
| El Paso County | 6/7/2013 | 6:20 PM | 52 | 0 | 0 | \$5,573 | \$0 |
| El Paso County | 7/24/2013 | 6:35 PM | 61 | 0 | 0 | \$111,423 | \$0 |
| El Paso County | 6/13/2014 | 4:10 PM | 50 | 0 | 0 | \$2,184 | \$0 |
| City of El Paso | 10/20/2015 | 4:00 PM | 52 | 0 | 0 | \$2,189 | \$0 |
| El Paso County | 11/16/2015 | 3:00 PM | 53 | 0 | 0 | \$10,967 | \$0 |
| City of El Paso | 7/15/2016 | 6:21 PM | 52 | 0 | 0 | \$3,245 | \$0 |

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| JURISDICTION | DATE | TIME | MAGNITUDE (MPH) | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|-----------------|------------|----------|---------------------|----------|-----------|--------------------|-------------|
| City of El Paso | 7/15/2016 | 6:39 PM | 52 | 0 | 0 | \$3,245 | \$0 |
| El Paso County | 12/16/2016 | 3:00 PM | 62 | 0 | 0 | \$21,561 | \$0 |
| El Paso County | 2/22/2019 | 6:00 PM | 60 | 0 | 0 | \$5,148 | \$0 |
| El Paso County | 4/10/2019 | 12:00 PM | 80 | 0 | 0 | \$25,463 | \$0 |
| TOTALS | | | (Max Extent) | 1 | 30 | \$1,282,942 | \$0 |

Table 7-4. Summary of Historical Extreme wind Events, 1955-2020

| JURISDICTION | NUMBER OF EVENTS | MAGNITUDE | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|----------------------|------------------|---------------------|----------|-----------|--------------------|-------------|
| El Paso County | 93 | 80 | 0 | 3 | \$345,620 | \$0 |
| City of El Paso | 43 | 71 | 1 | 27 | \$898,131 | \$0 |
| City of San Elizario | 1 | 52 | 0 | 0 | \$3,344 | \$0 |
| City of Socorro | 2 | 61 | 0 | 0 | \$35,847 | \$0 |
| Town of Anthony | 0 | 0 | 0 | 0 | \$0 | \$0 |
| Town of Clint | 0 | 0 | 0 | 0 | \$0 | \$0 |
| Town of Horizon City | 0 | 0 | 0 | 0 | \$0 | \$0 |
| Town of Vinton | 0 | 0 | 0 | 0 | \$0 | \$0 |
| TOTAL LOSSES | 139 | (Max Extent) | 1 | 30 | \$1,282,942 | |

SIGNIFICANT EVENTS

August 8, 1995 – El Paso

A thunderstorm caused a microburst, which destroyed three mobile homes, damaged about 30 others, and overturned a tractor-semitrailer. Twenty-seven people were injured (seven were taken to the hospital, another 20 were just slightly injured). The high winds also damaged or destroyed several storage sheds.

July 24, 2013 – White

A surface boundary was located along the Rio Grande Valley with an upper level trough located near the Arizona-New Mexico border. Deep moisture remained in place allowing for heavy rain and wet microbursts. Winds were estimated to be at least 70 mph as they went through the Upper Valley and uprooted at least 50 trees near Sunset and Briarwood including some on power lines. Framing and boards on a new construction building near Sunland Park Drive and Constitution were completely blown down.

SECTION 7: EXTREME WIND

PROBABILITY OF FUTURE EVENTS

Most extreme winds occur during the months of March, April, May, and September. Based on available records of historic events, there have been 139 events in a 65-year reporting period, which provides a probability of two to three events every year. Even though the intensity of extreme wind events is not always damaging for the El Paso County planning area, the frequency of occurrence for an extreme wind event is highly likely. This means that an event is probable within the next year for the El Paso County planning area, including all participating jurisdictions.

VULNERABILITY AND IMPACT

Vulnerability is difficult to evaluate since extreme 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 the El Paso County planning area, including all participating jurisdictions, 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 receptacles, brick facades, and vehicles, unless reinforced, are vulnerable to extreme wind events. More severe damage involves windborne debris; in some instances, patio furniture and other lawn items have been reported to have been blown around by wind and, very commonly, debris from damaged structures in turn have caused damage to other buildings not directly impacted by the event. In numerous instances roofs have been reported as having been torn off of buildings. The portable buildings typically used at schools and construction sites would be more vulnerable to extreme wind events than typical site-built structures and could potentially pose a greater risk for wind-blown debris.

The US Census data indicates a total of 16,004 manufactured homes (approximately 5.5%) located in the El Paso County planning area, including all participating jurisdictions, (Table 7-5). In addition, 44.7% (approximately 131,150 structures) of the residential structures in the El Paso County planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant wind events.

Table 7-5. Structures at Greater Risk by Jurisdiction

| JURISDICTION | MANUFACTURED HOMES | SFR STRUCTURES BUILT BEFORE 1980 |
|-----------------------------|--------------------|----------------------------------|
| El Paso County ⁴ | 16,004 | 131,150 |
| City of El Paso | 6,862 | 121,316 |
| City of San Elizario | 707 | 747 |
| City of Socorro | 1,679 | 2,841 |
| Town of Anthony | 199 | 556 |

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

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| JURISDICTION | MANUFACTURED HOMES | SFR STRUCTURES BUILT BEFORE 1980 |
|----------------------|--------------------|----------------------------------|
| Town of Clint | 12 | 206 |
| Town of Horizon City | 134 | 573 |
| Town of Vinton | 256 | 49 |

While all citizens are at risk to the impacts of extreme 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 21.3% of the planning area population live below the poverty level (Table 7-6).

Table 7-6. Populations at Greatest Risk by Jurisdiction⁵

| JURISDICTION | POPULATION BELOW POVERTY LEVEL |
|----------------------|--------------------------------|
| El Paso County | 178,420 |
| City of El Paso | 136,071 |
| City of San Elizario | 3,467 |
| City of Socorro | 9,125 |
| Town of Anthony | 1,361 |
| Town of Clint | 139 |
| Town of Horizon City | 2,260 |
| Town of Vinton | 624 |

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

Table 7-7. Critical Facilities at Risk by Jurisdiction

| JURISDICTION | CRITICAL FACILITIES |
|----------------------|--|
| El Paso County | 1 Airport, 1 Bridge, 23 Government Facilities, 1 Dam, 1 International Bridge, 2 Water Towers, 1 Water Booster Station |
| City of El Paso | 4 Chemical Facilities, 7 Communications Facilities, 4 Commercial Facilities, 1 Dam, 49 Emergency Services, 4 Energy Facilities, 1 Financial Service, 2 Food and Agriculture, 18 Government Facilities, 13 Healthcare and Public Facilities, 7 Transportation Facilities, 11 Water and Wastewater Systems |
| City of San Elizario | 1 Fire Station |

⁵ US Census Bureau 2018 data for El Paso County

SECTION 7: EXTREME WIND

| | |
|----------------------|--|
| City of Socorro | 1 Communication Facility, 2 Emergency Shelters/Mass Care Shelters, 2 EMS, 1 EOC, 1 Fire Station, 1 Government Facility, 2 Police Departments, 1 Public Works, 6 Rail Crossings, 3 Utility Facilities, 1 Water District |
| Town of Anthony | 1 Police Department, 1 Government Facility, 1 Public Works, 3 Schools, 1 Wastewater Plant |
| Town of Clint | 1 Community Center, 1 Fire Station, 4 Schools |
| Town of Horizon City | 1 Government Facility, 1 Police Department, 1 Fire Station, 2 MUD, 1 ISD Administrative Office |
| Town of Vinton | 1 Administrative Facility, 1 County Facility, 1 Fire Station, 1 Public Works, 1 School |

An extreme wind event can also result in traffic disruptions, injuries and in rare cases, fatalities. Impact of thunderstorms winds experienced in the El Paso County planning area has resulted in thirty injuries and one fatality. Damage impact of extreme wind events experienced in the El Paso County planning area, including all participating jurisdictions, would be considered “Limited,” with less than ten percent of property damaged or destroyed, and facilities shut down for one week or less. However, the number of historic injuries and fatalities indicate an impact of “Substantial” with multiple deaths possible depending on the size of the event. Overall, the average loss estimate (in 2020 dollars) is \$1,282,942, having an approximate annual loss estimate of \$19,587 (Table 7-8).

Table 7-8. Potential Annualized Losses by Jurisdiction

| JURISDICTION | PROPERTY & CROP LOSS | ANNUAL LOSS ESTIMATES |
|----------------------|----------------------|-----------------------|
| El Paso County | \$345,620 | \$5,277 |
| City of El Paso | \$898,131 | \$13,712 |
| City of San Elizario | \$3,344 | \$51 |
| City of Socorro | \$35,847 | \$547 |
| Town of Anthony | \$0 | \$0 |
| Town of Clint | \$0 | \$0 |
| Town of Horizon City | \$0 | \$0 |
| Town of Vinton | \$0 | \$0 |
| Planning Area | \$1,282,942 | \$19,587 |

ASSESSMENT OF IMPACTS

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

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- 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.
- Extreme 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 extreme 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 extreme 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.
- Activities at locations such as Franklin Mountain State Park, Ascarate Park and Lake, or along the Guadalupe River attract tourism including hiking, camping, boating, and fishing throughout the year. A large extreme wind event could impact recreational activities, placing visitors in imminent danger, potentially requiring emergency services or evacuations.

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- 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 extreme 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 extreme wind event.

SECTION 8: LIGHTNING

- Hazard Description 1
- Location 1
- Extent 1
- Historical Occurrences 3
- Probability of Future Events 3
- Vulnerability and Impact..... 4
 - Assessment of Impacts..... 5

HAZARD DESCRIPTION

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

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

LOCATION

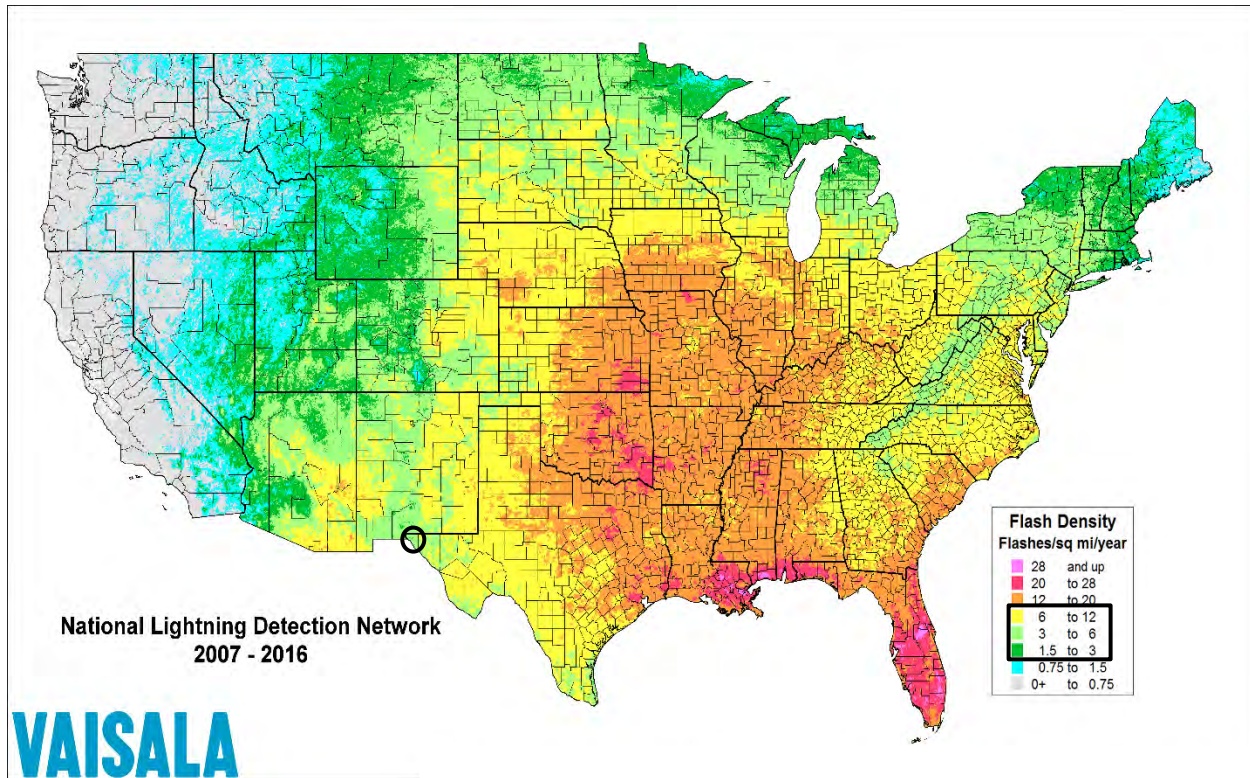
Lightning can strike in any geographic location and is considered a common occurrence in Texas. The El Paso County planning area, including all participating jurisdictions, is in a region of the country that is moderately susceptible to a lightning strike. Therefore, lightning could occur at any location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

EXTENT

According to the NOAA, the average number of cloud-to-ground flashes for the State of Texas between 2007 and 2016 was 11.3 flashes per square mile. Vaisala’s U.S. National Lightning Detection Network lightning flash density map (Figure 8-1) shows a range of one and a half to twelve cloud-to-ground lightning flashes per square mile per year for the entire El Paso County planning area. This rate equates to approximately 1,523 to 12,180 flashes per year for the entire planning area.

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Figure 8-1. 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 8-1).

Table 8-1. NOAA Lightning Activity Levels (LAL)

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

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

The NCEI does not include the LAL for historical lightning events, therefore in order to determine the extent of lightning strikes, the yearly average range of estimated number of lightning strikes within the planning area (1,523 to 12,180 flashes) and a cloud-to-ground flash density of one and a half to twelve per square mile were divided by the number¹ of thunderstorm events that occur annually in the planning area. El Paso County, including all participating jurisdictions, should expect an average range of one to seven 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 of 2. The highest being a 2 on the LAL for all participating jurisdictions in the future.

HISTORICAL OCCURRENCES

Since January 1996, there has been no recorded events for the El Paso County planning area. 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.

SIGNIFICANT EVENTS

July 8, 1998 – El Paso

Lightning struck a communications tower used for regional emergency communications, resulting in considerable electrical damage and producing a shutdown of the facility lasting several days.

PROBABILITY OF FUTURE EVENTS

Based on historical records and input from the planning team the probability of occurrence for future lightning events in the El Paso County planning area, including all participating jurisdictions, 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 El Paso County planning area is located in an area of the country that experiences one and a half to twelve lightning flashes per square mile per year (approximately 1,523 to 12,180 flashes per year). Given this estimated probability of events, it can be expected that future lightning events will continue to threaten life

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.

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and cause minor property damages throughout the planning area, including all participating jurisdictions.

VULNERABILITY AND IMPACT

Vulnerability is difficult to evaluate since lightning events can occur at different strength levels, in random locations, and can create a broad range of damages depending on the strike location. Due to the randomness of these events, all existing and future structures and facilities in the El Paso County planning area could potentially be impacted and remain vulnerable to possible injury and property loss from lightning strikes. The El Paso County planning area has no reported lightning events per the NCEI, however the county, including all participating jurisdictions, are vulnerable and could be impacted by lightning.

The direct and indirect losses associated with these events include injury and loss of life, damage to structures and infrastructure, agricultural losses, utility failure (power outages), and stress on community resources. The entire population of El Paso County, including all participating jurisdictions, 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. Moving to a lower risk location will decrease a person's vulnerability.

The entire general building stock and all infrastructure of the El Paso County planning area, 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.

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 21.3% of the planning area population live below the poverty level (Table 8-2).

Table 8-2. Populations at Greatest Risk by Jurisdiction²

| JURISDICTION | POPULATION BELOW POVERTY LEVEL |
|----------------------|--------------------------------|
| El Paso County | 178,420 |
| City of El Paso | 136,071 |
| City of San Elizario | 3,467 |
| City of Socorro | 9,125 |
| Town of Anthony | 1,361 |
| Town of Clint | 139 |

² US Census Bureau 2018 data for El Paso County

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| JURISDICTION | POPULATION BELOW POVERTY LEVEL |
|----------------------|--------------------------------|
| Town of Horizon City | 2,260 |
| Town of Vinton | 624 |

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

Table 8-3. Critical Facilities at Risk by Jurisdiction

| JURISDICTION | CRITICAL FACILITIES |
|----------------------|--|
| El Paso County | 1 Airport, 1 Bridge, 23 Government Facilities, 1 Dam, 1 International Bridge, 2 Water Towers, 1 Water Booster Station |
| City of El Paso | 4 Chemical Facilities, 7 Communications Facilities, 4 Commercial Facilities, 1 Dam, 49 Emergency Services, 4 Energy Facilities, 1 Financial Service, 2 Food and Agriculture, 18 Government Facilities, 13 Healthcare and Public Facilities, 7 Transportation Facilities, 11 Water and Wastewater Systems |
| City of San Elizario | 1 Fire Station |
| City of Socorro | 1 Communication Facility, 2 Emergency Shelters/Mass Care Shelters, 2 EMS, 1 EOC, 1 Fire Station, 1 Government Facility, 2 Police Departments, 1 Public Works, 6 Rail Crossings, 3 Utility Facilities, 1 Water District |
| Town of Anthony | 1 Police Department, 1 Government Facility, 1 Public Works, 3 Schools, 1 Wastewater Plant |
| Town of Clint | 1 Community Center, 1 Fire Station, 4 Schools |
| Town of Horizon City | 1 Government Facility, 1 Police Department, 1 Fire Station, 2 MUD, 1 ISD Administrative Office |
| Town of Vinton | 1 Administrative Facility, 1 County Facility, 1 Fire Station, 1 Public Works, 1 School |

Impact of lightning experienced in the El Paso County planning area has resulted in no injuries or fatalities. Impact of lightning events experienced in the El Paso County planning area, including all participating jurisdictions, 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 El Paso County, including all participating jurisdictions, is negligible.

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:

SECTION 8: LIGHTNING

- 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 9: DROUGHT

| | |
|------------------------------------|---|
| Hazard Description | 1 |
| Location | 2 |
| Extent | 3 |
| Historical Occurrences | 5 |
| Significant Events | 7 |
| Probability of Future Events | 7 |
| Vulnerability and Impact..... | 7 |
| Assessment of Impacts..... | 8 |

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 9-1 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 9-1. Drought Classification Definitions¹

| | |
|-------------------------------|---|
| 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. |

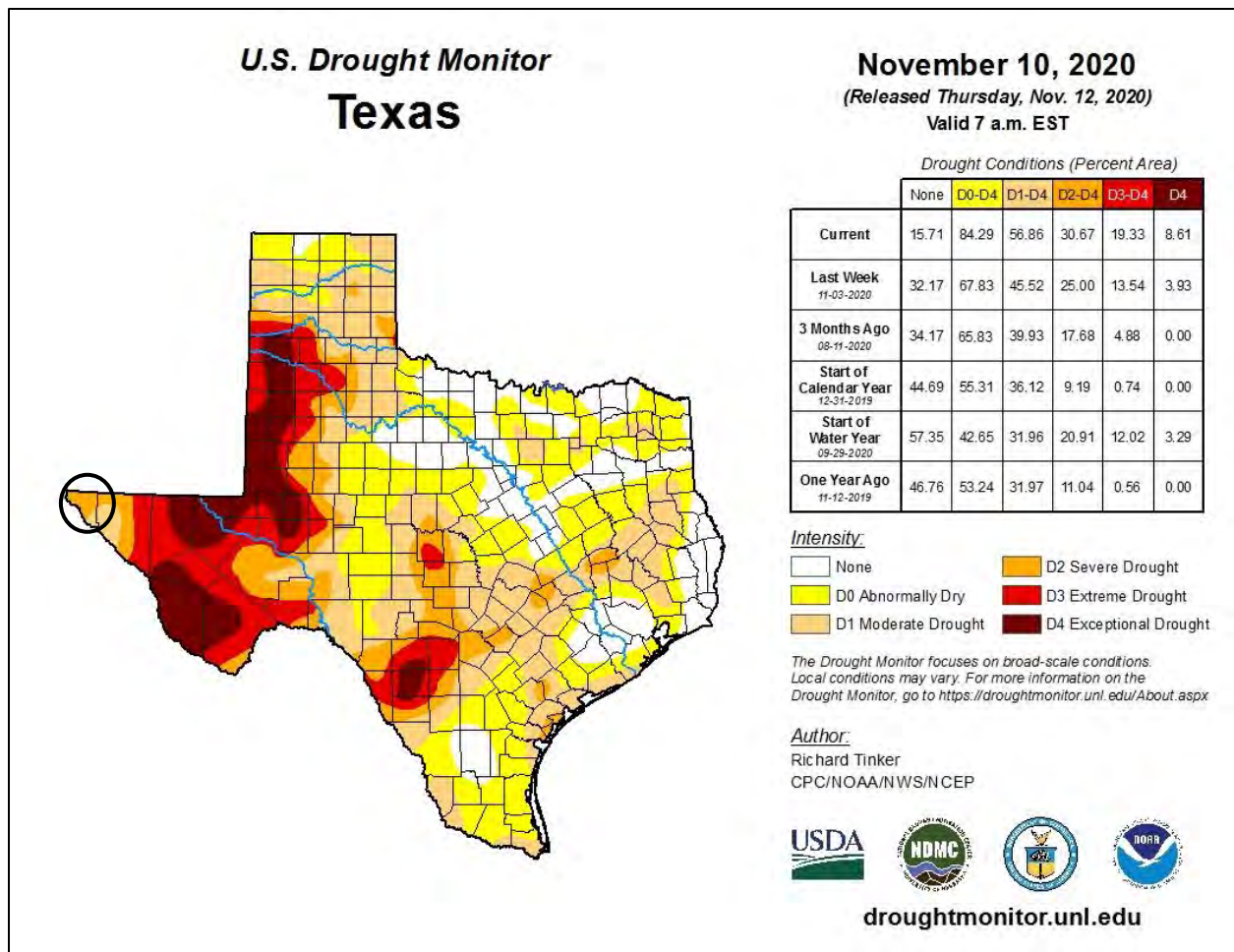
¹ Source: Multi-Hazard Identification and Risk Assessment: A Cornerstone of the National Mitigation Strategy, FEMA

SECTION 9: DROUGHT

LOCATION

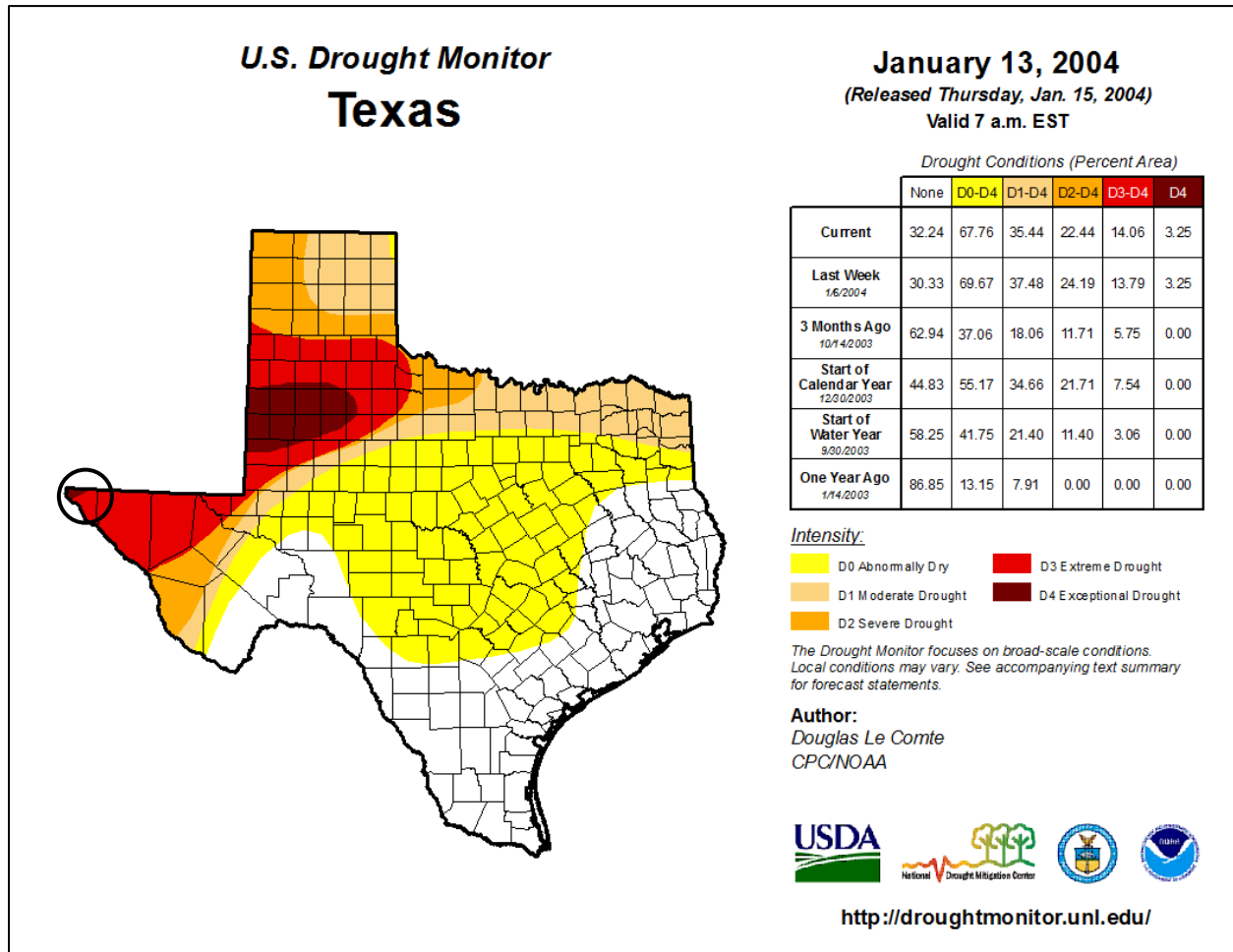
Droughts occur regularly throughout Texas and the El Paso County planning area and are a normal condition. However, they can vary greatly in their intensity and duration. The Drought Monitor shows the planning area is currently experiencing severe drought conditions in the majority of the county and moderately dry conditions in the southeast corner of the county (Figure 9-1). However, the planning area has experienced a range of conditions from normal to exceptional drought conditions over the last twenty years (Figure 9-2). There is no distinct geographic boundary to drought; therefore, it can occur throughout the El Paso County planning area equally, including all participating jurisdictions.

Figure 9-1. U.S. Drought Monitor, November 2020



SECTION 9: DROUGHT

Figure 9-2. U.S. Drought Monitor, January 2004



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 9-2 depicts magnitude of drought, while Table 9-3 describes the classification descriptions.

SECTION 9: DROUGHT

Table 9-2. Palmer Drought Index

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

Table 9-3. Palmer Drought Category Descriptions²

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

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

² Source: National Drought Mitigation Center

SECTION 9: DROUGHT

Based on the historical occurrences for drought and the location of the El Paso County planning area, including all participating jurisdictions, 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.

HISTORICAL OCCURRENCES

The El Paso County planning area may typically experience a severe drought. Table 9-4 lists historical events that have occurred in the El Paso County planning area as reported in the National Centers for Environmental Information (NCEI). Historical events are shown in Table 9-5. A total of 29 reported historical drought events impacted the El Paso County planning area between 1996 through July 2020 (Summary Table 9-6).

Historical drought information shows drought activity across a multi-county forecast area for each event, the appropriate percentage of the total property and crop damage reported for the entire forecast area has been allocated to each county impacted by the event. Historical drought data for all participating jurisdictions in the El Paso County planning area are provided on a county-wide basis per the NCEI database.

Table 9-4. Historical Drought Years, 1996-2020³

| DROUGHT YEAR |
|------------------------|
| 2012 ⁴ |
| 2012-2013 |
| 2013 |
| 2014 |
| 5 unique events |

Table 9-5. Historical Drought Events, 1996-2020⁵

| JURISDICTION | DATE | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|----------------|-----------|--------|----------|-----------------|-------------|
| El Paso County | 3/1/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 4/1/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 4/24/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 4/24/2012 | 0 | 0 | \$0 | \$0 |

³ Historical data is reported from January 1996 through July 2020.

⁴ Two unique events were reported in this year.

⁵ Values are reported in 2020 dollars.

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| JURISDICTION | DATE | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|----------------|-----------|----------|----------|-----------------|-------------|
| El Paso County | 4/24/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 5/1/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 5/1/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 5/1/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 5/1/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 7/1/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 9/18/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 10/1/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 11/1/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 12/1/2012 | 0 | 0 | \$0 | \$0 |
| El Paso County | 1/1/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 4/1/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 4/23/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 4/23/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 4/23/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 5/1/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 5/1/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 5/1/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 5/1/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 6/1/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 6/1/2013 | 0 | 0 | \$0 | \$0 |
| El Paso County | 7/1/2014 | 0 | 0 | \$0 | \$0 |
| El Paso County | 7/1/2014 | 0 | 0 | \$0 | \$0 |
| El Paso County | 8/1/2014 | 0 | 0 | \$0 | \$0 |
| El Paso County | 8/1/2014 | 0 | 0 | \$0 | \$0 |
| TOTALS | | 0 | 0 | \$0 | \$0 |

SECTION 9: DROUGHT

Table 9-6. Historical Drought Events Summary, 1996-2020

| JURISDICTION | NUMBER OF EVENTS | INJURIES | FATALITIES | PROPERTY DAMAGE | CROP DAMAGE |
|----------------|------------------|----------|------------|-----------------|-------------|
| El Paso County | 29 | 0 | 0 | \$0 | \$0 |

SIGNIFICANT EVENTS

September through November 2020

Dry conditions continued over far west Texas which brought severe drought (D2) conditions to El Paso County in September. The drought conditions continued with very little precipitation and precipitation continued to be below normal. The drought continued until there was relief in December.

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, there have been five extended time periods of drought (ranging in length from approximately 30 days to over 300 days) within a 24-year reporting period, which provides a probability of one event every three years. This frequency supports a highly likely probability of future events. All participating jurisdiction events are included under the county.

VULNERABILITY AND IMPACT

Loss estimates were based on 24 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 9-7 shows annualized exposure.

Table 9-7. Potential Annualized Losses for El Paso County

| JURISDICTION | PROPERTY & CROP LOSS | ANNUAL LOSS ESTIMATES |
|----------------|----------------------|-----------------------|
| El Paso County | \$0 | \$0 |

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

In terms of vulnerability, population, agriculture, property, socioeconomics, and environment are all vulnerable to drought in the El Paso County planning area, including all participating jurisdictions. 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, the ill, and those living below the poverty level. 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 El Paso County planning area is estimated at 11.6% of the total

SECTION 9: DROUGHT

population, and children under the age of 5 are estimated at 7.8% or an estimated total of 162,646⁶ potentially vulnerable residents in the planning area based on age. In addition, an estimated 21.3% of the planning area population live below the poverty level (Table 9-8) which may contribute to overall health impacts of a drought.

Table 9-8. Populations at Greater Risk by Jurisdiction

| JURISDICTION | POPULATION 65 AND OLDER | POPULATION UNDER 5 | POPULATION BELOW POVERTY LEVEL |
|-----------------------------|-------------------------|--------------------|--------------------------------|
| El Paso County ⁷ | 97,464 | 65,182 | 178,420 |
| City of El Paso | 84,690 | 51,165 | 136,071 |
| City of San Elizario | 1,157 | 748 | 3,467 |
| City of Socorro | 4,898 | 2,814 | 9,125 |
| Town of Anthony | 627 | 394 | 1,361 |
| Town of Clint | 237 | 65 | 139 |
| Town of Horizon City | 982 | 1,878 | 2,260 |
| Town of Vinton | 97 | 143 | 624 |

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

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

Impact of droughts experienced in the El Paso County planning area, including all participating jurisdictions, 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 24-year reporting period in El Paso County is 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 9-9

⁶ US Census Bureau 2018 data for El Paso County

⁷ County totals includes all incorporated jurisdictions and unincorporated areas.

SECTION 9: DROUGHT

lists the drought impacts to El Paso County from 2005 through July 2020 based on reports received by the Drought Impact Reporter.

Table 9-9. Drought Impacts, 2005-2020

| DROUGHT IMPACTS 2008-2018 | |
|---------------------------------|----|
| Agriculture | 77 |
| Business & Industry | 0 |
| Energy | 1 |
| Fire | 19 |
| Plants & Wildlife | 39 |
| Relief, Response & Restrictions | 34 |
| Society & Public Health | 10 |
| Tourism & Recreation | 0 |
| Water Supply & Quality | 21 |

Drought has the potential to impact people in the El Paso 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. The impact of climate change could produce longer, more severe droughts, exacerbating the current drought impacts. Worsening drought conditions can be 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.

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- 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 10: EXTREME HEAT

| | |
|------------------------------------|---|
| Hazard Description | 1 |
| Location | 1 |
| Extent | 1 |
| Historical Occurrences | 4 |
| Probability of Future Events | 6 |
| Vulnerability and Impact..... | 6 |
| Assessment of Impacts..... | 7 |

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 El Paso County is no exception. The entire planning area, including all participating jurisdictions, typically experience extended heat waves. A heat wave is an extended period of extreme heat and is often accompanied by high humidity.



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

LOCATION

Though a death from extreme heat has been recorded at a specific location in the County¹, there is no specific geographic scope to the extreme heat hazard. Extreme heat could occur anywhere within the El Paso County planning area, including all participating jurisdictions.

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

¹ Texas Health and Human Services, Heat-Related Deaths by County of Death:
<https://www.dshs.texas.gov/chs/vstat/Hotcolddths/occcounty.shtm>

SECTION 10: EXTREME HEAT

10-1. This index measures how hot it feels outside when humidity is combined with high temperatures.

Figure 10-1. Extent Scale for Extreme Summer Heat²

| Temperatures (°F) | | Temperatures (°F) | | Temperatures (°F) | | Temperatures (°F) | |
|-------------------|------------------|-------------------|--------------------------|-------------------|------------------|-------------------|---------------------------|
| 40 | 80 - 88: CAUTION | 40 | 90 - 96: EXTREME CAUTION | 40 | 98 - 106: DANGER | 40 | 108 - 110: EXTREME DANGER |
| 45 | 80 - 88: CAUTION | 45 | 90 - 94: EXTREME CAUTION | 45 | 96 - 104: DANGER | 45 | 106 - 110: EXTREME DANGER |
| 50 | 80 - 86: CAUTION | 50 | 88 - 94: EXTREME CAUTION | 50 | 96 - 102: DANGER | 50 | 104 - 110: EXTREME DANGER |
| 55 | 80 - 86: CAUTION | 55 | 88 - 92: EXTREME CAUTION | 55 | 94 - 100: DANGER | 55 | 102 - 110: EXTREME DANGER |
| 60 | 80 - 84: CAUTION | 60 | 86 - 90: EXTREME CAUTION | 60 | 92 - 98: DANGER | 60 | 100 - 110: EXTREME DANGER |
| 65 | 80 - 84: CAUTION | 65 | 86 - 90: EXTREME CAUTION | 65 | 92 - 96: DANGER | 65 | 98 - 110: EXTREME DANGER |
| 70 | 80 - 84: CAUTION | 70 | 86 - 88: EXTREME CAUTION | 70 | 90 - 94: DANGER | 70 | 96 - 110: EXTREME DANGER |
| 75 | 80 - 82: CAUTION | 75 | 84 - 88: EXTREME CAUTION | 75 | 90 - 94: DANGER | 75 | 96 - 110: EXTREME DANGER |
| 80 | 80 - 82: CAUTION | 80 | 84 - 86: EXTREME CAUTION | 80 | 88 - 92: DANGER | 80 | 94 - 110: EXTREME DANGER |
| 85 | 80 - 82: CAUTION | 85 | 84 - 86: EXTREME CAUTION | 85 | 88 - 90: DANGER | 85 | 92 - 110: EXTREME DANGER |
| 90 | 80: CAUTION | 90 | 82 - 84: EXTREME CAUTION | 90 | 86 - 90: DANGER | 90 | 92 - 110: EXTREME DANGER |
| 95 | 80: CAUTION | 95 | 82 - 84: EXTREME CAUTION | 95 | 86 - 88: DANGER | 95 | 90 - 110: EXTREME DANGER |
| 100 | 80: CAUTION | 100 | 82 - 84: EXTREME CAUTION | 100 | 86 - 88: DANGER | 100 | 90 - 110: EXTREME DANGER |

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

The Extent Scale in Figure 10-1 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 10-1.

² Source: NOAA

SECTION 10: EXTREME HEAT

Table 10-1. Heat Index and Warnings

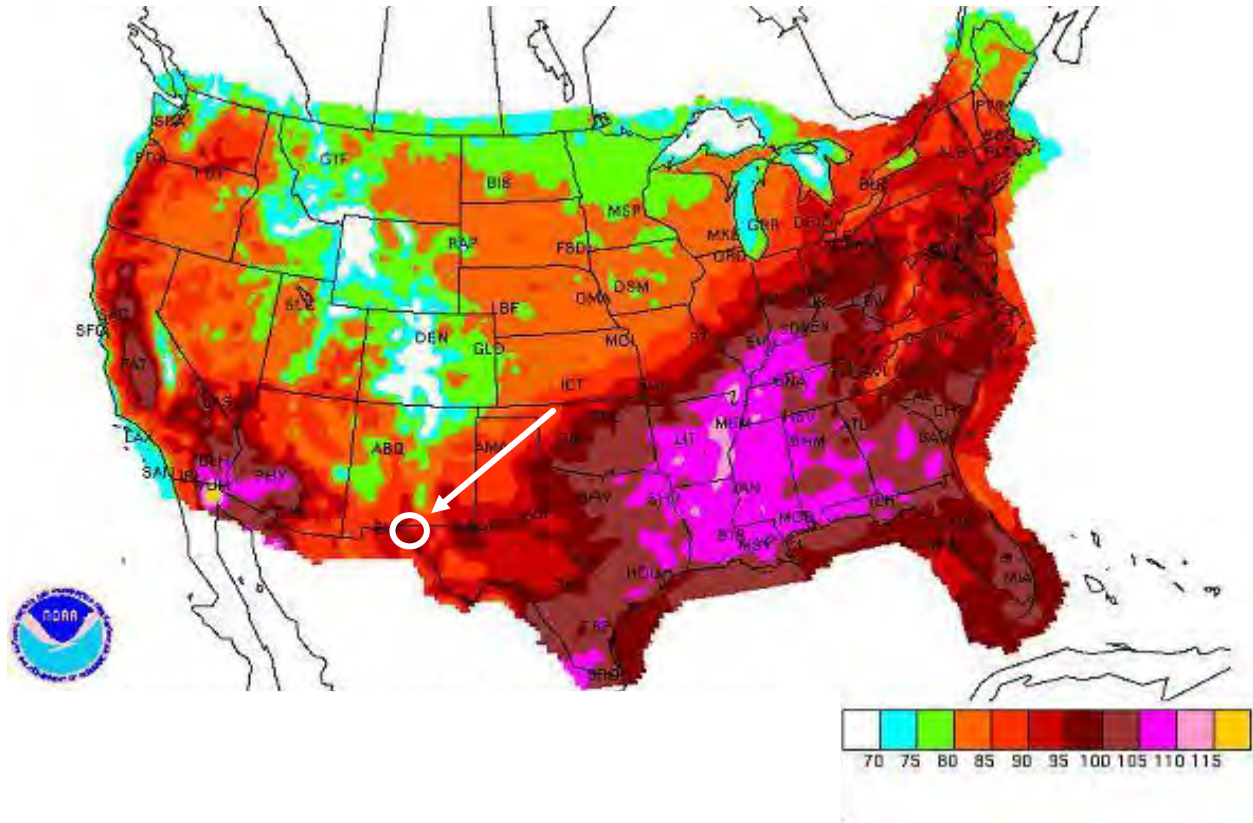
| CATEGORY | HEAT INDEX | POSSIBLE HEAT DISORDERS | WARNING TYPE |
|-----------------|------------------|--|---|
| Extreme Danger | 125°F and higher | Heat stroke or sun stroke likely. | A heat advisory will be issued to warn that the Heat Index may exceed 105°F. |
| Danger | 103 – 124°F | Sunstroke, 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 with prolonged exposure and/or physical activity. | An Excessive Heat Warning is issued if the Heat Index rises above 105°F at least 3 hours during the day or above 80°F at night. |
| Caution | 80 – 90°F | Fatigue is possible with prolonged exposure and/or physical activity. | |

El Paso County covers 1,057 square miles, and its elevation ranges from 3,500 to 7,000 feet above sea level. Agriculture depends entirely upon irrigation from the river as the average annual rainfall is only 7.77 inches. Summer temperatures typically rise above 100° F for brief periods and have reached a peak of 112°. A pleasant altitude and low humidity make most summer days agreeable. The average maximum temperature in July is 94° F. The average growing season lasts 248 days.

Figure 10-2 displays the daily maximum heat index as derived from NOAA based on data compiled from 1838 to 2015. The white circle shows the El Paso County planning area. The dark red and brown colors indicate a daily maximum heat index of 85° to 95°F. El Paso County, including all participating jurisdictions could experience extreme heat from 90° to 100°F in the future. The record high temperature for the El Paso County planning area was 114°F in 1994. This is the highest temperature (danger category) the planning area can expect.

SECTION 10: EXTREME HEAT

Figure 10-2. Average Daily Maximum Heat Index Days³



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 10-2 depicts historical occurrences of mortality from heat from 1994 to 2004 from the Texas Department of State Health Services and 2005 through April 2020 from the NCEI database.

Table 10-2. Extreme Heat Related Deaths in Texas

| YEAR | DEATHS |
|------|--------|
| 1994 | 1 |
| 1995 | 12 |
| 1996 | 10 |
| 1997 | 2 |

³ Source: NRDC and the white circle indicates the El Paso County planning area.

SECTION 10: EXTEME HEAT

| 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 | 120 |
| 2010 | 4 |
| 2011 | 46 |
| 2012 | 3 |
| 2013 | 2 |
| 2014 | 0 |
| 2015 | 5 |
| 2016 | 6 |
| 2017 | 3 |
| 2018 | 7 |
| 2019 | 7 |
| 2020 | 1 |

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 El Paso County, no extreme heat events have been recorded ⁴ for the El Paso County planning area. Historical extreme heat information, as provided

⁴ Even though the County experiences heat waves each summer, NCEI data only records events reported. Based on reports, only five events are on record.

SECTION 10: EXTREME HEAT

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 all participating jurisdictions 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.

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 El Paso County planning area, including all participating jurisdictions, 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. Children may also be more vulnerable if left unattended in vehicles. In addition, populations living below the poverty level are 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 El Paso County planning area is estimated at 11.6% of the total population and children under the age of 5 are estimated at 7.8%, or an estimated total of 162,646⁵ potentially vulnerable residents in the planning area based on age. In addition, an estimated 21.3% of the planning area population live below the poverty level (Table 10-3).

⁵ U.S. Census Bureau 2018 data for El Paso County

SECTION 10: EXTREME HEAT

Table 10-3. Populations at Greater Risk by Jurisdiction

| JURISDICTION | POPULATION 65 AND OLDER | POPULATION UNDER 5 | POPULATION BELOW POVERTY LEVEL |
|-----------------------------|-------------------------|--------------------|--------------------------------|
| El Paso County ⁶ | 97,464 | 65,182 | 178,420 |
| City of El Paso | 84,690 | 51,165 | 136,071 |
| City of San Elizario | 1,157 | 748 | 3,467 |
| City of Socorro | 4,898 | 2,814 | 9,125 |
| Town of Anthony | 627 | 394 | 1,361 |
| Town of Clint | 237 | 65 | 139 |
| Town of Horizon City | 982 | 1,878 | 2,260 |
| Town of Vinton | 97 | 143 | 624 |

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. In terms of vulnerability the impact from extreme heat is considered “Limited”. 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 24-year period, annualized property and crop losses for the El Paso County planning area are negligible.

ASSESSMENT OF IMPACTS

The greatest risk from extreme heat is to public health and safety. The impact of climate change could produce longer, more severe heat waves, exacerbating the current impacts. Worsening extreme heat conditions can be frequently associated with a variety of impacts, including:

- Vulnerable populations, particularly the elderly and children under 5, can face serious or life-threatening health problems from exposure to extreme heat including hyperthermia, heat cramps, heat exhaustion, and heat stroke (or sunstroke).
- Response personnel, including utility workers, public works personnel, and any other professions where individuals are required to work outside, are more subject to extreme heat related illnesses since their exposure would typically be greater.
- High energy demand periods can outpace the supply of energy, potentially creating the need for rolling brownouts which would elevate the risk of illness to vulnerable residents.

⁶ County totals includes all incorporated jurisdictions and unincorporated areas.

SECTION 10: EXTREME HEAT

- 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.
- Outdoor activities such as fishing, boating, and camping activities at places such as Ascarate Park and Lake, Franklin Mountain State Park, and along the Guadalupe River, may see an increase in injury or illness during extreme heat events.

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

SECTION 11: HAIL

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HAZARD DESCRIPTION



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

LOCATION

Hailstorms are an extension of severe thunderstorms that could potentially cause severe damage. As a result, they are not confined to any specific geographic location and can vary greatly in size, location, intensity, and duration. Therefore, the El Paso County planning area, including all participating jurisdictions, 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 11-1.

SECTION 11: HAIL

Table 11-1. Hail Intensity and Magnitude¹

| 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 11-1 ranges from H0 to H10, with increments of intensity or damage potential in relation to hail size (distribution and maximum), texture, fall speed, speed of storm translation, and strength of the accompanying wind. Based on available data regarding the previous occurrences for the area, the El Paso County planning area, including all participating jurisdictions, may experience hailstorms ranging from an H0 to an H8. The planning area can mitigate a storm from low risk or hard hail to a very destructive hailstorm with hen egg size hail that leads to severe damage to structures and could cause fatal injuries. The largest hail event in the El Paso County planning area resulted in hail measuring 3.25 inches in diameter, or a H8, Super Hailstorm. This is the worst extent the planning area can anticipate in the future.

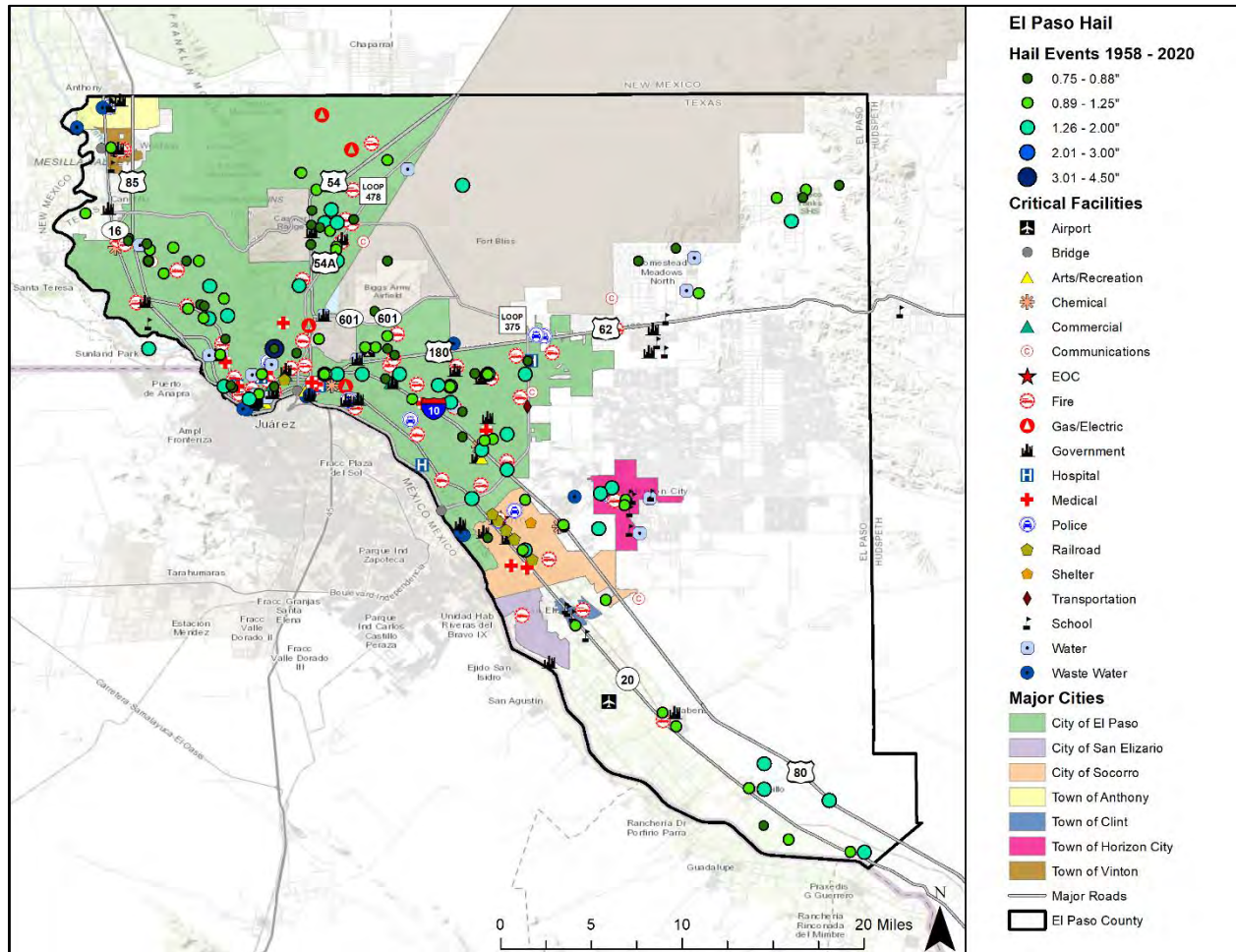
¹ NCEI Intensity Scale, based on the TORRO Hailstorm Intensity Scale.

SECTION 11: HAIL

HISTORICAL OCCURRENCES

Historical evidence shown in Figure 11-1 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 11-2. A total of 149 reported historical hail events impacted the El Paso County planning area between 1955 through July 2020 (Summary Table 11-3). These events were reported to NCEI and NOAA databases and may not represent all hail events to have occurred during the past 65 years. Only those events for the El Paso County planning area with latitude and longitude available were plotted (Figure 11-1).

Figure 11-1. Spatial Historical Hail Events, 1955-2020



SECTION 11: HAIL

Table 11-2. Historical Hail Events, 1955-2020²

| JURISDICTION | DATE | MAGNITUDE | INJURIES | FATALITIES | PROPERTY DAMAGE | CROP DAMAGE |
|-----------------|------------|---------------------|-----------|------------|----------------------|-------------|
| El Paso County | 6/30/1995 | 0.75 | 0 | 0 | \$0 | \$85,338 |
| City of El Paso | 10/18/2002 | 1 | 0 | 0 | \$7,178 | \$28,713 |
| City of El Paso | 8/29/2004 | 1 | 0 | 0 | \$343,377 | \$0 |
| City of El Paso | 8/26/2005 | 1 | 0 | 0 | \$1,325 | \$0 |
| City of El Paso | 5/14/2006 | 1.5 | 0 | 0 | \$12,853 | \$0 |
| City of El Paso | 9/11/2006 | 1 | 0 | 0 | \$1,283 | \$0 |
| El Paso County | 10/9/2006 | 1.75 | 0 | 0 | \$25,796 | \$64,490 |
| City of El Paso | 5/2/2007 | 1 | 0 | 0 | \$2,503 | \$0 |
| City of El Paso | 5/2/2007 | 1.75 | 0 | 0 | \$6,258 | \$0 |
| City of El Paso | 5/7/2007 | 1.75 | 0 | 0 | \$12,517 | \$0 |
| City of El Paso | 5/8/2007 | 1.5 | 0 | 0 | \$6,258 | \$0 |
| City of El Paso | 5/8/2007 | 1.25 | 0 | 0 | \$5,006,612 | \$0 |
| City of El Paso | 9/28/2007 | 2 | 0 | 0 | \$9,987,242 | \$0 |
| City of El Paso | 8/20/2008 | 1.75 | 0 | 0 | \$415,809 | \$0 |
| City of El Paso | 9/16/2009 | 1.25 | 0 | 0 | \$60,259 | \$0 |
| City of El Paso | 9/16/2009 | 1.5 | 0 | 0 | \$24,103,459 | \$0 |
| City of Socorro | 9/16/2009 | 1.75 | 10 | 0 | \$120,517,296 | \$0 |
| City of Socorro | 9/16/2009 | 1.75 | 0 | 0 | \$12,051,730 | \$0 |
| City of Socorro | 9/16/2009 | 1.75 | 0 | 0 | \$24,103,459 | \$0 |
| City of Socorro | 11/4/2016 | 1.75 | 0 | 0 | \$323,526,121 | \$0 |
| El Paso County | 5/21/2018 | 1 | 0 | 0 | \$103,455 | \$0 |
| El Paso County | 8/27/2019 | 1.75 | 0 | 0 | \$25,363 | \$0 |
| El Paso County | 8/27/2019 | 1.75 | 0 | 0 | \$25,363 | \$0 |
| TOTALS | | (Max Extent) | 10 | 0 | \$520,524,057 | |

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

SECTION 11: HAIL

Table 11-3. Historical Hail Events Summary, 1955-2020

| JURISDICTION | NUMBER of EVENTS | MAGNITUDE | INJURIES | FATALITIES | PROPERTY DAMAGE | CROP DAMAGE |
|----------------------|------------------|---------------------|-----------|------------|----------------------|-------------|
| El Paso County | 85 | 3.25 | 0 | 0 | \$179,977 | \$149,828 |
| City of El Paso | 45 | 2.0 | 0 | 0 | \$39,966,933 | \$28,713 |
| City of San Elizario | 0 | 0 | 0 | 0 | \$0 | \$0 |
| City of Socorro | 15 | 1.75 | 10 | 0 | \$480,198,606 | \$0 |
| Town of Anthony | 1 | 0.75 | 0 | 0 | \$0 | \$0 |
| Town of Clint | 2 | 1.0 | 0 | 0 | \$0 | \$0 |
| Town of Horizon City | 0 | 0 | 0 | 0 | \$0 | \$0 |
| Town of Vinton | 1 | 1.0 | 0 | 0 | \$0 | \$0 |
| TOTAL LOSSES | 149 | (Max Extent) | 10 | 0 | \$520,524,057 | |

SIGNIFICANT EVENTS

September 9, 2009 – Socorro

A backdoor front pushed southwestward into far west Texas while an upper level low was dropping southward into eastern Arizona. A veering vertical shear profile with sufficient low level moisture and instability led to 2 supercells forming in the El Paso area. These storms were prolific hail producers. The second supercell produced extensive golf ball to possibly tennis ball size hail over a large area of commerce. The damage estimate of \$150 million makes this easily the most costly hailstorm in the NWS El Paso County Warning Area since records began. Far east El Paso was hardest hit by this second supercell, with extensive golf ball to possibly tennis ball size hail falling for 20 minutes. Thousands of automobiles were damaged, with several dealerships suffering much loss. Skylights were destroyed, roofs damaged and windows broken on thousands of buildings. Several injuries were reported from hailstones as well.

November 4, 2016 – Socorro

A broad area of high pressure was located through the central part of the country with easterly winds tapping low level moisture from the Gulf of Mexico. Upper level moisture was tapped from an upper low moving out of the Baja region. These two features combined to create sufficient shear for severe thunderstorms over El Paso County. Supercell thunderstorms (very rare for November in this area) affected much of El Paso. The strongest, which actually weakened before moving into the United States, produced golf ball hail over far east El Paso into Horizon City. Severe hail was also reported in Hudspeth County. This caused record breaking insurance claims for a single hail event with a total of \$200 million damage to vehicles and \$100 million to homes. This doubled the previous record from 9-16-09. Flooding also occurred due to excessive hail amounts plugging up drains.

SECTION 11: HAIL

PROBABILITY OF FUTURE EVENTS

Based on available records of historic events, 149 events in a 65-year reporting period for El Paso County provides a probability of two to three events per year. This frequency supports a highly likely probability of future events for the El Paso County planning area including all participating jurisdictions.

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 school districts and 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.

The El Paso County planning area, including all participating jurisdictions, features mobile or manufactured home parks throughout the planning area. These parks are typically more vulnerable to hail events than typical site-built structures. In addition, manufactured homes are located sporadically throughout the planning area, including all participating jurisdictions, which would also be more vulnerable. The US Census data indicates a total of 16,004 (5.5%) manufactured homes located in the El Paso County planning area including all participating jurisdictions (Table 11-4). In addition, 44.7% (approximately 131,150 structures) of the single family residential (SFR) structures in the El Paso County planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant hail events.

Table 11-4. Structures at Greater Risk by Jurisdiction

| JURISDICTION | MANUFACTURED HOMES | SFR STRUCTURES BUILT BEFORE 1980 |
|-----------------------------|--------------------|----------------------------------|
| El Paso County ³ | 16,004 | 131,150 |
| City of El Paso | 6,862 | 121,316 |
| City of San Elizario | 707 | 747 |
| City of Socorro | 1,679 | 2,841 |
| Town of Anthony | 199 | 556 |
| Town of Clint | 12 | 206 |
| Town of Horizon City | 134 | 573 |

³ County totals includes all incorporated jurisdictions and unincorporated areas.

SECTION 11: HAIL

| JURISDICTION | MANUFACTURED HOMES | SFR STRUCTURES BUILT BEFORE 1980 |
|----------------|--------------------|----------------------------------|
| Town of Vinton | 256 | 49 |

While all citizens are at risk to the impacts of a 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 21.3% of the planning area population live below the poverty level (Table 11-5).

Table 11-5. Populations at Greatest Risk by Jurisdiction⁴

| JURISDICTION | POPULATION BELOW POVERTY LEVEL |
|----------------------|--------------------------------|
| El Paso County | 178,420 |
| City of El Paso | 136,071 |
| City of San Elizario | 3,467 |
| City of Socorro | 9,125 |
| Town of Anthony | 1,361 |
| Town of Clint | 139 |
| Town of Horizon City | 2,260 |
| Town of Vinton | 624 |

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

Table 11-6. Critical Facilities at Risk by Jurisdiction

| JURISDICTION | CRITICAL FACILITIES |
|----------------------|--|
| El Paso County | 1 Airport, 1 Bridge, 23 Government Facilities, 1 Dam, 1 International Bridge, 2 Water Towers, 1 Water Booster Station |
| City of El Paso | 4 Chemical Facilities, 7 Communications Facilities, 4 Commercial Facilities, 1 Dam, 49 Emergency Services, 4 Energy Facilities, 1 Financial Service, 2 Food and Agriculture, 18 Government Facilities, 13 Healthcare and Public Facilities, 7 Transportation Facilities, 11 Water and Wastewater Systems |
| City of San Elizario | 1 Fire Station |
| City of Socorro | 1 Communication Facility, 2 Emergency Shelters/Mass Care Shelters, 2 EMS, 1 EOC, 1 Fire Station, 1 Government Facility, 2 Police Departments, 1 Public Works, 6 Rail Crossings, 3 Utility Facilities, 1 Water District |

⁴ US Census Bureau 2018 data for El Paso County

SECTION 11: HAIL

| JURISDICTION | CRITICAL FACILITIES |
|----------------------|--|
| Town of Anthony | 1 Police Department, 1 Government Facility, 1 Public Works, 3 Schools, 1 Wastewater Plant |
| Town of Clint | 1 Community Center, 1 Fire Station, 4 Schools |
| Town of Horizon City | 1 Government Facility, 1 Police Department, 1 Fire Station, 2 MUD, 1 ISD Administrative Office |
| Town of Vinton | 1 Administrative Facility, 1 County Facility, 1 Fire Station, 1 Public Works, 1 School |

Hail has been known to cause injury to humans and occasionally has been fatal. Overall, the average loss estimate of property and crops (in 2020 dollars) is \$520,524,057, having an approximate annual loss estimate of \$7,946,932. Based on historic loss and damages, the impact of hail damages on the El Paso County planning area, including all participating jurisdictions, can be considered “Minor” severity of impact meaning injuries and illness do not result in permanent disability, planning area facilities are shut down for one week or more, and more than ten percent of property destroyed or with major damage.

Table 11-7. Potential Annualized Losses by Jurisdiction

| JURISDICTION | PROPERTY & CROP LOSS | ANNUAL LOSS ESTIMATE |
|----------------------|----------------------|----------------------|
| El Paso County | \$329,805 | \$5,035 |
| City of El Paso | \$39,995,646 | \$610,621 |
| City of San Elizario | \$0 | \$0 |
| City of Socorro | \$480,198,606 | \$7,331,276 |
| Town of Anthony | \$0 | \$0 |
| Town of Clint | \$0 | \$0 |
| Town of Horizon City | \$0 | \$0 |
| Town of Vinton | \$0 | \$0 |
| Planning Area | \$520,524,057 | \$7,946,932 |

ASSESSMENT OF IMPACTS

Hail events have the potential to pose a significant risk to people and can create dangerous situations. The impact of climate change could produce larger, more severe hail events, exacerbating the current hail impacts. Worsening hail conditions can be frequently associated with a variety of impacts, including:

- 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.

SECTION 11: HAIL

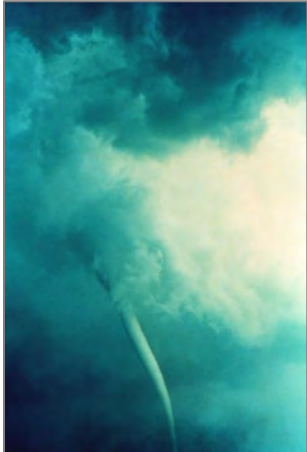
- Residential structures can be damaged by falling trees, which can result in physical harm to occupants.
- Large hail events will likely cause extensive roof damage to residential structures along with siding damage and broken windows, creating a spike in insurance claims and a rise in premiums.
- Automobile 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 12: TORNADO

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HAZARD DESCRIPTION



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

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

Table 12-1. Variations among Tornadoes

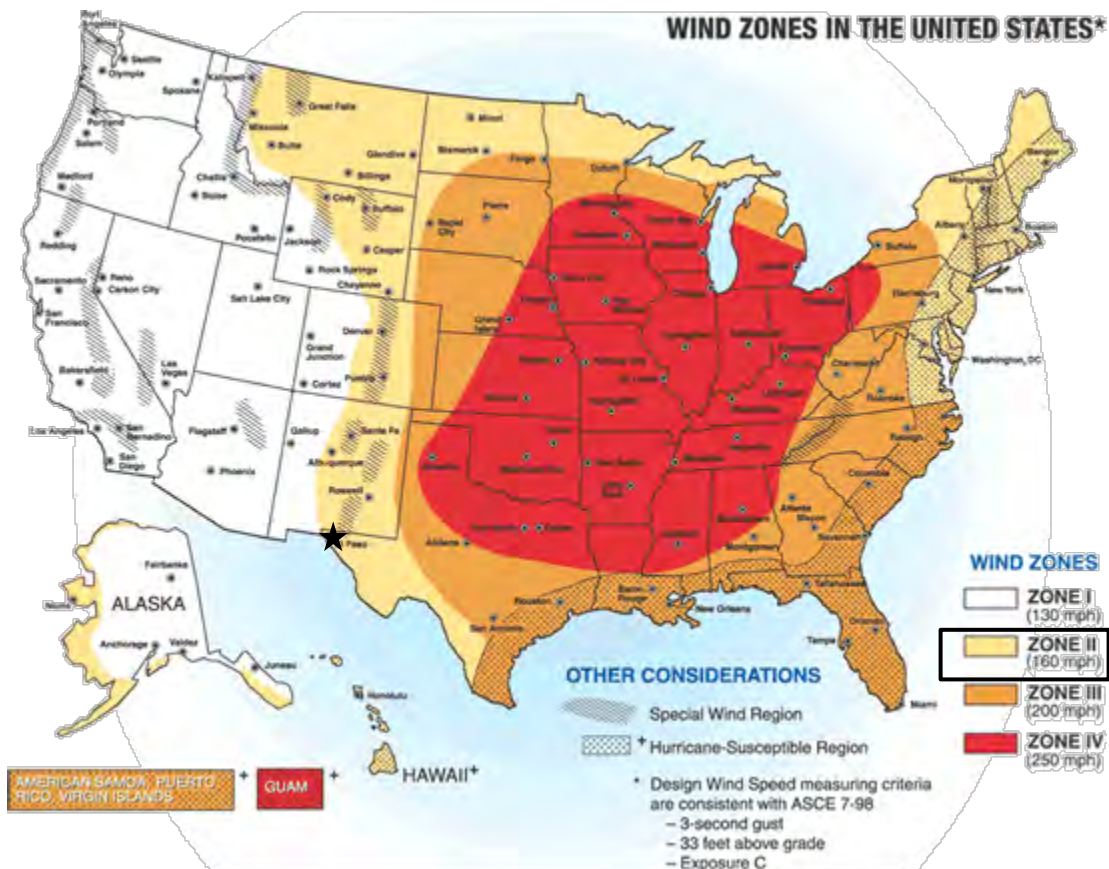
| WEAK TORNADOES | STRONG TORNADOES | VIOLENT TORNADOES |
|---|--|--|
| <ul style="list-style-type: none"> • 69% of all tornadoes • Less than 5% of tornado deaths • Lifetime 1-10+ minutes • Winds less than 110 mph | <ul style="list-style-type: none"> • 29% of all tornadoes • Nearly 30% of all tornado deaths • May last 20 minutes or longer • Winds 110 – 205 mph | <ul style="list-style-type: none"> • 2% of all tornadoes • 70% of all tornado deaths • Lifetime can exceed one hour • Winds greater than 205 mph |

SECTION 12: TORNADO

LOCATION

Tornadoes do not have any specific geographic boundary and can occur throughout the County uniformly. It is assumed that the entire El Paso County planning area including all participating jurisdictions are uniformly exposed to tornado activity. The entire El Paso County planning area is located in Wind Zone II (Figure 12-1), where tornado winds can be as high as 160 mph.

Figure 12-1. FEMA Wind Zones in the United States¹



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 El Paso County is indicated by the star.

SECTION 12: TORNADO

Table 12-2. The Fujita Tornado Scale²

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


Tornado magnitudes prior to 2005 were determined using the traditional version of the Fujita Scale (Table 12-2). Since February 2007, the Fujita Scale has been replaced by the Enhanced

² Source: <http://www.tornadoproject.com/fscale/fscale.htm>

SECTION 12: TORNADO

Fujita Scale (Table 12-3), which retains the same basic design and six strength categories as the previous scale. The newer scale reflects more refined assessments of tornado damage surveys, standardization, and damage consideration to a wider range of structures.

Table 12-3. Enhanced Fujita Scale for Tornadoes

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

Both the Fujita Scale and Enhanced Fujita Scale should be referenced in reviewing previous occurrences since tornado events prior to 2007 will follow the original Fujita Scale. The largest magnitude reported within the planning area is an F1 on the Fujita Scale, a “Moderate Tornado.”

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Based on the planning areas location in Wind Zone II, the planning area could experience anywhere from an EF0 to EF3 depending on the wind speed.

The events in El Paso County (converted from the Fujita Scale) have been between EF0 and EF3 (Table 12-4). Therefore, the range of intensity that the El Paso County planning area, including all participating jurisdictions, would be expected to mitigate is a tornado event that would be a low to severe risk, an EF0 to EF3. Historically, the strongest tornado to strike the planning area was a F1, which would be up to an EF3 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 48 years. Historical tornado data for the county and participating jurisdictions is provided within a jurisdiction-wide basis per the NCEI database.

Figure 12-2 identifies the locations of previous occurrences in the El Paso County planning area from 1972 through July 2020. A total of 6 events have been recorded by the Storm Prediction Center (NOAA) and NCEI databases for the El Paso County planning area, including all participating jurisdictions.

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Figure 12-2. Spatial Historical Tornado Events, 1972-2020³

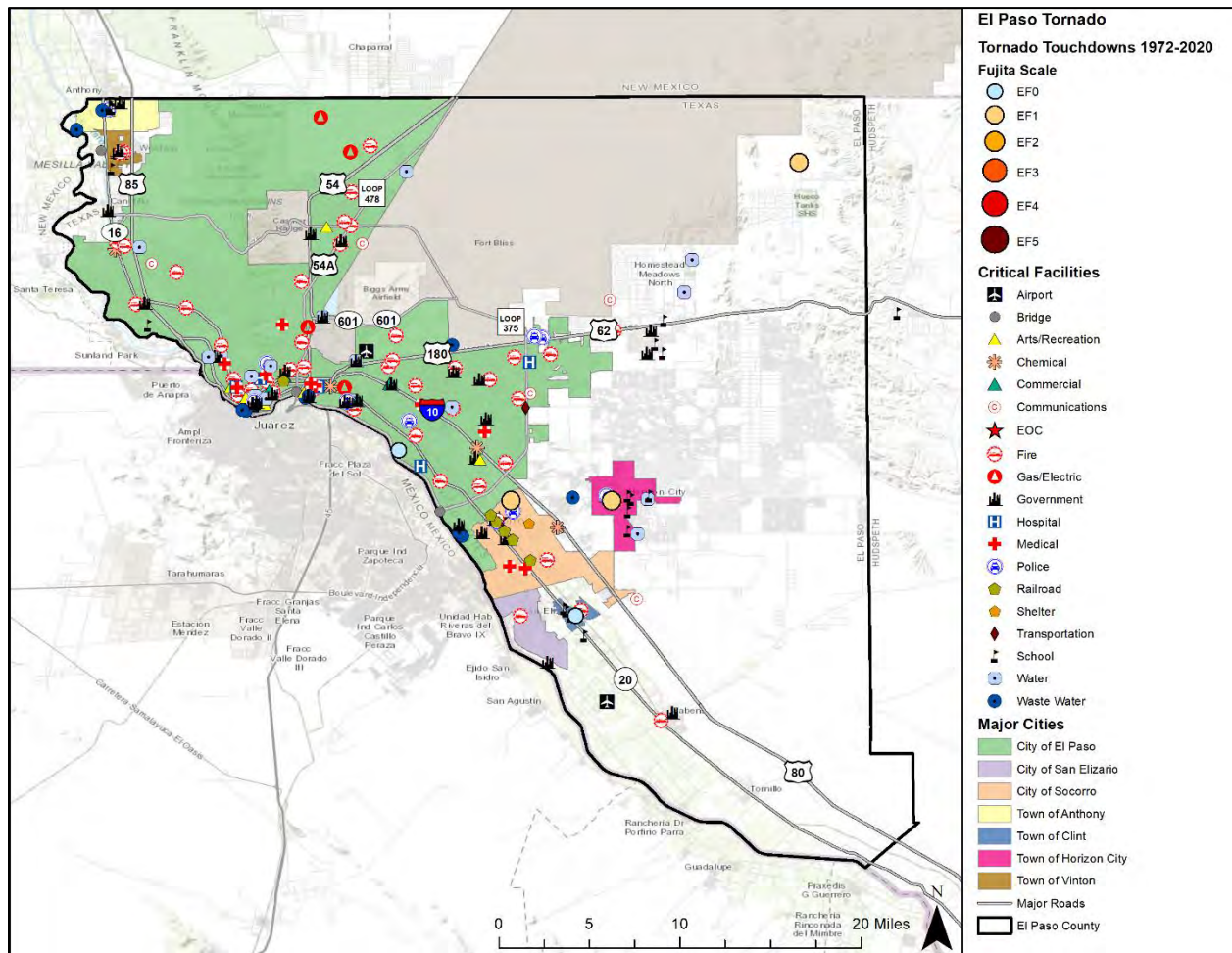


Table 12-4. Historical Tornado Events, 1972-2020⁴

| JURISDICTION | DATE | TIME | MAGNITUDE | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|----------------|-----------|---------|---------------------|----------|----------|--------------------|-------------|
| El Paso County | 7/19/1972 | 8:20 PM | F1 | 0 | 0 | \$0 | \$0 |
| El Paso County | 6/14/1988 | 1:50 PM | F0 | 0 | 0 | \$0 | \$0 |
| El Paso County | 6/21/1992 | 6:50 PM | F1 | 0 | 0 | \$464,123 | \$0 |
| El Paso County | 6/21/1992 | 7:00 PM | F1 | 0 | 0 | \$4,641,227 | \$0 |
| El Paso County | 6/21/1992 | 7:15 PM | F1 | 0 | 0 | \$464,123 | \$0 |
| Town of Clint | 4/22/2019 | 4:26 PM | EF0 | 0 | 0 | \$0 | \$0 |
| TOTALS | | | (Max Extent) | 0 | 0 | \$5,569,473 | \$0 |

³ Source: NOAA Records

⁴ Only recorded events with fatalities, injuries or damages are listed. Magnitude is listed when available. Damage values are in 2020 dollars.

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Table 12-5. Summary of Historical Events, 1972-2020⁵

| JURISDICTION | Number of Events | MAGNITUDE | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|----------------------|------------------|---------------------|----------|----------|--------------------|-------------|
| El Paso County | 5 | F1 | 0 | 0 | \$5,569,473 | \$0 |
| City of El Paso | 0 | N/A | N/A | N/A | \$0 | \$0 |
| City of San Elizario | 0 | N/A | N/A | N/A | \$0 | \$0 |
| City of Socorro | 0 | N/A | N/A | N/A | \$0 | \$0 |
| Town of Anthony | 0 | N/A | N/A | N/A | \$0 | \$0 |
| Town of Clint | 1 | EF0 | 0 | 0 | \$0 | \$0 |
| Town of Horizon City | 0 | N/A | N/A | N/A | \$0 | \$0 |
| Town of Vinton | 0 | N/A | N/A | N/A | \$0 | \$0 |
| TOTAL LOSSES | 6 | (Max Extent) | 0 | 0 | \$5,569,473 | |

SIGNIFICANT EVENTS

June 6, 1992 – El Paso

A tornado developed south of U.S Highway 62/180 in Western Hudspeth County. The tornado destroyed a shed which housed emergency vehicles. A 9-ton steel hopper was moved 75 feet and a 2,000-gallon oil tank was moved 20 feet by the tornado. Golf-ball sized hail broke windows and skylights and damaged rood and vehicles before the tornado touched down. Three tornados touched down east of El Paso after two strong thunderstorms merged. The first tornado touched down in northeastern Horizon City and moved southeast. Trees were snapped and many homes suffered roof damage. The second tornado formed just southwest of the first and also moved southeast. This tornado did damage similar to the first both over a longer path. The third tornado developed west of Horizon City. This tornado took down 9 power poles and destroyed a pump house and several large billboards.

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, El Paso County, including all participating jurisdictions, can experience a tornado touchdown approximately once every five years. This frequency supports an occasional probability of future events for El Paso County, including all participating jurisdictions.

⁵ Damages reported in 2020 dollars.

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VULNERABILITY AND IMPACT

Because tornadoes often cross jurisdictional boundaries, all existing and future buildings, facilities, and populations in the entire El Paso County planning area, including all participating jurisdictions, 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.

The El Paso County planning area features multiple mobile or manufactured home parks throughout the planning area, including all participation jurisdictions. 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 all participating jurisdictions and unincorporated areas of the county which would also be more vulnerable. The US Census data indicates a total of 16,004 manufactured homes located in the El Paso County planning area (5.5%), including all participating jurisdictions (Table 12-6). In addition, 44.7% (approximately 131,150 structures) of the single family residential (SFR) structures in the entire planning area were built before 1980. These structures would typically be built to lower or less stringent construction standards than newer construction and may be more susceptible to damages during significant tornado events.

Table 12-6. Structures at Greater Risk by Jurisdiction

| JURISDICTION | MANUFACTURED HOMES | SFR STRUCTURES BUILT BEFORE 1980 |
|-----------------------------|--------------------|----------------------------------|
| El Paso County ⁶ | 16,004 | 131,150 |
| City of El Paso | 6,862 | 121,316 |
| City of San Elizario | 707 | 747 |
| City of Socorro | 1,679 | 2,841 |

⁶ County totals includes all incorporated jurisdictions and unincorporated areas.

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| JURISDICTION | MANUFACTURED HOMES | SFR STRUCTURES BUILT BEFORE 1980 |
|----------------------|--------------------|----------------------------------|
| Town of Anthony | 199 | 556 |
| Town of Clint | 12 | 206 |
| Town of Horizon City | 134 | 573 |
| Town of Vinton | 256 | 49 |

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 21.3% of the planning area population live below the poverty level (Table 12-7).

Table 12-7. Populations at Greatest Risk by Jurisdiction⁷

| JURISDICTION | POPULATION BELOW POVERTY LEVEL |
|----------------------|--------------------------------|
| El Paso County | 178,420 |
| City of El Paso | 136,071 |
| City of San Elizario | 3,467 |
| City of Socorro | 9,125 |
| Town of Anthony | 1,361 |
| Town of Clint | 139 |
| Town of Horizon City | 2,260 |
| Town of Vinton | 624 |

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

Table 12-8. Critical Facilities at Risk by Jurisdiction

| JURISDICTION | CRITICAL FACILITIES |
|-----------------|--|
| El Paso County | 1 Airport, 1 Bridge, 23 Government Facilities, 1 Dam, 1 International Bridge, 2 Water Towers, 1 Water Booster Station |
| City of El Paso | 4 Chemical Facilities, 7 Communications Facilities, 4 Commercial Facilities, 1 Dam, 49 Emergency Services, 4 Energy Facilities, 1 Financial Service, 2 Food and Agriculture, 18 Government Facilities, |

⁷ US Census Bureau 2018 data for El Paso County

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| JURISDICTION | CRITICAL FACILITIES |
|----------------------|--|
| | 13 Healthcare and Public Facilities, 7 Transportation Facilities, 11 Water and Wastewater Systems |
| City of San Elizario | 1 Fire Station |
| City of Socorro | 1 Communication Facility, 2 Emergency Shelters/Mass Care Shelters, 2 EMS, 1 EOC, 1 Fire Station, 1 Government Facility, 2 Police Departments, 1 Public Works, 6 Rail Crossings, 3 Utility Facilities, 1 Water District |
| Town of Anthony | 1 Police Department, 1 Government Facility, 1 Public Works, 3 Schools, 1 Wastewater Plant |
| Town of Clint | 1 Community Center, 1 Fire Station, 4 Schools |
| Town of Horizon City | 1 Government Facility, 1 Police Department, 1 Fire Station, 2 MUD, 1 ISD Administrative Office |
| Town of Vinton | 1 Administrative Facility, 1 County Facility, 1 Fire Station, 1 Public Works, 1 School |

The average loss estimate of property and crop is \$5,569,473 (in 2020 dollars), having an approximate annual loss estimate of \$114,834 (Table 12-9). Based on historic loss and damages, the impact of tornado on the El Paso County planning area, including all participating jurisdictions, can be considered “Limited,” with less than 10 percent of property expected to be damaged or destroyed, injuries that that can be treated with first aid, and critical facilities shut down for 24 hours or less.

Table 12-9. Potential Annualized Losses by Jurisdiction

| JURISDICTION | PROPERTY & CROP LOSS | ANNUAL LOSS ESTIMATES |
|----------------------|----------------------|-----------------------|
| El Paso County | \$5,569,473 | \$114,834 |
| City of El Paso | \$0 | \$0 |
| City of San Elizario | \$0 | \$0 |
| City of Socorro | \$0 | \$0 |
| Town of Anthony | \$0 | \$0 |
| Town of Clint | \$0 | \$0 |
| Town of Horizon City | \$0 | \$0 |
| Town of Vinton | \$0 | \$0 |
| Planning Area | \$5,569,473 | \$114,834 |

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. The impact

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of climate change could produce larger, more severe tornado events, exacerbating the current tornado impacts. More destructive tornado 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.
- 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.

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- 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.

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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.

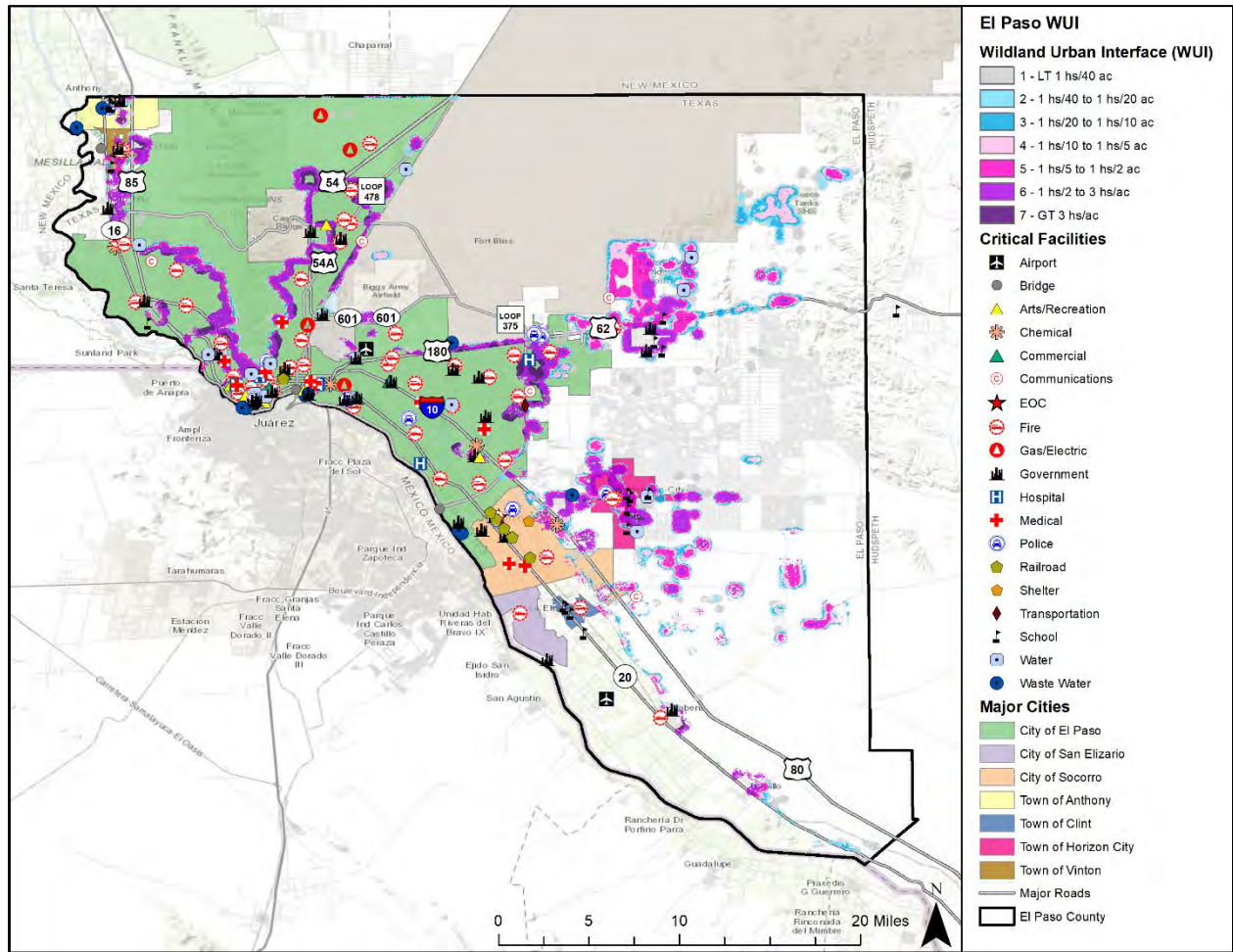
Texas has seen a significant increase in the number of wildfires in the past 30 years, which included wildland, interface, or intermix fires. Wildland fires are fueled almost exclusively by natural vegetation, while interface or intermix fires are urban/wildland fires in which vegetation and the built 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 13-1 through 13-8). It is estimated that 19.0 percent of the total population in El Paso County live within the WUI. However, the entire El Paso County planning area is at risk for wildfires.

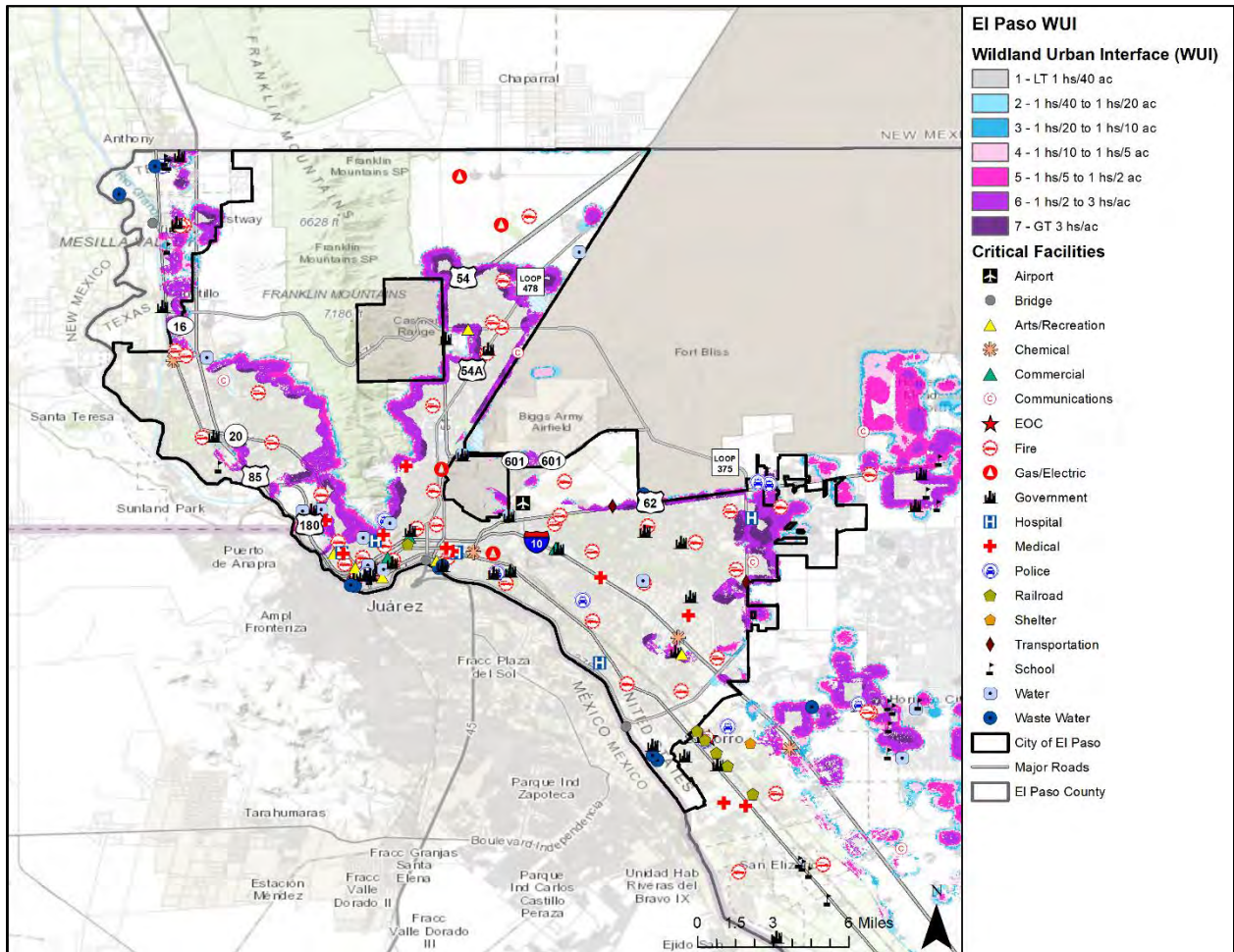
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Figure 13-1. Wildland Urban Interface Map – El Paso County



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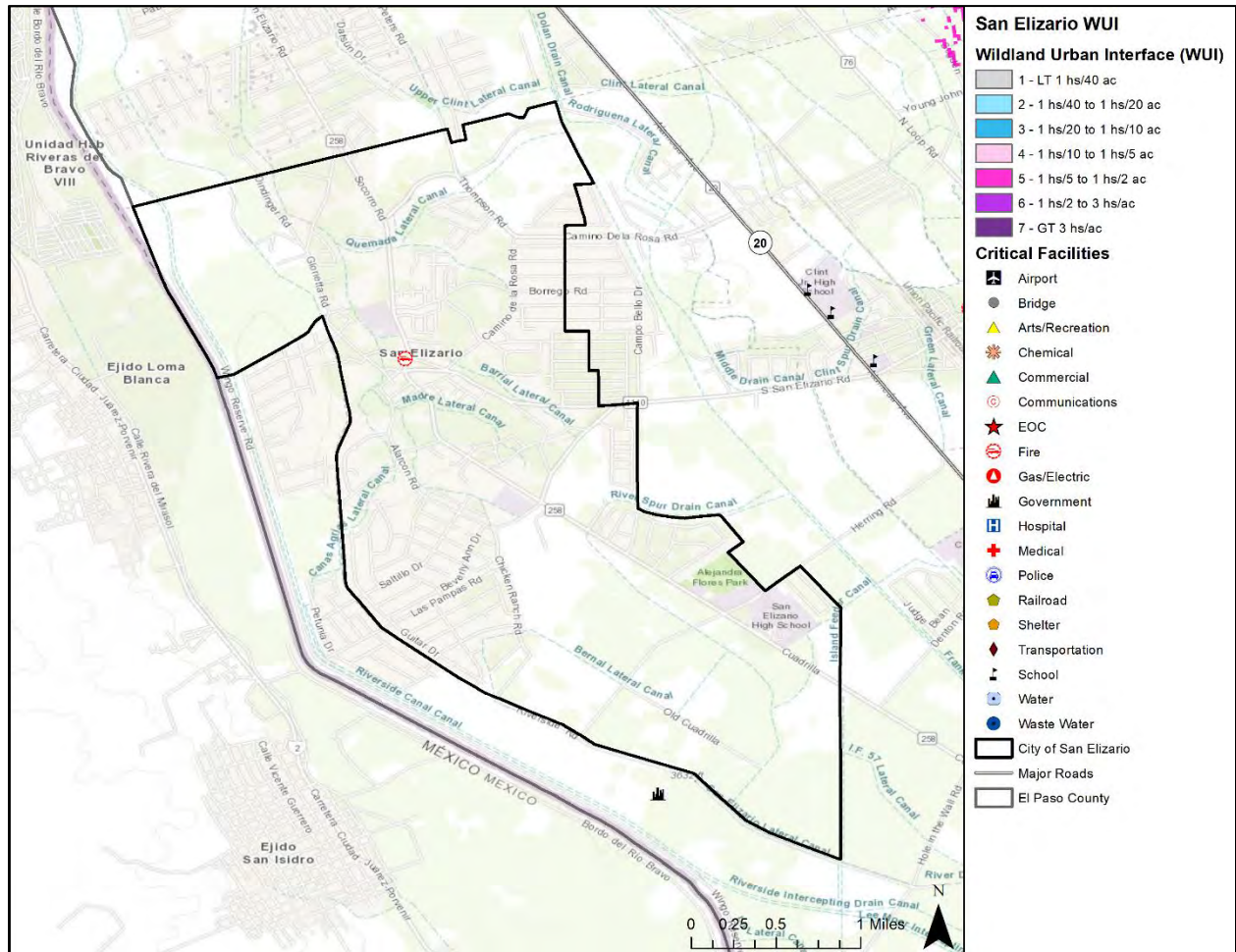
Figure 13-2. Wildland Urban Interface Map – City of El Paso



It is estimated that 14.1 percent of the total population in the City of El Paso live within the WUI. However, the entire City of El Paso is at some risk for wildfires.

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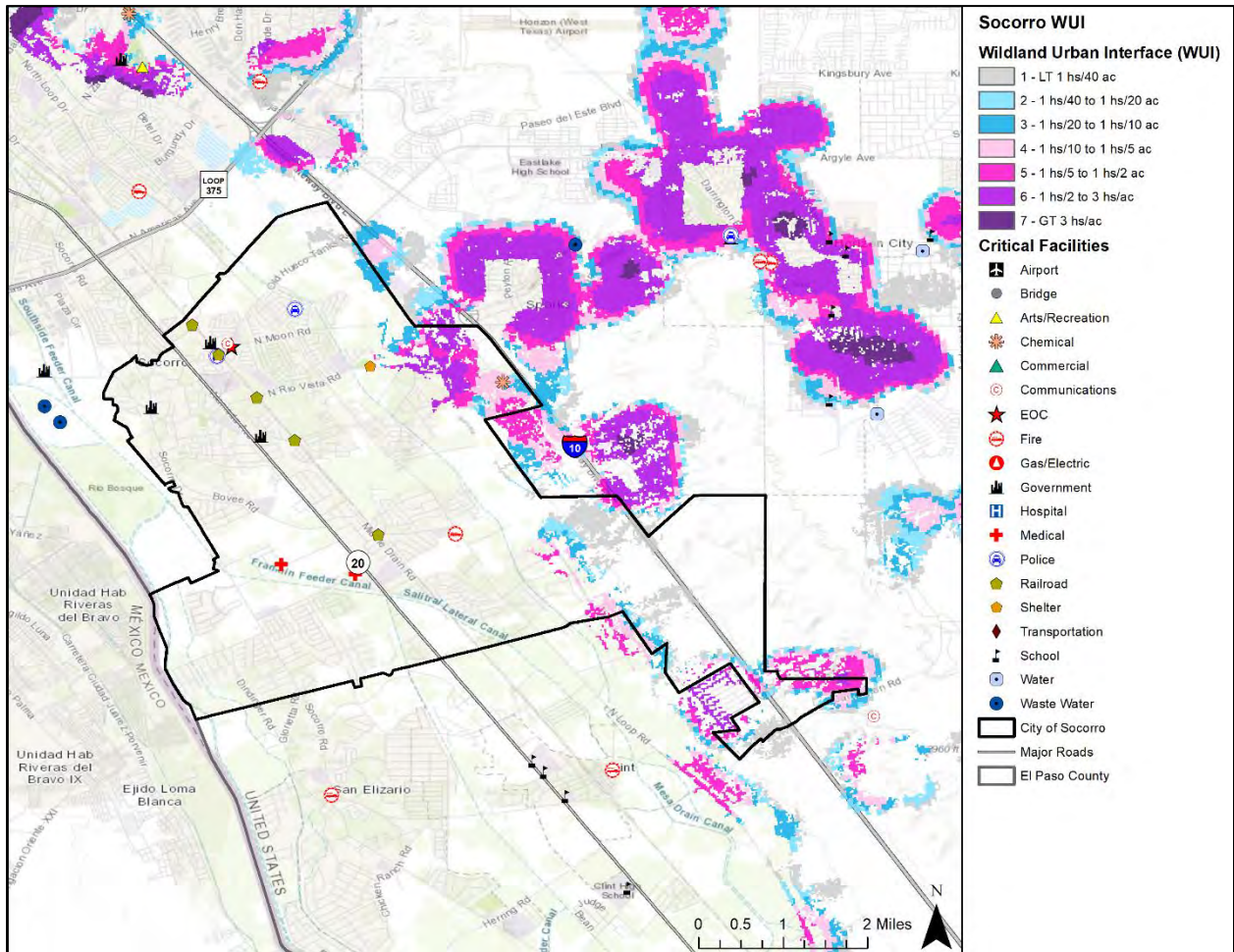
Figure 13-3. Wildland Urban Interface Map – City of San Elizario



It is estimated that none of the population in the City of San Elizario live within the WUI. However, the entire City of San Elizario is at some risk for wildfires.

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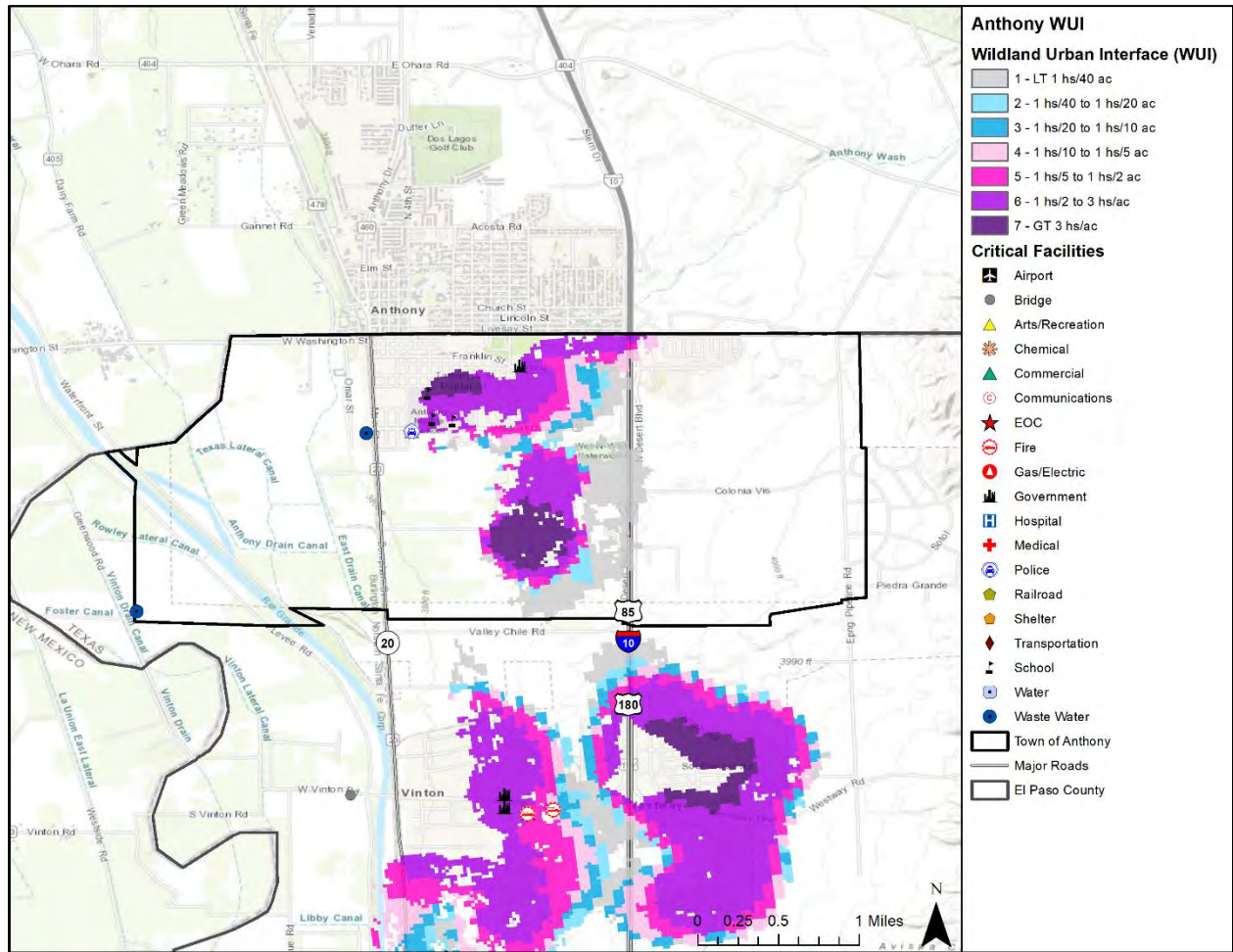
Figure 13-4. Wildland Urban Interface Map – City of Socorro



It is estimated that 2.3 percent of the total population in the City of Socorro live within the WUI. However, the entire City of Socorro is at some risk for wildfires.

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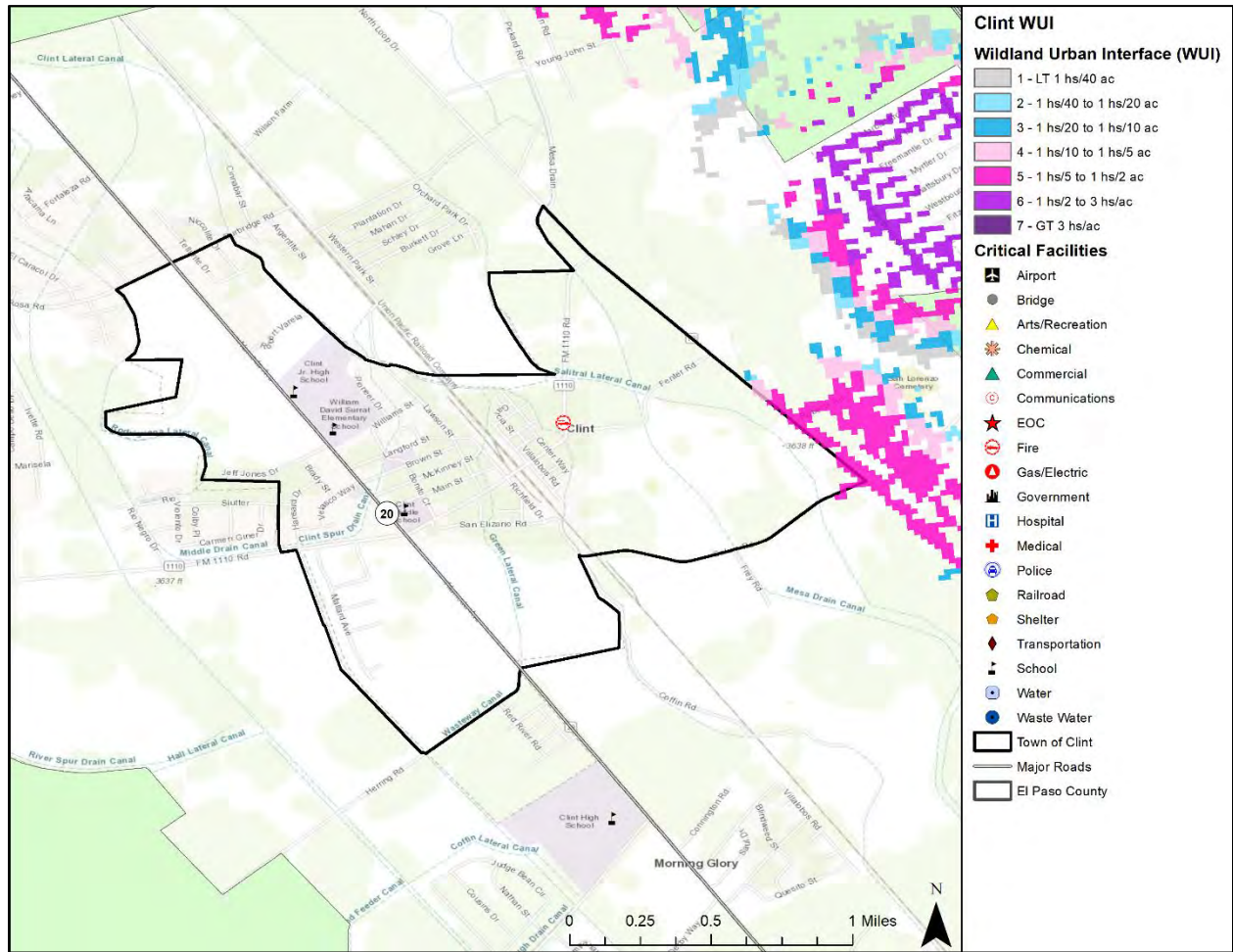
Figure 13-5. Wildland Urban Interface Map – Town of Anthony



It is estimated that 61.6 percent of the total population in the Town of Anthony live within the WUI. However, the entire Town of Anthony is at some risk for wildfires.

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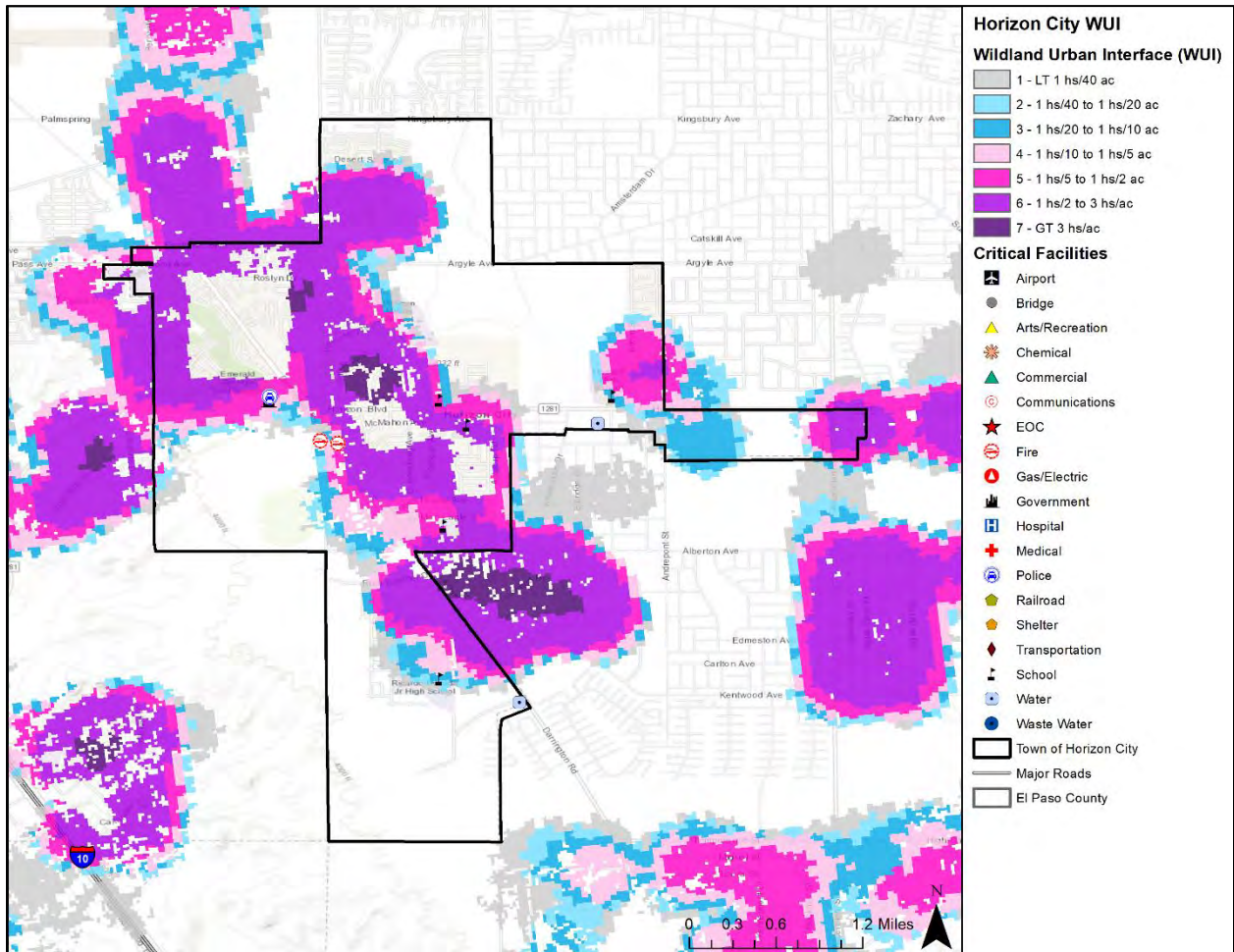
Figure 13-6. Wildland Urban Interface Map – Town of Clint



It is estimated that 0.4 percent of the total population in the Town of Clint live within the WUI. However, the entire Town of Clint is at some risk for wildfires.

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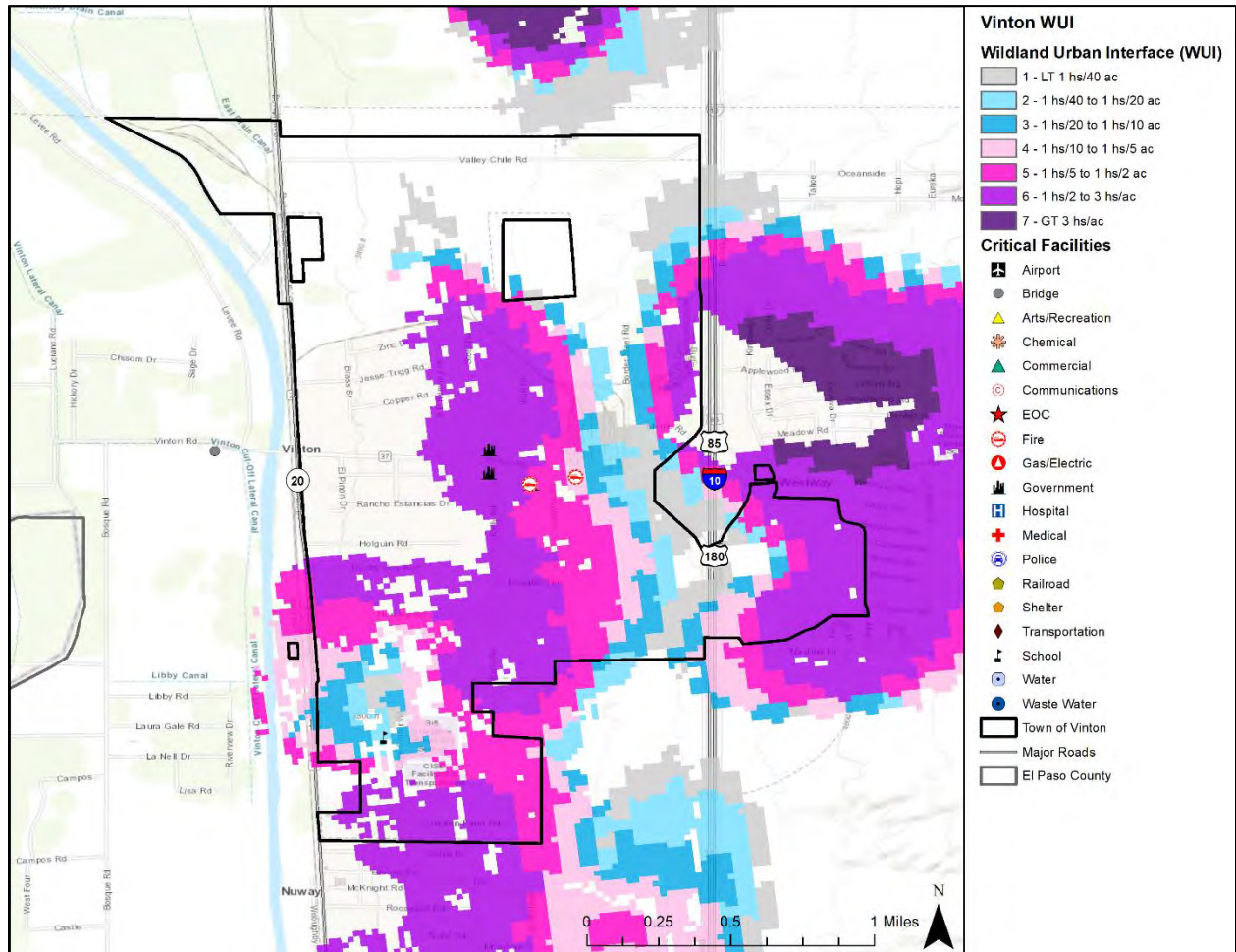
Figure 13-7. Wildland Urban Interface Map – Town of Horizon City



It is estimated that 65.1 percent of the total population in the Town of Horizon City live within the WUI. However, the entire Town of Horizon City is at some risk for wildfires.

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Figure 13-8. Wildland Urban Interface Map – Town of Vinton



It is estimated that 52.9 percent of the total population in the Town of Vinton live within the WUI. However, the entire Town of Vinton is at some risk for wildfires.

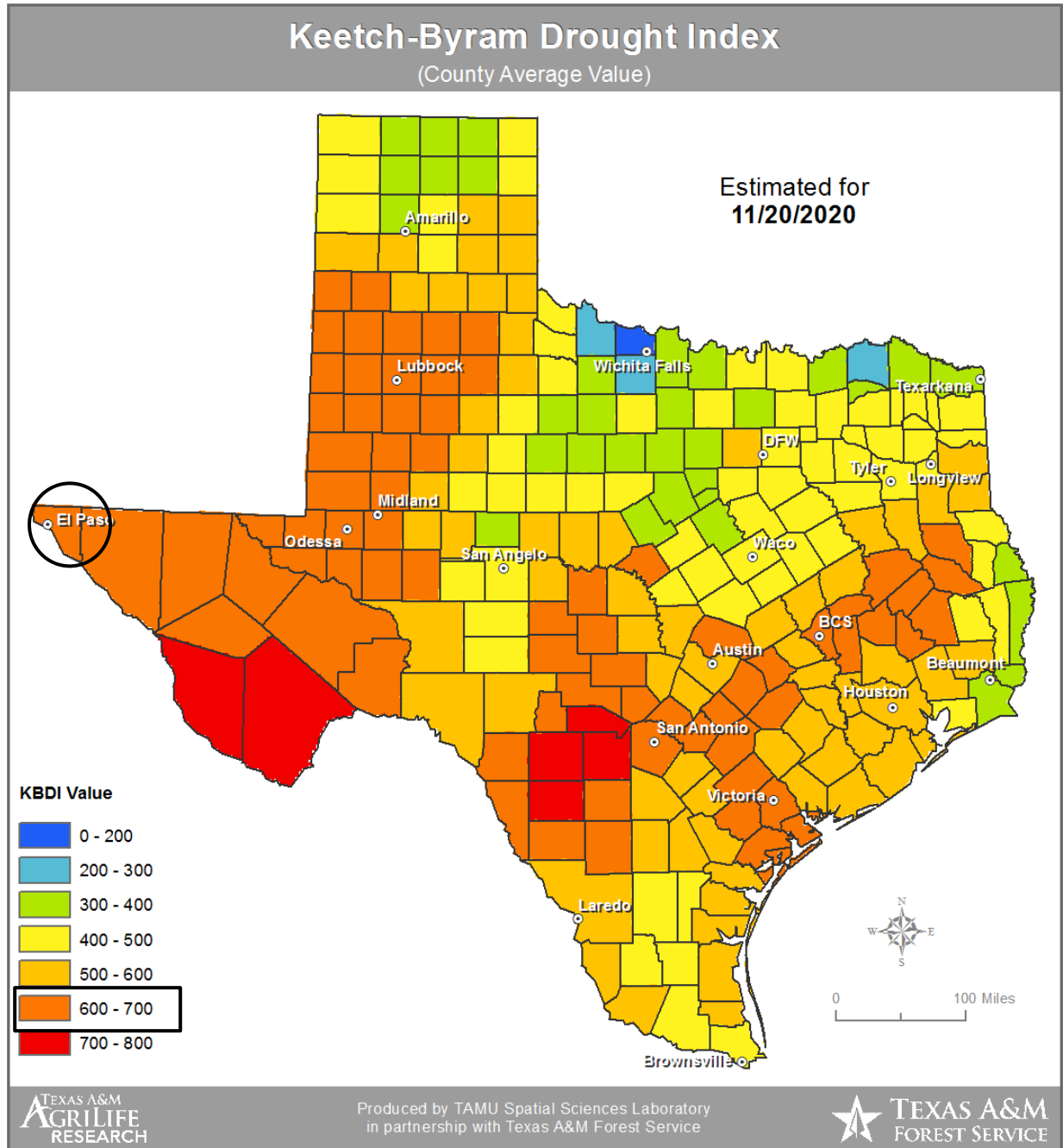
EXTENT



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.

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Figure 13-9. Keetch-Byram Drought Index (KBDI) for the State of Texas, 2020¹



¹ El Paso County is located within the black circle.

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

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

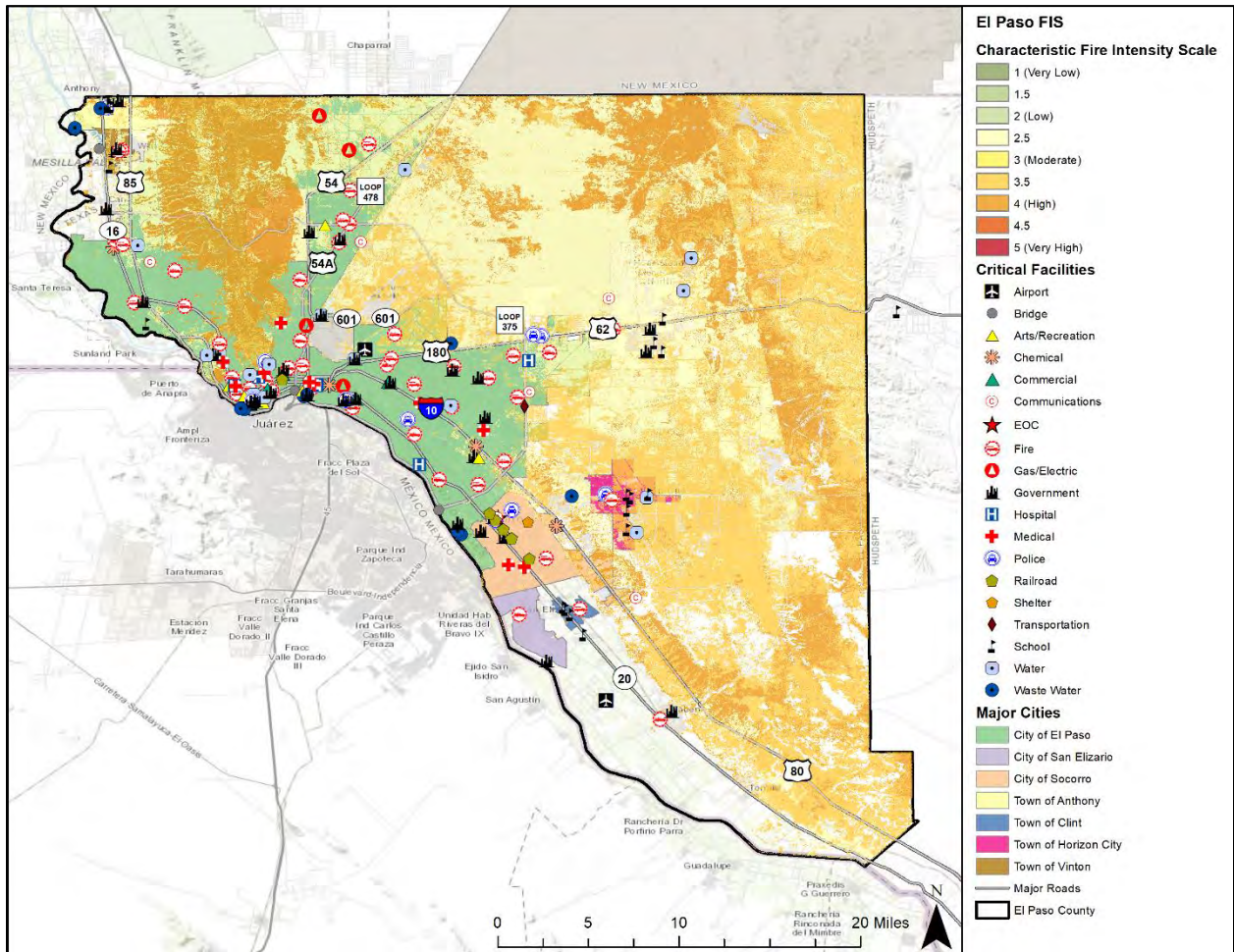
The KBDI is a good measure of the readiness of fuels for a wildfire event. It should be referenced as the area experiences changes in precipitation and soil moisture, while caution should be exercised in dryer, hotter conditions.

The range of intensity for the El Paso County planning area in a wildfire event is within 342 to 696. The average extent to be mitigated for the El Paso County planning area, including all participating jurisdictions, is a KBDI of 530. 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 600 to 800 as 696 falls within this range. At this level 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 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. El Paso County is between a potential limited to low wildfire intensities. Figures 13-10 through 13-17 identify the wildfire intensity for the El Paso County planning area.

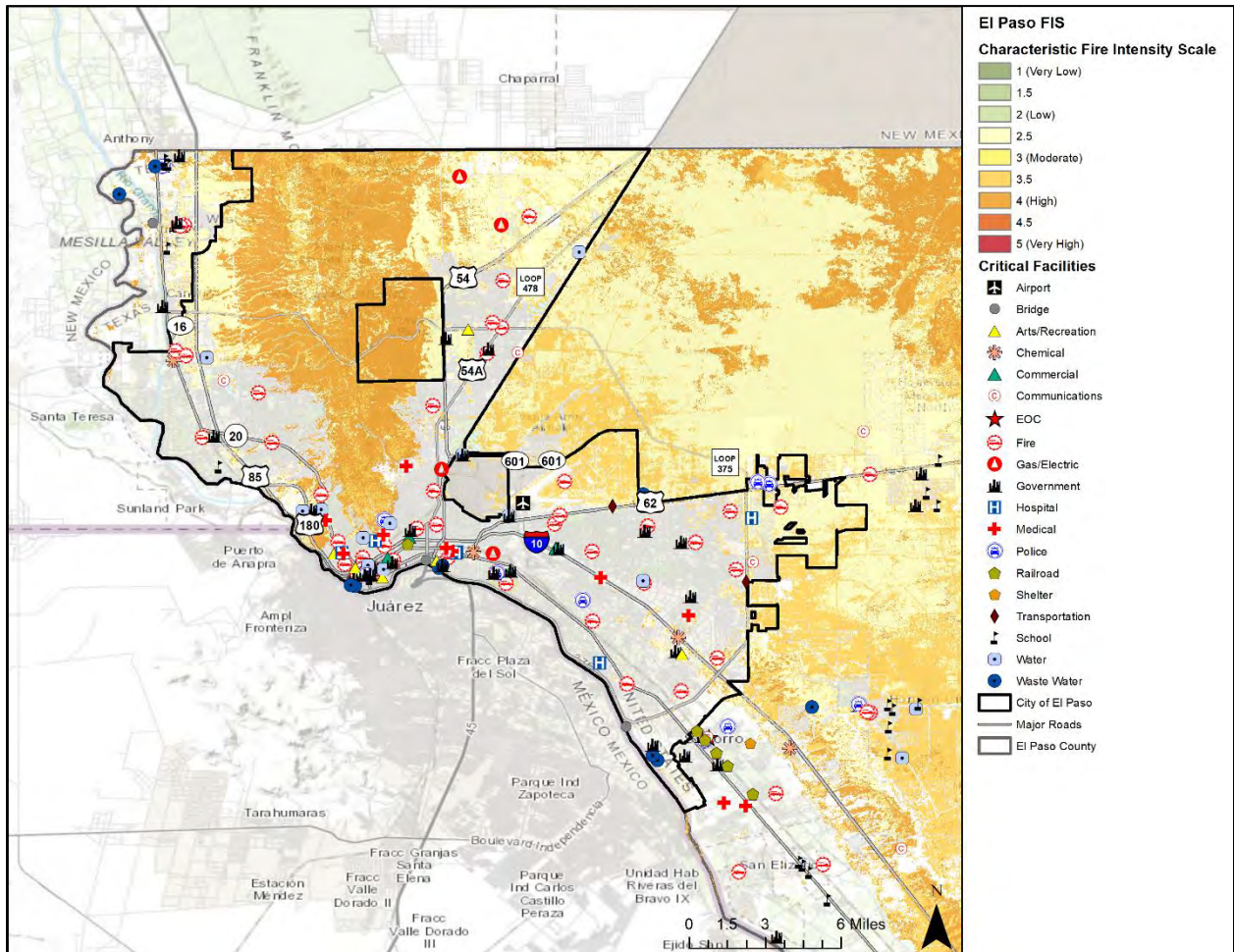
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Figure 13-10. Fire Intensity Scale Map – El Paso County



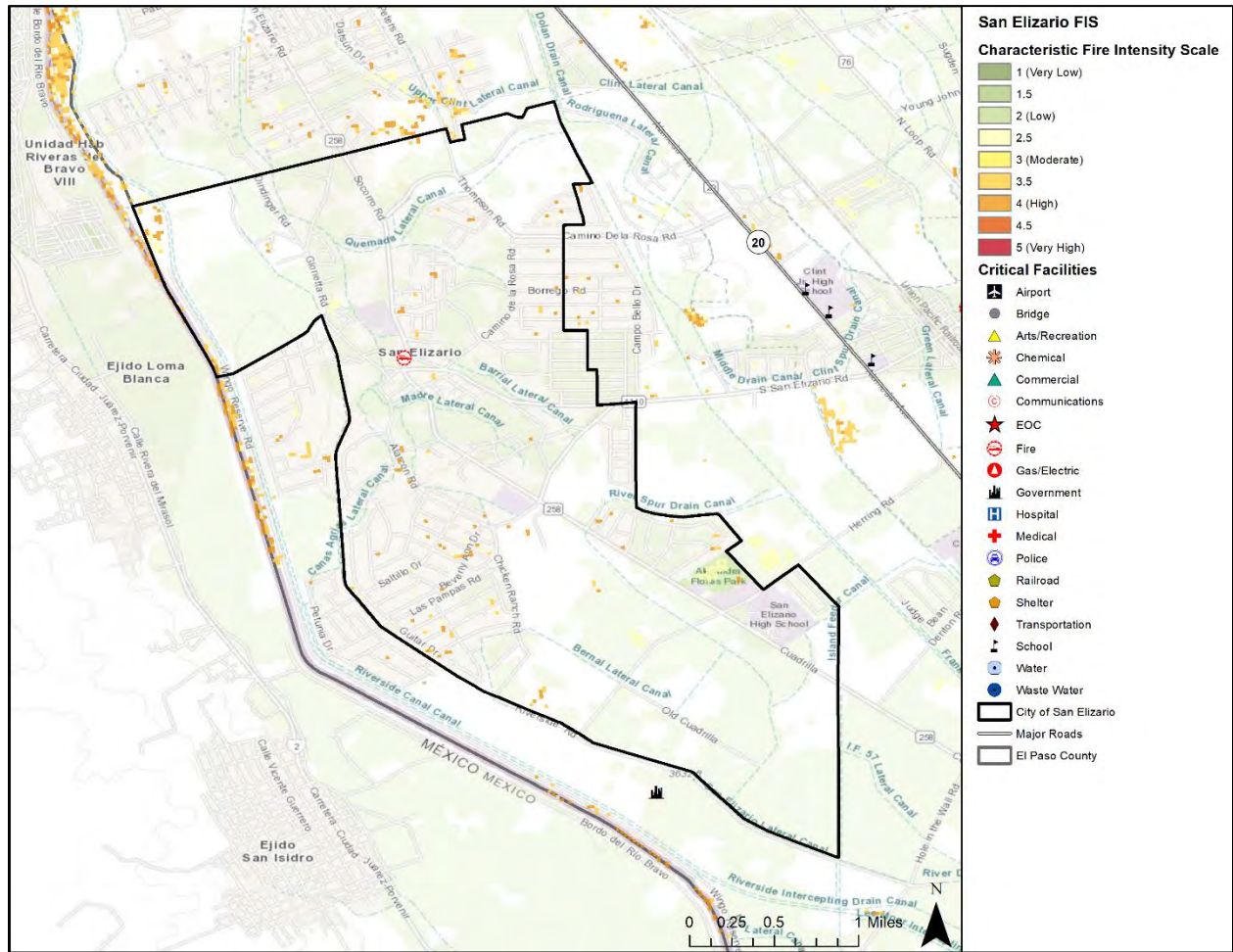
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Figure 13-11 Fire Intensity Scale Map – City of El Paso



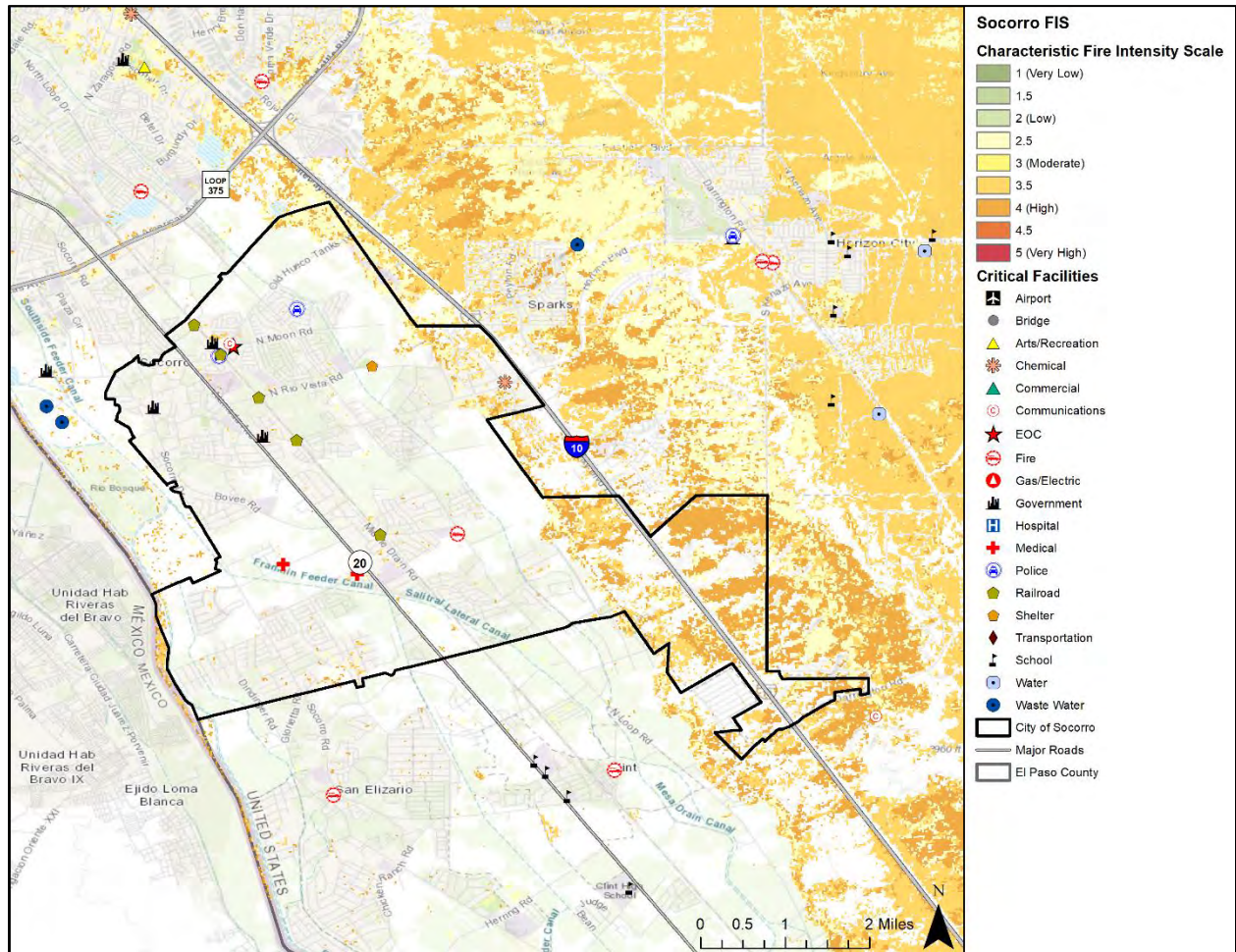
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Figure 13-12. Fire Intensity Scale Map – City of San Elizario



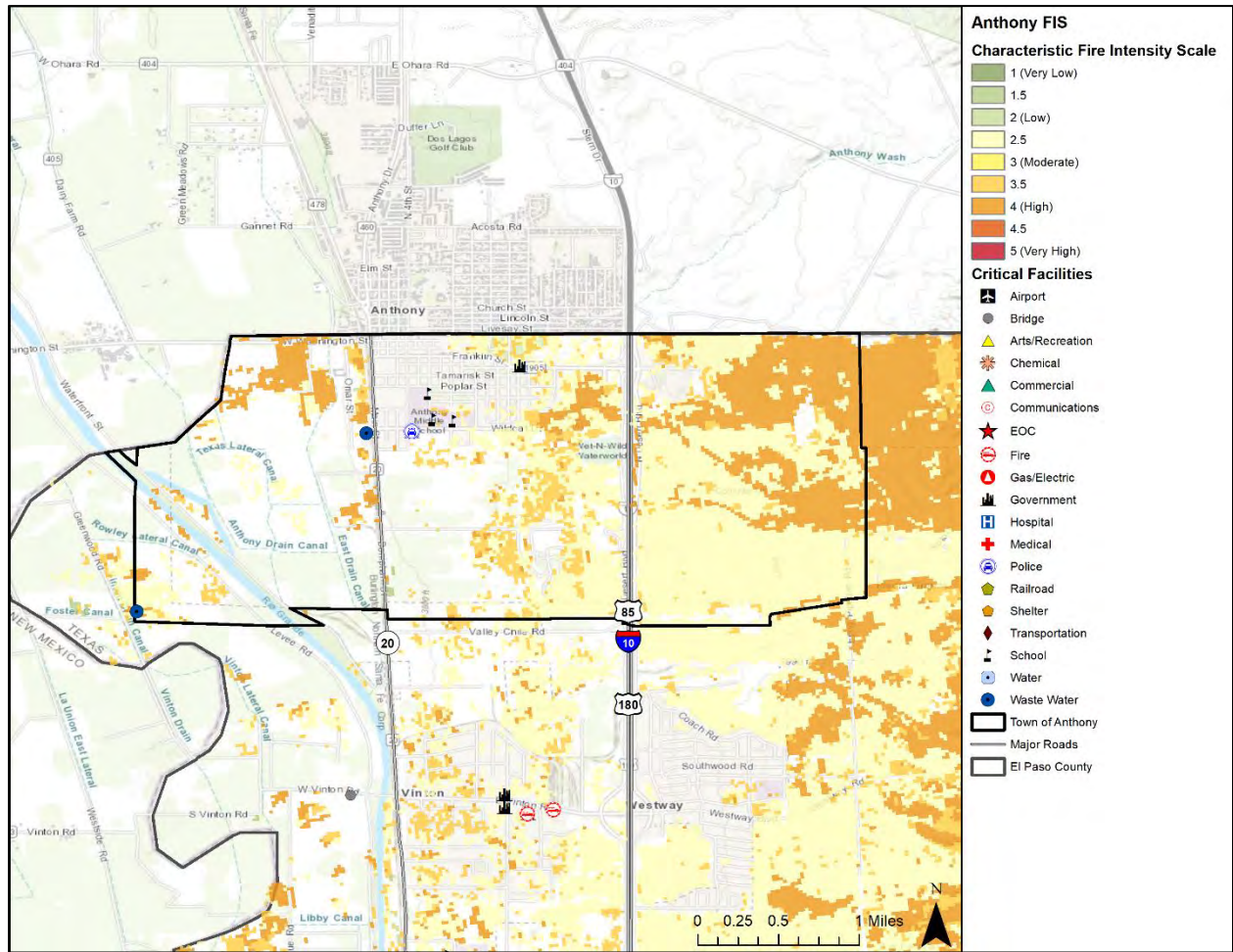
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Figure 13-13. Fire Intensity Scale Map – City of Socorro



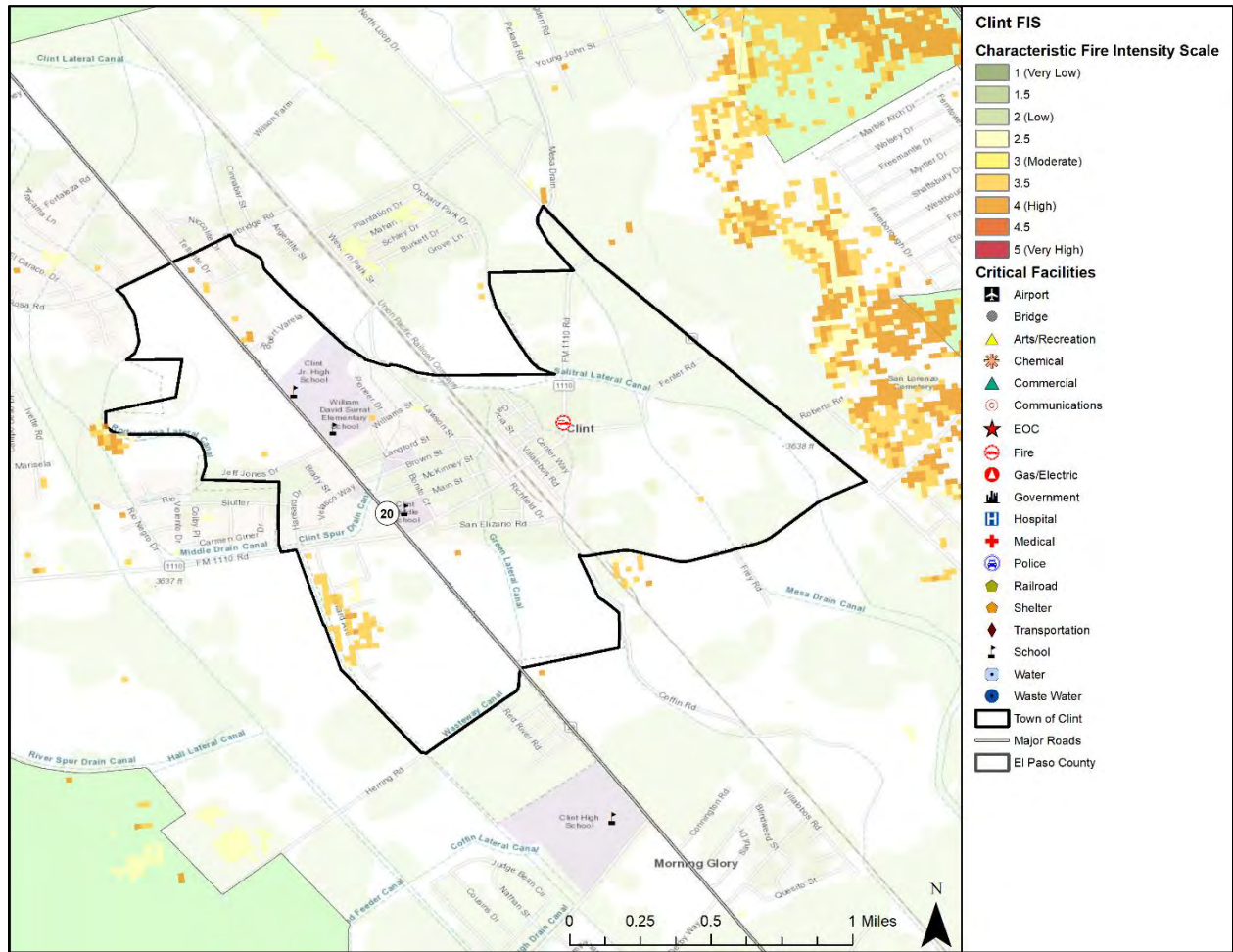
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Figure 13-14. Fire Intensity Scale Map – Town of Anthony



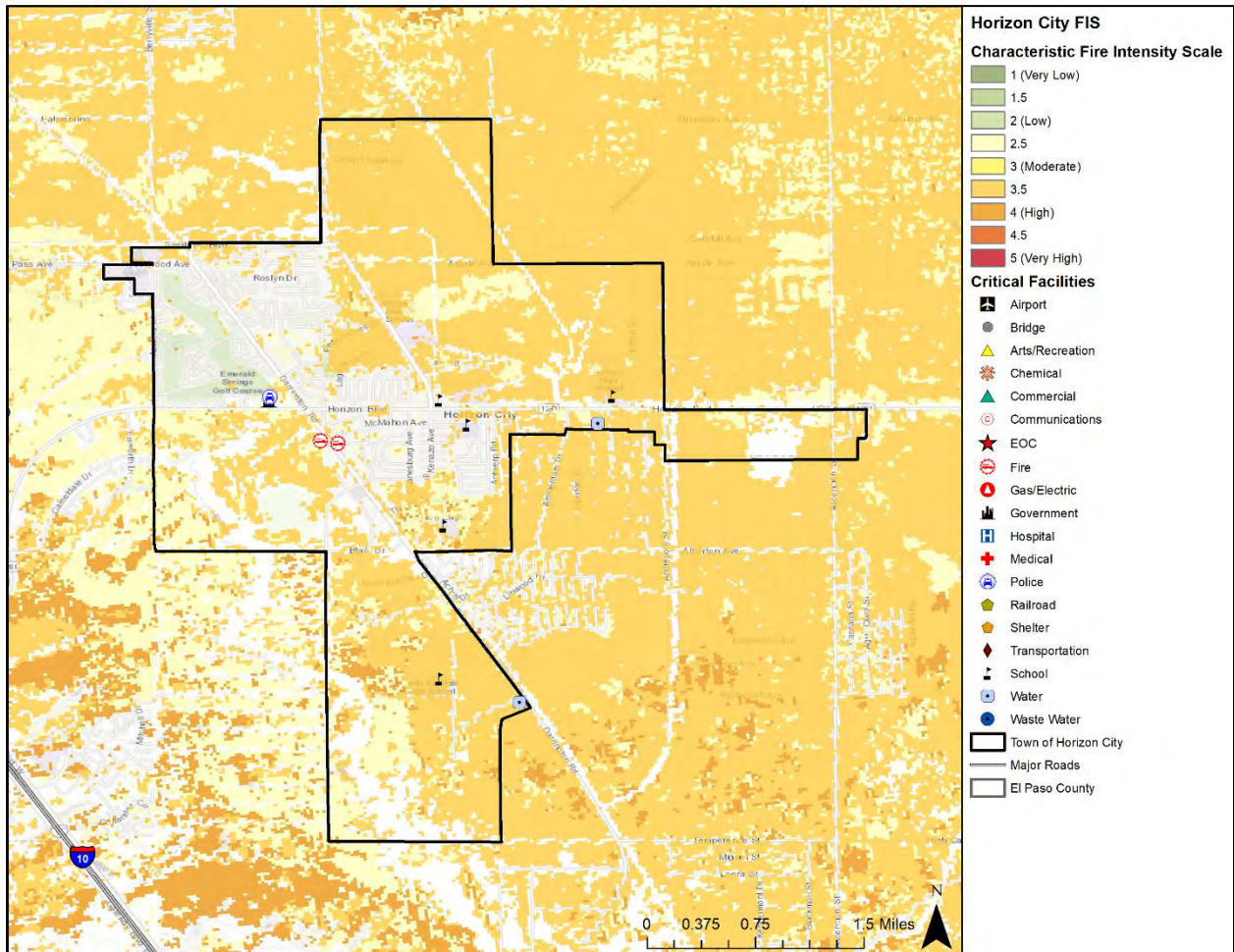
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Figure 13-15. Fire Intensity Scale Map – Town of Clint



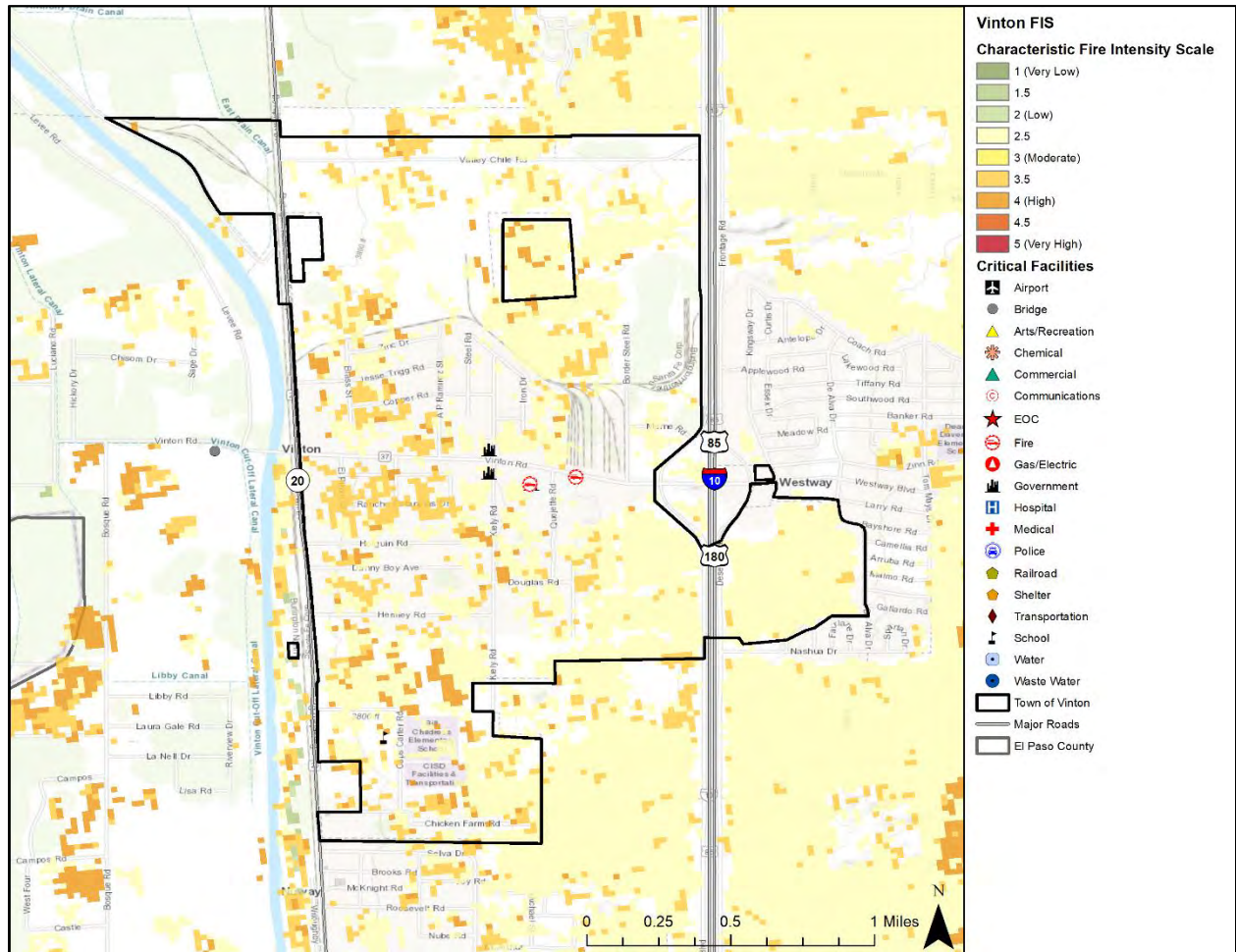
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Figure 13-16. Fire Intensity Scale Map – Town of Horizon City



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Figure 13-17. Fire Intensity Scale Map – Town of Vinton



HISTORICAL OCCURRENCES

The Texas Forest Service reported 881 wildfire events between 2005 and 2015. The National Center for Environmental Information (NCEI) did not have any reported events from 1996 through July 2020. Due to a lack of recorded data for wildfire events prior to 2005 and after 2015², frequency calculations are based on an eleven-year period using only data from recorded years. The map below shows approximate locations of wildfires, which can be grass or brushfires of any size (Figure 13-18). Table 13-1 identifies the number of wildfires by jurisdiction and total acreage burned.

² The Texas Forest Service data is currently only available through 2015.

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Figure 13-18. Location and Historic Wildfire Events for El Paso County Planning Area

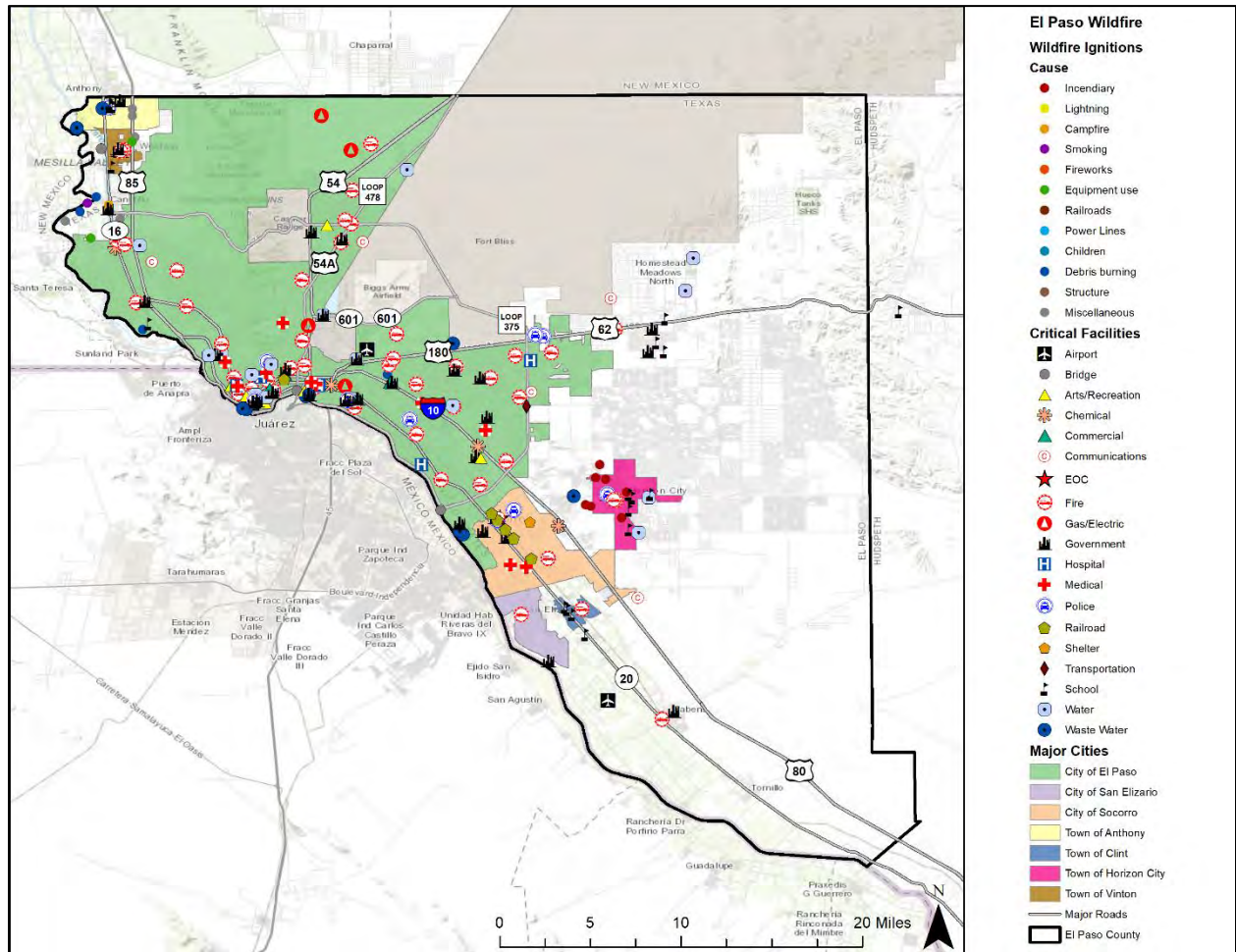


Table 13-1. Historical Wildfire Events Summary

| JURISDICTION | NUMBER OF EVENTS | ACRES BURNED |
|----------------------|------------------|--------------|
| El Paso County | 22 | 27 |
| City of El Paso | 2 | 3 |
| City of San Elizario | 0 | 0 |
| City of Socorro | 0 | 0 |
| Town of Anthony | 2 | 0 |
| Town of Clint | 0 | 0 |
| Town of Horizon City | 4 | 1 |
| Town of Vinton | 1 | 0 |

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Table 13-2. Acreage of Suppressed Wildfire by Year

| JURISDICTION | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|
| El Paso County | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 1 | 1 | 10 | 10 |
| City of El Paso | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 |
| City of San Elizario | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| City of Socorro | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Town of Anthony | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Town of Clint | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Town of Horizon City | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Town of Vinton | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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 31 events in an 11-year period, an event within El Paso County, including all participating jurisdictions, 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 El Paso County are not likely to experience large, sweeping fires. Areas in the unincorporated areas of El Paso County are vulnerable, including rural areas such as Highway 62 east of El Paso, Interstate 10 south of Clint, and Highway 54 north of El Paso near the county border. Unoccupied buildings and open spaces that have not been maintained have the greatest vulnerability to wildfire. The overall level of concern for wildfires is located mostly along the perimeter of the study area where wildland and urban areas interface. Figures 13-1 through 13-8 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:

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

| JURISDICTION | CRITICAL FACILITIES |
|----------------------|---|
| El Paso County | El Paso County Jail Annex, Montana Warehouse, Northwest Annex, Justice of the Peace 1, Justice of the peace 6 pl.2, Salt Bush Tower, O’Leary Booster Station, and Fabens Dam |
| City of El Paso | El Paso Reginal Communications Center, City Radio Tower (East Receiver Site), International Boundary and Water Commission (IBWC), El Paso Fire Department Station No. 28, El Paso Fire Department Station No. 35, El Paso Fire Department Station No. 36, El Paso Fire Department Station ESD#2, Montana Vista Fire Rescue ESD#2, West Valley Fire Department EDS#2, El Paso Police Training Academy, EPPD Mission Valley Regional Command, National Border Patrol Museum, The Hospitals of Providence East Campus, Las Palmas Rehabilitation Hospital, Sun Metro, Stormwater Operations Center, Blackie Chester Park, Water Storage Facility & Pump Station, Mountain View High School, Red Sands Elementary School, Stormwater Operations, Frontera Lift Station, and Grouse Lift Station |
| City of San Elizario | None |
| City of Socorro | Truck Station (Petro) |
| Town of Anthony | Public Works Department, Anthony Elementary School, Anthony Middle School, and Anthony High School |
| Town of Clint | Clint ISD Administrative Offices |
| Town of Horizon City | City Hall, Police Department, Horizon MUD, Carroll T. Welch Elementary School, Horizon High School, and Ricardo Estrada Middle School |
| Town of Vinton | City Hall, Maintenance Shop, West Valley Fire Department, Northwest County Annex, and Bill Childress Elementary |

Within El Paso County, a total of 31 fire events were reported from 2005 to 2015. All of these events were suspected wildfires. Historic loss and annualized estimates due to wildfires are presented in Table 13-4 below. The frequency is approximately 3 events every year.

Table 13-4. Potential Annualized Losses by Jurisdiction³

| JURISDICTION | ACRES BURNED | ANNUAL ACRE LOSSES |
|----------------------|--------------|--------------------|
| El Paso County | 27 | 2.5 |
| City of El Paso | 3 | 0.3 |
| City of San Elizario | 0 | 0.0 |

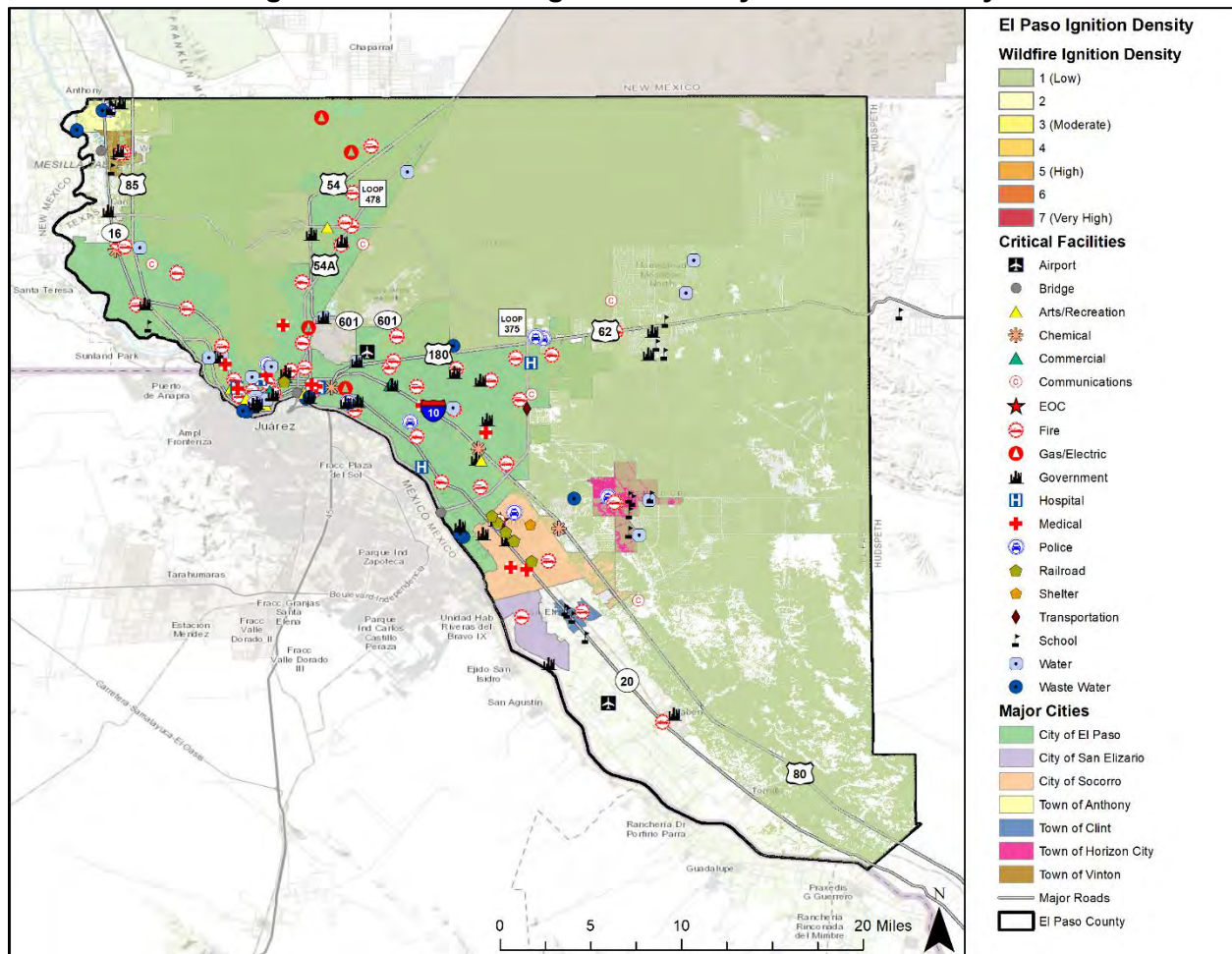
³ Events divided by 11 years of data.

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| JURISDICTION | ACRES BURNED | ANNUAL ACRE LOSSES |
|----------------------|--------------|--------------------|
| City of Socorro | 0 | 0.0 |
| Town of Anthony | 0 | 0.0 |
| Town of Clint | 0 | 0.0 |
| Town of Horizon City | 1 | 0.1 |
| Town of Vinton | 0 | 0.0 |
| Planning Area | 31 | 2.9 |

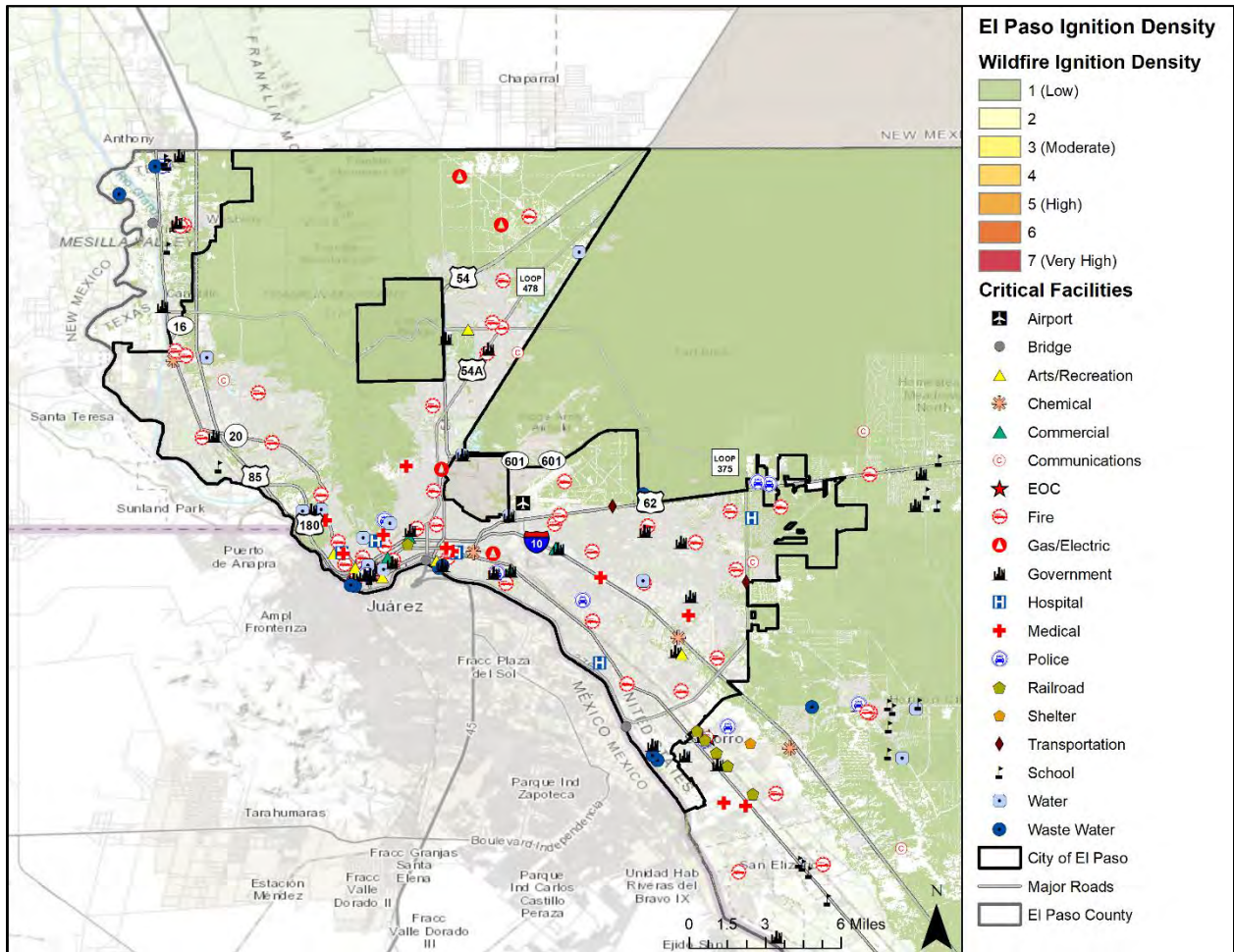
Figures 13-19 through 13-26 show El Paso County and the threat of wildfire to the County and all participating jurisdictions.

Figure 13-19. Wildfire Ignition Density – El Paso County



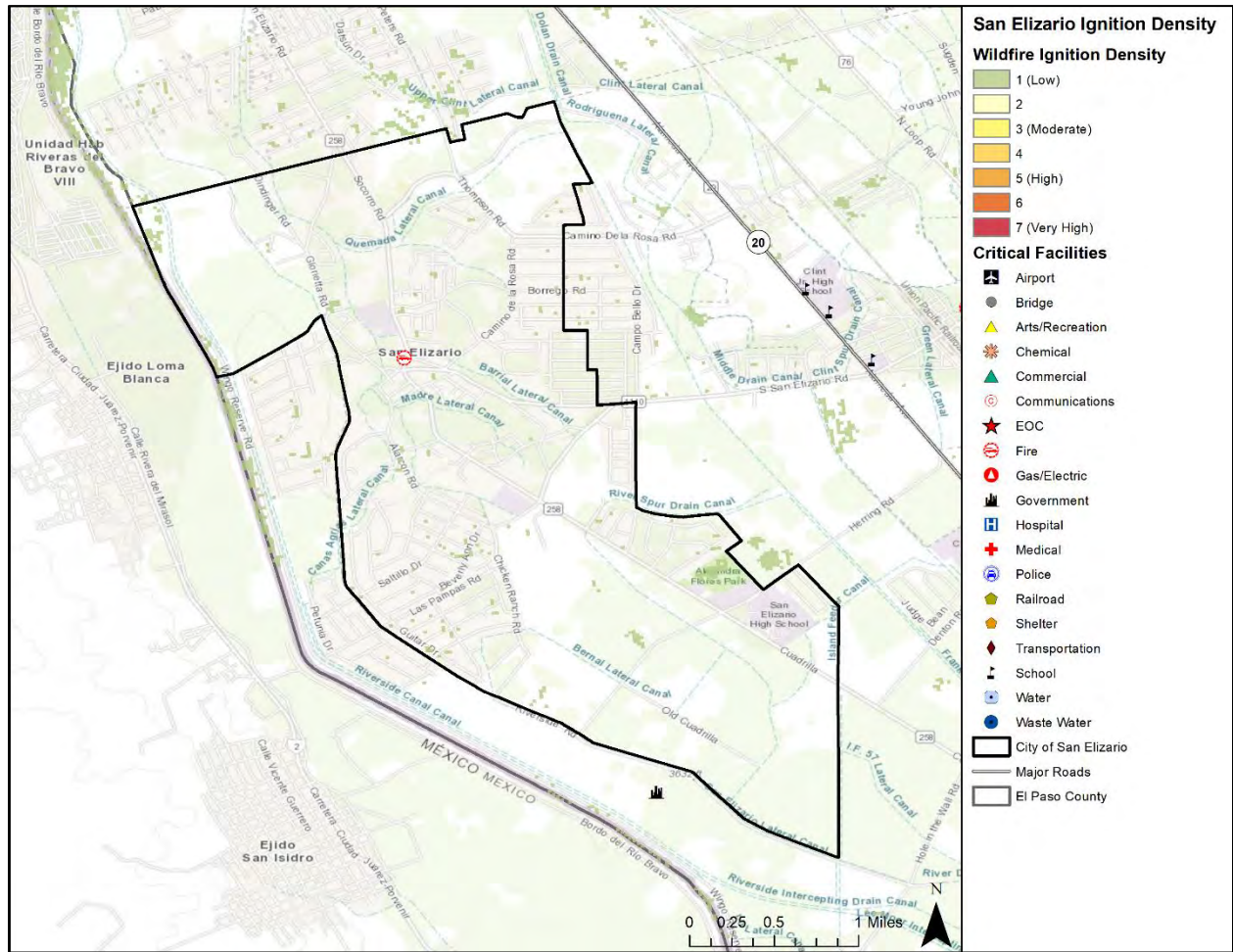
SECTION 13: WILDFIRE

Figure 13-20. Wildfire Ignition Density – City of El Paso



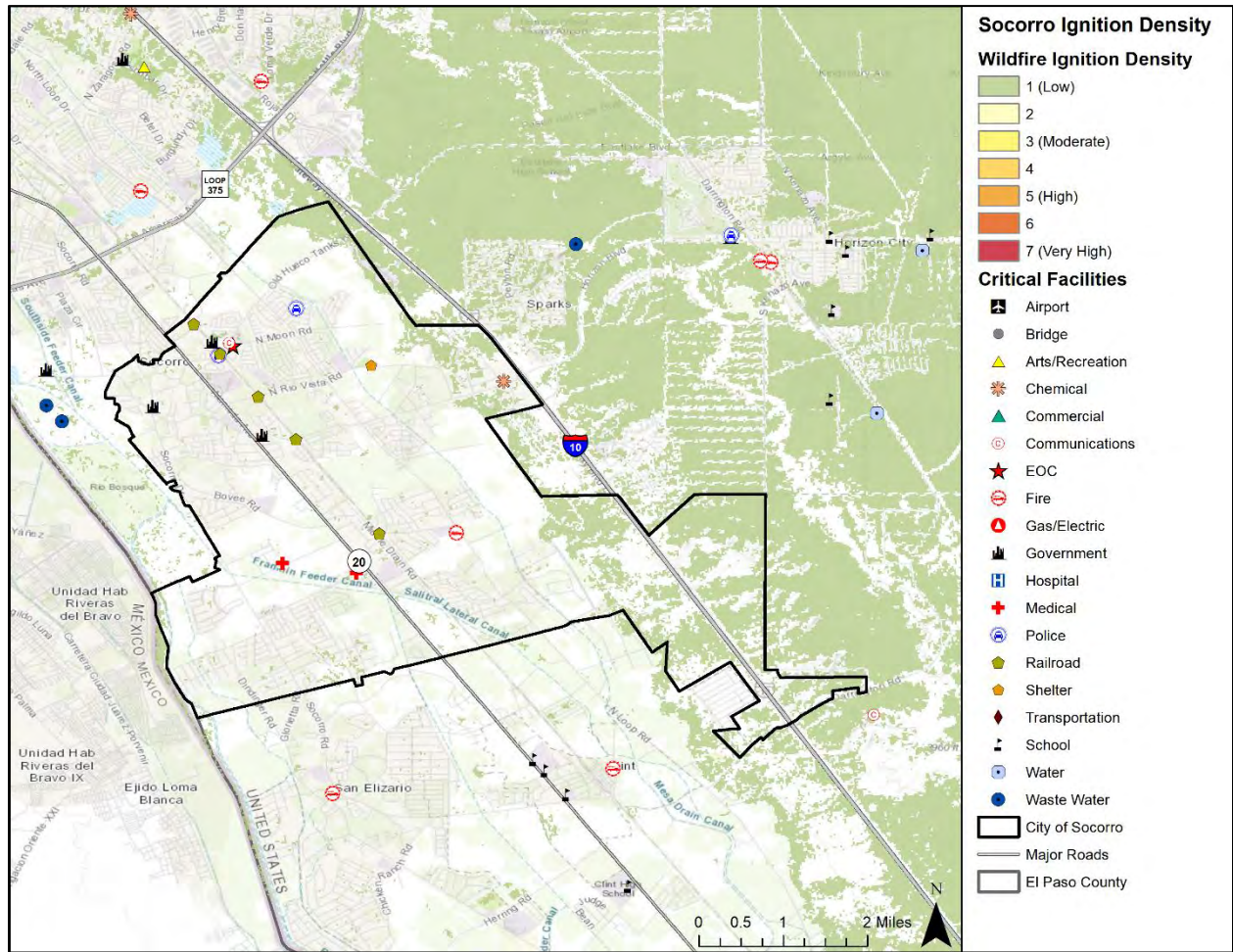
SECTION 13: WILDFIRE

Figure 13-21. Wildfire Ignition Density – City of San Elizario



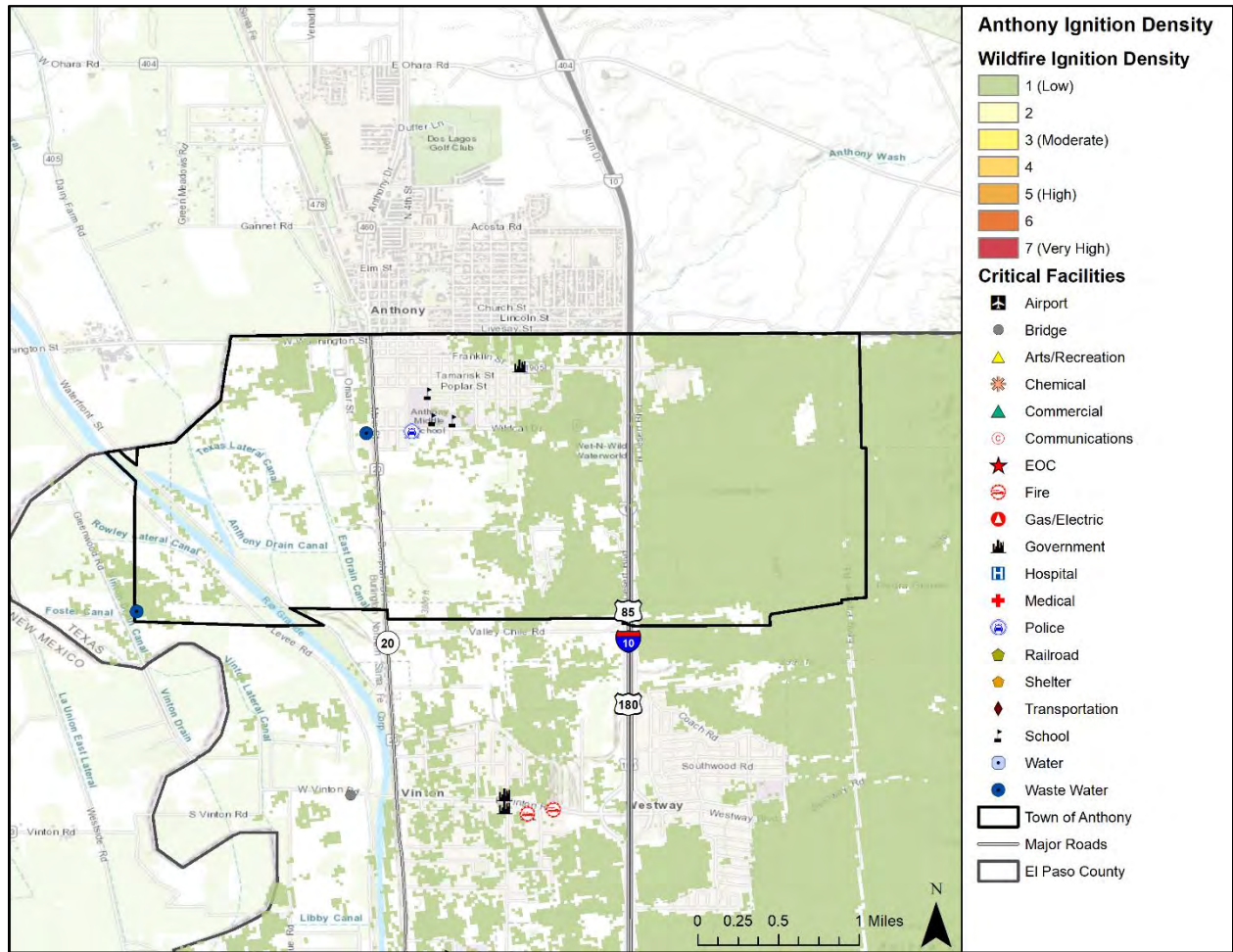
SECTION 13: WILDFIRE

Figure 13-22. Wildfire Ignition Density – City of Socorro



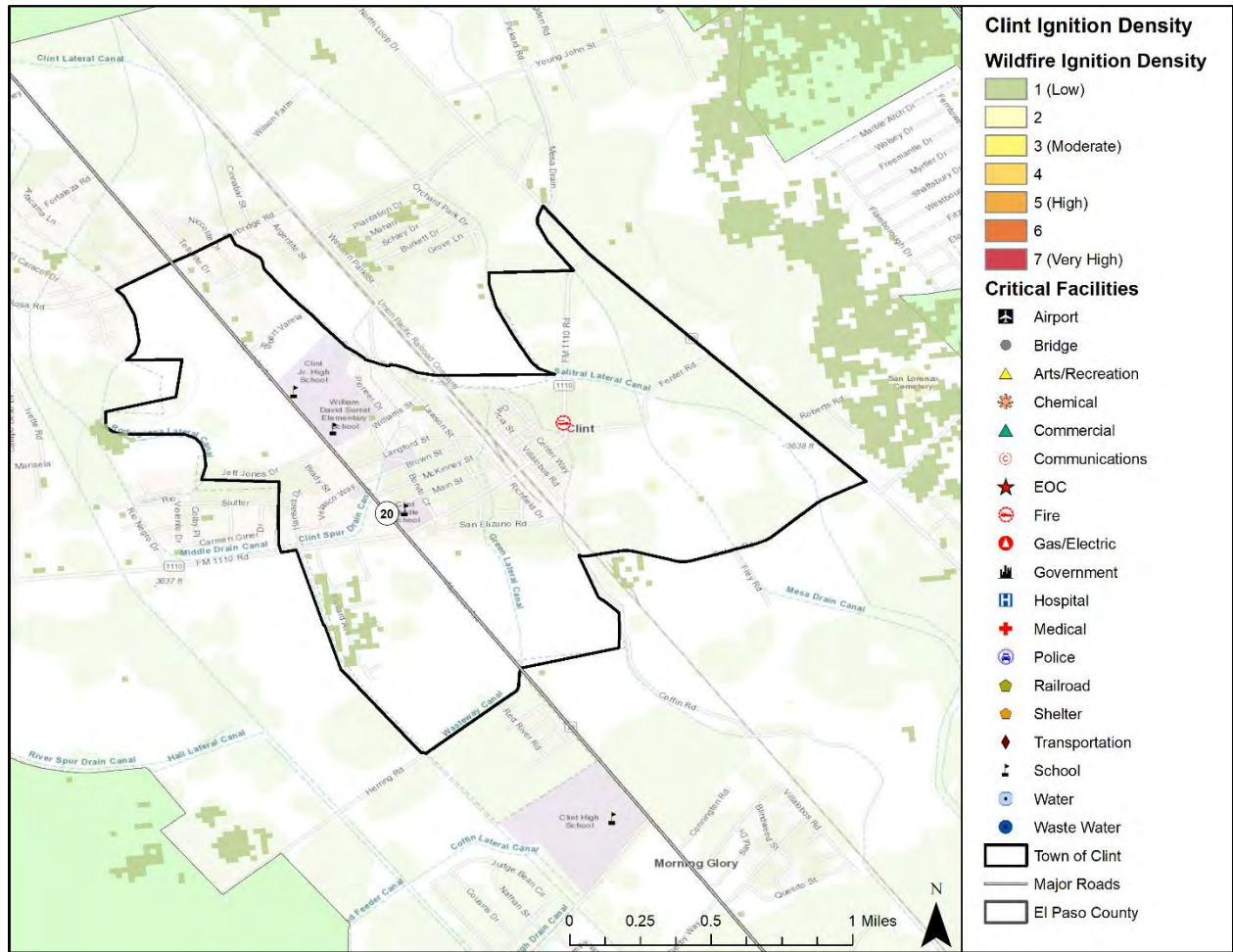
SECTION 13: WILDFIRE

Figure 13-23. Wildfire Ignition Density – Town of Anthony



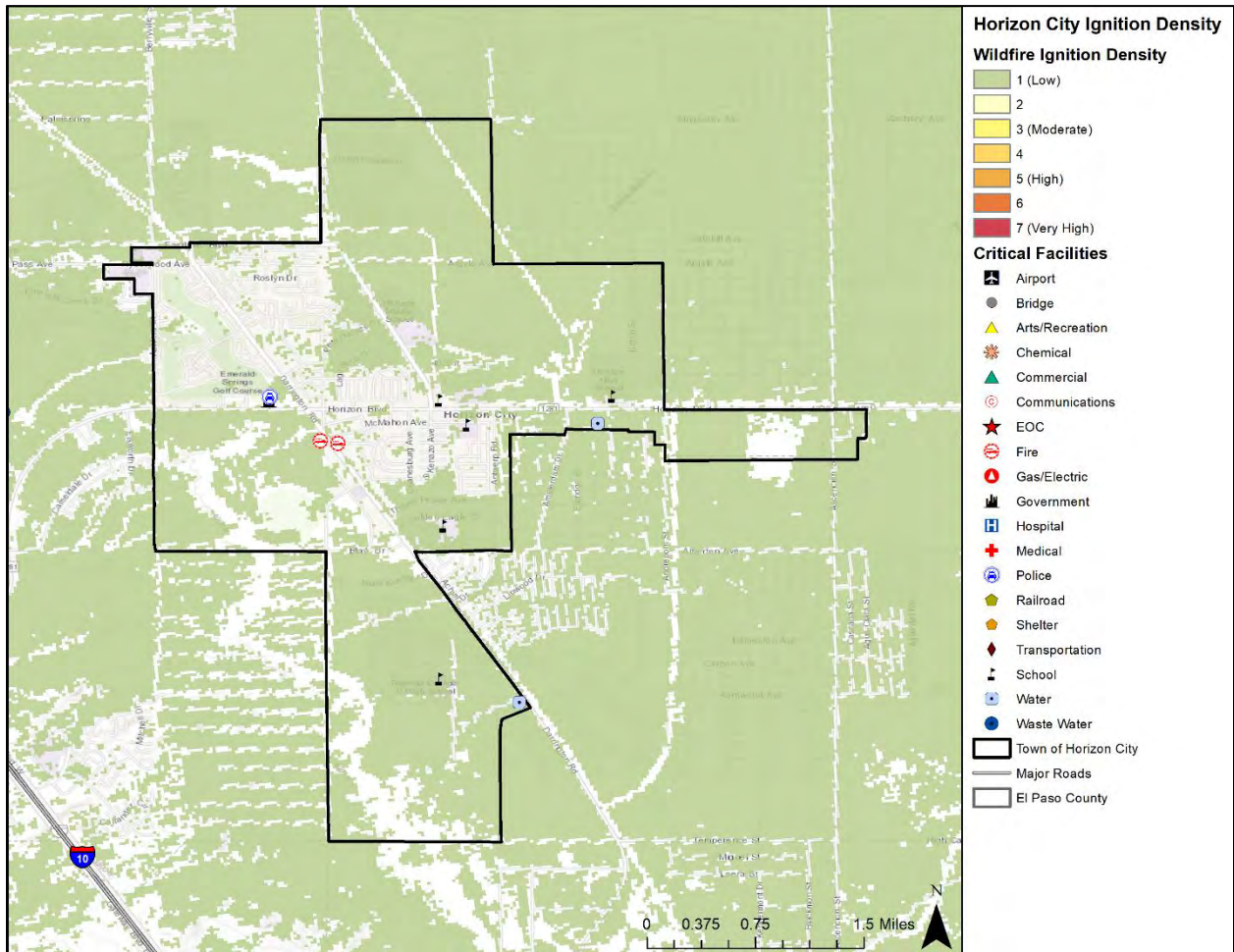
SECTION 13: WILDFIRE

Figure 13-24. Wildfire Ignition Density – Town of Clint



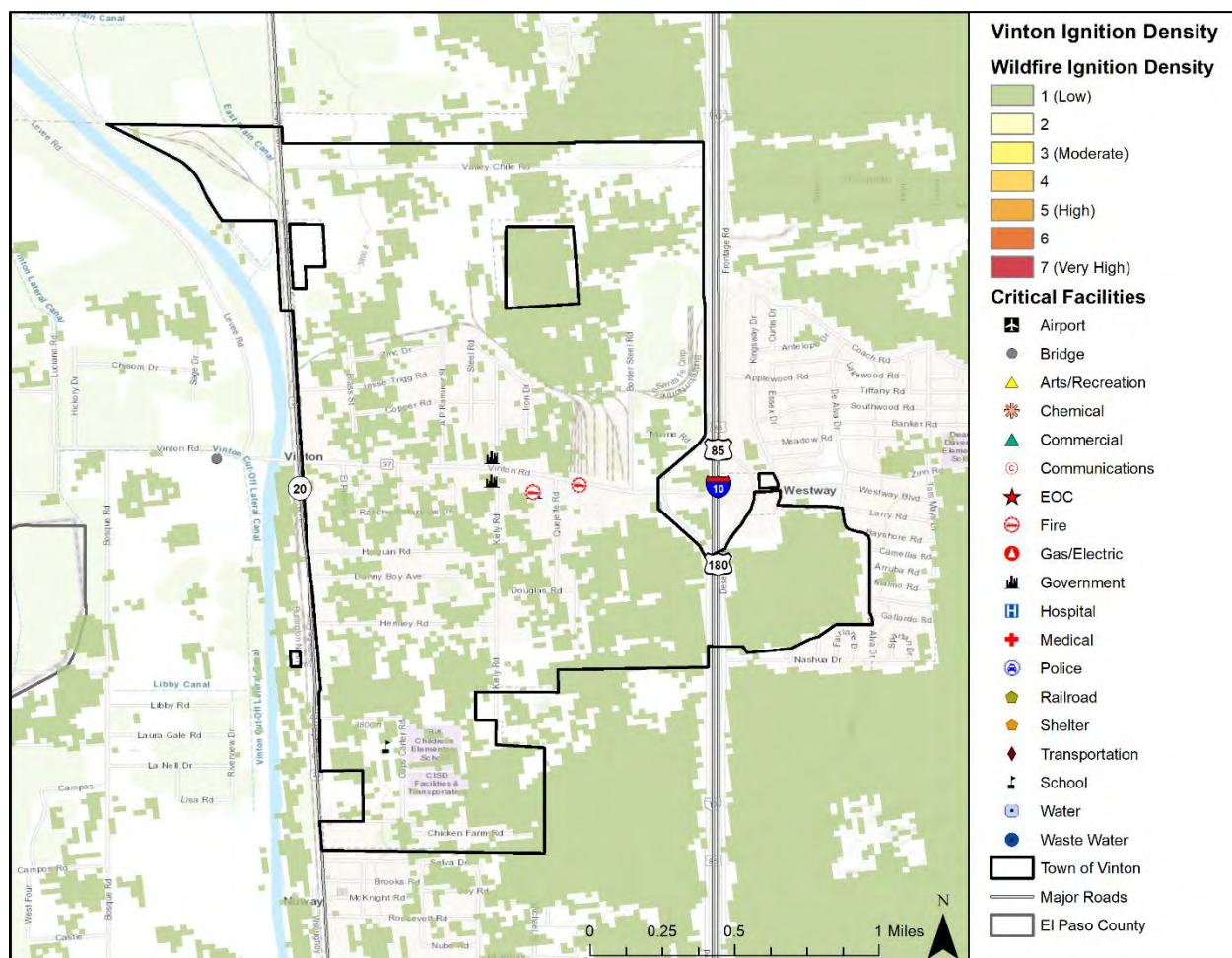
SECTION 13: WILDFIRE

Figure 13-25. Wildfire Ignition Density – Town of Horizon City



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Figure 13-26. Wildfire Ignition Density – Town of Vinton



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 El Paso County planning area, the impact from a wildfire event can be considered "Limited," meaning injuries and/or illnesses are treatable with first aid, shutdown of facilities and services for 24 hours or less, and less than 10 percent of property is destroyed or with major

SECTION 13: WILDFIRE

damage. Severity of impact is gauged by acreage burned, homes and structures lost, injuries and fatalities. Based on this, impact for each participating jurisdiction is listed below in Table 13-5.

Table 13-5. Impact by Jurisdiction

| JURISDICTION | IMPACT | DESCRIPTION |
|----------------------|---------|---|
| El Paso County | Limited | El Paso County has an estimated 142,960 people or 19.0 percent of the total population that live within the Wildland Urban Interface (WUI). El Paso County, including citizens in unincorporated areas, may suffer minor injuries that can be treated with first aid. Critical facilities could be shut down for 24 hours or less, and less than 10 percent of total property could be damaged. |
| City of El Paso | Limited | The largest population in the City of El Paso live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the City has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours or less, and less than 10 percent of total property could be damaged. |
| City of San Elizario | Limited | The entire population in the City of San Elizario live in an area that is outside of the WUI, and the City has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours or less, and less than 10 percent of total property could be damaged. |
| City of Socorro | Limited | The largest population in the City of Socorro live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the City has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours or less, and less than 10 percent of total property could be damaged. |
| Town of Anthony | Limited | The largest population in the Town of Anthony live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the Town has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours or less, and less than 10 percent of total property could be damaged. |
| Town of Clint | Limited | The largest population in the Town of Clint live in an area that is semi-rural (1house per 2-5 acres) in the WUI, and the Town has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours or less, and less than 10 percent of total property could be damaged. |

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| JURISDICTION | IMPACT | DESCRIPTION |
|----------------------|---------|--|
| Town of Horizon City | Limited | The largest population in the Town of Horizon City live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the Town has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours or less, and less than 10 percent of total property could be damaged. |
| Town of Vinton | Limited | The largest population in the Town of Vinton live in an area that is semi-dense (1-3 houses per 1 acre) in the WUI, and the Town has a low wildfire threat. Citizens may suffer minor injuries treatable with first aid. Critical facilities could be shut down for 24 hours or less, and less than 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. The impact of climate change could produce larger, more widespread wildfire events, exacerbating the current wildfire impacts. More extreme wildfire conditions can be frequently associated with a variety of impacts, including:

- 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.

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- Charred ground after a wildfire cannot easily absorb rainwater, increasing the risk of flooding and potential mudflows.
- 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.
- Recreational areas such as Ascarate Park and Lake, Franklin Mountain State Park, and along the Guadalupe River, recreation and tourism can be unappealing for years following a large wildfire, devastating directly related businesses.
- Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground delivery lines, and soil erosion or debris deposits into waterways after the fire.

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

SECTION 14: WINTER STORM

| | |
|------------------------------------|---|
| Hazard Description | 1 |
| Location | 3 |
| Extent | 3 |
| Historical Occurrences | 4 |
| Significant Events | 5 |
| Probability of Future Events | 5 |
| Vulnerability and Impact | 5 |
| Assessment of Impacts | 7 |

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 El Paso County planning area 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 14-1, on average, the El Paso County planning area, including all participating jurisdictions, typically experience approximately 1-10 extreme cold days a year, meaning up to 10 days are at or around freezing temperatures. During times of ice and snow accumulation, response times will increase until public works road crews are able to make major roads passable. Table 14-1 describes the types of winter storms possible to occur in the El Paso County planning area, including all participating jurisdictions.

SECTION 14: WINTER STORM

Figure 14-1. Extreme Cold Days, 1960-2003¹

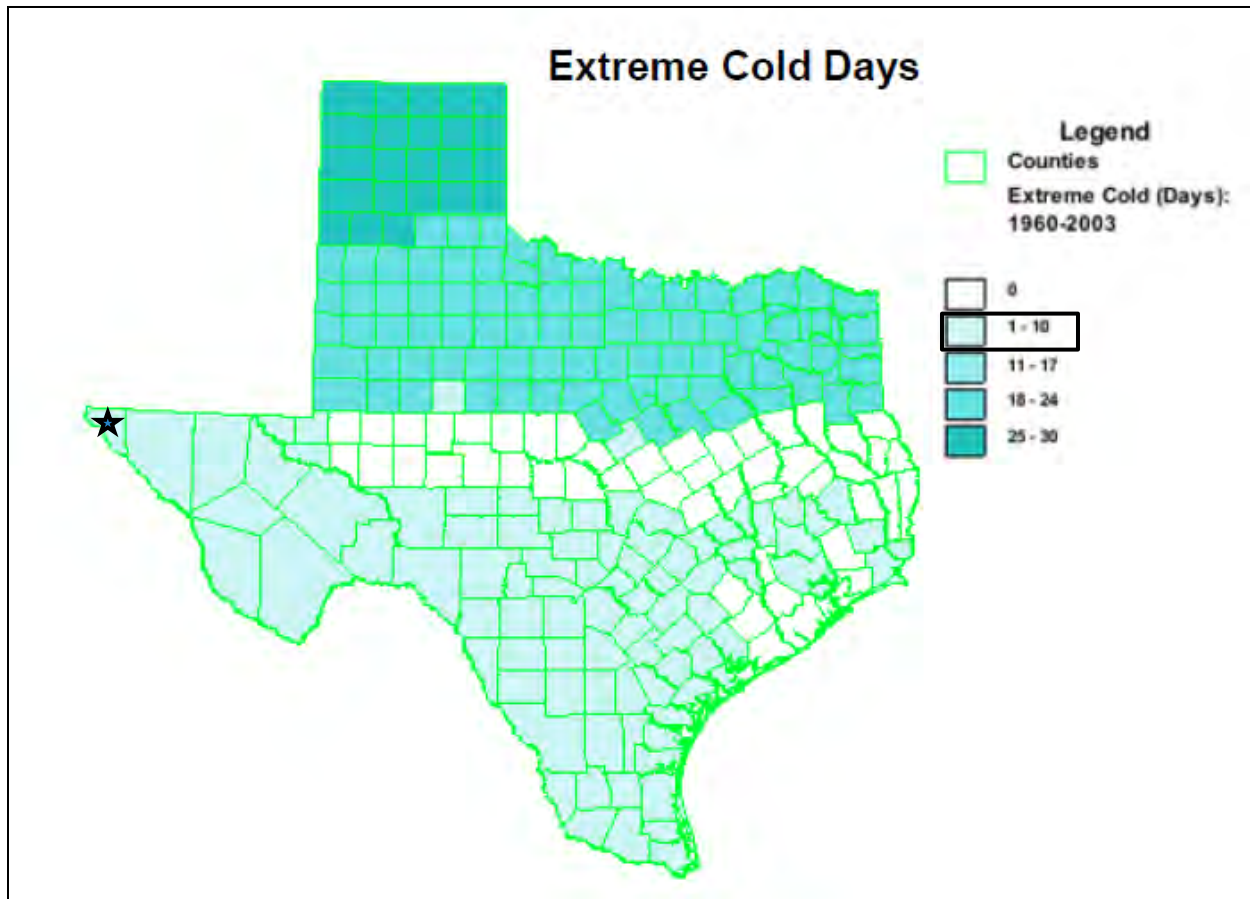


Table 14-1. Types of Winter Storms

| 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. |
| Sleet | Small particles of ice usually mixed with rain. If enough sleet accumulates on the ground, it makes travel hazardous. |

¹ Source: National Weather Service. El Paso County indicated by star.

SECTION 14: WINTER STORM

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

LOCATION

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

EXTENT

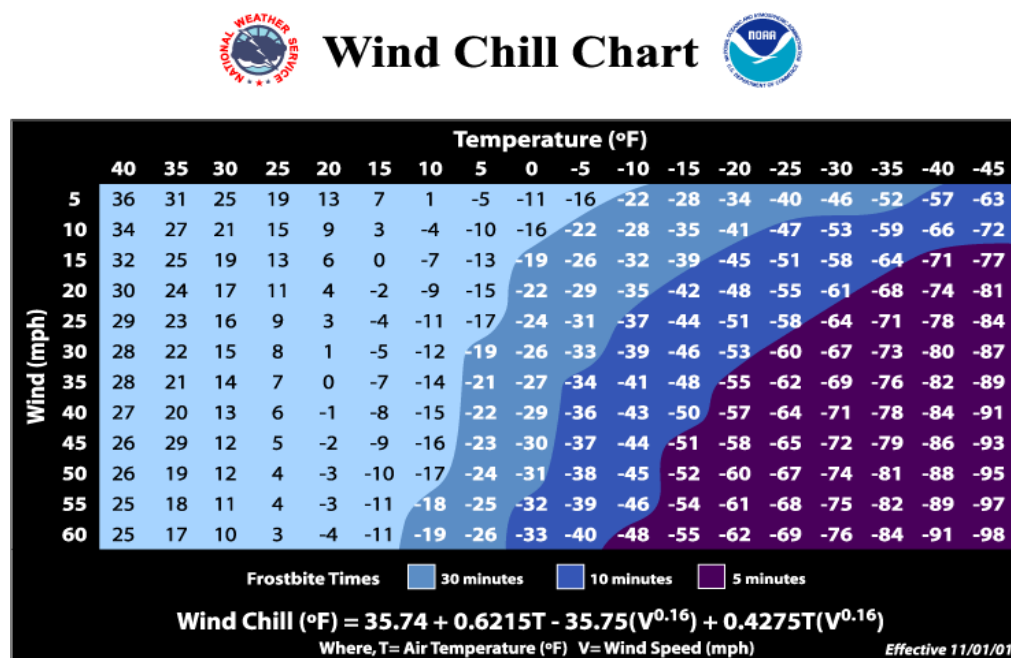
The extent or magnitude of a severe winter storm is measured in intensity based on the temperature and level of accumulations as shown in Table 14-2. Table 14-2 should be read in conjunction with the wind-chill factor described in Figure 14-2 to determine the intensity of a winter storm. The chart is not applicable when temperatures are over 50°F or winds are calm. This is an index developed by the National Weather Service.

Table 14-2. 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 |

SECTION 14: WINTER STORM

Figure 14-2. Wind Chill Chart



Wind chill temperature is a measure of how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a blustery 30°F day would feel just as cold as a calm day with 0°F temperatures. The El Paso County planning area, including all participating jurisdictions, has never experienced a blizzard, but based on 5 previous occurrences recorded from 1996 through July 2020, it has been subject to winter storm watches, warnings, freezing rain, sleet, snow and wind chill.

The average number of cold days is similar for the entire planning area, including all participating jurisdictions. 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 14-2. El Paso County planning area, including all participating jurisdictions, can expect anywhere between 0.1 to 4.0 inches of ice and snow during a winter storm event and temperatures between 25 and 50 degrees with winds ranging from 0 to 20 mph. This is the worst that can be anticipated to mitigate against in the future for all participating jurisdictions.

HISTORICAL OCCURRENCES

Table 14-3 shows historical occurrences for El Paso County from 1996 through July 2020 provided by the NCEI database and the planning team. The NCEI database records historical events for wind chill, extreme cold, freezing fog, freezing frost, heavy snow, ice storm, sleet, winter storm, and winter weather. There have been 5 recorded winter storm events in El Paso County, including all participating jurisdictions. 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

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county and all participating jurisdictions are provided on a County-wide basis per the NCEI database. Table 14-3 shows historical incident information for the planning area.

Table 14-3. Historical Winter Storm Events, 1996-2020²

| JURISDICTION | DATE | DEATHS | INJURIES | PROPERTY DAMAGE | CROP DAMAGE |
|----------------|------------|----------|----------|-----------------|-------------|
| El Paso County | 2/2/2011 | 0 | 0 | \$0 | \$0 |
| El Paso County | 1/22/2015 | 0 | 0 | \$0 | \$0 |
| El Paso County | 12/26/2015 | 0 | 0 | \$0 | \$0 |
| El Paso County | 12/26/2015 | 0 | 0 | \$0 | \$0 |
| El Paso County | 2/4/2020 | 0 | 0 | \$0 | \$0 |
| TOTALS | | 0 | 0 | \$0 | |

SIGNIFICANT EVENTS

February 2-4, 2011 – El Paso County

Cold weather caused widespread breakage of gas and water pipes and mains, which created water leaks causing many homes to flood. El Paso Electric had all eight primary power generators fail due to freezing conditions. Rolling blackouts were used during peak electric use hours.

PROBABILITY OF FUTURE EVENTS

According to historical records, the planning area experiences approximately one winter storm event every three years. Hence, the probability of a future winter storm event affecting the El Paso County planning area, including all participating jurisdictions, is likely, with a winter storm likely to occur within the next three years.

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 El Paso County planning area, including all participating jurisdictions, are vulnerable to severe winter events.

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

² Values are in 2020 dollars.

SECTION 14: WINTER STORM

Table 14-4. Critical Facilities by Jurisdiction

| JURISDICTION | CRITICAL FACILITIES |
|----------------------|--|
| El Paso County | 1 Airport, 1 Bridge, 23 Government Facilities, 1 Dam, 1 International Bridge, 2 Water Towers, 1 Water Booster Station |
| City of El Paso | 4 Chemical Facilities, 7 Communications Facilities, 4 Commercial Facilities, 1 Dam, 49 Emergency Services, 4 Energy Facilities, 1 Financial Service, 2 Food and Agriculture, 18 Government Facilities, 13 Healthcare and Public Facilities, 7 Transportation Facilities, 11 Water and Wastewater Systems |
| City of San Elizario | 1 Fire Station |
| City of Socorro | 1 Communication Facility, 2 Emergency Shelters/Mass Care Shelters, 2 EMS, 1 EOC, 1 Fire Station, 1 Government Facility, 2 Police Departments, 1 Public Works, 6 Rail Crossings, 3 Utility Facilities, 1 Water District |
| Town of Anthony | 1 Police Department, 1 Government Facility, 1 Public Works, 3 Schools, 1 Wastewater Plant |
| Town of Clint | 1 Community Center, 1 Fire Station, 4 Schools |
| Town of Horizon City | 1 Government Facility, 1 Police Department, 1 Fire Station, 2 MUD, 1 ISD Administrative Office |
| Town of Vinton | 1 Administrative Facility, 1 County Facility, 1 Fire Station, 1 Public Works, 1 School |

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 El Paso County planning area is estimated at 11.6% of the total population or an estimated total of 97,464³ potentially vulnerable residents in the planning area based on age. An estimated 21.3% of the planning area population live below the poverty level (Table 14-5).

Table 14-5. Population at Greater Risk by Jurisdiction

| JURISDICTION | POPULATION 65 AND OLDER | POPULATION BELOW POVERTY LEVEL |
|-----------------------------|-------------------------|--------------------------------|
| El Paso County ⁴ | 97,464 | 178,420 |
| City of El Paso | 84,690 | 136,071 |

³ US Census Bureau 2018 data for El Paso County

⁴ County totals includes all incorporated jurisdictions and unincorporated areas.

SECTION 14: WINTER STORM

| JURISDICTION | POPULATION 65 AND OLDER | POPULATION BELOW POVERTY LEVEL |
|----------------------|-------------------------|--------------------------------|
| City of San Elizario | 1,157 | 3,467 |
| City of Socorro | 4,898 | 9,125 |
| Town of Anthony | 627 | 1,361 |
| Town of Clint | 237 | 139 |
| Town of Horizon City | 982 | 2,260 |
| Town of Vinton | 97 | 624 |

Damages from winter storms in the planning area are considered negligible. The potential severity of impact for the El Paso County planning area, including all participating jurisdictions, is “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 14-6. Potential Annualized Losses for El Paso County

| JURISDICTION | PROPERTY & CROP LOSS | ANNUAL LOSS ESTIMATES |
|----------------|----------------------|-----------------------|
| El Paso County | \$0 | \$0 |

ASSESSMENT OF IMPACTS

The greatest risk from a winter storm hazard is to public health and safety. The impact of climate change could produce longer, more intense winter storm events, exacerbating the current winter storm impacts. Worsening winter storm conditions can be frequently associated with a variety of impacts, including:

- Vulnerable populations, particularly the elderly and children under 5, 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.

SECTION 14: WINTER STORM

- 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 15: EARTHQUAKE

- Hazard Description 1
- Location 2
- Extent 4
- Historical Occurrences 7
- Probability of Future Events 7
- Vulnerability and Impact..... 7

HAZARD DESCRIPTION

An earthquake is the sudden movement of the Earth’s surface cause by the release of stress accumulated within or along the edge of the Earth’s tectonic plates, volcanic eruption, or by a manmade explosion. The majority of earthquakes occur along faults; however earthquakes can occur within plate interiors. Over geologic time, plates move and plate boundaries change, pushing weaken boundary regions to the interior part of the plates. These areas of weakness within the continents can cause earthquakes in response to stresses that originate at the edges of the plate or in the deeper crust.

Earthquakes’ locations are described by their focal depth and geographic position of the epicenter. The focal depth of an earthquake is the depth from the Earth’s surface to the region where an earthquake’s energy originates (the focus or hypocenter). The epicenter is the point on the Earth’s surface directly above the hypocenter. Earthquakes usually occur without warning, with their effects impacting great distances away from the epicenter.

According to the U.S. Geological Society (USGS) Earthquake Hazards Program, an earthquake hazard is anything associated with an earthquake that may influence an individual’s normal activities. Table 15-1 describes definition of examples.

Table 15-1. Definitions of Earthquake Hazards¹

| HAZARD | DESCRIPTION |
|--------------------------------|--|
| Surface Faulting | Displacement that reaches the earth's surface during slip along a fault. Commonly occurs with shallow earthquakes, those with an epicenter less than 20 kilometers. |
| Ground Motion (shaking) | The movement of the earth's surface from earthquakes or explosions. Ground motion or shaking is produced by waves that are generated by sudden slip on a fault or sudden pressure at the explosive source and travel through the earth and along its surface. |
| Landslide | A movement of surface material down a slope. |

¹ Source: USGS, 2012

SECTION 15: EARTHQUAKE

| HAZARD | DESCRIPTION |
|----------------------|--|
| Liquefaction | A process by which water-saturated sediment temporarily loses strength and acts as a fluid, like when you wiggle your toes in the wet sand near the water at the beach. This effect can be caused by earthquake shaking. |
| Tectonic Deformation | A change in the original shape of a material due to stress and strain. |
| Tsunami | A sea wave of local or distant origin that results from large-scale seafloor displacements associated with large earthquakes, major submarine slides, or exploding volcanic islands. |
| Seiche | The sloshing of a closed body of water from earthquake shaking |

LOCATION

Earthquake hazard areas are mapped by the US Geological Survey from lowest hazard to highest hazard areas. Figure 15-1 shows major earthquake hazard areas. An Earthquake Hazard Map, also known as a Percent Peak Ground Accelerations (%PGA) Map. The map shows the %PGA values with a 2% chance of being exceeded over 50 years. %PGA is an earthquake measurement that displays three things: the geographic area affected (all colored areas on the map), the probability of an earthquake of each given level of severity (2% chance in 50 years), and the strength of ground movement (severity) shown as percent of the acceleration force of gravity (%g) (the PGA is indicated by color). The El Paso County Planning Area including all participating jurisdictions, is identified in Table 15-1, is located in a low hazard area of 8-16%g peak ground acceleration.

SECTION 15: EARTHQUAKE

Figure 15-1. U.S. Map of Peak Ground Acceleration

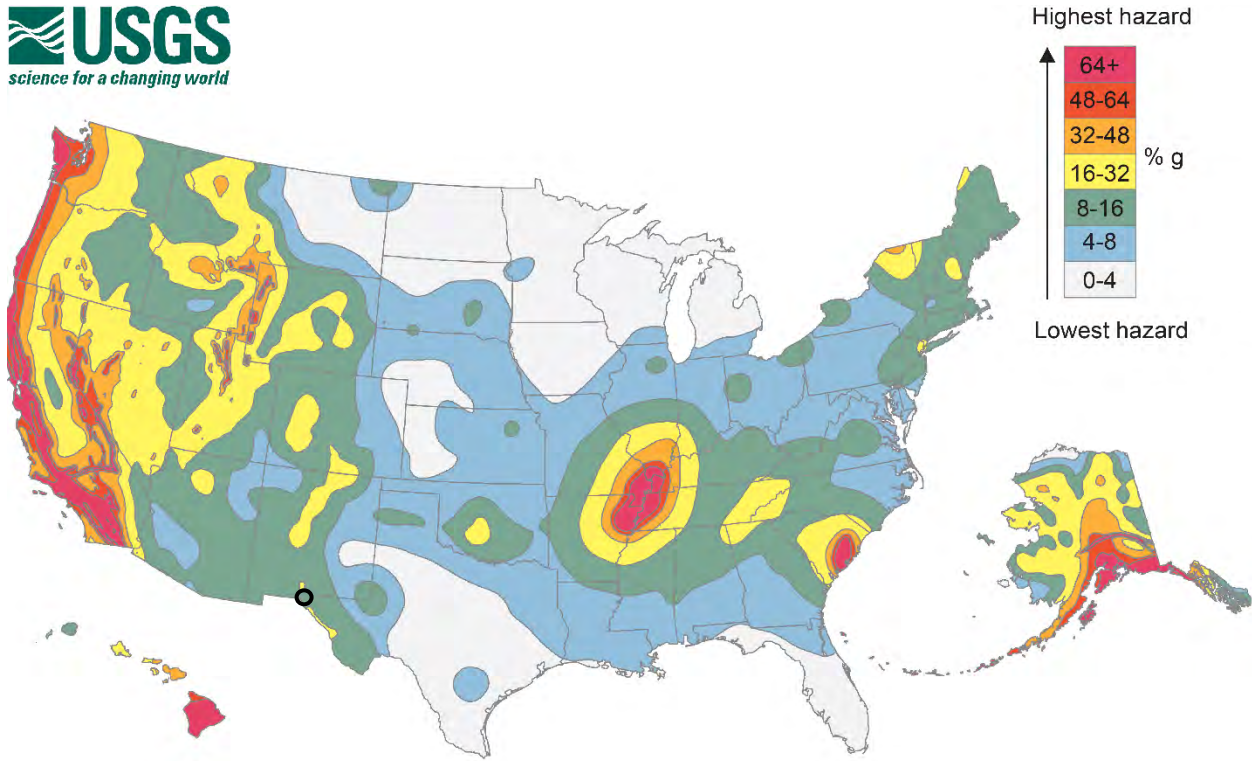
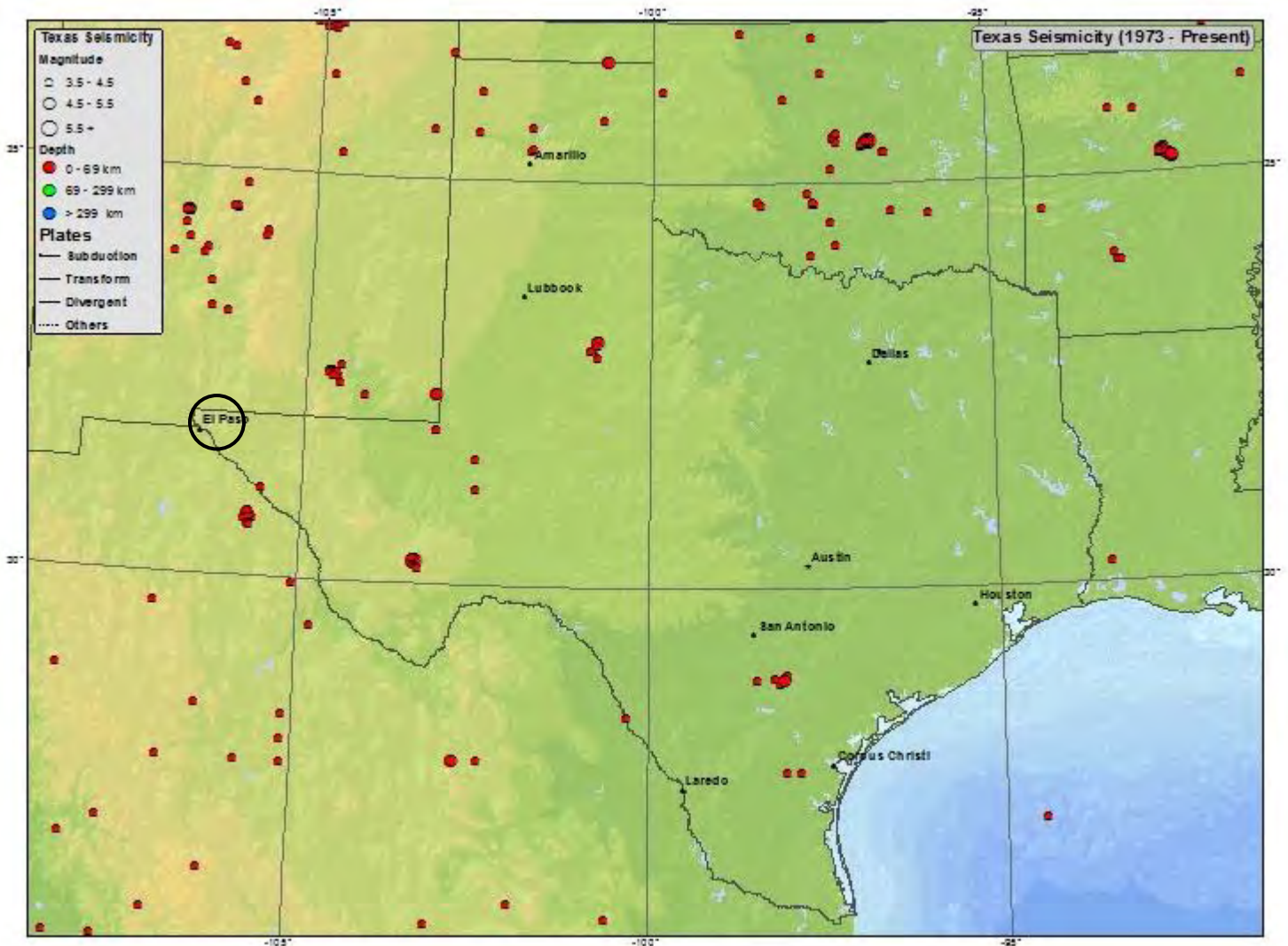


Figure 15-2 maps historic earthquake epicenters across Texas between 1973 and 2012.

SECTION 15: EARTHQUAKE

Figure 15-2. Historic Earthquake Epicenters in Texas, 1973-2012



EXTENT

The magnitude, or intensity of an earthquake, is a recorded value of the amplitude of seismic waves. The Richter scale is the most commonly used scale that measures the magnitude of earthquakes. It has no upper limit and is not used to describe damage (Table 15-2).

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Table 15-2. Richter Scale

| RICHTER MAGNITUDES | EARTHQUAKE EFFECTS |
|---------------------|--|
| 2.5 or LESS | Usually not felt, but can be recorded by seismograph |
| 2.5-5.4 | Often felt, but only causes minor damage |
| 5.5-6.0 | Slight damage to buildings and other structures |
| 6.1 TO 6.9 | May cause a lot of damage in very populated areas |
| 7.0 TO 7.9 | Major earthquake; serious damage |
| 8 OR GREATER | Great earthquake; can totally destroy communities near the epicenter |

The intensity of an earthquake is expressed by the Modified Mercalli Scale, based on the effects of ground shaking on people, buildings, and natural features, and is location dependent. The Modified Mercalli Scale gives the intensity of the earthquake in values ranging from I to XII. Table 15-3 summarizes earthquake intensity as described by the Modified Mercalli Scale and provides a comparison between the Richter and Modified Mercalli Intensity Scales.

Table 15-3. Modified Mercalli Intensity (MMI) Scale

| SCALE | INTENSITY | DESCRIPTION OF EFFECTS | CORRESPONDING RICHTER MAGNITUDE |
|------------|--------------|--|---------------------------------|
| I | INSTRUMENTAL | Not Felt except by a very few under especially favorable conditions | |
| II | FEEBLE | Felt only by a few persons at rest, especially on upper floors of buildings | < 4.2 |
| III | SLIGHT | Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration Estimated | |
| IV | MODERATE | Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors, disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably. | |

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| SCALE | INTENSITY | DESCRIPTION OF EFFECTS | CORRESPONDING RICHTER MAGNITUDE |
|-------|-----------------|---|---------------------------------|
| V | SLIGHTLY STRONG | Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop. | < 4.8 |
| VI | STRONG | Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight. | < 5.4 |
| VII | VERY STRONG | Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken | < 6.1 |
| VIII | DESTRUCTIVE | Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned | |
| IX | RUINOUS | Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. | < 6.9 |
| X | DISASTROUS | Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent. | < 7.3 |
| XI | VERY DISASTROUS | Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. | < 8.1 |
| XII | CATASTROPHIC | Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly. | > 8.1 |

Table 15-4 lists the Modified Mercalli Intensity (MMI) with the corresponding Acceleration (%g) (PGA), as well as the perceived shaking and potential damage expected.

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Table 15-4. Modified Mercalli Intensity (MMI) and PGA Equivalents

| MMI | ACCELERATION (%g) (PGA) | PERCEIVED SHAKING | POTENTIAL DAMAGE |
|-----|-------------------------|-------------------|------------------|
| I | <.17 | Not Felt | None |
| II | .17-1.4 | Weak | None |
| III | .17-1.4 | Weak | None |
| IV | 1.4-3.9 | Light | None |
| V | 3.9-9.2 | Moderate | Very Light |
| VI | 9.2-18 | Strong | Light |
| VII | 18-34 | Very Strong | Moderate |

Taking into consideration the possible extent of an earthquake for the area, by reviewing Tables 15-2 through 15-4 in conjunction with previous occurrences as depicted in Figure 15-2, El Paso County Planning Area, including all participating jurisdictions, experience on average less than 2.5 Richter Scale or Level IV or instrumental impact based on the Modified Mercalli intensity scale. This is the greatest extent the entire planning area can anticipate in the future.

HISTORICAL OCCURRENCES

According to USGS, and the National Geophysical Data Center (NGDC), there are no “significant” earthquakes on record for the state of Texas and the entire El Paso County Planning Area from 2150 B.C. to present. A significant earthquake, as defined by NGDC, is one that has caused at least moderate damage (approximately \$1 million or more), has resulted in 10 or more deaths, has registered as a magnitude 7.5 or greater, has registered as Modified Mercalli Intensity (MMI) Scale X or greater, or generated a tsunami. None of these criteria have been met by any seismic activity known to have impacted the El Paso County Planning Area, including all participating jurisdictions.

PROBABILITY OF FUTURE EVENTS

Earthquake Hazard Maps show the distribution of earthquake shaking levels that have a certain probability of occurring over a given period. According to the USGS, the entire Planning Area 5 has a PGA of 8-16%g for earthquakes with a 2-percent probability of occurring within 50 years. Based on historical records, the probability of an earthquake affecting the El Paso County Planning Area, including all participating jurisdictions, is unlikely, meaning that an event is probable in the next ten years.

VULNERABILITY AND IMPACT

Little warning is usually associated with earthquakes and can impact areas a great distance away from the epicenter. The amount of damage depends on the density of population and buildings, and infrastructure construction in the affected area. Some places may be more vulnerable than

SECTION 15: EARTHQUAKE

others based on soil type, building age, and building codes in the El Paso County Planning Area, including all participating jurisdictions.

Table 15-5 includes the critical facilities that would be vulnerable to Earthquake events in each participating jurisdiction:

Table 15-5. Critical Facilities by Jurisdiction

| JURISDICTION | CRITICAL FACILITIES |
|----------------------|--|
| El Paso County | 1 Airport, 1 Bridge, 23 Government Facilities, 1 Dam, 1 International Bridge, 2 Water Towers, 1 Water Booster Station |
| City of El Paso | 4 Chemical Facilities, 7 Communications Facilities, 4 Commercial Facilities, 1 Dam, 49 Emergency Services, 4 Energy Facilities, 1 Financial Service, 2 Food and Agriculture, 18 Government Facilities, 13 Healthcare and Public Facilities, 7 Transportation Facilities, 11 Water and Wastewater Systems |
| City of San Elizario | 1 Fire Station |
| City of Socorro | 1 Communication Facility, 2 Emergency Shelters/Mass Care Shelters, 2 EMS, 1 EOC, 1 Fire Station, 1 Government Facility, 2 Police Departments, 1 Public Works, 6 Rail Crossings, 3 Utility Facilities, 1 Water District |
| Town of Anthony | 1 Police Department, 1 Government Facility, 1 Public Works, 3 Schools, 1 Wastewater Plant |
| Town of Clint | 1 Community Center, 1 Fire Station, 4 Schools |
| Town of Horizon City | 1 Government Facility, 1 Police Department, 1 Fire Station, 2 MUD, 1 ISD Administrative Office |
| Town of Vinton | 1 Administrative Facility, 1 County Facility, 1 Fire Station, 1 Public Works, 1 School |

With no significant historical events recorded, annualized loss-estimates for earthquakes are not available; neither is a breakdown of potential dollar losses of critical facilities and infrastructure. The potential severity of impact from an earthquake for the entire El Paso County Planning Area, including all participating jurisdictions, is classified as “limited”, meaning that less than 10 percent of infrastructure would be damaged with critical facilities being shut down for less than 24 hours.

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| | |
|------------------------------------|---|
| Hazard Description | 1 |
| Location | 2 |
| Extent | 2 |
| Historical Occurrences | 3 |
| Probability of Future Events | 4 |
| Vulnerability and Impact..... | 4 |
| Assessment of Impacts..... | 4 |

HAZARD DESCRIPTION

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



A terrorist attack event can take several forms depending on the technological means available to the terrorist, nature of the issue motivating the attack, and points of weakness of the terrorist's target.

A terrorist using a chemical or biological weapon is of particular concern to officials. Special training and equipment are necessary to safely manage a Weapons of Mass Destruction (WMD) incident.

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

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

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

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

Most recently, mass attacks pose a persistent and varied threat. Racially motivated attacks are currently the most violently active type of Domestic Terrorism within the United States and Texas. In 2018 and 2019, at least four major attacks occurred in the United States (including one in Texas) conducted by racially motivated actors, and at least four other incidents were thwarted. This activity outnumbered other types of domestic terrorism.¹

In the last two decades, the international terrorism threat to the United States and Texas has increasingly shifted away from sophisticated, externally directed, or enabled foreign terrorist organization (FTO) plots and attacks toward self-initiated plots and mass attacks conducted by lone actor homegrown violent extremists (HVEs). HVEs represent the greatest international terrorism mass attack threat due primarily to their ability to remain undetected by law enforcement until operational, and their general preference to attack soft targets with simple, readily accessible weapons. Preferred weapons include small arms, edged weapons, vehicles, and rudimentary IEDs.² Law enforcement faces significant challenges in identifying and disrupting HVEs due, in part, to their limited connection with an FTO, ability to rapidly mobilize, and use of encrypted communications. The heavy use of social media by FTOs provides would-be HVEs with ample sources of readily accessible propaganda to inspire radicalization and operational planning.

LOCATION

There is no distinct geographic boundary to the threat of terrorism. An event is possible throughout the El Paso County planning area. Terrorists most often search for highly visible targets that can be impacted while avoiding detection. However, the motivation behind a terrorist event can be varied and the target's surrounding area is considered at risk.

Attacks can occur on soft targets including schools, religious institutions, commercial facilities, and other locations where there are mass gatherings of people with little or no security. However, more secure structures such as government, military, and law enforcement facilities, are also possible targets for future attacks.³

EXTENT

The Department of Homeland Security created the National Terrorism Advisory System, or NTAS, to replace the color-coded Homeland Security Advisory System (HSAS) in 2011. This new system will more effectively communicate information about terrorist threats by providing timely, detailed information to the public, government agencies, first responders, airports and other transportation

¹ Assessing the Threat of Mass Attacks in Texas: A State Intelligence Estimate. Texas Fusion Center and the Texas Department of Public Safety – Intelligence and Counterterrorism Division. January 2020.

² Department of Justice, 23 July 2019, Statement of Christopher Wray, Director, Federal Bureau of Investigation, Before the Committee on the Judiciary, United States Senate, at a Hearing Entitled "Oversight of the Federal Bureau of Investigation", <https://www.judiciary.senate.gov/imo/media/doc/Wray%20Testimony1.pdf>

³ Intelligence and Counterterrorism Division, January 2020, Assessing the Threat of Mass Attacks in Texas: A State Intelligence Estimate. Texas Fusion Center and the Texas Department of Public Safety

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hubs, and the private sector. It recognizes that Americans all share responsibility for the nation's security and should always be aware of the heightened risk of terrorist attack in the United States and what they should do.⁴

The new system includes two types of advisories: bulletins and alerts.

Bulletins communicate current developments or general trends regarding threats of terrorism. NTAS Bulletins permit the communication of critical terrorism information that, while not necessarily indicative of a specific threat against the United States, can reach homeland security partners or the public quickly, thereby allowing recipients to implement necessary protective measures.

When there is specific, credible information about a terrorist threat against the United States, DHS will share an NTAS Alert. The Alert may include specific information about the nature of the threat, including the geographic region, mode of transportation, or critical infrastructure potentially affected by the threat, as well as steps that individuals and communities can take to protect themselves and help prevent, mitigate or respond to the threat.

The two forms of Alerts are:

- Imminent Threat Alert: Warns of a credible, specific, and impending terrorist threat against the United States.
- Elevated Threat Alert: Warns of a credible terrorist threat against the United States.

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

The El Paso County planning area could encounter any level of threat of terrorism as there is usually very little warning time and terrorist events are not typically foreseeable.

HISTORICAL OCCURRENCES

In 2007, the Texas Department of Public Safety, which is responsible for Homeland Security in Texas, reported that individuals with ties to Hezbollah, Hamas, and al-Qaida were arrested crossing the border from Mexico. From March 2006 to September 2007, almost 350 individuals "from terrorism-related countries" were arrested at the border. The United States border is considered vulnerable to terrorist infiltration.

On August 3, 2019, a mass shooting occurred at a Walmart store in El Paso, Texas, United States. A gunman shot and killed 23 people and injured 23 others. The Federal Bureau of Investigation investigated the shooting as an act of domestic terrorism and a hate crime. This terrorist attack was the seventh-deadliest mass shooting in modern American history. It was also the third-deadliest shooting in Texan history. The shooting has been described as the deadliest attack on Latinos in modern American history.

⁴ DHS website. <https://www.dhs.gov/national-terrorism-advisory-system>

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PROBABILITY OF FUTURE EVENTS

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

VULNERABILITY AND IMPACT

There is no defined geographic boundary for a terrorist event. All of the population, buildings, critical facilities, infrastructure and lifelines and hazardous materials facilities are considered exposed to the hazards of terrorism and could potentially be affected. All assets and facilities are potentially at risk to damages that may for the most part be secondary.

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



ASSESSMENT OF IMPACTS

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

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

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

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

Most property, facilities, and infrastructure within the planning area are at risk from damage or destruction from a terrorism event, including residential and commercial structures and their supporting utilities, vehicles and transportation infrastructure, and community buildings, such as

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hospitals, police stations, and schools. Roadways in or near the terrorist event could be impacted because of damage or closure due to response or investigative operations.

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

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

Examples of potential terrorist impacts on the environment:

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

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

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| | |
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| Historical Occurrences | 7 |
| Probability of Future Events | 25 |
| Vulnerability and Impact..... | 25 |
| Assessment of Impacts..... | 25 |

HAZARD DESCRIPTION

Hazardous materials come in the form of explosives, flammable and combustible substances, poisons, and radioactive materials. A hazardous material (HAZMAT) incident involves a substance outside normal safe containment in sufficient concentration to pose a threat to life, property, or the environment.

Chemicals are found everywhere. They purify drinking water, increase crop production, and simplify household chores. But chemicals also can be hazardous to humans or the environment if used or released improperly. Hazards can occur during production, storage, transportation, use, or disposal. You and your community are at risk if a chemical is used unsafely or released in harmful amounts into the environment where you live, work, or play.

In a hazardous materials incident, solid, liquid, and/or gaseous contaminants may be released from fixed or mobile containers. This profile focuses on fixed sites. Weather conditions will directly affect how the hazard develops.

The Toxics Release Inventory (TRI) is a publicly available database from the federal Environmental Protection Agency (EPA) which contains information on toxic chemical releases and other waste management activities that are reported annually by certain covered industry groups federal facilities. This inventory was established under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and expanded by the Pollution Prevention Act of 1990. Each year, facilities that meet certain activity thresholds must report their releases and other waste management activities for listed toxic chemicals to the EPA and their state or tribal entity. A facility must report if it meets the following three criteria:

- The facility falls within one of the following industrial categories: manufacturing; metal mining; coal mining; electric generating facilities that combust coal and/or oil; chemical wholesale distributors; petroleum terminals and bulk storage facilities; Resource Conservation and Recovery Act (RCRA) Subtitle C Treatment, Storage and Disposal (TSD) facilities; and solvent recovery services.
- Have ten or more full-time employee equivalents.
- Manufactures or processes more than 25,000 pounds or otherwise uses more than 10,000 pounds of any listed chemical during the calendar year. Persistent, Bio-accumulative and Toxic (PBT) chemicals are subject to different thresholds of ten pounds, 100 pounds or 0.1 grams depending on the chemical.

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

A facility must report if it meets the following criteria:

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

LOCATION

A hazardous material spill occurring along railroad tracks and major highways near population centers in the El Paso County planning area is of concern to local emergency managers. Trains and trucks can carry a variety of materials that would, in large quantity, threaten the health and safety of people and the natural environment in the vicinity of a spill. In particular, the Interstate 10 corridor, which is generally paralleled by train tracks, is of concern, as are State Routes 375 and 601 and U.S. Route 54.

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

Figure 17-1 shows the locations of available georeferenced TRI and Tier 2 toxic sites in and around the El Paso County planning area. Only toxic sites that have georeferenced data available were analyzed and the circle buffers are drawn around each hazardous material site.

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Figure 17-1. Fixed HAZMAT Analysis Locations

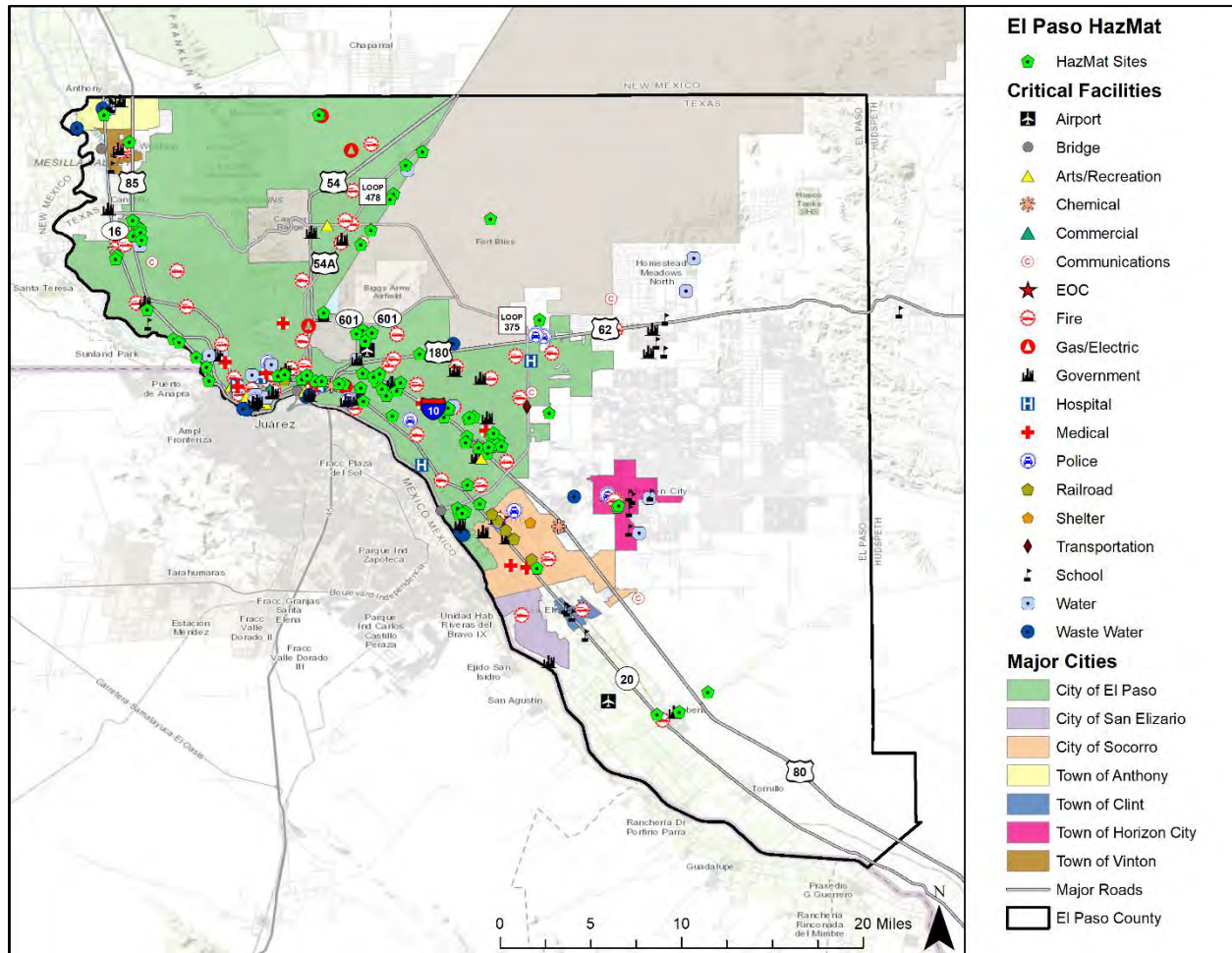


Table 17-1. TRI HAZMAT Facilities in or near the El Paso County Planning Area

| JURISDICTION | FACILITY NAME | ADDRESS |
|--------------|----------------------------------|---------------------|
| EL PASO | HENRY CO | 4700 ROSA ST |
| EL PASO | LAUN-DRY SUPPLY CO INC. | 3800 DURAZNO AVENUE |
| EL PASO | KESSLER INDUSTRIES, INC. | 8600 GATEWAY E. |
| EL PASO | COPPERFIELD LLC | 1388 ZARAGOSA RD. |
| EL PASO | FLOWERS BAKING CO OF EL PASO INC | 2400 E. YANDELL DR. |
| EL PASO | ROCKWELL INTL CORP | 4 BUTTERFIELD TRAIL |
| EL PASO | MANUFACTURERS FOLDING CARTON | 1100 KESSLER DR. |
| EL PASO | HOOVER CO EL PASO PLANT | 7850 HOOVER DR. |

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| JURISDICTION | FACILITY NAME | ADDRESS |
|--------------|---|------------------------------|
| EL PASO | BRUCE FOODS CORP | 8000 ASHLEY RD. |
| EL PASO | CREAMLAND DAIRIES INC DBA PRICES DAIRIES | 600 N PIEDRAS ST |
| EL PASO | PROFESSIONAL MEDICAL PRODS SEAMLESS DIV | 9660-C PLAZA CIR |
| EL PASO | COCA-COLA BOTTLING CO MAGNOLIA FACILITY #56 | 11001 GATEWAY W. |
| EL PASO | KWAL HANLEY PAINT | 6050 LUCKETT CT. |
| EL PASO | LEVITON MANUFACTURING | 7800 TRADE CENTER AVE. |
| EL PASO | UNIVAR USA EL PASO | 6980 MARKET AVE. |
| EL PASO | AMERICAN MINERALS INC | 3666 DONIPHAN DR. |
| EL PASO | INTERNATIONAL WIRE GROUP | 10535 RAILROAD DR. |
| EL PASO | POWER LIGHTING PRODS, FORMERLY VALMONT ELECTRIC | 1770 COMMERCE PARK DR |
| EL PASO | ALLEN BRADLEY CO | 1414 ALLEN-BRADLEY |
| EL PASO | LEVI STRAUSS & CO PELLICANO LAUNDRY 680F | 11460 PELLICANO DR. |
| EL PASO | EL PASO PVC | 201 INGLEWOOD ROAD |
| EL PASO | US ARMY 1ST ARMORED DIV & FORT BLISS RANGES | CHAFFEE AND DONIPHAN |
| EL PASO | CHEVRON CORP EL PASO ASPHALT REFY | 6550 GATEWAY E. |
| EL PASO | EPSON EL PASO INCORPORATED | 12120 ESTHER LAMA, SUITE 120 |
| EL PASO | DALE ELECTRONICS INC | 1462 LIONEL DRIVE |
| EL PASO | ROBERTSHAW CONTROLS CO GRAYSON CONTROLS DIV PLANT | 320 N. CLARK DR. |
| EL PASO | DIESEL RECON CO | 20 ZANE GREY |
| EL PASO | TAYLOR SIMPKINS INCORPORATED | 1235 TOWER TRAIL LN. |
| EL PASO | SIEMENS INDUSTRY INC | 1400 HENRY BRENNAN DR |
| EL PASO | PLAINFIELD STAMPING TEXAS INC | 6839 COMMERCE |
| EL PASO | SMURFIT-STONE CONTAINER CORP EL PASO EAST | 7350 STILES DR |
| EL PASO | CLAROSTAT MANUFACTURING CO INC | 12055 ROJAS DRIVE SUITE K |

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| JURISDICTION | FACILITY NAME | ADDRESS |
|--------------|--|-----------------------------------|
| EL PASO | REXCEL COATINGS | 4600 RIPLEY DR. |
| EL PASO | SUNITOMO ELECTRIC WIRING SYSTEMS EL PASO | 6500 N DESERT BLVD |
| EL PASO | STEWART EFI FINISHING | 44 BUTTERFIELD CIRCLE |
| VINTON | ARCELORMITTAL VINTON INC | INTERSTATE 10 AND VINTON ROAD |
| EL PASO | BOEING | 9566 RAILROAD DR. |
| EL PASO | AUTOTRONIC CONTROLS CORP | 1490 HENRY BRENNAN DR |
| EL PASO | FLEXAUST APPLIANCE | 12134 ESTER LAMA DR. |
| EL PASO | PHELPS DODGE MAGNET WIRE | 9541 PLAZA CIR. |
| EL PASO | DAL TILE INTERNATIONAL | 12001 RAILROAD DRIVE |
| FABENS | WRANGLER | 1471 N FABENS STREET ACCESS RD |
| EL PASO | EQUILON PIPELINE COMPANY LLC | 6767 GATEWAY WEST |
| EL PASO | SOUTHWIRE EL PASO OPERATIONS | 7811 HOOVER DR |
| EL PASO | ISOMEDIX OPS INC | 1435 ISOMEDIX PLACE |
| EL PASO | PARKER BROTHERS & CO INC EL PASO SLAG PLANT | SLAG PIT ROAD % PAISONO WEST |
| EL PASO | FRANKLIN BUILDING MATERIALS | 1404 N. ZARAGOSA RD. |
| EL PASO | ASARCO | 2301 W PAISANO DR |
| EL PASO | EAGLE FAMILY FOODS | 255 MONTOYA RD |
| EL PASO | SW FOAM | 9900 RAILROAD DRIVE |
| EL PASO | CHAMPLAIN CABLE TEXAS | 9560 PLAZA CIRCLE STE A |
| EL PASO | EPSON EL PASO INC | 1211 HENRY BRENNAN DRIVE |
| EL PASO | WESTERN EL PASO REFINERY | 6501 TROWBRIDGE DR |
| EL PASO | ALCOA FUJIKURA LTD | 1335 HENRY BRENNAN DR. |
| EL PASO | CANYON STATE OIL | 10925 MARCONI LN |
| EL PASO | JOBE CONCRETE PRODUCTS TORO | 3125 W PAISANO RD |
| HORIZON CITY | EL PASO DIVISION | 12504 WEAVER RD |

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| JURISDICTION | FACILITY NAME | ADDRESS |
|--------------|---|----------------------------------|
| EL PASO | PHELPS DODGE COPPER PRODUCTS CO | 897 HAWKINS BOULEVARD |
| EL PASO | CONEXANT SYSTEMS INC | #6 BUTTERFIELD TRAIL |
| EL PASO | UTILITY TRAILER CO | 201 TANTON RD. |
| EL PASO | CEMEX EL PASO PLANEPORT | 5500 MARSHALL RD |
| EL PASO | EL PASO PLANT | 6999 NORTH LOOP ROAD |
| EL PASO | NEWMAN POWER STATION | 4900 STAN ROBERTS SR. BLVD. |
| EL PASO | CEMEX EL PASO SECTION 10 | 2050 CHERRINGTON ST |
| EL PASO | CEMCO PRODUCTS | 13001 DARRINGTON |
| EL PASO | EL PASO PVC | 201-A INGLEWOOD DR |
| EL PASO | VEOLIA REGENERATION SERVICES, L.L.C (BORDERLAND PLANT) | 6501 TROWBRIDGE DRIVE |
| EL PASO | GLOBAL ALTERNATIVE FUELS | 3500 DONIPHAN DR |
| EL PASO | INTERNATIONAL PAPER - EL PASO CONTAINER | 9301 BILLY THE KID |
| EL PASO | RODGERS COMPOSITE | 1220 BARRANCA DR SUITE 3 |
| EL PASO | TONY LAMA COMPANY | 1137 TONY LAMA ST. |
| FABENS | US CBP EL PASO SECTOR BORDER PATROL TRAINING #TX0427 | 2121 NORTH FABENS ROAD |
| EL PASO | AMERICAN TURNED PRODUCTS | 12134 ESTHER LAMA STE 100 |
| EL PASO | EPSON E1 PASO INC | 7500 VISCOUNT BLVD. SUITE 233 |
| EL PASO | TONKA TOYS | 9050 VISCOUNT BLVD |
| EL PASO | CHAMPLAIN CABLE PAN AMERICAN | 9600 PAN AMERICAN DR |
| EL PASO | L & M RADIATOR | 6966 MARKET ST. |
| EL PASO | WR GRACE & CO CONN GRACE CONSTRUCTION PRODUCTS | 9801 CARNEGIE |
| EL PASO | NUTCRACKER BRANDS INC. DBA HARVEST MANOR FARMS | 11B LEIGH FISHER BLVD |
| EL PASO | NUSTAR EL PASO REFINED PRODUCTS TERMINAL | 4200 JUSTICE ST |
| EL PASO | E I DUPONT DE NEMOURS - BORDERLAND PLANT | 6501 TROWBRIDGE DR |

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| JURISDICTION | FACILITY NAME | ADDRESS |
|--------------|---|------------------------|
| EL PASO | CARDINAL HEALTH PRESOURCE | 1320 DON HASKINS DR |
| EL PASO | INTERNATIONAL WIRE GROUP - CAMDEN WIRE FACILITY | 1700 COMMERCE PARK DR |
| EL PASO | ALLEGIANCE HEALTHCARE CORP CONVER OPRNS | 1 BUTTERFIELD TRAIL |
| EL PASO | A O SMITH WATER PRODUCTS CO | 401 FREDERICK RD. |
| EL PASO | CARDINAL HEALTH | 1550 NORTHWESTERN DR |
| EL PASO | BORDEN INC | 6982 ALAMEDA AVE |
| EL PASO | SWIFT-ECKRICH INC | 300 N CONCEPCION |
| EL PASO | COLEMAN CABLE INC | 201 INGLEWOOD DR |
| ANTHONY | THE PHILLSBURY COMPANY | 1200 SOUTH MAIN STREET |
| EL PASO | GREEN BAY PACKAGING INC EL PASO DIV | 10515 RAILROAD DR |
| FABENS | U.S. CUSTOMS SERVICE FABENS FIRING RANGE | 16001 SOCORRO RD |

EXTENT

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

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

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

HISTORICAL OCCURRENCES

Hazardous materials are substances which if released or misused can cause death, serious injury, long-lasting health effects, and damage to structure and other properties as well as to the environment. Many products containing hazardous chemicals are used and stored in homes

SECTION 17: HAZARDOUS MATERIALS

routinely. These products are also shipped daily on the nation’s highways, railroads, waterways, and pipelines.

A total of 1,618 transportation incidents have been reported in the El Paso County planning area over the last 70 years. The data collected is from 1950 to 2020 and identifies the hazardous materials transportation incidents as in-transit, loading, and unloading of transport vehicles. The reported events with damages or fatalities are listed in Table 17-2 below.

Table 17-2. Hazardous Material Incident Events, El Paso County

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 9/2/1978 | 1 | \$0 |
| EL PASO | 3/1/1990 | 0 | \$3,168 |
| EL PASO | 4/5/1990 | 0 | \$259 |
| EL PASO | 4/15/1990 | 0 | \$396 |
| EL PASO | 4/27/1990 | 0 | \$277 |
| EL PASO | 7/11/1990 | 0 | \$1,485 |
| EL PASO | 7/26/1990 | 0 | \$297 |
| HORIZON CITY | 9/29/1990 | 0 | \$990 |
| EL PASO | 10/5/1990 | 0 | \$149 |
| EL PASO | 10/24/1990 | 0 | \$386 |
| EL PASO | 12/10/1990 | 0 | \$376 |
| EL PASO | 1/28/1991 | 0 | \$523 |
| EL PASO | 4/17/1991 | 0 | \$409 |
| EL PASO | 4/23/1991 | 0 | \$190 |
| EL PASO | 5/20/1991 | 0 | \$105 |
| EL PASO | 5/28/1991 | 0 | \$34 |
| EL PASO | 7/12/1991 | 0 | \$48 |
| EL PASO | 7/22/1991 | 0 | \$48 |
| EL PASO | 8/9/1991 | 0 | \$158 |
| EL PASO | 8/21/1991 | 0 | \$10 |
| EL PASO | 8/22/1991 | 0 | \$4,181 |
| EL PASO | 10/14/1991 | 0 | \$67 |

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| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 11/11/1991 | 0 | \$190 |
| EL PASO | 11/25/1991 | 0 | \$19 |
| EL PASO | 2/3/1992 | 0 | \$184 |
| EL PASO | 2/4/1992 | 0 | \$710 |
| EL PASO | 2/12/1992 | 0 | \$10,146 |
| EL PASO | 3/11/1992 | 0 | \$138 |
| EL PASO | 3/23/1992 | 0 | \$46 |
| EL PASO | 4/9/1992 | 0 | \$138 |
| EL PASO | 4/20/1992 | 0 | \$1,125 |
| EL PASO | 6/19/1992 | 0 | \$369 |
| EL PASO | 7/26/1992 | 0 | \$2,813 |
| EL PASO | 9/3/1992 | 0 | \$315 |
| EL PASO | 10/6/1992 | 0 | \$636 |
| EL PASO | 10/12/1992 | 0 | \$37 |
| EL PASO | 10/15/1992 | 0 | \$1,015 |
| CANUTILLO | 10/25/1992 | 0 | \$74 |
| EL PASO | 10/27/1992 | 0 | \$692 |
| EL PASO | 12/3/1992 | 0 | \$369 |
| EL PASO | 12/29/1992 | 0 | \$18 |
| EL PASO | 1/26/1993 | 0 | \$72 |
| EL PASO | 2/12/1993 | 0 | \$90 |
| EL PASO | 3/28/1993 | 0 | \$270 |
| EL PASO | 4/14/1993 | 0 | \$5 |
| EL PASO | 4/21/1993 | 0 | \$72 |
| EL PASO | 4/26/1993 | 0 | \$2,178 |
| EL PASO | 4/27/1993 | 0 | \$36 |
| EL PASO | 5/2/1993 | 0 | \$90 |
| EL PASO | 5/11/1993 | 0 | \$225 |

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| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 6/14/1993 | 0 | \$45 |
| EL PASO | 6/22/1993 | 0 | \$900 |
| EL PASO | 6/23/1993 | 0 | \$45 |
| EL PASO | 7/13/1993 | 0 | \$108 |
| EL PASO | 7/14/1993 | 0 | \$144 |
| EL PASO | 7/24/1993 | 0 | \$34,965 |
| EL PASO | 7/26/1993 | 0 | \$828 |
| EL PASO | 8/6/1993 | 0 | \$207 |
| EL PASO | 8/24/1993 | 0 | \$27 |
| EL PASO | 8/31/1993 | 0 | \$558 |
| EL PASO | 10/26/1993 | 0 | \$189 |
| EL PASO | 11/6/1993 | 0 | \$18 |
| EL PASO | 12/9/1993 | 0 | \$108 |
| EL PASO | 12/15/1993 | 0 | \$45 |
| EL PASO | 1/19/1994 | 0 | \$210 |
| EL PASO | 1/25/1994 | 0 | \$263 |
| EL PASO | 2/12/1994 | 0 | \$9 |
| EL PASO | 2/14/1994 | 0 | \$464 |
| EL PASO | 2/17/1994 | 0 | \$123 |
| EL PASO | 2/20/1994 | 0 | \$525 |
| EL PASO | 3/2/1994 | 0 | \$140 |
| EL PASO | 3/10/1994 | 0 | \$3,588 |
| EL PASO | 3/18/1994 | 0 | \$26 |
| EL PASO | 3/31/1994 | 0 | \$875 |
| EL PASO | 4/8/1994 | 0 | \$149 |
| EL PASO | 4/20/1994 | 0 | \$18 |
| EL PASO | 5/18/1994 | 0 | \$306 |
| EL PASO | 5/20/1994 | 0 | \$1,313 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 5/21/1994 | 0 | \$508 |
| EL PASO | 6/9/1994 | 0 | \$18 |
| EL PASO | 6/20/1994 | 0 | \$131 |
| EL PASO | 6/21/1994 | 0 | \$53 |
| EL PASO | 6/23/1994 | 0 | \$79 |
| EL PASO | 6/28/1994 | 0 | \$70 |
| EL PASO | 8/16/1994 | 0 | \$144 |
| EL PASO | 8/20/1994 | 0 | \$438 |
| EL PASO | 8/21/1994 | 0 | \$43,750 |
| EL PASO | 9/7/1994 | 0 | \$140 |
| EL PASO | 9/7/1994 | 0 | \$788 |
| EL PASO | 9/8/1994 | 0 | \$105 |
| EL PASO | 10/15/1994 | 0 | \$761 |
| EL PASO | 10/18/1994 | 0 | \$44 |
| EL PASO | 11/4/1994 | 0 | \$875 |
| EL PASO | 12/6/1994 | 0 | \$630 |
| EL PASO | 1/5/1995 | 0 | \$3 |
| EL PASO | 1/19/1995 | 0 | \$15 |
| EL PASO | 2/6/1995 | 0 | \$93 |
| EL PASO | 2/9/1995 | 0 | \$321 |
| EL PASO | 2/20/1995 | 0 | \$744 |
| EL PASO | 3/1/1995 | 0 | \$676 |
| EL PASO | 3/2/1995 | 0 | \$51 |
| EL PASO | 3/13/1995 | 0 | \$600 |
| EL PASO | 3/22/1995 | 0 | \$338 |
| EL PASO | 3/22/1995 | 0 | \$558 |
| EL PASO | 5/6/1995 | 0 | \$1,437 |
| EL PASO | 5/8/1995 | 0 | \$1,057 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 5/23/1995 | 0 | \$338 |
| EL PASO | 5/30/1995 | 0 | \$592 |
| EL PASO | 6/2/1995 | 0 | \$93 |
| EL PASO | 6/6/1995 | 0 | \$879 |
| EL PASO | 6/19/1995 | 0 | \$127 |
| EL PASO | 8/10/1995 | 0 | \$59 |
| EL PASO | 8/27/1995 | 0 | \$42 |
| EL PASO | 9/1/1995 | 0 | \$862 |
| EL PASO | 11/16/1995 | 0 | \$211 |
| EL PASO | 12/19/1995 | 0 | \$42 |
| EL PASO | 1/17/1996 | 0 | \$2,062 |
| EL PASO | 2/2/1996 | 0 | \$41 |
| EL PASO | 2/4/1996 | 0 | \$9,850 |
| EL PASO | 2/6/1996 | 0 | \$916 |
| EL PASO | 2/7/1996 | 0 | \$990 |
| EL PASO | 3/5/1996 | 0 | \$41 |
| EL PASO | 4/10/1996 | 0 | \$330 |
| EL PASO | 4/11/1996 | 0 | \$1,650 |
| EL PASO | 4/22/1996 | 0 | \$41 |
| EL PASO | 4/25/1996 | 0 | \$33 |
| EL PASO | 5/12/1996 | 0 | \$907 |
| EL PASO | 5/12/1996 | 0 | \$1,155 |
| EL PASO | 5/13/1996 | 0 | \$544 |
| EL PASO | 6/2/1996 | 0 | \$124 |
| EL PASO | 6/5/1996 | 0 | \$668 |
| EL PASO | 7/23/1996 | 0 | \$18,558 |
| EL PASO | 7/24/1996 | 0 | \$586 |
| EL PASO | 8/10/1996 | 0 | \$82 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 9/6/1996 | 0 | \$1,650 |
| EL PASO | 9/30/1996 | 0 | \$82 |
| EL PASO | 10/17/1996 | 0 | \$305 |
| EL PASO | 11/3/1996 | 0 | \$41 |
| EL PASO | 11/3/1996 | 0 | \$660 |
| EL PASO | 12/4/1996 | 0 | \$66 |
| EL PASO | 2/8/1997 | 0 | \$10,361 |
| EL PASO | 4/2/1997 | 0 | \$60 |
| EL PASO | 4/10/1997 | 0 | \$40 |
| EL PASO | 4/24/1997 | 0 | \$323 |
| EL PASO | 5/2/1997 | 0 | \$161 |
| EL PASO | 5/12/1997 | 0 | \$348 |
| EL PASO | 5/18/1997 | 0 | \$177 |
| EL PASO | 6/2/1997 | 0 | \$339 |
| EL PASO | 8/8/1997 | 0 | \$1,129 |
| EL PASO | 8/27/1997 | 0 | \$258 |
| EL PASO | 10/15/1997 | 0 | \$113 |
| EL PASO | 10/28/1997 | 0 | \$1,000 |
| EL PASO | 11/23/1997 | 0 | \$161 |
| EL PASO | 11/30/1997 | 0 | \$202 |
| EL PASO | 12/1/1997 | 0 | \$282 |
| EL PASO | 1/27/1998 | 0 | \$238 |
| EL PASO | 2/11/1998 | 0 | \$294 |
| EL PASO | 2/27/1998 | 0 | \$952 |
| EL PASO | 3/2/1998 | 0 | \$1,349 |
| EL PASO | 3/15/1998 | 0 | \$1,301 |
| EL PASO | 3/18/1998 | 0 | \$175 |
| EL PASO | 3/22/1998 | 0 | \$175 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 3/24/1998 | 0 | \$1,111 |
| EL PASO | 3/24/1998 | 0 | \$1,269 |
| EL PASO | 3/31/1998 | 0 | \$238 |
| EL PASO | 4/1/1998 | 0 | \$551 |
| EL PASO | 4/23/1998 | 0 | \$198 |
| EL PASO | 5/3/1998 | 0 | \$1,222 |
| EL PASO | 6/2/1998 | 0 | \$317 |
| EL PASO | 6/14/1998 | 0 | \$294 |
| EL PASO | 6/15/1998 | 0 | \$397 |
| EL PASO | 6/24/1998 | 0 | \$79 |
| EL PASO | 7/11/1998 | 0 | \$333 |
| EL PASO | 7/14/1998 | 0 | \$397 |
| EL PASO | 8/5/1998 | 0 | \$317 |
| EL PASO | 8/7/1998 | 0 | \$238 |
| EL PASO | 9/14/1998 | 0 | \$135 |
| EL PASO | 9/14/1998 | 0 | \$476 |
| EL PASO | 9/16/1998 | 0 | \$635 |
| EL PASO | 10/9/1998 | 0 | \$129 |
| EL PASO | 10/12/1998 | 0 | \$3,173 |
| EL PASO | 11/22/1998 | 0 | \$135 |
| EL PASO | 1/21/1999 | 0 | \$2,563 |
| EL PASO | 2/2/1999 | 0 | \$233 |
| EL PASO | 2/9/1999 | 0 | \$1,087 |
| EL PASO | 2/15/1999 | 0 | \$202 |
| EL PASO | 2/19/1999 | 0 | \$466 |
| EL PASO | 3/19/1999 | 0 | \$606 |
| EL PASO | 3/23/1999 | 0 | \$1,087 |
| EL PASO | 3/25/1999 | 0 | \$621 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 4/16/1999 | 0 | \$621 |
| EL PASO | 4/27/1999 | 0 | \$31 |
| EL PASO | 5/6/1999 | 0 | \$78 |
| EL PASO | 5/18/1999 | 0 | \$823 |
| EL PASO | 6/12/1999 | 0 | \$579 |
| EL PASO | 6/19/1999 | 0 | \$513 |
| EL PASO | 6/30/1999 | 0 | \$311 |
| EL PASO | 7/6/1999 | 0 | \$31 |
| EL PASO | 7/20/1999 | 0 | \$233 |
| EL PASO | 8/3/1999 | 0 | \$621 |
| EL PASO | 8/10/1999 | 0 | \$357 |
| EL PASO | 8/13/1999 | 0 | \$186 |
| EL PASO | 8/18/1999 | 0 | \$171 |
| EL PASO | 8/19/1999 | 0 | \$357 |
| EL PASO | 8/27/1999 | 0 | \$186 |
| EL PASO | 9/10/1999 | 0 | \$39 |
| EL PASO | 9/21/1999 | 0 | \$357 |
| EL PASO | 10/10/1999 | 0 | \$171 |
| EL PASO | 10/21/1999 | 0 | \$217 |
| EL PASO | 10/25/1999 | 0 | \$2,827 |
| EL PASO | 10/27/1999 | 0 | \$194 |
| EL PASO | 11/3/1999 | 0 | \$194 |
| EL PASO | 12/9/1999 | 0 | \$186 |
| EL PASO | 12/11/1999 | 0 | \$217 |
| EL PASO | 12/20/1999 | 0 | \$272 |
| EL PASO | 1/22/2000 | 0 | \$188 |
| EL PASO | 2/15/2000 | 0 | \$241 |
| EL PASO | 2/19/2000 | 0 | \$3,016 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 3/8/2000 | 0 | \$150 |
| EL PASO | 3/21/2000 | 0 | \$128 |
| EL PASO | 3/27/2000 | 0 | \$256 |
| EL PASO | 4/11/2000 | 0 | \$301 |
| EL PASO | 4/18/2000 | 0 | \$256 |
| EL PASO | 4/25/2000 | 0 | \$263 |
| EL PASO | 4/28/2000 | 0 | \$107,446 |
| EL PASO | 5/6/2000 | 0 | \$2,256 |
| EL PASO | 5/6/2000 | 0 | \$91,518 |
| EL PASO | 5/9/2000 | 0 | \$226 |
| EL PASO | 6/13/2000 | 0 | \$602 |
| EL PASO | 6/20/2000 | 0 | \$677 |
| EL PASO | 6/21/2000 | 0 | \$68 |
| EL PASO | 6/27/2000 | 0 | \$316 |
| EL PASO | 6/29/2000 | 0 | \$2,707 |
| EL PASO | 7/26/2000 | 0 | \$8,272 |
| EL PASO | 8/25/2000 | 0 | \$3,158 |
| EL PASO | 8/28/2000 | 0 | \$120 |
| EL PASO | 9/20/2000 | 0 | \$414 |
| EL PASO | 10/17/2000 | 0 | \$4,512 |
| EL PASO | 10/20/2000 | 0 | \$376 |
| EL PASO | 10/31/2000 | 0 | \$602 |
| EL PASO | 11/3/2000 | 0 | \$1,241 |
| EL PASO | 11/16/2000 | 0 | \$90 |
| EL PASO | 11/16/2000 | 0 | \$2,166 |
| EL PASO | 11/19/2000 | 0 | \$338 |
| EL PASO | 11/26/2000 | 0 | \$1,233 |
| EL PASO | 12/12/2000 | 0 | \$902 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 12/12/2000 | 0 | \$1,579 |
| EL PASO | 12/14/2000 | 0 | \$271 |
| EL PASO | 1/3/2001 | 0 | \$73 |
| EL PASO | 1/11/2001 | 0 | \$4,380 |
| EL PASO | 1/12/2001 | 0 | \$511 |
| EL PASO | 1/19/2001 | 0 | \$256 |
| EL PASO | 1/30/2001 | 0 | \$212 |
| EL PASO | 2/2/2001 | 0 | \$307 |
| EL PASO | 2/5/2001 | 0 | \$15 |
| EL PASO | 2/16/2001 | 0 | \$197 |
| EL PASO | 2/28/2001 | 0 | \$183 |
| EL PASO | 3/4/2001 | 0 | \$4,100 |
| EL PASO | 3/6/2001 | 0 | \$752 |
| EL PASO | 3/30/2001 | 0 | \$270 |
| EL PASO | 4/15/2001 | 0 | \$730 |
| EL PASO | 4/18/2001 | 0 | \$73 |
| EL PASO | 5/8/2001 | 0 | \$7,300 |
| EL PASO | 5/11/2001 | 0 | \$329 |
| EL PASO | 6/15/2001 | 0 | \$292 |
| EL PASO | 6/20/2001 | 0 | \$657 |
| EL PASO | 7/5/2001 | 0 | \$365 |
| EL PASO | 7/16/2001 | 0 | \$329 |
| EL PASO | 7/20/2001 | 0 | \$51 |
| EL PASO | 8/6/2001 | 0 | \$292 |
| EL PASO | 8/8/2001 | 0 | \$292 |
| EL PASO | 8/8/2001 | 0 | \$321 |
| EL PASO | 9/12/2001 | 0 | \$292 |
| EL PASO | 9/13/2001 | 0 | \$292 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 10/1/2001 | 0 | \$1,241 |
| EL PASO | 10/27/2001 | 0 | \$876 |
| EL PASO | 11/26/2001 | 0 | \$548 |
| EL PASO | 11/30/2001 | 0 | \$730 |
| EL PASO | 12/18/2001 | 0 | \$949 |
| EL PASO | 1/5/2002 | 0 | \$29 |
| EL PASO | 1/7/2002 | 0 | \$218 |
| EL PASO | 1/15/2002 | 0 | \$725 |
| EL PASO | 2/25/2002 | 0 | \$363 |
| EL PASO | 2/26/2002 | 0 | \$181 |
| EL PASO | 3/3/2002 | 0 | \$26,100 |
| EL PASO | 3/21/2002 | 0 | \$1,743 |
| EL PASO | 4/29/2002 | 0 | \$885 |
| EL PASO | 5/18/2002 | 0 | \$1,088 |
| EL PASO | 6/8/2002 | 0 | \$2,175 |
| EL PASO | 6/14/2002 | 0 | \$3,843 |
| EL PASO | 7/11/2002 | 0 | \$595 |
| EL PASO | 7/23/2002 | 0 | \$181 |
| EL PASO | 7/23/2002 | 0 | \$1,486 |
| EL PASO | 8/3/2002 | 0 | \$36 |
| EL PASO | 8/5/2002 | 0 | \$558 |
| EL PASO | 11/17/2002 | 0 | \$1,740 |
| EL PASO | 12/1/2002 | 0 | \$1,472 |
| EL PASO | 12/2/2002 | 0 | \$464 |
| EL PASO | 1/27/2003 | 0 | \$809 |
| EL PASO | 1/29/2003 | 0 | \$317 |
| EL PASO | 1/31/2003 | 0 | \$584 |
| EL PASO | 2/19/2003 | 0 | \$633 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 3/19/2003 | 0 | \$457 |
| EL PASO | 5/1/2003 | 0 | \$514 |
| EL PASO | 5/7/2003 | 0 | \$234,962 |
| EL PASO | 5/19/2003 | 0 | \$985 |
| EL PASO | 5/20/2003 | 0 | \$2,385 |
| EL PASO | 6/6/2003 | 0 | \$134 |
| EL PASO | 6/18/2003 | 0 | \$5,276 |
| EL PASO | 6/24/2003 | 0 | \$2,357 |
| EL PASO | 7/10/2003 | 0 | \$556 |
| EL PASO | 7/19/2003 | 0 | \$380 |
| EL PASO | 7/21/2003 | 0 | \$246 |
| EL PASO | 8/15/2003 | 0 | \$106 |
| VINTON | 8/26/2003 | 0 | \$141 |
| EL PASO | 8/26/2003 | 0 | \$281 |
| EL PASO | 8/27/2003 | 0 | \$189,939 |
| EL PASO | 9/2/2003 | 0 | \$703 |
| EL PASO | 9/16/2003 | 0 | \$211 |
| EL PASO | 9/19/2003 | 0 | \$591 |
| EL PASO | 10/10/2003 | 0 | \$176 |
| EL PASO | 12/9/2003 | 0 | \$556 |
| EL PASO | 12/22/2003 | 0 | \$49 |
| EL PASO | 1/20/2004 | 0 | \$3,603 |
| EL PASO | 1/27/2004 | 0 | \$699 |
| EL PASO | 3/23/2004 | 0 | \$5,617 |
| ANTHONY | 3/23/2004 | 0 | \$7,818 |
| EL PASO | 3/26/2004 | 0 | \$151 |
| EL PASO | 4/17/2004 | 0 | \$541 |
| EL PASO | 5/4/2004 | 0 | \$575 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 5/4/2004 | 0 | \$582 |
| EL PASO | 5/20/2004 | 0 | \$2,760 |
| EL PASO | 6/16/2004 | 0 | \$685 |
| EL PASO | 6/17/2004 | 0 | \$589 |
| EL PASO | 6/21/2004 | 0 | \$1,027 |
| EL PASO | 7/9/2004 | 0 | \$274 |
| EL PASO | 11/10/2004 | 0 | \$275 |
| EL PASO | 12/15/2004 | 0 | \$130 |
| EL PASO | 12/18/2004 | 0 | \$890 |
| EL PASO | 12/21/2004 | 0 | \$144 |
| EL PASO | 4/12/2005 | 0 | \$2,566 |
| EL PASO | 5/9/2005 | 0 | \$862 |
| EL PASO | 5/17/2005 | 0 | \$13,328 |
| EL PASO | 5/28/2005 | 0 | \$2,651 |
| EL PASO | 6/14/2005 | 0 | \$7,290 |
| EL PASO | 6/27/2005 | 0 | \$11,144 |
| EL PASO | 9/22/2005 | 0 | \$2,797 |
| EL PASO | 12/6/2005 | 0 | \$700 |
| EL PASO | 2/3/2006 | 0 | \$4,493 |
| EL PASO | 2/24/2006 | 0 | \$3,076 |
| EL PASO | 3/1/2006 | 0 | \$2,893 |
| EL PASO | 3/5/2006 | 0 | \$2,187 |
| EL PASO | 3/10/2006 | 0 | \$904 |
| EL PASO | 3/16/2006 | 0 | \$4,589 |
| EL PASO | 4/5/2006 | 0 | \$2,829 |
| EL PASO | 4/20/2006 | 0 | \$4,565 |
| EL PASO | 6/13/2006 | 0 | \$5,135 |
| EL PASO | 10/2/2006 | 0 | \$2,187 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 10/17/2006 | 0 | \$1,736 |
| EL PASO | 10/24/2006 | 0 | \$5,376 |
| EL PASO | 10/28/2006 | 0 | \$2,444 |
| EL PASO | 11/15/2006 | 0 | \$3,282 |
| EL PASO | 11/28/2006 | 0 | \$1,320 |
| EL PASO | 12/13/2006 | 0 | \$1,807 |
| EL PASO | 12/18/2006 | 0 | \$963 |
| EL PASO | 1/1/2007 | 0 | \$2,751 |
| EL PASO | 2/9/2007 | 0 | \$1,877 |
| EL PASO | 3/28/2007 | 0 | \$1,143 |
| EL PASO | 5/4/2007 | 0 | \$2,496 |
| EL PASO | 12/3/2007 | 0 | \$2,876 |
| EL PASO | 12/17/2007 | 0 | \$3,932 |
| EL PASO | 1/7/2008 | 0 | \$846 |
| ANTHONY | 3/6/2008 | 0 | \$6,033 |
| EL PASO | 3/17/2008 | 0 | \$1,803 |
| EL PASO | 3/26/2008 | 0 | \$2,218 |
| EL PASO | 4/23/2008 | 0 | \$1,803 |
| EL PASO | 5/30/2008 | 0 | \$13,286 |
| EL PASO | 6/3/2008 | 0 | \$4,547 |
| EL PASO | 6/16/2008 | 0 | \$3,252 |
| EL PASO | 7/13/2008 | 0 | \$6,609 |
| EL PASO | 7/18/2008 | 0 | \$4,326 |
| EL PASO | 8/8/2008 | 0 | \$7,066 |
| EL PASO | 8/12/2008 | 0 | \$3,966 |
| EL PASO | 1/3/2009 | 0 | \$22,270 |
| EL PASO | 1/5/2009 | 0 | \$11,425 |
| EL PASO | 2/1/2009 | 0 | \$8,565 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 2/20/2009 | 0 | \$6,032 |
| El Paso | 3/7/2009 | 0 | \$1,828 |
| EL PASO | 3/18/2009 | 0 | \$2,413 |
| EL PASO | 5/27/2009 | 0 | \$60,561 |
| EL PASO | 9/10/2009 | 0 | \$2,413 |
| EL PASO | 10/23/2009 | 0 | \$3,257 |
| EL PASO | 10/24/2009 | 0 | \$4,222 |
| EL PASO | 11/19/2009 | 0 | \$13,874 |
| EL PASO | 4/1/2010 | 0 | \$1,780 |
| EL PASO | 4/6/2010 | 0 | \$2,967 |
| EL PASO | 5/18/2010 | 0 | \$2,373 |
| ANTHONY | 5/23/2010 | 0 | \$8,010 |
| EL PASO | 6/7/2010 | 0 | \$1,483 |
| EL PASO | 6/14/2010 | 0 | \$1,483 |
| EL PASO | 7/21/2010 | 0 | \$1,176 |
| El Paso | 12/14/2010 | 0 | \$1,827 |
| EL PASO | 1/15/2011 | 0 | \$6,904 |
| El Paso | 2/12/2011 | 0 | \$5,753 |
| El Paso | 3/29/2011 | 0 | \$2,030 |
| El Paso | 5/17/2011 | 0 | \$1,151 |
| EL PASO | 5/17/2011 | 0 | \$2,301 |
| EL PASO | 5/23/2011 | 0 | \$2,301 |
| EL PASO | 6/1/2011 | 0 | \$2,301 |
| El Paso | 6/27/2011 | 0 | \$5,753 |
| EL PASO | 7/6/2011 | 0 | \$3,452 |
| EL PASO | 8/17/2011 | 0 | \$43,040 |
| El Paso | 10/3/2011 | 0 | \$1,726 |
| EL PASO | 10/18/2011 | 0 | \$2,301 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 4/26/2012 | 0 | \$2,255 |
| EL PASO | 4/27/2012 | 0 | \$2,255 |
| El Paso | 7/4/2012 | 0 | \$1,240 |
| EL PASO | 7/30/2012 | 0 | \$3,721 |
| El Paso | 9/15/2012 | 0 | \$1,691 |
| El Paso | 9/27/2012 | 0 | \$1,691 |
| El Paso | 11/1/2012 | 0 | \$1,128 |
| El Paso | 11/16/2012 | 0 | \$1,522 |
| El Paso | 11/21/2012 | 0 | \$789 |
| El Paso | 1/16/2013 | 0 | \$1,000 |
| EL PASO | 4/1/2013 | 0 | \$2,222 |
| EL PASO | 4/17/2013 | 0 | \$2,778 |
| VINTON | 6/21/2013 | 0 | \$10,053 |
| EL PASO | 7/6/2013 | 0 | \$16,711 |
| El Paso | 7/8/2013 | 0 | \$2,778 |
| El Paso | 8/7/2013 | 0 | \$1,667 |
| El Paso | 8/31/2013 | 0 | \$2,778 |
| EL PASO | 1/15/2014 | 0 | \$875 |
| CANVILLO | 3/12/2014 | 0 | \$2,789 |
| EL PASO | 4/23/2014 | 0 | \$3,281 |
| El Paso | 5/20/2014 | 0 | \$1,671 |
| El Paso | 6/18/2014 | 0 | \$803 |
| El Paso | 7/2/2014 | 0 | \$2,765 |
| El Paso | 12/17/2015 | 0 | \$1,638 |
| El Paso | 5/14/2016 | 0 | \$8,627 |
| El Paso | 5/17/2016 | 0 | \$1,941 |
| El Paso | 5/19/2016 | 0 | \$8,519 |
| El Paso | 5/23/2016 | 0 | \$3,235 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|--------------|------------|------------|-----------------------------------|
| EL PASO | 6/3/2016 | 0 | \$3,774 |
| EL PASO | 6/7/2016 | 0 | \$3,235 |
| EL PASO | 7/12/2016 | 0 | \$2,588 |
| EL PASO | 10/24/2016 | 0 | \$1,618 |
| EL PASO | 1/26/2017 | 0 | \$4,751 |
| El Paso | 4/15/2017 | 0 | \$2,323 |
| El Paso | 5/27/2017 | 0 | \$1,584 |
| EL PASO | 9/19/2017 | 0 | \$4,012 |
| EL PASO | 11/23/2017 | 0 | \$141,474 |
| EL PASO | 4/5/2018 | 0 | \$5,171 |
| EL PASO | 5/2/2018 | 0 | \$618 |
| El Paso | 5/8/2018 | 0 | \$3,636 |
| EL PASO | 5/21/2018 | 0 | \$2,575 |
| EL PASO | 5/23/2018 | 0 | \$4,120 |
| EL PASO | 7/4/2018 | 0 | \$3,090 |
| EL PASO | 7/27/2018 | 0 | \$4,635 |
| EL PASO | 9/4/2018 | 0 | \$3,605 |
| El Paso | 1/17/2019 | 0 | \$1,519 |
| ANTHONY | 3/19/2019 | 0 | \$4,051 |
| EL PASO | 3/22/2019 | 0 | \$2,835 |
| El Paso | 3/28/2019 | 0 | \$2,532 |
| EL PASO | 6/28/2019 | 0 | \$5,570 |
| EL PASO | 8/1/2019 | 0 | \$5,063 |
| EL PASO | 9/12/2019 | 0 | \$370,636 |
| EL PASO | 10/24/2019 | 0 | \$1,013 |
| EL PASO | 2/19/2020 | 0 | \$3,000 |
| EL PASO | 2/27/2020 | 0 | \$1,000 |
| EL PASO | 3/12/2020 | 0 | \$1,000 |

SECTION 17: HAZARDOUS MATERIALS

| JURISDICTION | DATE | FATALITIES | PROPERTY DAMAGE (2020 DOLLARS) |
|-------------------------|-----------|------------|-----------------------------------|
| EL PASO | 4/7/2020 | 0 | \$1,000 |
| El Paso | 11/2/2020 | 0 | \$1,750 |
| TOTAL LOSSES | | 1 | \$2,153,364 |

PROBABILITY OF FUTURE EVENTS

Hazardous material spills are the result of human error and/or accidents, which cannot be predicted. However, given the amount of traffic through the planning area and the large population, the probability of a hazardous material spill is estimated by local officials to be probable in any given year. Nevertheless, most spills will not lead to negative health and safety impacts and will not cause substantial negative impacts on the air, soil, or groundwater. The probability of a spill threatening the health of thousands and of having long-term negative environmental consequences is, based on previous experience, estimated to be less than 1 percent in any given year.

Based on the historic incident records and team input, the frequency of occurrence for significant hazard material incidents is considered “Occasional” and an event can be expected in the next five years for the El Paso County planning area.

VULNERABILITY AND IMPACT

Based on the prevalence and geographic proximity of hazardous materials transportation routes and fixed locations, less than half of the El Paso County planning area is vulnerable. The risk to the population depends on a variety of factors, including type and amount of chemical released, weather conditions, prevailing winds, time of day, and season. The environment is often vulnerable in a hazardous materials incident and can be heavily damaged by a hazardous materials incident.

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

ASSESSMENT OF IMPACTS

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

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

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HAZARD DESCRIPTION

An infectious disease is as a clinically evident disease resulting from the presence of pathogenic microbial agents. According to FEMA, infectious diseases are a major threat around the world, killing millions globally each year. Transmission of an infectious disease may occur through one or more means including physical contact with infected individuals. These infecting agents may also be transmitted through liquids, food, bodily fluids, contaminated objects, airborne inhalation or through vector-borne dissemination.

There are three classifications of disease impacts: endemic, epidemic, and pandemic. An endemic, is present at all times at a low frequency, such as chicken pox in the United States. An epidemic is a sudden severe outbreak of disease, such as the bubonic plague during Medieval Times. A pandemic is an epidemic that becomes very widespread and affects a whole region, a continent, or the world, for example the 1957 flu pandemic caused at least 70,000 deaths in the United States and one to two million deaths worldwide. In recent years, fears of pandemic have risen because the globalized economy and growing population fosters large scale international travel and trade. Growing populations increase the vulnerability of all areas to disease because a denser population increases the risk of exposure to an infectious disease and advances the spread of infection.

The top 10 infectious diseases according to the World Health Organization (WHO) based upon number of deaths are presented in Table 18-1.

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Table 18-1. Worldwide Mortality Due to Infectious Disease¹

| RANK | CAUSE OF DEATH | APPROXIMATE WORLDWIDE DEATHS IN 2018 |
|------|------------------------------|--------------------------------------|
| 1 | Lower Respiratory Infections | 4.4 million |
| 2 | Diarrheal diseases | 3.1 million |
| 3 | Tuberculosis (TB) | 3.1 million |
| 4 | Malaria | 2.1 million |
| 5 | Hepatitis B | 1.1 million |
| 6 | HIV/AIDS | 1.0 million |
| 7 | Measles | 1.0 million |
| 8 | Tetanus | 160,000 |
| 9 | Whooping Cough | 355,000 |
| 10 | Intestinal Worm Disease | 135,000 |

While all of these diseases are monitored by El Paso County on a regular basis, the primary disease of concern at the time of this planning process was the Coronavirus disease (COVID-19) due to its rapid spread and impact on the global economy.

Coronavirus disease (COVID-19) is an infectious disease caused by a recently discovered coronavirus. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

The COVID-19 virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes, so it's important that you also practice respiratory etiquette (for example, by coughing into a flexed elbow). Many months into the COVID-19 pandemic, the coronavirus is still spreading uncontrolled through the country and throughout the world. Public health authorities including the U.S. Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO) recommend citizens to remain six feet apart, wash hands frequently, disinfect frequently touched surfaces, and wear masks. There is a growing school of evidence that COVID-19 cases are transmitted through aerosols (sometimes referred to as airborne).

During the drafting of this plan, three vaccines for COVID-19 have been approved by the Food and Drug Administration (FDA). Similar to communities around the globe, El Paso County has

¹ Source: World Health Organization

SECTION 18: INFECTIOUS DISEASE

been dramatically impacted by this virus with 128,252 confirmed cases and 2,329 related deaths.² The economic impact of the virus has been devastating for the planning area. With no immediate relief on the horizon, economic recovery is likely to take years. The COVID-19 infection was declared a pandemic by the World Health Organization on March 11, 2020.

The CDC contains the latest information and guidance on the COVID-19 pandemic and provides recommendations on protecting citizens and reducing the spread of the disease. The most current recommendations include:

Wash your hands often

- Wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing.
- It's especially important to wash:
 - Before eating or preparing food
 - Before touching your face
 - After using the restroom
 - After leaving a public place
 - After blowing your nose, coughing, or sneezing
 - After handling your mask
 - After changing a diaper
 - After caring for someone sick
 - After touching animals or pets
- If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry.
- Avoid touching your eyes, nose, and mouth with unwashed hands.

Avoid close contact

- Inside your home: Avoid close contact with people who are sick.
- If possible, maintain 6 feet between the person who is sick and other household members.
- Outside your home: Put 6 feet of distance between yourself and people who don't live in your household.
- Remember that some people without symptoms may be able to spread virus.
- Stay at least 6 feet (about 2 arms' length) from other people.
- Keeping distance from others is especially important for people who are at higher risk of getting very sick.

Cover your mouth and nose with a mask when around others

- You could spread COVID-19 to others even if you do not feel sick.
- The mask is meant to protect other people in case you are infected.
- Everyone should wear a mask in public settings and when around people who don't live in your household, especially when other social distancing measures are difficult to maintain.

² The number of confirmed cases and related deaths from COVID-19 as of March 23, 2021.

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- Masks should not be placed on young children under age 2, anyone who has trouble breathing, or is unconscious, incapacitated or otherwise unable to remove the mask without assistance.
- Do NOT use a mask meant for a healthcare worker. Currently, surgical masks and N95 respirators are critical supplies that should be reserved for healthcare workers and other first responders.
- Continue to keep about 6 feet between yourself and others. The mask is not a substitute for social distancing.

Cover coughs and sneezes

- Always cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow and do not spit.
- Throw used tissues in the trash.
- Immediately wash your hands with soap and water for at least 20 seconds. If soap and water are not readily available, clean your hands with a hand sanitizer that contains at least 60% alcohol.

Clean and disinfect

- Clean AND disinfect frequently touched surfaces daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks.
- If surfaces are dirty, clean them. Use detergent or soap and water prior to disinfection.
- Then, use a household disinfectant. Most common EPA-registered household disinfectants will work.

Monitor Your Health Daily

- Be alert for symptoms. Watch for fever, cough, shortness of breath, or other symptoms of COVID-19.
 - Especially important if you are running essential errands, going into the office or workplace, and in settings where it may be difficult to keep a physical distance of 6 feet.
- Take your temperature if symptoms develop.
 - Don't take your temperature within 30 minutes of exercising or after taking medications that could lower your temperature, like acetaminophen.
- Follow CDC guidance if symptoms develop.

LOCATION

Pandemics are random and only a few happen every century. The impacts from an infectious disease event can affect all areas of the world, therefore all areas are vulnerable, as evidenced by the current COVID-19 pandemic. Since air travel and worldwide shipping have increased, it has become increasingly difficult to contain localized outbreaks as infected or exposed people travel across the globe in a matter of hours. Third world countries have fewer resources to fight disease and may be more vulnerable than more industrialized nations. In the United States, the U.S. public health system works at the federal, state and local level to monitor diseases, plan and prepare for outbreaks, and prevent epidemics where possible.

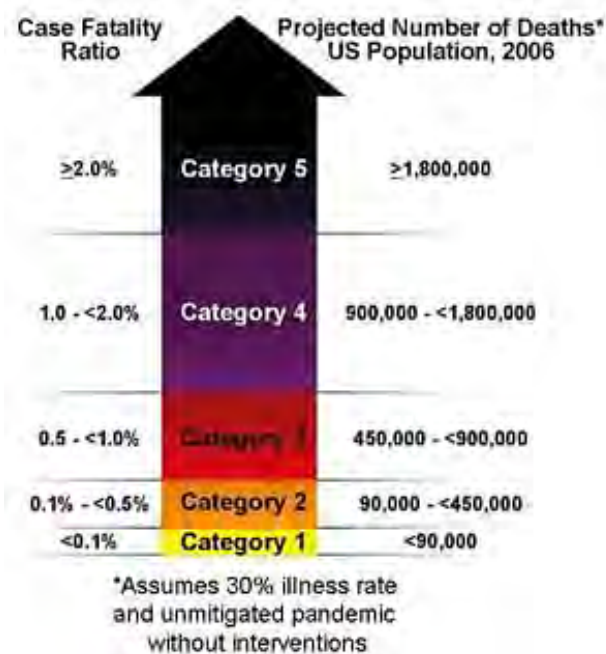
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There is no distinct geographic boundary to infectious disease, therefore, it can occur throughout the El Paso County planning area.

EXTENT

The severity of a pandemic virus can be evaluated from the perspective of the individual who has been infected; or from the population level, how many complications and deaths might be expected as a whole. The most common measure of severity for a pandemic virus event is the case-fatality rate (CFR) as depicted in Figure 18-1.

Figure 18-1. Case-Fatality Rate for Severity



The magnitude of a pandemic event is identified in terms of warning levels based on population. Figure 18-2 illustrates the various warning levels for pandemic. The current COVID-19 pandemic warning level is at Phase 6.

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Figure 18-2. Risk levels for Pandemic (World Health Organization)



HISTORICAL OCCURRENCES

Occurrences of a biological event hazard are fairly common. Historically, there have been a number of *E. coli* and similar outbreaks traced to issues or deficiencies in the nation’s food supply. In Texas, there have been several occurrences of biological hazards, as reported by the Center for Disease Control (CDC). From 2011 to 2015, the average number of *E. coli* outbreaks in Texas was 563 cases per year. In 2017, there was the largest mumps outbreak with 470 cases in Texas since 1990.

In 2019, the CDC reported three cases of measles at Fort Bliss in El Paso. The cases included one child and two adults.

In March of 2009, a novel strain of Influenza A (H1N1 or “Swine Flu”) virus was detected in Mexico and the United States. The virus spread worldwide. Final infection estimates were published in 2011. These final estimates were that from April 12, 2009 to April 10, 2010 approximately 60.8 million cases, 274,304 hospitalizations, and 12,469 deaths occurred in the United States due to H1N1³. The most commonly reported symptoms include cough, fever, sore throat, and

³ SDS website: https://www.cdc.gov/h1n1flu/estimates_2009_h1n1.htm

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gastrointestinal symptoms, such as vomiting and diarrhea. Most individuals infected with H1N1 did not require hospitalization and had symptoms that lasted four days.⁴

COVID-19 is the disease caused by a new coronavirus called SARS-CoV-2. The World Health Organization (WHO) first learned of this new virus on December 31, 2019, following a report of a cluster of cases of 'viral pneumonia' in Wuhan, People's Republic of China. The virus quickly spread worldwide in the early spring of 2020. Since the early spring of 2020, 128,252 number of COVID-19 cases have been reported for the planning area with 2,329 associated fatalities.⁵ The disease has been associated with a long list of potential symptoms, the worst of which are significant respiratory issues that can lead to death. Most individuals infected with COVID-19 did not require hospitalization. While the length of symptoms is still being studied, most patients experience symptoms for a few days to one week but can be infections for up to fourteen days, even after symptoms have subsided.⁶

PROBABILITY OF FUTURE EVENTS

Epidemics and pandemics have occurred in human and animal populations for thousands of years. As humans began to gather and congregate in urban areas, the potential for pandemics and epidemics increased. As trade routes became established and contact with other cities became more frequent, the potential for transmission of illnesses increased. In modern society, the ease of global travel has created a situation where viruses and bacteria can spread quickly from one continent to another.

Historical evidence shows that the population of the El Paso County planning area is vulnerable to disease outbreak, and the probability of future infectious disease or pandemic events is possible. Local public health officials maintain surveillance in hopes of identifying disease prominence and containing potential threats before they become epidemics. Of concern is the reduction and treatment of COVID-19.

With the current COVID-19 pandemic, the probability of an infectious disease epidemic or pandemic in the El Paso County planning area is unlikely and an event has the probability of occurring once every ten years or more. At the time this plan was being developed, the El Paso County planning area was still suffering the impacts of the 2020 World Pandemic of COVID-19.

VULNERABILITY AND IMPACT

Estimated potential losses to the built environment are difficult to calculate because infectious disease causes little damage to the built environment and generally losses are experienced through public health response and medical costs, and lost wages of patients. Therefore, it is assumed that all buildings and facilities are exposed to disease but would experience negligible damage in the occurrence of an outbreak event. For example, upkeep and maintenance of buildings and facilities would fall behind due to the high absenteeism of employees or the closing of facilities.

⁴ Carrat, F. et al. Timelines of Infection and Disease in Human Influenza: A Review of Volunteer Challenge Studies. *American Journal of Epidemiology*, 2008, 167: 775–785.

⁵ The number of confirmed cases and related deaths from COVID-19 as of March 23, 2021.

⁶ University of Maryland Medical System: <https://www.umms.org/coronavirus/what-to-know/treat-covid-at-home>

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Critical infrastructure services, such as emergency services, utility services, water services and telecommunications can be limited by an infectious disease event. With the COVID-19 pandemic, most of the people affected have mild illness and do not require hospitalization. People at the highest risk for developing complications from COVID-19 include adults 60 years of age and older. In addition, people who have medical conditions, such as heart disease; chronic lung disease; blood, endocrine, kidney, liver or metabolic disorders; obesity, or a weakened immune system, can experience a worsening of existing conditions if they contract the COVID-19.



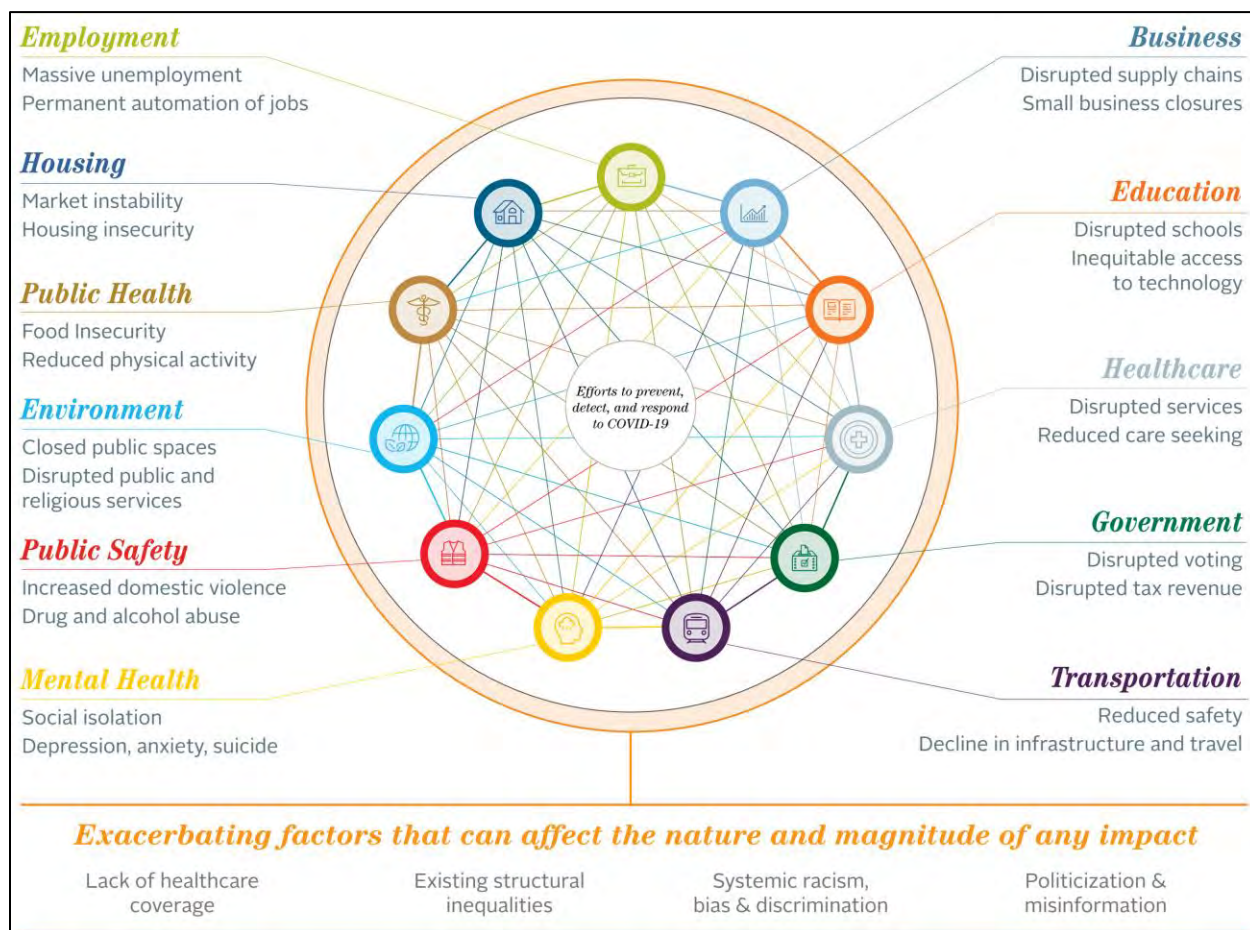
The current COVID-19 pandemic has demonstrated that the response costs to the public health sector for an outbreak, the economic impact, and the impact to health as a whole for the El Paso County planning area, is “Substantial.” Multiple deaths can be expected, and the El Paso County planning area facilities could be shut down for at least 4 weeks. Property damage could result from high absenteeism of persons responsible for property management.

The El Paso County planning area executed a mandatory shutdown of non-essential businesses for four weeks as a direct result of COVID-19. The gradual re-opening of businesses and restaurants was completed in incremental stages to try and limit the spread of the infection and protect consumers while restarting the economy. Larger gatherings of people were limited to 50 and below and at times to 10 and below. Area school districts closed all campuses and implemented remote learning in the spring of 2020 and for the first three weeks of the 2020-2021 school year. At the time of the drafting of this plan, in-person and remote learning was on-going with contact tracing for infected students.

The impacts of COVID-19, the mandatory shutdown, large gathering limits, ISD closures and pervasive unemployment have led to extensive secondary impacts. Figure 18-3 provides an overview of secondary impacts of COVID-19 in the United States.

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Figure 18-3. Secondary Impacts of the COVID-19 Pandemic in the United States



ASSESSMENT OF IMPACTS

Pandemics impact larger than normal segments of the population, and few sectors of the population are left untouched by infectious disease, as evidenced by the current pandemic. The physical problems associated with the infectious disease may be short term or may lead to long-term physical maladies.

The impact of an infectious disease event will be measured by the number of fatalities, how the community is affected, and to what extent. If a large number of people get sick simultaneously, major social consequences will occur. Absenteeism in the workplace can have negative impacts on the overall functioning of society, particularly if it is prolonged.

The risks to public health and safety include first responders and others with increased exposure to the disease. Response personnel likely to experience the greatest impact would be those with medical responsibilities, such as fire fighters, ambulance workers, and clinic and hospital personnel. Response personnel could be in frequent contact with those who are either sick or infected and are prone to suffer proportionally higher impacts as a result.

Depending on the severity of the infectious disease event, there could be serious problems with continuity of operations and delivery of services. If county or city staff stay home due to illness, someone in their home is ill, or because they fear becoming ill, the ability of local government to maintain operations and deliver services could be seriously limited or compromised. A pandemic

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illness that impacts county and city staff could have significant negative impacts, particularly for departments that do not have or exercise a Continuity of Operations Plan (COOP). Without a COOP that takes into account department-specific issues, or regular exercise of that COOP, critical departments may not be able to function and provide necessary services.

A pandemic event may result in heightened stress for responders, health care providers, public health workers, individuals, and communities. A vital part of pandemic planning is the development of strategies and tactics to address these potential problems. Psychological health resources should be provided to ensure that special populations are identified prior to the event and that unique service and transportation needs are incorporated into the local pandemic influenza emergency management plan. Stress management support to those who are symptomatic, those who believe they are ill, and to staff who are dealing with the increased workloads and personal concerns will be required. The public will require information on how to recognize and cope with the short- and long-term risks of sustained stress during mass vaccinations, for those debilitated by an illness, and their caregivers.

An infectious disease hazard affects living beings, therefore the vulnerability of property to an infectious disease event is minimal. Pandemics are unlikely to directly result in physical damage to the built environment. However, there is the possibility of indirect damage resulting from staff absenteeism and lack of routine operations and maintenance. Increased absenteeism of maintenance staff could result in reduced maintenance operations, which could negatively impact the operation of the system.

Human infectious diseases do not normally pose a risk to the natural environment. Infectious diseases tend to be specific to humans, and therefore pose little threat to the natural environment or non-mammalian species. However, certain exceptions exist including the avian flu, which can affect both birds and humans. It is possible that other pathogens may affect more than one species, but those pathogens would likely be limited to specific species.

Seasonal flu occurs annually and is estimated to cost the U.S. economy between \$71 million and \$167 million per year.⁷ Severe pandemics have been predicted to cause more than \$700 billion in economic losses, and to result in a 5.5% decrease in U.S. Gross Domestic Product (GDP).⁸

Major infectious disease events and pandemics can be expected to have larger and deeper impacts to the local and national economy. If the disease is slow-progressing, particularly long-lasting, or has long-term residual effects, the impact to the economy could be extended.

If the normal movement of the epidemic within society needs to be curtailed, a process known as “social distancing,” then a greater impact to the local economy could occur. Social distancing can be accomplished by a number of means; two ways of increasing social distance activity restrictions are to cancel events and close buildings or to restrict access to certain sites or buildings. These measures are sometimes called “focused measures to increase social distance.”

Depending on the situation, examples of cancellations and building closures might include cancellation of public events, such as concerts, sports events, movies, plays; and closure of recreational facilities, such as community swimming pools, youth clubs, gymnasiums. While

⁷ Source: World Health Organization

⁸ Source: Federal Reserve Bank of St. Louis

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necessary to limit the spread of the pathogen, facility closures could have economic ramifications.⁹

Infectious disease events are complicated hazards. Accurate information and clear, concise explanation during an infectious disease event are critical when conveying messages to the public. When a communication to the public fails, it can result in a loss of credibility, and can result in a loss of public confidence in leadership.

Infectious disease events can undermine the public's confidence in its government and leaders. Public dissatisfaction with government response will typically increase as the number of cases rise and public fear increases. Perceptions of inequality in medical care, particularly if those inequalities are based on socioeconomic status, ethnicity, age, gender, or seniority, can lead to increased dissatisfaction with government and leadership, and may result in a weakening of social order or hostility towards those in leadership or medical roles. Required rationing of supplies or vaccinations should be conscientiously carried out to avoid the appearance of bias or impropriety. Decisions regarding vaccinations, guidance, and treatment should be explained clearly and consistently to the public.

There could be significant public resistance to a decision to quarantine those who are ill or exposed, to restrict travel, or to implement social distancing. Any decision to restrict individual movement must be accompanied by a major public relations campaign to assure the public that these actions are necessary. If decisions are perceived by the public as necessary for their protection, the public is more likely to comply with official instruction.

⁹ Source: GlobalSecurity.org

SECTION 19: CYBER-ATTACK

- Hazard Description 1
- Hazards 2
 - Denial of Service Attacks 2
 - Data Loss/Leakage 2
 - Infrastructure Loss/Failure 2
 - Insider Threats 2
 - Organized Cybercrime, State-Sponsored Hackers Espionage 2
 - Third Party Mismanagement 3
 - Advance Persistent Threats 3
 - Civil Disorder 3
- Location 3
- Extent 3
- Historical Occurrences 4
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HAZARD DESCRIPTION

A cyber-attack is any type of offensive maneuver employed by individuals or organizations that targets computer information systems, infrastructures, computer networks, and personal computer devices by various means of malicious acts. The malicious act usually originates from an anonymous source that either steals, alters, or destroys a specified target by hacking into a susceptible system.

Cyberspace and its underlying infrastructure are vulnerable to a wide range of risk including both physical and cyber threats and hazards. Sophisticated cyber actors and nation-states exploit vulnerabilities to steal information and money and can develop capabilities to disrupt, destroy, or threaten the delivery of essential services. Various crimes are perpetrated through cyberspace including the production and distribution of child pornography and child exploitation conspiracies, banking and financial fraud, intellectual property violations, and other crimes, all of which have substantial human and economic consequences.



Cyberspace is particularly difficult to secure from cyber-attack events, due to a number of factors including the ability of malicious actors to operate from anywhere in the world, the links between cyberspace and physical systems, and the difficulty of reducing vulnerabilities and consequences

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in complex cyber networks. Of growing concern is the cyber threat to critical infrastructure, which is increasingly subject to sophisticated cyber intrusions that pose new risks. As information technology becomes increasingly integrated with physical infrastructure operations, there is increased risk for wide scale or high-consequence events that could cause harm or disrupt services upon which our economy and the daily lives of millions of Americans depend. In light of the risk and potential consequences of cyber events, strengthening the security and resilience of cyberspace has become an important homeland security mission.¹

El Paso County has enjoyed continued growth over the past decade. To address this growth, El Paso County has become a leader in its use of computers, networks, and the data stored on them. The county takes steps to safeguard the integrity of its data and to prevent unauthorized access to information that is maintained in their computer systems. These measures are designed and intended to prevent corruption of data, block unauthorized access, and to ensure the integrity of information. This section reviews the hazards to the cybersecurity assets for the El Paso County planning area.

HAZARDS

DENIAL OF SERVICE ATTACKS

A denial of service attack (DoS) is the attempt to make a computer or network resource unavailable to its intended users. A DoS attack may come from one or several computers, while a distributed denial of service attack (DDoS) will be launched from many, often thousands of computers. While a DoS attack may occur frequently and typically can be handled by the County's equipment, a DDoS attack can overload the El Paso County's network or computer resources resulting in extended downtime. Often these attacks rely on lower level network vulnerabilities.

DATA LOSS/LEAKAGE

Data loss can result from a variety of reasons, both intentional and unintentional. Data loss may result from a failure to properly backup or have disaster recovery equipment and processes, employees improperly handling sensitive data, and criminal activities such as espionage, theft, sabotage, and other malicious acts.

INFRASTRUCTURE LOSS/FAILURE

Loss of computer and network resources may result from a variety of natural and human-caused disasters including tornadoes, hurricanes, and explosions due to accident, power loss, terrorism, and fire.

INSIDER THREATS

Insider threats are malicious threats to the planning area that comes from El Paso County employees, contractors, and volunteers who have access to the County's computers, networks, and data. An insider can initiate a DoS attack, leak or steal data, and sabotage the infrastructure and data.

ORGANIZED CYBERCRIME, STATE-SPONSORED HACKERS ESPIONAGE

Organized cybercrime, which may include state-sponsored cybercrime, are attacks on the El Paso County's computers, network, and data by criminal organizations. These criminals may be motivated by money or political reasons. Often these attacks are well planned out, difficult to identify due to their more limited scope, and can result in extensive damage.

¹ Source: Department of Homeland Security

SECTION 19: CYBER-ATTACK

THIRD PARTY MISMANAGEMENT

Reliance on third parties for cyber services implies acceptance of the risk that the third party will properly protect the cyber resources from loss or unavailability. Hazards from the use of third parties include DoS, DDoS, data loss and leakage, infrastructure loss and failure, insider threats, and organized cybercrime.

ADVANCE PERSISTENT THREATS

An advanced persistent threat (APT) is a stealthy and continuous attack on El Paso County over a long period of time. The "advanced" process signifies sophisticated techniques using malware to exploit vulnerabilities in systems. The "persistent" process suggests that an external command and control system is continuously monitoring and extracting data from a specific target. The "threat" process indicates human involvement in orchestrating the attack.

CIVIL DISORDER

Civil disorder may impact the cybersecurity of the planning area by directly or indirectly impacting El Paso County's ability to support its computers, networks, and data. Civil disorder can result in the planning area not having resources due to direct impact to the computers and networks, and indirectly by limiting the resources necessary to run the computers and networks.

LOCATION

Cyberwar is deceptive, invisible to most, and fought out of sight. It takes place in cyberspace, a location that cannot be seen, touched, or felt. The physical instruments, such as computers, routers, and cables can be seen; however, these instruments interact in cyberspace, a virtual and unseen realm. Thus, the source of the hazard can extend from one part of the world to attacks on public or private sector entities in another part of the world, and the perpetrator can remain unknown in a legally provable sense. The entire El Paso County planning area can be affected by a cyber-attack.

EXTENT

Currently an official index for measuring the extent of a cyber-attack does not exist. The extent, nature, and timing of cyber-attack events are impossible to predict. There may or may not be any warning. Some cyber-attack events take a long time (weeks, months or years) to be discovered and identified.² Therefore, the El Paso County planning area is vulnerable to all types of cyber-attack, and can occur anywhere, and at any time.

The extent of damages is based on historical incidents in the El Paso County planning area which are classified as low, medium, and high; third party information regarding the impact; and if the planning area has experienced an occurrence of the incident.

Denial of service attacks: Low

A DoS and DDoS attack could result in an extended cyber-outage in the planning area. The outage, although impacting the daily business of the planning area, would not have a substantial economic impact to the county.

² Source: <http://www.ready.gov/cyber-attack>

SECTION 19: CYBER-ATTACK

Data loss/leakage: High

Data loss and leakage experienced by the planning area could result in costly remediation efforts to ensue. For example, if personally identifiable information (PII) is leaked, the county may be required to pay for credit protection services. Since El Paso County manages a large quantity of sensitive information, the possibility of costly remediation efforts is high.

Infrastructure loss/failure: High

Loss of a cyber-processing facility could result in very high expenses to remediate, repair, and recover from the loss.

Insider threats: Medium

Insider threats can result in substantial impacts to the organization, depending on what data the insider has accessed. El Paso County has remediated insider threats by using the industry standard separation of duties, and performing background checks of its employees, contractors, and volunteers.

Organized cybercrime, state-sponsored hackers' espionage: High

The planning area is a moderate target for organized criminals and state-sponsored hackers due to its political environment and the size of the organization. Due to the potential extent of attacks by organized criminals, the possibility and severity of resulting damages are great.

Third party mismanagement: Low

Since each vendor is isolated to the service it performs, the damages from one third party's mismanagement is fairly low.

Advanced persistent threats: High

The impact of an APT to the planning area can be severe because a large number of systems can be affected and the remediation of such an attack could be expensive to recover from.

Civil disorder: High

The impacts of civil disorder on cybersecurity could be extensive due to the typical physical nature of the attacks.

HISTORICAL OCCURRENCES

USA Today reported that the electric grid is attacked every four days either physically or through cyber threats. The numbers of attacks are accelerating and becoming more sophisticated. The Texas Governor announced that websites belonging to state agencies have seen an increase in attempted cyber-attacks coming out of Iran (about 10,000 per minute) in the days since Iranian general Qassem Soleimani was killed in a U.S. drone strike.³ While the attacks to gather data have not been successful, El Paso County's technology security team remains on high alert. The Electric Reliability Council of Texas (ERCOT) reportedly has a team of professionals and a series of procedures they utilized to protect the planning area systems from cyber-attacks.

Even though cyber-attack events are virtually impossible to predict, the El Paso County planning area has the potential of an occurrence happening at any time.

³ Statesman News Network, January 2020, Website: <https://www.statesman.com/news/20200110/austin-on-guard-after-texas-hit-with-increased-cyberattacks-from-iran>

SECTION 19: CYBER-ATTACK

PROBABILITY OF FUTURE EVENTS

The probability of occurrence based on historical incidents in the planning area are classified as low, medium, and high; as well as third party information regarding the likelihood of incidents if the county has not had an occurrence of the incident.

Denial of service attacks: Low

The planning area has frequent DOS attacks which are not severe enough to cause impact to El Paso County's service levels. Historically the county has had no DDoS attacks over the last year which successfully impacted services. Although there have been attempts for service disruptions through phishing emails, a fraudulent attempt to obtain sensitive information has not been successful. In the past, significant bad actors were identified by the U.S. Federal Government as Russia, Iran, and North Korea who historically attempt to disrupt or corrupt systems by damaging or gaining sensitive information through software. El Paso County employs vendor software such as Solar Wind Orion, which supports critical infrastructure. During the years of 2020 and 2021, the bad actors attempted to gain sensitive information continuously through the vendor software of Solar Wind Orion. Although successful in some areas of the United States, the County of El Paso was not affected.

Data loss/leakage: Low

The planning area is subject to several compliance requirements which specifically address data loss and leakage. These compliance standards include but are not limited to:

- Payment Card Industry Security Standard (PCI DSS)
- Health Insurance Portability and Accountability Act of 1996 (HIPAA)
- Criminal Justice Information Services Division (CJIS)

Historically, the county had no instances of data loss over the last year which resulted in the county having to remediate the situation.

Infrastructure loss/failure: Low

The planning area has multiple data centers which are hardened in various ways to minimize the possibility of outage. Resilience and redundancy are continuously being reviewed and addressed to reduce the risk of loss or failure. Additionally, many internal education and awareness campaigns are a part of critical infrastructure policy where members are tested internally by sending national phishing emails. The results of the test are made known internally for awareness as a prevention method. Historically, the infrastructure has had few outages that were extended. A prime example would be health care systems within the County of El Paso. University Medical Center received a phishing email that could have potentially caused damage through loss of records or the damage of cyber systems. An employee recognized the email as potentially malicious and notified the IT department which quickly acted. The phishing email potentially could have infected various systems causing damage to health care systems.

Insider threats: Low

The planning area requires anyone who has access to El Paso County's enterprise network and resources to have gone through a background check, which is regularly reviewed. There has never been evidence of insider attacks.

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Organized cybercrime, state-sponsored hackers' espionage: Medium

Over the last five years El Paso County had several instances of organized attack via DDoS and malware by an organization. Because El Paso County is a large public entity, it is more prone to these types of attacks.

Third party mismanagement: Low

El Paso County utilizes third parties for its cyber activities, and vets all contracts prior to final agreement. As part of the contractual agreements, all data are required to be stored within the U.S. and segregated from other entities' data. There has not been an instance of Third-party mismanagement to date.

Advanced persistent threats: Medium

El Paso County maintains systems which monitor symptoms of APT, and over the last year there has been 5 instance of an infection by malware which had a command and control system.

Civil disorder: Low

El Paso County has experienced civil disorder in the form of protests or large gatherings. El Paso is one of the largest populated counties in Texas. National trends or urban developments in historical areas, makes El Paso County subject to such events. The county, historically, has relatively low civil disorder events. Nationally, civil disorder events have been correlated or followed up by a cyber-attack to critical infrastructure. However, within the County of El Paso, there have been no cyber-attacks tied into civil disturbance events in the past or within the last year. Local, state and federal officials monitor such events and establish lines of communication in the event that a cyber incident may unfold. The probability to follow this national trend is low for the County of El Paso.

VULNERABILITY AND IMPACT

With the internet being largely open and unregulated, it leaves the planning area vulnerable to cyber-attacks and threats. The attack can be on information systems resulting in a data breach, or the spread of a virus. With the growing dependence on digital interconnectivity even a small incident may have widespread, and damaging consequences.

Transportation, public safety, and utility services are all critical, and highly dependent on information technology. The motive behind such disruptions can be driven by religious, political, other objectives.

A cyber-attack can last a few minutes to a couple of days, although large-scale events and their impacts can last much longer. Cyber-attacks differ by motive, type, vector, and perpetrator profile.

Cybersecurity involves protecting infrastructure by preventing, detecting, and responding to cyber-attack incidents. Unlike physical threats that prompt immediate action, such as "stop, drop, and roll," in the event of a fire; cyber threats are often difficult to identify and comprehend. Among these dangers are viruses erasing entire systems, intruders breaking into systems and altering files, intruders using a computer or device to attack others, and intruders stealing confidential



SECTION 19: CYBER-ATTACK

information. The spectrum of cyber-attack risks is limitless. Threats of cyber-attack can have wide-ranging effects on the individual, community, organizational, and national level. Risks from cyber-attack include:

- Organized cybercrime, state-sponsored hackers, and cyber espionage, which can pose national security risks to our country.
- Transportation, power, and other services may be disrupted by large scale cyber incidents, and the extent of the disruption is highly uncertain as it will be determined by many unknown factors including the target and size of the incident.
- Vulnerability to data breach and loss increases if an organization's network is compromised, and therefore information about a company, its employees, and its customers can be at risk.
- Individually owned devices such as computers, tablets, mobile phones, and gaming systems that connect to the Internet are vulnerable to intrusion, and therefore personal information may be at risk without proper security.⁴

⁴ Source: <http://www.ready.gov/cyber-attack>

SECTION 20: MASS MIGRATION

| | |
|------------------------------------|---|
| Hazard Description | 1 |
| Location | 2 |
| Extent | 2 |
| Historical Occurrences | 2 |
| Probability of Future Events | 3 |
| Vulnerability and Impact..... | 3 |

HAZARD DESCRIPTION

Every year, millions of people leave their homelands to start their lives somewhere else. Some seek to find a promising new job, strengthen family ties, or engage in new cultural opportunities. Some are seeking relief from crushing poverty or a lack of economic prospects. Others are fleeing war or persecution. Still others are escaping the effects of a long-term drought, a devastating hurricane, or some other kind of climate change–related disaster. Although individuals’ reasons for wanting to resettle vary, steadily rising numbers of migrants over the past two decades suggest that migration management is becoming one of the most pressing issues of this century.



According to United States Code Title 8, Chapter 12, the definition of mass migration is a migration of undocumented aliens that is of such magnitude and duration that it poses a risk to the national security of the United States, as determined by the President. This usually refers to an event, or series of events, that may take place over the course of several years or even decades. The event could be economic, social, or political in nature but it is something that causes a mass exodus from the country of origin.

El Paso County’s location along the Mexico border makes it a vulnerable point of entry for a massive influx of immigrants and refugees entering the United States. The City of El Paso is the nation’s largest border city. The consequences of a mass arrival of undocumented entrants include the threat of health, safety, and welfare of citizens and that of entrants that may be detained for an extended length of time.

SECTION 20: MASS MIGRATION

LOCATION

El Paso County's location along the Mexico border makes it susceptible to mass migration. All of El Paso County is uniformly exposed to mass migration. There are six border crossings in the El Paso region that allow the cross-border movement of privately operated vehicles, pedestrians, buses, commercial trucks, or rail cars. These six areas would be the predominant location of potential mass migration points of entry in the planning area.

EXTENT

The number of migrants seeking entry into the U.S. including the El Paso County planning area has varied greatly year to year. The number of asylum seekers is significantly influenced by the political protections and protocols in place in any given year. The risk of mass migration in the planning area has been dramatically reduced in the last year due to the impacts of COVID-19 in the United States and Mexico.

With the recent improvements in COVID-19 treatment and the easing of migrant restrictions, the El Paso County planning area is anticipating an increase in the number of asylum seekers, and an increase in the potential for mass migration.

Mass migration events can have widespread and lasting social and economic impacts, including:

- Adverse impacts on the capacity of public schools, public hospitals, and other public facilities to serve the resident population.
- Negative impacts on the wages and working conditions for the resident population.
- Medical costs for illegal immigrants unduly burden hospitals by having to deal with the costs of unpaid medical bills.
- Increased numbers of children without health insurance.
- Contagious diseases that are generally considered to have been controlled in the United States are readily evident along the border and entry points for migration.

With an increase in potential migration, the extent of a mass migration to be mitigated for the area ranges from mild to significant.

HISTORICAL OCCURRENCES

El Paso County does have some history with mass migrations from Mexico, Central America, Haiti, Cuba, and other parts of the world. Surges of unaccompanied children have occurred several times, including in 2014 and recently in 2021. Additionally, increases in family units have occurred. From October 2018 to July 2019, the City of El Paso experienced the largest influx and subsequent release of family units into its community than any other border city along the U.S. / Mexican border. Over 120,000 community releases occurred over a six-month period.

Due to the Migrant Protection Protocol program (MPP) drawdown and flights received from the Rio Grande Valley, El Paso County has seen yet another influx of migrants in 2021. As of March 2021, a recorded 1,013 migrant clients have entered the El Paso area. This migrant surge has posed a different set of challenges as the COVID-19 pandemic has compounded the hazards experienced by the community.

SECTION 20: MASS MIGRATION

PROBABILITY OF FUTURE EVENTS

As political unrest in Central and South America continues, there will always be people wanting to immigrate to Texas where there is an existing extensive network of people from these countries in place. Although the Department of Homeland Security (DHS) continues to maintain border patrols and the security requirements for immigrants, changes in federal immigration policy have increased the likelihood of mass migration through legal processes for asylum seekers. The probability of future mass migration events in El Paso County is considered “Highly Likely”.

VULNERABILITY AND IMPACT

A large uncontrolled influx of immigrants has the potential of significantly disrupting the social and economic stability of local communities by overwhelming the delivery of essential services such as medical response and public safety. While the federal government has the primary responsibility for assuming control of mass migration emergencies, El Paso County may have to provide basic care including shelter, food, water, medical, and other social services.

The El Paso County planning area is susceptible to mass migration events due to natural catastrophes and political unrest in foreign countries. Mass migration events involving tens of thousands of immigrants have occurred several times in the United States within the last several decades. Although federal border patrol security is significant, the vulnerability of El Paso County to such events is considered Major as it serves as a major pipeline for human smuggling and asylum seekers.

SECTION 21: MITIGATION STRATEGY

Mitigation Goals 1

 Goal 1 1

 Goal 2 1

 Goal 3 2

 Goal 4 2

 Goal 5 2

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 2015 Plan. At the Mitigation Workshop in December 2020, Planning Team members reviewed the mitigation strategy from the previous 2015 Plan. The consensus among all members present was that the strategy developed for the 2015 did not require changes, as it identified overall improvements to be sought in the Plan Update, but the goals have been altered.

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/town planning and budgeting processes.

SECTION 21: MITIGATION STRATEGY

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.



SECTION 22: PREVIOUS ACTIONS

| | |
|---|---|
| Summary | 1 |
| 2015 El Paso County HMAP – Previous Actions | 2 |

SUMMARY

Planning Team members were given copies of the previous mitigation actions submitted in the 2015 Plan at the mitigation workshop. Participating jurisdictions within El Paso County 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 2015 Plan are included in this section as they were written in 2015, with the exception of the “2021 Analysis” section. The City of San Elizario was not a participant within the last plan, therefore there are no past actions for their review.

SECTION 22: PREVIOUS ACTIONS

2015 EL PASO COUNTY HMAP – PREVIOUS ACTIONS

| Previous Action #1 | |
|-------------------------------|---|
| Proposed Action: | Conduct bi-annual meetings with between Mexico dam owners and emergency management coordinators, EAP to discuss, develop, and implement emergency procedures. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso Town of Vinton |
| Method: | Coordinate and schedule meetings bi-annual (preferably prior to monsoon season) |

| MITIGATION ACTION DETAILS | |
|--|-------------------------|
| Hazard(s) Addressed: | Dam / Levee failure |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$150 |
| Potential Funding Sources: | Annual operating budget |
| Lead Agency/Department Responsible: | RGCOG |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Delete Action – The only Dam in the County has no impact to Mexico properties.</p> <p>City of El Paso – Delete Action – Federal organizations already discuss the emergency procedures between the County and Mexico.</p> <p>Town of Vinton – Delete Action – The only Dam in the County has no impact to Mexico properties.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #2 | |
|-------------------------------|---|
| Proposed Action: | Implement the recommendations of the El Paso City/County Stormwater Management Plans regarding dam safety |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso Town of Vinton |
| Method: | As explained in the Stormwater Master Plans |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Dam / Levee failure |
| Effect on New/Existing Buildings: | New and Existing Buildings and Infrastructure |
| Estimated Cost: | \$15,000 |
| Potential Funding Sources: | As explained in the Stormwater Master Plans |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer action – Action will be included in the 2021 Plan Update. Update proposed action: Perform inspection and analysis of current dam. In progress.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update. Update Cost to \$100,000.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #3 | |
|-------------------------------|---|
| Proposed Action: | Implement water conservation measures during periods of drought by including water conservation suggestions inserts in the utility statements |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Messaging (Public Service Announcements, press releases, social media) |

| MITIGATION ACTION DETAILS | |
|--|------------------------------------|
| Hazard(s) Addressed: | Drought |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$1,000 per jurisdiction |
| Potential Funding Sources: | Annual operating budget |
| Lead Agency/Department Responsible: | County or Local Emergency Managers |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$1,100.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #4 | |
|-------------------------------|--|
| Proposed Action: | Develop and implement a plan to use recycled water for industrial use and landscape irrigation during drought |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Plan and Messaging (Public Service Announcements, press releases, social media) |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Drought |
| Effect on New/Existing Buildings: | Existing Buildings |
| Estimated Cost: | \$3,000 per jurisdiction |
| Potential Funding Sources: | Annual operating budget |
| Lead Agency/Department Responsible: | County or Local Emergency Managers, Elected Officials |
| Implementation Schedule: | May 2015 – October 2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$3,300.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #5 | |
|-------------------------------|--|
| Proposed Action: | Inventory unreinforced masonry structures to better quantify the potential for earthquake damage |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Obtain parcel level data about types of construction and link to existing GIS databases |

| MITIGATION ACTION DETAILS | |
|--|---------------|
| Hazard(s) Addressed: | Earthquake |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Annual budget |
| Lead Agency/Department Responsible: | RGCOG |
| Implementation Schedule: | 2014-2018 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Delete Action – RGCOG is not a participant in the Plan Update.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$2,100.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #6 | |
|-------------------------------|---|
| Proposed Action: | Obtain funding and develop/implement a plan to improve data on seismic hazards through the assistance of the University at Texas at El Paso (Geological Sciences) |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Study/plan potential for earthquakes in El Paso County |

| MITIGATION ACTION DETAILS | |
|--|--------------------------------|
| Hazard(s) Addressed: | Earthquake |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Research grant |
| Lead Agency/Department Responsible: | University of Texas at El Paso |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Delete Action – University of Texas at El Paso is not a participant in the 2021 Plan Update.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$2,710.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #7 | |
|-------------------------------|---|
| Proposed Action: | Conduct campaign by inserting pamphlets in the gas and electric monthly statements each fall in order to reach all area residents informing them about how they can contact the community service organization for heating assistance |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Continue to implement this program |

| MITIGATION ACTION DETAILS | |
|--|----------------------------|
| Hazard(s) Addressed: | Extreme cold |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$500,000 |
| Potential Funding Sources: | Annual operating budget |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | November 2015 – March 2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update. Update Cost to \$500.</p> <p>City of El Paso – Defer Action – Action will be included in the 2021 Plan Update. Update Cost to \$500. EWTF is teaming up with El Paso Electric who may be able to help with funding.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$550. Funding Source: Texas Gas, El Paso Water.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #8 | |
|-------------------------------|--|
| Proposed Action: | Conduct blanket drive in advance of extreme cold |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Continue to implement this program |

| MITIGATION ACTION DETAILS | |
|--|----------------------------|
| Hazard(s) Addressed: | Extreme Cold |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Operating budget |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | November 2015 – March 2016 |

| 2021 ANALYSIS |
|--|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update. Updates made to Funding Source and Cost.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #9 | |
|-------------------------------|--|
| Proposed Action: | Activate cooling centers during periods of extreme heat |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Continue to implement this program |

| MITIGATION ACTION DETAILS | |
|--|----------------------------|
| Hazard(s) Addressed: | Extreme Heat |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$1,500 |
| Potential Funding Sources: | Annual operating budget |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | June 2015 – September 2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update. City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update. City of Socorro – Defer Action – Action will be included in the 2021 Plan Update. Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update. Town of Clint – Defer Action – Action will be included in the 2021 Plan Update. Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update. Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$1,630.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #10 | |
|-------------------------------|--|
| Proposed Action: | Conduct fan drive to prepare for periods of extreme heat |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Continue to implement this program |

| MITIGATION ACTION DETAILS | |
|--|----------------------------|
| Hazard(s) Addressed: | Extreme Heat |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Annual operating budget |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Ongoing |

| 2021 ANALYSIS |
|--|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update. Updates made to Funding Source and Cost.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #11 | |
|-------------------------------|--|
| Proposed Action: | Acquire and demolish repetitive loss properties |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of El Paso |
| Method: | Work with private property owners, as participation would be voluntary; work with legal department for fee simple property acquisition |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | Existing Buildings |
| Estimated Cost: | \$TBD |
| Potential Funding Sources: | Work through State of Texas to obtain HMGP grant(s) |
| Lead Agency/Department Responsible: | City Emergency Manager |
| Implementation Schedule: | 2015-2018 |

| 2021 ANALYSIS |
|---|
| City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update. Estimated Cost was added. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #12 | |
|-------------------------------|--|
| Proposed Action: | Acquire homes in the floodplain |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Town of Vinton |
| Method: | Work with private property owners, as participation would be voluntary; work with legal department for fee simple property acquisition |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | Existing Buildings |
| Estimated Cost: | \$TBD |
| Potential Funding Sources: | Work through State of Texas to obtain HMGP grant |
| Lead Agency/Department Responsible: | Vinton Director of Emergency Management |
| Implementation Schedule: | 2015-2018 |

| 2021 ANALYSIS |
|---|
| Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #13 | |
|-------------------------------|--|
| Proposed Action: | Add requirement to Building Permit application that applicant signify whether the location is part of a Special Flood Hazard Area |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Revise permits so that permit applicant must learn the potential for flooding at proposed construction site |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | New Buildings |
| Estimated Cost: | \$TBD |
| Potential Funding Sources: | Operating budgets |
| Lead Agency/Department Responsible: | Building Officials in Vinton, Horizon City, Socorro, and Clint; Zoning administrator in City of El Paso; Engineer for El Paso County and Anthony |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Delete Action- Court passed a flood order requiring storm water mitigation for urbanized areas. County does not have building permits; they require them for grading permits.</p> <p>City of El Paso – Delete Action – Not a priority at this time as there are very limited Special Flood Hazard Areas in the City (see Appendix G).</p> <p>City of Socorro – Completed</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #14 | |
|-------------------------------|---|
| Proposed Action: | Excavate stormwater detention basins to increase capacity |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of El Paso |
| Method: | Integrate with other capital improvements |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | New and Existing Buildings and Infrastructure |
| Estimated Cost: | \$TBD |
| Potential Funding Sources: | Capital improvements budget |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | 2014-2018 |

| 2021 ANALYSIS |
|---|
| City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #15 | |
|-------------------------------|---|
| Proposed Action: | Improve drainage system near Stockyard Road |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of Socorro |
| Method: | Integrate with Stormwater Master Plan |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | Existing Buildings and Infrastructure |
| Estimated Cost: | \$50,000 |
| Potential Funding Sources: | Work through State of Texas to obtain HMGP grant |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|--|
| City of Socorro – Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #16 | |
|-------------------------------|--|
| Proposed Action: | Improve stormwater drainage through enhanced maintenance |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Town of Clint |
| Method: | Incorporate action into routine maintenance schedule |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | Existing Buildings and Infrastructure |
| Estimated Cost: | \$100,000 |
| Potential Funding Sources: | CDBG funds |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | 2014-2017 |

| 2021 ANALYSIS |
|--|
| Town of Clint – Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #17 | |
|-------------------------------|---|
| Proposed Action: | Increase capacity for conveyance of stormwater away from areas of ponding |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of El Paso |
| Method: | Integrate with other capital improvements |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | New and Existing Buildings and Infrastructure |
| Estimated Cost: | \$TBD |
| Potential Funding Sources: | Capital improvements budget |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | 2015-2017 |

| 2021 ANALYSIS |
|---|
| City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #18 | |
|-------------------------------|--|
| Proposed Action: | Adopt and enforce ordinance that meet minimum Federal and state requirements to comply with NFIP |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Work with State of Texas NFIP Coordinator to arrange training workshops and with Association of State Floodplain Managers to arrange for Certified Floodplain Manager exam |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Operating budget |
| Lead Agency/Department Responsible: | Emergency Management Coordinator and government bodies |
| Implementation Schedule: | 2014-2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #19 | |
|-------------------------------|--|
| Proposed Action: | Update Flood Damage Prevention Ordinances when new FIRMs are adopted (new preliminary FIRMS are currently under review) |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Review existing ordinances governing development in identified Special Flood Hazard Areas and update to include appropriate higher standards |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | New and Existing Buildings and Infrastructure |
| Estimated Cost: | Annual operating budgets |
| Potential Funding Sources: | Annual operating budgets |
| Lead Agency/Department Responsible: | Local Emergency Managers, City and County Attorneys |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Delete Action – County cannot issue ordinances.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #20 | |
|-------------------------------|---|
| Proposed Action: | Update Flood Damage Prevention Ordinance to meet current NFIP standards for jurisdictions with no identified BFEs |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County |
| Method: | Obtain model ordinances; work with County/City Attorneys to draft modified language as necessary |

| MITIGATION ACTION DETAILS | |
|--|----------------------------------|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Operating budgets |
| Lead Agency/Department Responsible: | El Paso County Emergency Manager |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|--|
| El Paso County – Delete Action – County cannot issue ordinances. County will work to update Flood Prevention order. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #21 | |
|-------------------------------|---|
| Proposed Action: | Mitigate the threat posed by levee improvements by constructing additional detention ponds and/or stormwater diversions |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Town of Vinton |
| Method: | Design and construct stormwater drainage projects |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | New and Existing Buildings and Infrastructure |
| Estimated Cost: | \$25,000 |
| Potential Funding Sources: | HMA funding with local match |
| Lead Agency/Department Responsible: | Vinton City Engineer |
| Implementation Schedule: | 2015-2018 |

| 2021 ANALYSIS |
|--|
| Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$29,000. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #22 | |
|-------------------------------|---|
| Proposed Action: | Reinforce manholes and expand capacity of drainage system near University Avenue and Hawthorn Street on University of Texas at El Paso campus |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of El Paso (and University of Texas at El Paso) |
| Method: | Design project, estimate cost, and apply through State for funding |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | Existing Buildings and Infrastructure |
| Estimated Cost: | Campus Improvement Budget or HMA funding |
| Potential Funding Sources: | Campus Improvement Budget or HMA funding |
| Lead Agency/Department Responsible: | University of Texas at El Paso |
| Implementation Schedule: | 2014-2018 |

| 2021 ANALYSIS |
|---|
| City of El Paso – Delete Action – The University of Texas at El Paso is not a participant in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #23 | |
|-------------------------------|--|
| Proposed Action: | Construct drainage arroyos through the middle of campus to reduce flooding of walkways |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of El Paso (and University of Texas at El Paso) |
| Method: | Design project, estimate cost, and apply through State for funding |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | Existing Buildings and Infrastructure |
| Estimated Cost: | \$TBD |
| Potential Funding Sources: | Campus Improvement Budget |
| Lead Agency/Department Responsible: | University of Texas at EL Paso |
| Implementation Schedule: | 2014-2018 |

| 2021 ANALYSIS |
|---|
| City of El Paso – Delete Action – The University of Texas at El Paso is not a participant in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #24 | |
|-------------------------------|--|
| Proposed Action: | Stabilize arroyos in steep locations and that show signs of erosion with native vegetation |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso |
| Method: | Refer to stormwater master plans and design projects |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | New and Existing Buildings |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Capital improvements budgets |
| Lead Agency/Department Responsible: | City and County Directors of Public Works |
| Implementation Schedule: | 2014-2018 |

| 2021 ANALYSIS |
|--|
| El Paso County – Defer Action – Action will be included in the 2021 Plan Update. City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #25 | |
|-------------------------------|---|
| Proposed Action: | Conducting outreach activity to increase public awareness of hail dangers by inserting pamphlets in the utilities statement(s) encouraging residents to replace deteriorated roofing to resist the impact of hail |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Attend community meetings and disseminate information regarding hail dangers |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Hail |
| Effect on New/Existing Buildings: | New and Existing Buildings |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Capital improvements budgets |
| Lead Agency/Department Responsible: | County and Municipal Directors of Public Works; Vinton City Engineer |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|--|
| <p>El Paso County – Completed</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Delete Action – Action did not have the support to be implemented.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$2,080.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #26 | |
|-------------------------------|---|
| Proposed Action: | Improving roof sheathing in public buildings to prevent hail penetration Inspect public buildings and determine if improved roof sheathing is required to prevent hail penetration |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Incorporate into capital improvements plans |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Hail |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Capital improvements budgets |
| Lead Agency/Department Responsible: | County and Municipal Directors of Public Works; Vinton City Engineer |
| Implementation Schedule: | 2014-2015 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Completed</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Completed</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Completed</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #27 | |
|-------------------------------|--|
| Proposed Action: | Prepare for emergency response to a hazardous material spill by attending training exercises offered by the State |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Attend training |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Hazardous Material spill |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$500 per jurisdiction |
| Potential Funding Sources: | SHSP |
| Lead Agency/Department Responsible: | County and Municipal Directors of Public Works; Vinton City Engineer |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Completed</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Completed</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$550.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #28 | |
|-------------------------------|--|
| Proposed Action: | Provide public education about reacting to messages from emergency managers about protecting people from the effects of hazardous materials or about using alternative roadways when necessary |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Messaging |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Hazardous Material spill |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$500 per jurisdiction |
| Potential Funding Sources: | Annual operating budget |
| Lead Agency/Department Responsible: | County and Municipal Directors of Public Works; Vinton City Engineer |
| Implementation Schedule: | 2014-2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Completed</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Completed</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$550.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #29 | |
|-------------------------------|--|
| Proposed Action: | Install adequate surge protection for major electrical equipment in new and existing public buildings |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Maintenance program |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Lightning |
| Effect on New/Existing Buildings: | Existing Buildings and Infrastructure |
| Estimated Cost: | \$500 per jurisdiction |
| Potential Funding Sources: | Annual operating budget |
| Lead Agency/Department Responsible: | County and Municipal Directors of Public Works; Vinton City Engineer |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|--|
| <p>El Paso County – Completed</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Delete Action – Action did not have the support to be implemented.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$550.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #30 | |
|-------------------------------|--|
| Proposed Action: | Inspect public buildings and install lightning rods on public buildings where needed |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Maintenance program |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Lightning |
| Effect on New/Existing Buildings: | Existing Buildings |
| Estimated Cost: | \$500 per jurisdiction |
| Potential Funding Sources: | Annual operating budget |
| Lead Agency/Department Responsible: | County and Municipal Directors of Public Works; Vinton City Engineer |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Completed</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Delete Action – Action did not have the support to be implemented.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Completed. Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$550.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #31 | |
|-------------------------------|---|
| Proposed Action: | Construct several small safe rooms at University of Texas at El Paso and in school buildings |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso (and University of Texas at El Paso) City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Develop design, estimate cost, and apply to HMA for funding |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Tornado, Hail |
| Effect on New/Existing Buildings: | Existing Buildings |
| Estimated Cost: | \$75,000 |
| Potential Funding Sources: | HMA |
| Lead Agency/Department Responsible: | University of Texas; School Districts' Superintendents |
| Implementation Schedule: | 2014-2018 |

| 2021 ANALYSIS |
|--|
| <p>El Paso County – Delete Action – County does not have jurisdiction at these facilities.</p> <p>City of El Paso – Delete Action – The University of Texas at El Paso and school districts are not a participant in the 2021 Plan Update.</p> <p>City of Socorro – Delete Action – Action does not fall within jurisdiction of City of Socorro.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$77,800.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #32 | |
|-------------------------------|---|
| Proposed Action: | Limit opportunities for development in the vicinity of Franklin Mountains State Park by amending zoning ordinance to require large lots |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of El Paso |
| Method: | Work with planning and legal departments to revise zoning code |

| MITIGATION ACTION DETAILS | |
|--|--------------------------------------|
| Hazard(s) Addressed: | Wildfire |
| Effect on New/Existing Buildings: | New Buildings and Infrastructure |
| Estimated Cost: | Operating budget |
| Potential Funding Sources: | Operating budget |
| Lead Agency/Department Responsible: | City of El Paso Zoning Administrator |
| Implementation Schedule: | 2015-2018 |

| 2021 ANALYSIS |
|------------------------------------|
| City of El Paso – Completed |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #33 | |
|-------------------------------|--|
| Proposed Action: | Require vegetation management in the vicinity of Franklin Mountains State Park with an overlay zone to reduce fuel for wildfires Recommend vegetation management in developed part of jurisdictions |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Work with planning and legal departments to revise zoning code; and use messaging to make recommendations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Wildfire |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Operating budgets |
| Lead Agency/Department Responsible: | City of El Paso Zoning Administrator; County and municipal emergency managers |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|--|
| <p>El Paso County – Delete Action – County does not have jurisdiction in areas next to the state parks as they are located within the City limits or City ROW.</p> <p>City of El Paso – Completed</p> <p>City of Socorro – Delete Action – Action does not fall within jurisdiction of City of Socorro.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$3,300.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #34 | |
|-------------------------------|--|
| Proposed Action: | Provide public outreach education about how to monitor current conditions and to reduce the potential for damage on private property |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Obtain printed materials from State and Federal sources and distribute to the public |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Wildfire |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$250 |
| Potential Funding Sources: | Annual operating budget |
| Lead Agency/Department Responsible: | City, County, and Town Emergency Managers and Fire Departments |
| Implementation Schedule: | May of each year |

| 2021 ANALYSIS |
|--|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Delete Action – Action did not have the support to be implemented.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$280.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #35 | |
|-------------------------------|--|
| Proposed Action: | Adopt building codes that require anchoring of mobile homes and public buildings constructed or re-roofed, attach roof to the structure with hurricane clips |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Incorporate into capital improvements plans |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Wind |
| Effect on New/Existing Buildings: | New and Existing Buildings |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Capital improvements budgets |
| Lead Agency/Department Responsible: | County and Municipal Directors of Public Works; Vinton City Engineer |
| Implementation Schedule: | 2015-2017 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Completed</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Increase Estimated Cost to \$3,200.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #36 | |
|-------------------------------|--|
| Proposed Action: | Trim or prune trees along roadways to prevent interference with power lines during high winds |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Incorporate into routine |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Wind |
| Effect on New/Existing Buildings: | New and Existing Infrastructure |
| Estimated Cost: | \$1,200 |
| Potential Funding Sources: | Annual budgets |
| Lead Agency/Department Responsible: | Local government road and bridge departments |
| Implementation Schedule: | 2014-2015 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Completed</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Delete Action – Action did not have the support to be implemented.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Completed. Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$3,200.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #37 | |
|-------------------------------|--|
| Proposed Action: | Require that electric utility lines be buried when new roads are constructed or reconstructed |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Revise regulations to include this additional requirement |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------|
| Hazard(s) Addressed: | Wind, Tornado |
| Effect on New/Existing Buildings: | New and Existing Infrastructure |
| Estimated Cost: | \$6,000 |
| Potential Funding Sources: | Operating budget |
| Lead Agency/Department Responsible: | Legal departments |
| Implementation Schedule: | 2015-2017 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Delete Action – Project is not financially feasible.</p> <p>City of Socorro – Completed</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$6,400.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #38 | |
|-------------------------------|--|
| Proposed Action: | Public Outreach: Conduct/implement a “blanket drive” aimed towards the vulnerable populations during the wintry conditions |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Work with the Area Agency on Aging in order to identify the elderly population |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Snow |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Private / Public donations (Big Ben Action Community Center) |
| Lead Agency/Department Responsible: | Office of Emergency Management and Extreme Weather Task Force |
| Implementation Schedule: | 2014-2015 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update. Updates were made to Funding Source and Cost.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #39 | |
|-------------------------------|--|
| Proposed Action: | Heating Centers: Activate area shelters to ensure that the vulnerable population do not freeze or remain in cold homes |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Work with the Area Agency on Aging in order to identify the elderly population |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Snow |
| Effect on New/Existing Buildings: | New |
| Estimated Cost: | Office of Emergency Management and ISDs |
| Potential Funding Sources: | Office of Emergency Management and ISDs |
| Lead Agency/Department Responsible: | Office of Emergency Management and Extreme Weather Task Force |
| Implementation Schedule: | 2014-2015 |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update. Estimated Cost was added.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #40 | |
|-------------------------------|--|
| Proposed Action: | Permanent wrapping of pipes |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Work with area businesses and governmental entities |

| MITIGATION ACTION DETAILS | |
|--|--------------------------------|
| Hazard(s) Addressed: | Ice |
| Effect on New/Existing Buildings: | New |
| Estimated Cost: | Private / Public donations |
| Potential Funding Sources: | Private / Public donations |
| Lead Agency/Department Responsible: | El Paso County Road and Bridge |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|--|
| <p>El Paso County – Completed</p> <p>City of El Paso – Completed</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Delete Action – Public Works identified that there were no external pipes on city facilities, action not applicable to community.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #41 | |
|-------------------------------|--|
| Proposed Action: | Critical Infrastructures: Supplying critical infrastructures with generators |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Work with Managers who operate critical infrastructures to ensure the installation of generators |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Ice |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | Office of Emergency Management and Homeland Security Grant Program |
| Potential Funding Sources: | Office of Emergency Management and Homeland Security Grant Program |
| Lead Agency/Department Responsible: | Office of Emergency Management |
| Implementation Schedule: | 2015-2016 |

| 2021 ANALYSIS |
|--|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #42 | |
|-------------------------------|--|
| Proposed Action: | Conduct public safety terrorism training and exercises |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | El Paso County City of El Paso City of Socorro Town of Anthony Town of Clint Town of Horizon City Town of Vinton |
| Method: | Attend training |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Terrorism |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | \$500 per jurisdiction |
| Potential Funding Sources: | SHSP |
| Lead Agency/Department Responsible: | County and Municipal Public Safety Directors |
| Implementation Schedule: | Ongoing |

| 2021 ANALYSIS |
|---|
| <p>El Paso County – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of El Paso – Completed. Defer Action – Action will be included in the 2021 Plan Update.</p> <p>City of Socorro – Completed</p> <p>Town of Anthony – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Clint – Defer Action – Action will be included in the 2021 Plan Update.</p> <p>Town of Horizon City – Completed</p> <p>Town of Vinton – Defer Action – Action will be included in the 2021 Plan Update. Increase Estimated Cost to \$550.</p> |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #43 | |
|-------------------------------|---|
| Proposed Action: | Placement of concrete channel in the Sparks Arroyo. This will allow for the stormwater to be channeled into the retention pond. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of Socorro |
| Method: | Working in collaboration with El Paso County, RGCOG, EPWID, Lower Valley Water District |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | CDBG, CDBG Disaster Relief, Hazard Mitigation Grant |
| Potential Funding Sources: | CDBG, CDBG Disaster Relief, Hazard Mitigation Grant |
| Lead Agency/Department Responsible: | City of Socorro |
| Implementation Schedule: | Ongoing |

| 2021 ANALYSIS |
|--|
| City of Socorro – Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #44 | |
|-------------------------------|---|
| Proposed Action: | Widen Thunder Rd Pond in order to increase stormwater capacity. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of Socorro |
| Method: | Working in collaboration with El Paso County, RGCOG, EPWID, Lower Valley Water District |

| MITIGATION ACTION DETAILS | |
|--|-------------------------|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | Hazard Mitigation Grant |
| Potential Funding Sources: | Hazard Mitigation Grant |
| Lead Agency/Department Responsible: | City of Socorro |
| Implementation Schedule: | Ongoing |

| 2021 ANALYSIS |
|--|
| City of Socorro – Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #45 | |
|-------------------------------|---|
| Proposed Action: | Build dirt berms at Rio Vista & Thunder to direct the water from the ponding area to the empty lot. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of Socorro |
| Method: | Working in collaboration with El Paso County, RGCOG, EPWID, Lower Valley Water District |

| MITIGATION ACTION DETAILS | |
|--|----------------------------|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | CDBG Disaster Relief Funds |
| Potential Funding Sources: | CDBG Disaster Relief Funds |
| Lead Agency/Department Responsible: | City of Socorro |
| Implementation Schedule: | Ongoing |

| 2021 ANALYSIS |
|------------------------------------|
| City of Socorro – Completed |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #46 | |
|-------------------------------|---|
| Proposed Action: | Construct a ponding area on the onion field with overflow system to Mesa Spur Drain. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of Socorro |
| Method: | Working in collaboration with El Paso County, RGCOG, EPWID, Lower Valley Water District |

| MITIGATION ACTION DETAILS | |
|--|-------------------------|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | Hazard Mitigation Grant |
| Potential Funding Sources: | Hazard Mitigation Grant |
| Lead Agency/Department Responsible: | City of Socorro |
| Implementation Schedule: | Ongoing |

| 2021 ANALYSIS |
|--|
| City of Socorro – Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #47 | |
|-------------------------------|--|
| Proposed Action: | Create partnerships with El Paso County Road and Bridge and EPWID to schedule the cleaning of Mesa Spur Drain prior to Monsoon season. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of Socorro |
| Method: | Working in collaboration with EPWID |

| MITIGATION ACTION DETAILS | |
|--|------------------------------------|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | El Paso County and City of Socorro |
| Potential Funding Sources: | El Paso County and City of Socorro |
| Lead Agency/Department Responsible: | City of Socorro and EPWID |
| Implementation Schedule: | Ongoing |

| 2021 ANALYSIS |
|---|
| City of Socorro – Delete Action – Action was mitigated by other means. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #48 | |
|-------------------------------|--|
| Proposed Action: | Purchase of three (3) Parcels, build bridge with concrete culverts in order to address new arroyo forming from I-10 to Reid. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of Socorro |
| Method: | Acquiring/purchasing of three parcels of land |

| MITIGATION ACTION DETAILS | |
|--|-------------------------------|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | Texas Hazard Mitigation Grant |
| Potential Funding Sources: | Texas Hazard Mitigation Grant |
| Lead Agency/Department Responsible: | City of Socorro |
| Implementation Schedule: | Ongoing |

| 2021 ANALYSIS |
|--|
| City of Socorro – Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #49 | |
|-------------------------------|---|
| Proposed Action: | Create and implement a Flood Management Plan |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of Socorro |
| Method: | Working in collaboration with El Paso County, RGCOG, EPWID, Lower Valley Water District |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | City of Socorro |
| Potential Funding Sources: | City of Socorro |
| Lead Agency/Department Responsible: | City of Socorro and Flood Manager, City of Socorro Department Leaders and Command Staff |
| Implementation Schedule: | Ongoing |

| 2021 ANALYSIS |
|---|
| City of Socorro – Delete Action – Action did not have the support to be implemented. |

SECTION 22: PREVIOUS ACTIONS

| Previous Action #50 | |
|-------------------------------|--|
| Proposed Action: | Improvement of Sparks Arroyo culvert on Stockyard Rd. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of Socorro |
| Method: | Working in collaboration with the United States Department of Agriculture Natural Resource Conservation Services |

| MITIGATION ACTION DETAILS | |
|--|-----------------|
| Hazard(s) Addressed: | Flooding |
| Effect on New/Existing Buildings: | N/A |
| Estimated Cost: | USDA |
| Potential Funding Sources: | USDA |
| Lead Agency/Department Responsible: | City of Socorro |
| Implementation Schedule: | Ongoing |

| 2021 ANALYSIS |
|--|
| City of Socorro – Defer Action – Action will be included in the 2021 Plan Update. |

SECTION 23: MITIGATION ACTIONS

Summary 1

El Paso County – County-wide Actions 3

El Paso County 8

City of El Paso40

City of San Elizario.....75

City of Socorro78

Town of Anthony 100

Town of Clint..... 126

Town of Horizon City..... 154

Town of Vinton..... 168

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 each participating jurisdiction. The term county-wide action refers to El Paso County and all participating jurisdictions.

SECTION 23: MITIGATION ACTIONS

Table 23-1. El Paso County 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 | Dam Failure | Extreme Wind | Lightning | Drought | Extreme Heat | Hail | Tornado | Wildfire | Winter Storm | Earthquake |
|----------------------|-------|-------------|--------------|-----------|---------|--------------|------|---------|----------|--------------|------------|
| El Paso County | XXXX | XXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX | XXXX |
| City of El Paso | XXX | XX | XXX | XX | XX | XX | XX | XXX | XXX | XX | XX |
| City of San Elizario | XXX | N/A | XX | XX | XX | XX | XX | XX | XX | XX | XX |
| City of Socorro | XXX | N/A | XX | XX | XX | XX | XX | XX | XX | XXX | XX |
| Town of Anthony | XXX | N/A | XXX | XXX | XX | XX | XXX | XXX | XXX | XXX | XX |
| Town of Clint | XXX | N/A | XXX | XX | XX | XX | XXX | XXX | XXX | XXX | XXX |
| Town of Horizon City | XXX | N/A | XX | XX | XX | XX | XX | XX | XX | XX | XX |
| Town of Vinton | XXX | N/A | XXX | XXX | XX | XX | XXX | XXX | XXX | XXX | XX |

SECTION 23: MITIGATION ACTIONS

EL PASO COUNTY – COUNTY-WIDE ACTIONS

| El Paso County-Wide – Action #1 | |
|---|--|
| Proposed Action: | Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | County-wide, including all participating jurisdictions |
| 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: | Dam Failure (El Paso and El Paso County only), Drought, Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm, Terrorism, Hazardous Materials, Infectious Disease, Cyber Attack, Mass Migration |
| Community Lifeline: | Safety and Security; Communications, Hazardous Materials |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$10,000 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | County and Local Emergency Managers |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County-Wide – Action #2 | |
|--|--|
| Proposed Action: | Acquire and install generators with hard wired quick connections at all critical facilities. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | County-wide, including all participating jurisdictions critical facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide power for critical facilities during power outages and ensure continuity of critical services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Dam Failure (El Paso and El Paso County only), Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security; Health and Medical; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$1,000,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | County Public Works / City Engineer / City Administrator |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan (applicable jurisdictions) |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County-Wide – Action #3 | |
|---|--|
| Proposed Action: | Upgrade critical facilities to include drought mitigation measures protection such as drought tolerant landscaping, installation of a sprinkler system with regular watering schedule. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | County-wide, including all participating jurisdictions critical facilities |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce damages at critical facilities. |
| 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 |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$100,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | County Public Works / City Engineer / City Administrator |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Capital Improvement Plan (applicable jurisdictions) |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County-Wide – Action #4 | |
|--|--|
| Proposed Action: | Harden/retrofit critical facilities to hazard-resistant levels. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | County-wide, including all participating jurisdictions critical facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | 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 <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Dam Failure (El Paso and El Paso County only), Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security; Health and Medical; Communications |
| 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 Public Works / City Engineer / City Administrator |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan (applicable jurisdictions); Capital Improvement Plan (applicable jurisdictions) |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County-Wide – Action #5 | |
|---|---|
| Proposed Action: | Identify shelters and safe refuge locations for public evacuation associated with disasters such as wildfire, hazardous materials, terrorism, infectious disease. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | County-wide, including all participating jurisdictions |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Benefits citizens and first responders' safety. |
| Type of Action (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness): | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Terrorism, Hazardous Materials, Infectious Disease, Wildfire, Dam Failure (El Paso and El Paso County only) |
| Community Lifeline: | Safety and Security; Food, Water, Shelter; Hazardous Materials |
| 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: | County and Local Emergency Managers |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Operations/Response Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

EL PASO COUNTY

| El Paso County – Action #1 | |
|--|--|
| Proposed Action: | Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Promote hazard awareness and protect citizens from potential injuries and damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #2 | |
|--|---|
| Proposed Action: | Create a comprehensive map with identified hazards and potential alert zones. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Improve risk assessment; Reduce risk to citizens through education and awareness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Wildfire, Flood, Dam Failure |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$100,000 |
| Potential Funding Sources: | Local Funding, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #3 | |
|---|---|
| Proposed Action: | Inspect and implement building requirements for critical infrastructure buildings to be protected from natural hazards. Harden/retrofit critical facilities to hazard-resistant levels. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community critical facilities |
| 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, Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | Reduce risk to existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$100,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan; Capital Improvement Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #4 | |
|--|--|
| Proposed Action: | Train users of critical infrastructure about dangers and inform of COOP. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Continuity of services; Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Drought, Earthquake, Extreme Heat, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Annual Budget (staff time) |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #5 | |
|--|---|
| Proposed Action: | Implement standardize requirements for new building that will house critical infrastructure to be protected from hazards. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to structures and employees; Ensure continuity of services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Drought, Earthquake, Extreme Heat, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Annual Budget |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinances |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #6 | |
|---|--|
| Proposed Action: | Inspect, monitor, and educate owners of arroyos (drywashes) to prevent illegal dumping, remove overgrown vegetation and re-establish flow paths within private property. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce flood damages; Protect lives and property. |
| Type of Action (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness): | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|------------------------------------|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Annual Budget |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #7 | |
|--|---|
| Proposed Action: | Acquire/relocate new public buildings to be out of high hazard areas. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to new structures. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood, Dam Failure, Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants, CDBG |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #8 | |
|--|---|
| Proposed Action: | Update 2010 Storm Water Master Plan. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of flood losses through comprehensive drainage planning and improvements. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$200,000 |
| Potential Funding Sources: | Stormwater Fee, Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #9 | |
|--|---|
| Proposed Action: | Implement/construct projects identified by storm water master plan. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages to structure and infrastructure; Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$3,000,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #10 | |
|--|--|
| Proposed Action: | Upgrade alert systems and notification to the public at low water crossings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$100,000 per crossing |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #11 | |
|--|--|
| Proposed Action: | Improve current programs for clearing debris from drains, culverts, and ponds by purchasing new equipment. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | N/A: Equipment purchase |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000,000 |
| Potential Funding Sources: | Local Funds (Capital Improvement Funds), State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #12 | |
|--|---|
| Proposed Action: | Increase drainage capacity, add stormwater detention and/or retention basins as deemed necessary to reduce flood risk. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000,000 |
| Potential Funding Sources: | Local Funds (Capital Improvement Funds), State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24-48 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #13 | |
|--|---|
| Proposed Action: | Reduce urbanized flooding conditions by creating channels and upgrading pump stations to remove standing water. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000,000 |
| Potential Funding Sources: | Local Funds (Capital Improvement Funds), State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24-48 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #14 | |
|--|--|
| Proposed Action: | Create a map of inundation for the County operated Dams. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide dams |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Improve risk assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Dam Failure |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$150,000 |
| Potential Funding Sources: | Local Funds (Capital Improvement Funds), State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #15 | |
|--|---|
| Proposed Action: | Create an alert system for residents notifying them of potential dam failure. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens through early warning. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Dam Failure |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County / Public Works |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #16 | |
|--|---|
| Proposed Action: | Create an evacuation plan in case of dam failure or flooding condition. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Fabens |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to residents. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Dam Failure, Flood |
| Community Lifeline: | Safety and Security |
| 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: | El Paso County / Public Works |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #17 | |
|--|---|
| Proposed Action: | Inventory unreinforced masonry structures to better identify the potential for earthquake damage. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Enhanced Risk Assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | GIS Database |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #18 | |
|---|--|
| Proposed Action: | Obtain funding and develop/implement a plan to improve data on seismic hazards through the assistance of the University of Texas at El Paso (Geological Sciences). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Enhanced Risk Assessment. |
| 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: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants, Research Grants |
| Lead Agency/Department Responsible: | University of Texas at El Paso |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #19 | |
|---|---|
| Proposed Action: | Conduct campaign by inserting pamphlets in the gas and electric monthly statements each fall in order to reach all residents informing them about how they can contact the community service organization for heating assistance. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | 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: | Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #20 | |
|--|---|
| Proposed Action: | Conduct blanket drive in advance of extreme cold. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time), Donations |
| Lead Agency/Department Responsible: | El Paso Fire Department (Extreme Weather Task Force) |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #21 | |
|--|--|
| Proposed Action: | Activate cooling centers during periods of extreme heat. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat |
| Community Lifeline: | Safety and Security; Food, Water, Shelter; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time) |
| Lead Agency/Department Responsible: | El Paso Fire Department (Extreme Weather Task Force) |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #22 | |
|--|---|
| Proposed Action: | Conduct fan drive to prepare for periods of extreme heat. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Extreme Heat |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time), Donations |
| Lead Agency/Department Responsible: | El Paso Fire Department (Extreme Weather Task Force) |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #23 | |
|---|---|
| Proposed Action: | Adopt building codes that require anchoring of mobile homes and public buildings constructed or re-roofed, attach roof to the structure with hurricane clips. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities. |
| 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: | Extreme Wind, Tornado |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds (staff time) |
| Lead Agency/Department Responsible: | County Director of Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes/Ordinances |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #24 | |
|--|---|
| Proposed Action: | Require that electric utility lines be buried when new roads are constructed or reconstructed. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Extreme Wind, Tornado, Dam Failure, Flood, Hail, Lightning, Winter Storm, Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds (staff time) |
| Lead Agency/Department Responsible: | County Director of Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes/Ordinances |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #25 | |
|--|---|
| Proposed Action: | Heating Centers: Activate area shelters to endure that the vulnerable population do not freeze or remain in cold homes. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect lives of citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Food, Water, Shelter; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Office of Emergency Management and ISD's |
| Lead Agency/Department Responsible: | Office of Emergency Management and Extreme Weather Task Force |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #26 | |
|--|--|
| Proposed Action: | Conduct public safety terrorism training and exercises. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens through education and awareness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Terrorism |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants, SHSP |
| Lead Agency/Department Responsible: | Public Safety Director |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #27 | |
|--|--|
| Proposed Action: | Implement the recommendations of the El Paso City / County EAP regarding dam safety. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages caused by dam failure; Protect citizens and property; Reduce risk of dam failure. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Dam Failure |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$100,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes/Ordinances |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #28 | |
|--|--|
| Proposed Action: | Implement water conservation measures during periods of drought by including water conservation suggestions inserts in the utility statements. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce water usage during drought through education and awareness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #29 | |
|--|--|
| Proposed Action: | Develop and implement a plan to use recycled water for industrial use and landscape irrigation during drought. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce water consumption. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Water Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #30 | |
|--|---|
| Proposed Action: | Adopt and enforce ordinance that meet minimum Federal and state requirements to comply with NFIP. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages; increase flood insurance policies. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Office of Emergency Management and Planning and Inspections |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #31 | |
|--|---|
| Proposed Action: | Stabilize arroyos in steep locations and that show signs of erosion with native vegetation. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce flood risk; Reduce risk of damages and injuries; Reduce emergency response demands. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds, HMGP, CDBG, Other State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24-48 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan, Capital Improvement Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| El Paso County – Action #32 | |
|--|---|
| Proposed Action: | Provide public outreach education about how to monitor current conditions and to reduce the potential for damage on private property. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Office of Emergency Management and El Paso Fire Department |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | CWPP |

| COMMENTS |
|---|
| Obtain printed materials from State and Federal sources and distribute to the public and Fire Prevention Program. |

SECTION 23: MITIGATION ACTIONS

CITY OF EL PASO

| City of El Paso – Action #1 | |
|---|--|
| Proposed Action: | Implement the recommendations of the El Paso City / County EAP regarding dam safety. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce damages caused by dam failure; Protect citizens and property; Reduce risk of dam failure. |
| 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 |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$100,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes/Ordinances |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #2 | |
|--|--|
| Proposed Action: | Implement water conservation measures during periods of drought by including water conservation suggestions inserts in the utility statements. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce water usage during drought through education and awareness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #3 | |
|--|--|
| Proposed Action: | Develop and implement a plan to use recycled water for industrial use and landscape irrigation during drought. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce water consumption. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Water Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #4 | |
|--|--|
| Proposed Action: | Conduct campaign by inserting pamphlets in the gas and electric monthly statements each fall in order to reach all area residents informing them about how they can contact the community service organization for heating assistance. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Fire Department (Extreme Weather Task Force) |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|--|
| EWTF is teaming up with El Paso Electric who may be able to help with funding. |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #5 | |
|--|---|
| Proposed Action: | Conduct blanket drive in advance of extreme cold. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time), Donations |
| Lead Agency/Department Responsible: | El Paso Fire Department (Extreme Weather Task Force) |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #6 | |
|--|--|
| Proposed Action: | Activate heating/cooling centers during periods of extreme temperatures. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat, Winter Storm |
| Community Lifeline: | Safety and Security; Food, Water, Shelter; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time) |
| Lead Agency/Department Responsible: | El Paso Fire Department (Extreme Weather Task Force) |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #7 | |
|--|---|
| Proposed Action: | Conduct fan drive to prepare for periods of extreme heat. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Extreme Heat |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time), Donations |
| Lead Agency/Department Responsible: | El Paso Fire Department (Extreme Weather Task Force) |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #8 | |
|--|--|
| Proposed Action: | Acquire and demolish repetitive loss properties. Acquire high risk vacant land and maintain as open space. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide flood risk areas |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Eliminate risk of flood damages to high risk structures and prevent future losses in high risk flood hazard areas; Reduce downstream impacts associated with development in the floodplain; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$250,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Office of Emergency Management |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Floodplain Management Plan |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #9 | |
|--|---|
| Proposed Action: | Excavate stormwater detention basins to increase capacity. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$100,000 |
| Potential Funding Sources: | Local Funds, HMGP, CDBG, Other State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24-48 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan, Capital Improvement Plan |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #10 | |
|--|---|
| Proposed Action: | Increase capacity for conveyance of stormwater away from areas of ponding. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$50,000 |
| Potential Funding Sources: | Local Funds, HMGP, CDBG, Other State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24-48 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan, Capital Improvement Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #11 | |
|--|---|
| Proposed Action: | Adopt and enforce ordinance that meet minimum Federal and state requirements to comply with NFIP. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages; increase flood insurance policies. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Office of Emergency Management and Planning and Inspections |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #12 | |
|--|--|
| Proposed Action: | Update Flood Damage Prevention Ordinances when new FIRMs are adopted (new preliminary FIRMS are currently under review). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Office of Emergency Management, Planning and Inspections Department, City Attorney |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #13 | |
|--|---|
| Proposed Action: | Stabilize arroyos in steep locations and that show signs of erosion with native vegetation. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce flood risk; Reduce risk of damages and injuries; Reduce emergency response demands. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds, HMGP, CDBG, Other State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24-48 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan, Capital Improvement Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #14 | |
|--|--|
| Proposed Action: | Conducting outreach activity to increase public awareness of hail dangers by inserting pamphlets in the utilities statement(s) encouraging residents to replace deteriorated roofing to resist the impact of hail. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of hail damages; Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|-------------------------------------|
| Hazard(s) Addressed: | Hail |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | El Paso Electric |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #15 | |
|---|--|
| Proposed Action: | Improving roof sheathing in public buildings to prevent hail penetration. Inspect public buildings and determine if improved roof sheathing is required to prevent hail penetration. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide public buildings |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce risk of hail damages; Protect citizens. |
| 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: | Hail |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Planning and Inspections Department |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Capital Improvement Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #16 | |
|--|--|
| Proposed Action: | Prepare for emergency response to a hazardous material spill by attending training exercises offered by the State. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Hazardous Materials |
| Community Lifeline: | Hazardous Materials |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time), SHSP |
| Lead Agency/Department Responsible: | El Paso Streets and Maintenance Department |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #17 | |
|--|---|
| Proposed Action: | Provide public education about reacting to messages from emergency managers about protecting people from the effects of hazardous materials or about using alternative roadways when necessary. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Hazardous Materials |
| Community Lifeline: | Hazardous Materials |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | El Paso Streets and Maintenance and Office of Emergency Management |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|---|
| All 911 District expenses funding sources are fees based. |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #18 | |
|--|--|
| Proposed Action: | Install adequate surge protection for major electrical equipment in new and existing public buildings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community public facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages at public facilities; Ensure continuity of critical services during and after event; Reduce risk of injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Lightning |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | El Paso Streets and Maintenance Department |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | SOP |

| COMMENTS |
|---|
| All 911 District expenses funding sources are fees based. |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #19 | |
|--|--|
| Proposed Action: | Inspect public buildings and install lightning rods on public buildings where needed. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community public facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages at public facilities; Ensure continuity of critical services during and after event; Reduce risk of injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Lightning |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | El Paso Streets and Maintenance Department |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #20 | |
|--|---|
| Proposed Action: | Provide public outreach education about how to monitor current conditions and to reduce the potential for damage on private property. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Office of Emergency Management and El Paso Fire Department |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | CWPP |

| COMMENTS |
|---|
| Obtain printed materials from State and Federal sources and distribute to the public and Fire Prevention Program. |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #21 | |
|---|---|
| Proposed Action: | Adopt building codes that require anchoring of mobile homes and public buildings constructed or re-roofed, attach roof to the structure with hurricane clips. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce risk of damages to structures through improved building requirements; Protect lives. |
| 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: | Extreme Wind, Tornado |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Municipal Director of Public Works, Planning, and Inspections Department |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Building Codes |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #22 | |
|---|--|
| Proposed Action: | Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce damages to infrastructure; 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 |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood, Extreme Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire |
| Community Lifeline: | Safety and Security; Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,200 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Streets and Maintenance Department |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Maintenance Plan; CWPP; Drainage Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #23 | |
|--|--|
| Proposed Action: | Acquire and install generators with hard wired quick connections at all critical facilities. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community critical facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide power for critical facilities during power outages and ensure continuity of critical services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$1,000,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Office of Emergency Management |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #24 | |
|--|---|
| Proposed Action: | Conduct public safety terrorism training and exercises. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Terrorism |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | El Paso Streets and Maintenance Department |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #25 | |
|---|--|
| Proposed Action: | Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-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: | Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso City / County Office of Emergency Management, El Paso Electric & Public Information Office |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #26 | |
|--|--|
| Proposed Action: | Enhance the area-wide Emergency Notification System (Everbridge). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Promote hazard awareness and protect citizens from potential injuries and damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$200,000 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | 911 District |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #27 | |
|--|--|
| Proposed Action: | Install and update EZInet at the 911 Communication Center. It will allow for the organization upgrade from Enhanced 911 (E911) to Next Generation 911 (NG911). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Promote hazard awareness and protect citizens from potential injuries and damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,100,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants, Fees |
| Lead Agency/Department Responsible: | 911 District |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #28 | |
|--|---|
| Proposed Action: | Develop alternative evacuation routes/plans and designate emergency thoroughfares, particularly in areas with limited capacity. Educate citizens on evacuation routes and procedures. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk residents through improved evacuation alternatives and awareness efforts. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Dam Failure, Wildfire, Flood, Extreme Wind, Earthquake |
| Community Lifeline: | Safety and Security; Transportation |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso City / County Office of Emergency Management |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #29 | |
|--|--|
| Proposed Action: | Distribute NOAA bulletins. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Promote hazard awareness and protect citizens from potential injuries and damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso City / County Office of Emergency Management |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #30 | |
|--|--|
| Proposed Action: | Maintain certification in the National Weather Service StormReady Program. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community critical facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens by educating the public on how to prepare for hazards and disasters. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood, Extreme Wind, Winter Storm, Tornado, Hail |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso City / County Office of Emergency Management |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #31 | |
|--|---|
| Proposed Action: | Remove dead trees from right-of way and drainage systems on a scheduled basis. Maintain Ponding area for proper drainage. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide El Paso Water Utility property |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages to infrastructure; Increase capacity; Reduce risk of injuries or fatalities. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood, Extreme Wind |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,900,000 |
| Potential Funding Sources: | EP Water Stormwater Operations |
| Lead Agency/Department Responsible: | El Paso Water Utilities, Streets and Maintenance |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Maintenance Plan; CWPP; Drainage Plan |

| COMMENTS |
|---|
| EP Water budget \$2.9 million allocated FY 2021-2022 for maintenance costs of Stormwater Operation This includes all maintenance, not just debris removal – only for EP Water Property. |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #32 | |
|---|--|
| Proposed Action: | Educate community on the dangers of low water crossings through the installation of warning signs and promotion of "Turn Around, Don't Drown" Program. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce risk of injuries, fatalities and damages through education and awareness. |
| 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 |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds (staff time), EP Water Operating Budget, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities, Streets and Maintenance |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #33 | |
|--|---|
| Proposed Action: | Conduct public education program on fire risks and wildland fire mitigation, with the assistance of the Texas Forest Service. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$10,000 |
| Potential Funding Sources: | Local Funds, Printing Services Contract |
| Lead Agency/Department Responsible: | El Paso Fire Department |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | CWPP |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #34 | |
|--|---|
| Proposed Action: | Maintain routine fire hydrant maintenance plan. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk and spread of wildfires through routine maintenance of fire hydrants; Reduce risk of injury or damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new or existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds (staff time) |
| Lead Agency/Department Responsible: | El Paso Fire Department |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | CWPP |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| City of El Paso – Action #35 | |
|--|---|
| Proposed Action: | Educate citizens on mitigation measures to prevent frozen pipes; Educate homeowners on carbon monoxide monitors/alarms. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of damages and injuries through mitigation education and awareness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds, EP Water Operating Budget, Printing Services Contract |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

CITY OF SAN ELIZARIO

| City of San Elizario – Action #1 | |
|--|---|
| Proposed Action: | Undertake a comprehensive drainage study for the Socorro/San Antonio St. area. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Socorro/San Antonio Street |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Improve risk assessment; Reduce risk of damages or injuries through drainage improvements; Reduce risk of damages and injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$21,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | San Elizario City Administrator |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| City of San Elizario – Action #2 | |
|--|--|
| Proposed Action: | Upgrade stormwater system in high risk areas throughout the city. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | <ol style="list-style-type: none"> 1. Placita area (Buildings owned by County of El Paso get damaged) 2. Intersection of Socorro Rd. and San Antonio (by 7-11) 3. Intersection of Socorro Rd. and Main St. (by two-story white building) 4. Alarcon and Bugambilla Rd. 5. Alarcon and Gonzales in front of Tedd Richardson park. 6. Guitar & Saltillo 7. Alex Chacon & Oscar Chacon 8. Mayapan and Los Tules 9. Las Pompas and Guitar 10. Las Pompas and Grulla 11. Perez and Glorietta 12. Bonampak and Los Tules 13. Eudora (image attached) 14. FM 1110 (Image attached) 15. On Socorro Rd.: Autozone/Family Dollar parking area floods (In between Bob Neill and Borrego) |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of flood damages through improved drainage capacity; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$21,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | San Elizario City Administrator |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of San Elizario – Action #3 | |
|---|---|
| Proposed Action: | Construct regional pond in a portion of 1445 San Antonio St. Implement drainage improvements such as drainage inlets, approximately 740-ft of 30-inch reinforced concrete pipe (RCP) storm sewer system, pavement replacement, perimeter fencing, and an access driveway. The capacity of this public regional pond is 11.54 Ac-ft, which completely retains the total expected storm water flow of 10.4-Ac-ft from a 100-year storm event. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | 1445 San Antonio St. |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce risk of damages or injuries through drainage improvements. |
| 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 and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$758,500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | San Elizario City Administrator |
| Implementation Schedule: | Within 24-36 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

CITY OF SOCORRO

| City of Socorro – Action #1 | |
|---|--|
| Proposed Action: | Implement water conservation measures during periods of drought by including water conservation suggestions inserts in the utility statements. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce water usage during drought through education and awareness. |
| Type of Action (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness): | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #2 | |
|--|--|
| Proposed Action: | Develop and implement a plan to use recycled water for industrial use and landscape irrigation during drought. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce water consumption. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Water Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #3 | |
|--|---|
| Proposed Action: | Inventory unreinforced masonry structures to better quantify the potential for earthquake damage. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Enhanced Risk Assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | GIS Database |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #4 | |
|--|--|
| Proposed Action: | Obtain funding and develop/implement a plan to improve data on seismic hazards through the assistance of the University at Texas at El Paso (Geological Sciences). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Enhanced Risk Assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants, Research Grants |
| Lead Agency/Department Responsible: | University of Texas at El Paso |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #5 | |
|---|--|
| Proposed Action: | Conduct campaign by inserting pamphlets in the gas and electric monthly statements each fall in order to reach all area residents informing them about how they can contact the community service organization for heating assistance. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | 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: | Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #6 | |
|--|---|
| Proposed Action: | Conduct blanket drive in advance of extreme cold. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time) |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #7 | |
|--|--|
| Proposed Action: | Activate heating/cooling centers during periods of extreme temperatures. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat, Winter Storm |
| Community Lifeline: | Safety and Security; Food, Water, Shelter; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time) |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #8 | |
|--|---|
| Proposed Action: | Conduct fan drive to prepare for periods of extreme heat. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time) |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #9 | |
|--|--|
| Proposed Action: | Improve stormwater drainage near Stockyard Road. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Near Stockyard Road |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages caused by flooding by maintaining or restoring drainage capacity. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$50,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Stormwater Master Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #10 | |
|--|---|
| Proposed Action: | Adopt and enforce ordinance that meet minimum Federal and state requirements to comply with NFIP. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages; increase flood insurance policies. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Local Emergency Management Coordinator |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #11 | |
|--|--|
| Proposed Action: | Update Flood Damage Prevention Ordinances when new FIRMs are adopted (new preliminary FIRMs are currently under review). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Local Emergency Management Coordinator |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #12 | |
|--|--|
| Proposed Action: | Adopt and implement program to insulate outdoor pipes at public buildings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community public facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of damages at public buildings resulting from freezing temperatures; Ensure continuity of public services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$10,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County Road and Bridge |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes/Ordinances |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #13 | |
|--|--|
| Proposed Action: | Acquire and install generators with hard wired quick connections at all critical facilities. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community critical facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide power for critical facilities during power outages and ensure continuity of critical services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$1,000,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Office of Emergency Management |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #14 | |
|---|--|
| Proposed Action: | Implement education and awareness program utilizing media, social media, bulletins, flyers, etc. to educate citizens of hazards that can threaten the area and mitigation measures to reduce injuries, fatalities, and property damages. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-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: | Drought, Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | City of Socorro Public Information Office |
| Implementation Schedule: | Outreach campaign on an annual basis |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #15 | |
|--|---|
| Proposed Action: | Incorporate higher standards for hazard resistance in local application of the building code. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages to structures and infrastructure; Reduce risk of injuries or fatalities. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Drought, Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | Additional Building Requirements |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | N/A |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | City of Socorro Planning & Zoning Department |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | Local Code of Ordinances |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #16 | |
|---|--|
| Proposed Action: | Implement a flood awareness program by providing FEMA/NFIP materials to mortgage lenders, real estate agents and insurance agents and place them in local libraries. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-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 |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | City of Socorro Public Information Office |
| Implementation Schedule: | Outreach campaign on an annual basis |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #17 | |
|--|--|
| Proposed Action: | Adopt regulations to limit amount of impervious cover in conjunction with new development. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of damages to structures through improved building requirements. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | N/A |
| Potential Funding Sources: | N/A |
| Lead Agency/Department Responsible: | City of Socorro Planning & Zoning Department |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | Local Code of Ordinances |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #18 | |
|--|---|
| Proposed Action: | Implement a community education program regarding fire dangers for identified risk areas; Distribute pamphlets through neighborhood associations or insert flyers in water bills to make residents aware of wildfire hazard areas and fire protection measures for homes and yards. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Promote hazard awareness and protect citizens from potential injuries and damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | City of Socorro Public Information Office |
| Implementation Schedule: | Outreach campaign on an annual basis |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #19 | |
|--|--|
| Proposed Action: | Allow no vegetation in easements or require fire-resistant landscaping. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Promote hazard awareness and protect citizens from potential injuries and damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | N/A |
| Potential Funding Sources: | N/A |
| Lead Agency/Department Responsible: | City of Socorro Planning & Zoning Department |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | Local Code of Ordinances |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #20 | |
|--|--|
| Proposed Action: | Install warning signs at hazardous bridges and roadways subject to ice. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of injuries, fatalities and damages through education and awareness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$100,000 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | City of Socorro Public Works Department |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #21 | |
|--|--|
| Proposed Action: | Incorporate requirements to ensure stormwater infrastructure is added to all roadway projects. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce the effects of flooding. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk on 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: | City of Socorro Planning & Zoning Department and Public Works Department |
| Implementation Schedule: | Within 12-60 months of plan adoption |
| Incorporation into Existing Plans: | Local Code of Ordinances |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| City of Socorro – Action #22 | |
|--|--|
| Proposed Action: | Increase drainage capacity; add stormwater detention and/or retention basins as deemed necessary to reduce flood risk. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | City of Socorro/ Sparks Arroyo from I-10 to Onion Field basin on Thunder Road. |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce the effects of flooding. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and 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: | City of Socorro Planning & Zoning Department |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

TOWN OF ANTHONY

| Town of Anthony – Action #1 | |
|---|--|
| Proposed Action: | Implement water conservation measures during periods of drought by including water conservation suggestions inserts in the utility statements. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce water usage during drought through education and awareness. |
| Type of Action (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness): | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #2 | |
|--|--|
| Proposed Action: | Develop and implement a plan to use recycled water for industrial use and landscape irrigation during drought. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce water consumption. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Water Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #3 | |
|--|---|
| Proposed Action: | Inventory unreinforced masonry structures to better quantify the potential for earthquake damage. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Enhanced Risk Assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #4 | |
|--|--|
| Proposed Action: | Obtain funding and develop/implement a plan to improve data on seismic hazards through the assistance of the University at Texas at El Paso (Geological Sciences). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Enhanced Risk Assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants, Research Grants |
| Lead Agency/Department Responsible: | University of Texas at El Paso |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #5 | |
|--|--|
| Proposed Action: | Conduct campaign by inserting pamphlets in the gas and electric monthly statements each fall in order to reach all area residents informing them about how they can contact the community service organization for heating assistance. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #6 | |
|--|---|
| Proposed Action: | Conduct blanket drive in advance of extreme cold. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time) |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #7 | |
|--|--|
| Proposed Action: | Activate heating/cooling centers during periods of extreme temperatures. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat, Winter Storm |
| Community Lifeline: | Safety and Security; Food, Water, Shelter, Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time) |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #8 | |
|--|---|
| Proposed Action: | Conduct fan drive to prepare for periods of extreme heat. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds (Staff and Volunteers time) |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #9 | |
|--|--|
| Proposed Action: | Add requirement to Building Permit application that applicant signify whether the location is part of a Special Flood Hazard Area. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages through increased awareness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|-----------------------------------|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Town Engineer |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #10 | |
|--|---|
| Proposed Action: | Adopt and enforce ordinance that meet minimum Federal and state requirements to comply with NFIP. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages; increase flood insurance policies. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|-----------------------------------|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Local Emergency Management |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #11 | |
|--|--|
| Proposed Action: | Update Flood Damage Prevention Ordinances when new FIRMs are adopted (new preliminary FIRMS are currently under review). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Local Emergency Management |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #12 | |
|--|--|
| Proposed Action: | Conducting outreach activity to increase public awareness of hail dangers by inserting pamphlets in the utilities statement(s) encouraging residents to replace deteriorated roofing to resist the impact of hail. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of hail damages; Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Hail |
| Community Lifeline: | Safety and Security; Communication |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Municipal Director of Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #13 | |
|---|--|
| Proposed Action: | Improving roof sheathing in public buildings to prevent hail penetration. Inspect public buildings and determine if improved roof sheathing is required to prevent hail penetration. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide public buildings |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce risk of hail damages; Protect citizens. |
| 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: | Hail |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | Reduce risk to existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Municipal Director of Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Capital Improvement Plan |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #14 | |
|--|--|
| Proposed Action: | Prepare for emergency response to a hazardous material spill by attending training exercises offered by the State. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Hazardous Materials |
| Community Lifeline: | Hazardous Materials |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Municipal Director of Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #15 | |
|--|---|
| Proposed Action: | Provide public education about reacting to messages from emergency managers about protecting people from the effects of hazardous materials or about using alternative roadways when necessary. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Hazardous Materials |
| Community Lifeline: | Hazardous Materials |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Municipal Director of Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #16 | |
|--|--|
| Proposed Action: | Install adequate surge protection for major electrical equipment in new and existing public buildings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community public facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages at public facilities; Ensure continuity of critical services during and after event; Reduce risk of injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Lightning |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Municipal Director of Public Works |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | SOP |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #17 | |
|--|--|
| Proposed Action: | Inspect public buildings and install lightning rods on public buildings where needed. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community public facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages at public facilities; Ensure continuity of critical services during and after event; Reduce risk of injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Lightning |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Municipal Director of Public Works |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #18 | |
|--|--|
| Proposed Action: | Construct several small safe rooms in school buildings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Schools in the district |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens by providing shelter in high risk areas during extreme weather events. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Wind, Tornado |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$1,000,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | School Districts' Superintendents |
| Implementation Schedule: | Within 36 months of plan adoption |
| Incorporation into Existing Plans: | Capital Improvement Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #19 | |
|--|--|
| Proposed Action: | Recommend vegetation management in developed part of jurisdictions. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|--|
| Work with planning and legal departments to revise zoning code; and use messaging to make recommendations. |

SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #20 | |
|--|---|
| Proposed Action: | Provide public outreach education about how to monitor current conditions and to reduce the potential for damage on private property. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager, Fire Chief |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|--|
| Work with planning and legal departments to revise zoning code; and use messaging to make recommendations. |

SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #21 | |
|---|---|
| Proposed Action: | Adopt building codes that require anchoring of mobile homes and public buildings constructed or re-roofed, attach roof to the structure with hurricane clips. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce risk of damages to structures through improved building requirements; Protect lives. |
| 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: | Extreme Wind, Tornado |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Municipal Director of Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Building Codes |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #22 | |
|--|--|
| Proposed Action: | Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages to infrastructure; 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 <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood, Extreme Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,200 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local government road and bridge department |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Maintenance Plan; Drainage Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #23 | |
|--|---|
| Proposed Action: | Require that electric utility lines be buried when new roads are constructed or reconstructed. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Wind, Tornado, Flood, Hail, Lightning, Winter Storm, Wildfire |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$6,000 |
| Potential Funding Sources: | Local Funds (staff time) |
| Lead Agency/Department Responsible: | City Administrator |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #24 | |
|--|--|
| Proposed Action: | Adopt and implement program to insulate outdoor pipes at public buildings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community public facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of damages at public buildings resulting from freezing temperatures; Ensure continuity of public services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$10,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso County Road and Bridge |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes/Ordinances |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #25 | |
|--|--|
| Proposed Action: | Acquire and install generators with hard wired quick connections at all critical facilities. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community critical facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide power for critical facilities during power outages and ensure continuity of critical services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$1,000,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Office of Emergency Management |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Anthony – Action #26 | |
|--|---|
| Proposed Action: | Conduct public safety terrorism training and exercises. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Terrorism |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Municipal Public Safety Director |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

TOWN OF CLINT

| Town of Clint – Action #1 | |
|---|--|
| Proposed Action: | Implement water conservation measures during periods of drought by including water conservation suggestions inserts in the utility statements. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Conserve water and provide mitigation against drought. |
| Type of Action (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness): | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Messaging (Public Service Announcements, Press Release, Social Media) |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #2 | |
|--|--|
| Proposed Action: | Develop and implement a plan to use recycled water for industrial use and landscape irrigation during drought. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce water usage at public facilities, reduce impacts of drought |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Local Emergency Manager, County Emergency Manager, Elected Officials |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Plan and Messaging (Public Service Announcements) |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #3 | |
|---|---|
| Proposed Action: | Inventory unreinforced masonry structures to better quantify the potential for earthquake damage. Require new structures to be built on new earthquake codes. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce risk to new structures; Enhance risk assessment. |
| 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: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new structures and infrastructure |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Mayor / Alderman |
| Implementation Schedule: | Within 12-48 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes |

| COMMENTS |
|--|
| Obtain parcel level data about types of construction and link to existing GIS databases. |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #4 | |
|--|---|
| Proposed Action: | Obtain funding and develop / implement a plan to improve data on seismic hazards through the assistance of the University of Texas at El Paso (Geological Sciences) to inform decision making and emergency planning. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Improved risk assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new structures and infrastructure |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | University of Texas at El Paso |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Study / Plan potential for earthquakes in El Paso County |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #5 | |
|--|--|
| Proposed Action: | Conduct campaign by inserting pamphlets in the gas and electric monthly statements each fall in order to reach all area residents informing them about how they can contact the community service organization for heating assistance. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide protection and relief to vulnerable residents; Reduce potential injury or illness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|-----------------------------------|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Town Clerk |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #6 | |
|--|--|
| Proposed Action: | Conduct blanket drive in advance of extreme cold. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide protection and relief to vulnerable residents; reduce potential injury or illness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds (staff time) |
| Lead Agency/Department Responsible: | Town Clerk |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #7 | |
|--|--|
| Proposed Action: | Activate cooling centers during periods of extreme heat. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide protection and relief to vulnerable residents; Reduce potential injury or illness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat |
| Community Lifeline: | Safety and Security; Food, Water, Shelter; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds (staff time), State and Federal Grants |
| Lead Agency/Department Responsible: | Town Clerk |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #8 | |
|--|---|
| Proposed Action: | Conduct fan drive to prepare for periods of extreme heat. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to residents. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Town Clerk |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #9 | |
|--|--|
| Proposed Action: | Add requirement to Building Permit application that applicant signify whether the location is part of a Special Flood Hazard Area. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce flood damages through development restrictions and construction requirements in flood-prone areas. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--------------------------------------|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk on new structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds (staff time) |
| Lead Agency/Department Responsible: | Building Officials in Clint |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Permitting SOP |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #10 | |
|--|---|
| Proposed Action: | Improve stormwater drainage through enhanced maintenance. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce the effects of flooding. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk on 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: | Director of Public Works |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | Incorporate action into routine maintenance schedule |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #11 | |
|--|---|
| Proposed Action: | Adopt and enforce ordinance that meet minimum Federal and State requirements to comply with NFIP. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide access to flood insurance for residents; Reduce flood risk and build resiliency. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Emergency Management Coordinator |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Work with State of Texas NFIP Coordinator to arrange training workshops and with Association of State Floodplain Managers to arrange for Certified Floodplain Manager exam |

| COMMENTS |
|---|
| Work with State of Texas NFIP Coordinator to arrange training workshops and with Association of State Floodplain Managers to arrange for Certified Floodplain Manager exam. |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #12 | |
|--|--|
| Proposed Action: | Update Flood Damage Prevention Ordinances when new FIRMs are adopted (new preliminary FIRMs are currently under review). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages to future structures through improved construction and development restrictions. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager, City Attorney |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Local Flood Damage Prevention Ordinance |

| COMMENTS |
|---|
| Review existing ordinances governing development in identified Special Flood Hazard Areas and update to include appropriate higher standards. |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #13 | |
|---|--|
| Proposed Action: | Conducting outreach activity to increase public awareness of hail dangers by inserting pamphlets in the utilities statement(s) encouraging residents to replace deteriorated roofing to resist the impact of hail. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Provide education and awareness to residents; Reduce potential injury or damage to property. |
| Type of Action (Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness): | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Hail |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|---|
| Attend community meetings and disseminate information regarding hail dangers. |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #14 | |
|--|--|
| Proposed Action: | Improving roof sheathing in public buildings to prevent hail penetration, inspect public buildings and determine if improved roof sheathing is required to prevent hail penetration. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide public buildings |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages at public buildings; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Hail |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | Reduce risk to existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$25,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #15 | |
|--|--|
| Proposed Action: | Prepare for emergency response to a hazardous material spill by attending training exercises offered by the State. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Hazardous Materials |
| Community Lifeline: | Hazardous Materials |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants, SHSP |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #16 | |
|---|---|
| Proposed Action: | Provide public education about reacting to messages from emergency managers about protecting people from the effects of hazardous materials or about using alternative roadways when necessary. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Protect 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: | Hazardous Materials |
| Community Lifeline: | Hazardous Materials |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #17 | |
|--|--|
| Proposed Action: | Install adequate surge protection for major electrical equipment in new and existing public buildings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide public buildings |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of damages to critical equipment; Ensure continuity of services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--------------------------------------|
| Hazard(s) Addressed: | Lightning |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Maintenance Program |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #18 | |
|--|---|
| Proposed Action: | Inspect public buildings and install lightning rods on public buildings where needed. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide public buildings |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages to critical facilities and equipment; Ensure continuity of services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Lightning |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Maintenance Program |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #19 | |
|--|---|
| Proposed Action: | Construct several small safe rooms in school buildings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide school buildings |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect lives of students and faculty. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure Project |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Tornado, Hail |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$75,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local ISD Superintendent |
| Implementation Schedule: | Within 12-48 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #20 | |
|--|---|
| Proposed Action: | Require vegetation management in developed part of jurisdictions. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of wildfires; Reduce spread of wildfires; Reduce damages; Protect lives and property. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Emergency Manager |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #21 | |
|--|---|
| Proposed Action: | Provide public outreach education about how to monitor current conditions and to reduce the potential for damage on private property. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of wildfires; Reduce risk of wildfire spread; Protect lives and properties. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$250 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Emergency Manager, Fire Department |
| Implementation Schedule: | Within 12 months of plan adoption, May of each year |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #22 | |
|---|---|
| Proposed Action: | Adopt building codes that require anchoring of mobile homes and public buildings constructed or re-roofed, attach roof to the structure with hurricane clips. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce risk of damages to structures; Reduce risk to property and lives |
| 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: | Extreme Wind, Tornado |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #23 | |
|--|--|
| Proposed Action: | Trim or prune trees along roadways to prevent interference with power lines during high winds. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide roadways |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages to infrastructure; 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 <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood, Extreme Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire |
| Community Lifeline: | Safety and Security; Energy |
| Effect on New/Existing Buildings: | Reduce risk to existing infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,200 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Road and Bridge Department |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Routine Maintenance schedule |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #24 | |
|--|--|
| Proposed Action: | Require that electric utility lines be buried when new roads are constructed or reconstructed. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to residents; Ensure continuity of services during an event. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Extreme Wind, Tornado, Winter Storm, Hail |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing infrastructure |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$6,000 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Local Departments |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #25 | |
|--|--|
| Proposed Action: | Heating Centers: Activate area shelters to ensure that the vulnerable population do no freeze or remain in cold homes. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect lives of citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Food, Water, Shelter; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Office of Emergency Management and ISD's |
| Lead Agency/Department Responsible: | Office of Emergency Management and Extreme Weather Task Force |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #26 | |
|--|--|
| Proposed Action: | Permanent wrapping of pipes. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of damages resulting from freezing temperatures; Ensure continuity of public services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$25,000 |
| Potential Funding Sources: | Local Funds, Private / Public Donations |
| Lead Agency/Department Responsible: | El Paso County Road and Bridge |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #27 | |
|--|--|
| Proposed Action: | Critical Infrastructures: Supply critical infrastructures with generators. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide critical facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide power for critical facilities during power outages and ensure continuity of critical services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Office of Emergency Management |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Clint – Action #28 | |
|--|--|
| Proposed Action: | Conduct public safety terrorism training and exercises. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens through education and awareness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Terrorism |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants, SHSP |
| Lead Agency/Department Responsible: | Public Safety Director |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

TOWN OF HORIZON CITY

| Town of Horizon City – Action #1 | |
|--|--|
| Proposed Action: | Activate cooling centers during periods of extreme heat. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide protection and relief to vulnerable residents; Reduce potential injury or illness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat |
| Community Lifeline: | Safety and Security; Food, Water, Shelter; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Management Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Horizon City – Action #2 | |
|--|---|
| Proposed Action: | Conduct fan drive to prepare for periods of extreme heat. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to residents. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 12 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Response Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Horizon City – Action #3 | |
|--|--|
| Proposed Action: | Update Flood Damage Prevention Ordinances when new FIRMs are adopted (new preliminary FIRMs are currently under review). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Increase NFIP compliance; Reduce damages resulting from flood through improved construction requirements. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new structures |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager, City Attorney |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Floodplain Management Plan, Flood Mitigation |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Horizon City – Action #4 | |
|--|---|
| Proposed Action: | Public Outreach: Conduct / implement a “blanket drive” aimed towards the vulnerable populations during the wintry conditions. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to residents. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Winter Storm, Extreme Wind |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Local Funds, Private / Public Donations |
| Lead Agency/Department Responsible: | Office of Emergency Management, Extreme Weather Task Force |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Emergency Response Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Horizon City– Action #5 | |
|--|--|
| Proposed Action: | Develop and implement a plan to use recycled water for industrial use and landscape irrigation during drought. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce water consumption. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Water Plan |

| COMMENTS |
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| |

SECTION 23: MITIGATION ACTIONS

| Town of Horizon City– Action #6 | |
|--|---|
| Proposed Action: | Inventory unreinforced masonry structures to better quantify the potential for earthquake damage. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Enhanced Risk Assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | GIS Database |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Horizon City Action #7 | |
|--|---|
| Proposed Action: | Obtain funding and develop / implement a plan to improve data on seismic hazards through the assistance of the University of Texas at El Paso (Geological Sciences) to inform decision making and emergency planning. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Improved risk assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new structures and infrastructure |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | University of Texas at El Paso |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Study / Plan potential for earthquakes in El Paso County |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Horizon City – Action #8 | |
|--|--|
| Proposed Action: | Conduct campaign by inserting pamphlets in the gas and electric monthly statements each fall in order to reach all area residents informing them about how they can contact the community service organization for heating assistance. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$500 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Horizon City – Action #9 | |
|--|--|
| Proposed Action: | Conducting outreach activity to increase public awareness of hail dangers by inserting pamphlets in the utilities statement(s) encouraging residents to replace deteriorated roofing to resist the impact of hail. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of hail damages; Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Hail |
| Community Lifeline: | Safety and Security; Communication |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,000 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Municipal Director of Public Works |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Horizon City – Action #10 | |
|--|--|
| Proposed Action: | Improving roof sheathing in public buildings to prevent hail penetration, inspect public buildings and determine if improved roof sheathing is required to prevent hail penetration. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide public buildings |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages at public buildings; Ensure continuity of critical services during and after event; Reduce risk of injury to emergency and critical personnel. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Hail |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | Reduce risk to existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$25,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Director of Public Works |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Horizon City – Action #11 | |
|--|---|
| Proposed Action: | Construct several small safe rooms in school buildings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide school buildings |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect lives of students and faculty. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Tornado, Hail |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$75,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local ISD Superintendent |
| Implementation Schedule: | Within 12-48 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Horizon City – Action #12 | |
|--|---|
| Proposed Action: | Require vegetation management in developed part of jurisdictions. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of wildfires; Reduce spread of wildfires; Reduce damages; Protect lives and property. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,000 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Emergency Manager |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Horizon City– Action #13 | |
|--|--|
| Proposed Action: | Require that electric utility lines be buried when new roads are constructed or reconstructed. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to residents; Ensure continuity of services during an event. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Extreme Wind, Tornado, Winter Storm, Hail |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing infrastructure |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$6,000 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Local Departments |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| Town of Horizon City – Action #14 | |
|--|---|
| Proposed Action: | Heating Centers: Activate area shelters to ensure that the vulnerable population do not freeze or remain in cold homes. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect lives of citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Food, Water, Shelter; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$2,500 |
| Potential Funding Sources: | Office of Emergency Management and ISD's |
| Lead Agency/Department Responsible: | Office of Emergency Management and Extreme Weather Task Force |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

TOWN OF VINTON

| Town of Vinton – Action #1 | |
|--|---|
| Proposed Action: | Construction of water retention pond on Westway for water retention and flood prevention. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Westway Street |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce flood risk through improved drainage capacity; Reduce risk of damages and injuries; Reduce emergency response demands. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$1,000,000 |
| Potential Funding Sources: | Local Funds, HMGP, CDBG, Other State and Federal Grants, El Paso Water, County of El Paso |
| Lead Agency/Department Responsible: | El Paso Water in coordination with El Paso County |
| Implementation Schedule: | Within 24-48 months of plan adoption |
| Incorporation into Existing Plans: | Drainage Plan |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #2 | |
|--|--|
| Proposed Action: | Implement water conservation measures during periods of drought by including water conservation suggestions inserts in the utility statements. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce water usage during drought through education and awareness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,100 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #3 | |
|--|--|
| Proposed Action: | Develop and implement a plan to use recycled water for industrial use and landscape irrigation during drought. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce water consumption. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Drought |
| Community Lifeline: | Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,300 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Water Plan |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #4 | |
|--|---|
| Proposed Action: | Inventory unreinforced masonry structures to better quantify the potential for earthquake damage. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Enhanced Risk Assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,100 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | GIS Database |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #5 | |
|--|--|
| Proposed Action: | Obtain funding and develop/implement a plan to improve data on seismic hazards through the assistance of the University at Texas at El Paso (Geological Sciences). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Enhanced Risk Assessment. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Earthquake |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,710 |
| Potential Funding Sources: | Local Funds, State and Federal Grants, Research Grants |
| Lead Agency/Department Responsible: | University of Texas at El Paso |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
| |

SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #6 | |
|--|--|
| Proposed Action: | Conduct campaign by inserting pamphlets in the gas and electric monthly statements each fall in order to reach all area residents informing them about how they can contact the community service organization for heating assistance. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$550 |
| Potential Funding Sources: | Local Funds, State and Federal Grants, |
| Lead Agency/Department Responsible: | Extreme Weather Task Force, Texas Gas, El Paso Water |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #7 | |
|--|---|
| Proposed Action: | Conduct blanket drive in advance of extreme cold. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Winter Storm |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Staff and Volunteers time |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
|-----------------|
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #8 | |
|--|--|
| Proposed Action: | Activate heating/cooling centers during periods of extreme temperatures. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat, Winter Storm |
| Community Lifeline: | Safety and Security; Food, Water, Shelter; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,630 |
| Potential Funding Sources: | Staff and Volunteers time |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #9 | |
|--|---|
| Proposed Action: | Conduct fan drive to prepare for periods of extreme heat. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Heat |
| Community Lifeline: | Safety and Security; Health and Medical |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$700 |
| Potential Funding Sources: | Staff and Volunteers time |
| Lead Agency/Department Responsible: | Extreme Weather Task Force |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #10 | |
|--|--|
| Proposed Action: | Acquire homes in the floodplain. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide flood risk areas |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Eliminate risk of flood damages to high risk structures and prevent future losses in high risk flood hazard areas; Reduce downstream impacts associated with development in the floodplain; Reduce risk of injuries to citizens; Reduce burden on emergency services during and after a flood event. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$250,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Floodplain Management Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #11 | |
|--|--|
| Proposed Action: | Add requirement to Building Permit application that applicant signify whether the location is part of a Special Flood Hazard Area. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages through increased awareness. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|-----------------------------------|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds |
| Lead Agency/Department Responsible: | Town Engineer |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #12 | |
|--|---|
| Proposed Action: | Adopt and enforce ordinance that meet minimum Federal and state requirements to comply with NFIP. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages; increase flood insurance policies. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|-----------------------------------|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Local Emergency Management |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #13 | |
|--|--|
| Proposed Action: | Update Flood Damage when new FIRMS are adopted (new preliminary FIRMS are currently under review). |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk flood damages. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$5,000 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Local Emergency Management |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #14 | |
|--|--|
| Proposed Action: | Mitigate the threat posed by levee improvements by constructing additional detention ponds and/or stormwater diversions. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce the effects of flooding. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk on new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$29,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Town Engineer |
| Implementation Schedule: | Within 12-36 months of plan adoption |
| Incorporation into Existing Plans: | Floodplain Management Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #15 | |
|--|--|
| Proposed Action: | Conducting outreach activity to increase public awareness of hail dangers by inserting pamphlets in the utilities statement(s) encouraging residents to replace deteriorated roofing to resist the impact of hail. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of hail damages; Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|-------------------------------------|
| Hazard(s) Addressed: | Hail |
| Community Lifeline: | Safety and Security; Communications |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$2,080 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Town Engineer |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #16 | |
|--|--|
| Proposed Action: | Prepare for emergency response to a hazardous material spill by attending training exercises offered by the State. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Hazardous Materials |
| Community Lifeline: | Hazardous Materials |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$550 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Town Engineer |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #17 | |
|--|---|
| Proposed Action: | Provide public education about reacting to messages from emergency managers about protecting people from the effects of hazardous materials or about using alternative roadways when necessary. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Hazardous Materials |
| Community Lifeline: | Hazardous Materials |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$550 |
| Potential Funding Sources: | Local Funds, Operating Budget (staff time) |
| Lead Agency/Department Responsible: | Town Engineer |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #18 | |
|--|--|
| Proposed Action: | Install adequate surge protection for major electrical equipment in new and existing public buildings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community public facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages at public facilities; Ensure continuity of critical services during and after event; Reduce risk of injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Lightning |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$550 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Town Engineer |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | SOP |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #19 | |
|--|--|
| Proposed Action: | Inspect public buildings and install lightning rods on public buildings where needed. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community public facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages at public facilities; Ensure continuity of critical services during and after event; Reduce risk of injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|--|
| Hazard(s) Addressed: | Lightning |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$550 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Town Engineer |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #20 | |
|--|--|
| Proposed Action: | Construct several small safe rooms in school buildings. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Schools in the district |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk to citizens by providing shelter in high risk areas during extreme weather events. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Wind, Tornado |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Low |
| Estimated Cost: | \$77,800 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | School Districts' Superintendents |
| Implementation Schedule: | Within 36 months of plan adoption |
| Incorporation into Existing Plans: | Capital Improvement Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #21 | |
|--|--|
| Proposed Action: | Recommend vegetation management in developed part of jurisdictions. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,300 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #22 | |
|--|---|
| Proposed Action: | Provide public outreach education about how to monitor current conditions and to reduce the potential for damage on private property. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk and spread of wildfires through education and awareness programs; Reduce risk of damages and injuries. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Education and Awareness |

| MITIGATION ACTION DETAILS | |
|--|---------------------------------------|
| Hazard(s) Addressed: | Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$280 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local Emergency Manager, Fire Chief |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #23 | |
|--|---|
| Proposed Action: | Adopt building codes that require anchoring of mobile homes and public buildings constructed or re-roofed, attach roof to the structure with hurricane clips. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce risk of damages to structures through improved building requirements; Protect lives. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Wind, Tornado |
| Community Lifeline: | Safety and Security; Food, Water, Shelter |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,200 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Town Engineer |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Building Codes |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #24 | |
|---|--|
| Proposed Action: | Adopt and implement a routine tree trimming program that clears tree limbs near power lines and/or hanging in right-of-way; Remove dead trees from right-of way and drainage systems on a scheduled basis. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit (Current Cost/Losses Avoided): | Reduce damages to infrastructure; 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 |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Flood, Extreme Wind, Hail, Lightning, Tornado, Winter Storm, Wildfire |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$3,200 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Local government road and bridge department |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Maintenance Plan; Drainage Plan |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #25 | |
|--|---|
| Proposed Action: | Require that electric utility lines be buried when new roads are constructed or reconstructed. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages to infrastructure; Ensure continuity of critical services during and after event; Reduce damages associated with power outages; Reduce risk of injuries or fatalities to vulnerable populations. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Local Plans and Regulations |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Extreme Wind, Tornado, Flood, Hail, Lightning, Winter Storm, Wildfire |
| Community Lifeline: | Energy |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$6,400 |
| Potential Funding Sources: | Local Funds (staff time) |
| Lead Agency/Department Responsible: | City Administrator |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Ordinance |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #26 | |
|--|--|
| Proposed Action: | Acquire and install generators with hard wired quick connections at all critical facilities. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community critical facilities |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Provide power for critical facilities during power outages and ensure continuity of critical services. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Earthquake, Extreme Heat, Flood, Hail, Lightning, Extreme Wind, Tornado, Wildfire, Winter Storm |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | High |
| Estimated Cost: | \$1,000,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | Office of Emergency Management |
| Implementation Schedule: | Within 12-24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #27 | |
|--|---|
| Proposed Action: | Conduct public safety terrorism training and exercises. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Protect citizens. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Preparedness |

| MITIGATION ACTION DETAILS | |
|--|-----------------------------------|
| Hazard(s) Addressed: | Terrorism |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | N/A |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$1,000 |
| Potential Funding Sources: | Local Funds, Operating Budget |
| Lead Agency/Department Responsible: | Municipal Public Safety Director |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | N/A |

| COMMENTS |
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SECTION 23: MITIGATION ACTIONS

| Town of Vinton – Action #28 | |
|--|--|
| Proposed Action: | Implement the recommendations of the El Paso City / County EAP regarding dam safety. |
| BACKGROUND INFORMATION | |
| Jurisdiction/Location: | Community-wide |
| Risk Reduction Benefit <i>(Current Cost/Losses Avoided):</i> | Reduce damages caused by dam failure; Protect citizens and property; Reduce risk of dam failure. |
| Type of Action <i>(Local Plans and Regulations, Structure and Infrastructure Projects, Natural Systems Protection, or Education and Awareness):</i> | Structure and Infrastructure |

| MITIGATION ACTION DETAILS | |
|--|---|
| Hazard(s) Addressed: | Dam/ levee Failure |
| Community Lifeline: | Safety and Security |
| Effect on New/Existing Buildings: | Reduce risk to new and existing structures and infrastructure |
| Priority (High, Moderate, Low): | Moderate |
| Estimated Cost: | \$15,000 |
| Potential Funding Sources: | Local Funds, State and Federal Grants |
| Lead Agency/Department Responsible: | El Paso Water Utilities |
| Implementation Schedule: | Within 24 months of plan adoption |
| Incorporation into Existing Plans: | Local Building Codes/Ordinances |

| COMMENTS |
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SECTION 24: PLAN MAINTENANCE

- Plan Maintenance Procedures 1
- Incorporation 1
 - Process of Incorporation 1
- Monitoring and Evaluation 4
 - Monitoring 4
 - Evaluation 5
- Updating 5
 - Plan Revisions 5
 - Five (5) Year Review 6
- Continued Public Involvement 6

PLAN MAINTENANCE PROCEDURES

The following is an explanation of how the participating jurisdictions within El Paso County, 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
- Continued Public Involvement

INCORPORATION

Participating jurisdictions within El Paso County 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, participating jurisdictions within El Paso County 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 24: PLAN MAINTENANCE

Participating jurisdictions within El Paso County 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 comprehensive land use plans, capital improvement plans, annual budget reviews, emergency operations or management plans, and transportation plans (applicable jurisdictions only) 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.

El Paso County is committed to supporting the participating jurisdictions 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 24-1 identifies types of planning mechanisms and examples of methods for incorporating the Plan Update into other planning efforts. The team members, listed in Table 24-2 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 24-1. Methods of Incorporation of the Plan

| PLANNING MECHANISM | DEPARTMENT / TITLE RESPONSIBLE | INCORPORATION OF PLAN |
|----------------------|--|--|
| Annual Budget Review | El Paso County: Emergency Management Coordinator City of El Paso: Emergency Management Coordinator City of San Elizario: Mayor City of Socorro: Mayor Town of Anthony: Mayor Town of Clint: Mayor Town of Horizon City: Mayor Town of Vinton: Mayor | Various departments and key personnel that participated in the planning process for participating jurisdictions within El Paso County 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 24: PLAN MAINTENANCE

| PLANNING MECHANISM | DEPARTMENT / TITLE RESPONSIBLE | INCORPORATION OF PLAN |
|-----------------------------|---|--|
| Capital Improvement Plans | El Paso County: County Administrator City of El Paso: City Manager City of San Elizario: Mayor City of Socorro: Mayor Town of Anthony: Mayor Town of Clint: Mayor Town of Horizon City: Mayor Town of Vinton: Mayor | Participating jurisdictions within El Paso County have a Capital Improvement Plan (CIP) in place. Prior to any revisions to the CIP, County, City, and Town 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 | El Paso County: AEMC – Battalion Chief City of El Paso: City Manager City of San Elizario: Mayor City of Socorro: Mayor Town of Anthony: Mayor Town of Clint: Mayor Town of Horizon City: Mayor Town of Vinton: Mayor | Participating jurisdictions within El Paso County have Long-term Comprehensive Development Plans 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 | El Paso County: Floodplain Administrator City of El Paso: Floodplain Administrator City of Socorro: Floodplain Administrator Town of Clint: Floodplain Administrator Town of Horizon City: Floodplain Administrator Town of Vinton: Floodplain Administrator | 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 participating jurisdictions within El Paso County update their management plans or develops new plans. |
| Grant Applications | El Paso County: Emergency Management Coordinator City of El Paso: Emergency Management Coordinator City of San Elizario: Mayor City of Socorro: Mayor Town of Anthony: Mayor Town of Clint: Mayor Town of Horizon City: Mayor Town of Vinton: Mayor | The Plan will be evaluated by participating jurisdictions within El Paso County 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. |

SECTION 24: PLAN MAINTENANCE

| PLANNING MECHANISM | DEPARTMENT / TITLE RESPONSIBLE | INCORPORATION OF PLAN |
|--------------------|--|--|
| Regulatory Plans | El Paso County: Emergency Management Coordinator City of El Paso: Emergency Management Coordinator City of San Elizario: Mayor City of Socorro: Mayor Town of Anthony: Mayor Town of Clint: Mayor Town of Horizon City: Mayor Town of Vinton: Mayor | Currently, participating jurisdictions within El Paso County 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, City, and Town departments review or revise their current regulatory planning 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. Table 24-2 indicates the department and title of the party responsible for Plan monitoring, evaluating, updating, and review of the Plan.

Table 24-2. Team Members Responsible for Plan Monitoring, Evaluating, Updating, and Review of the Plan

| JURISDICTION | TITLE |
|----------------------|----------------------------------|
| El Paso County | Emergency Management Coordinator |
| City of El Paso | Emergency Management Coordinator |
| City of San Elizario | Mayor |
| City of Socorro | Mayor |
| Town of Anthony | Mayor |
| Town of Clint | Mayor |
| Town of Horizon City | Mayor |
| Town of Vinton | Mayor |

MONITORING

Designated Planning Team members are responsible for monitoring, evaluating, updating, and reviewing the Plan, as shown in Table 24-2. Individuals holding the title listed in Table 24-2 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

SECTION 24: PLAN MAINTENANCE

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, City, and Town 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.

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 El Paso County Hazard Mitigation Action Plan Update 2021. 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.

The participating jurisdictions within El Paso County 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

SECTION 24: PLAN MAINTENANCE

- 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 the participating jurisdictions within El Paso County 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 1
 Stakeholders 3

PLANNING TEAM MEMBERS

The El Paso County Hazard Mitigation Action Plan 2021 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 |
|---------------------------|---------------------------------|
| El Paso City / County OEM | AEMC – Battalion Chief |
| El Paso City / County OEM | Emergency Management Specialist |
| El Paso County | Chief Administrator |
| El Paso County | Public Policy Analyst |
| El Paso County | Chief Aide |
| El Paso County | Governmental Affairs Manager |
| City of El Paso | Mayor |
| City of San Elizario | Mayor |
| City of San Elizario | City Administrator |
| City of San Elizario | City Clerk |
| City of Socorro | Mayor |
| City of Socorro | City Manager |
| City of Socorro | Chief of Police |
| City of Socorro | Director |
| City of Socorro | Grants Coordinator |
| City of Socorro | Lieutenant |
| Town of Anthony | Mayor |

APPENDIX A: PLANNING TEAM

| ORGANIZATION / DEPARTMENT | TITLE |
|---------------------------|-----------------------|
| Town of Anthony | Deputy Clerk |
| Town of Clint | Mayor |
| Town of Clint | Town Clerk |
| Town of Horizon City | Mayor |
| Town of Horizon City | Chief |
| Town of Vinton | Mayor |
| Town of Vinton | Village Administrator |

Table A-2. Advisory Planning Team

| ORGANIZATION / DEPARTMENT | TITLE |
|---------------------------|-------------------------------------|
| El Paso City / County OEM | Emergency Management Coordinator |
| El Paso City / County OEM | Assistant EMC / Special Operations |
| El Paso County | Director of Infrastructure Services |
| El Paso County | Director of Public Works |
| El Paso County | Sergeant |
| El Paso County | Deputy (1) |
| El Paso County | Deputy (2) |
| El Paso County | Golf Professional |
| El Paso County | Chief of Operations |
| El Paso County | Deputy Chief Investigator |
| El Paso County | Chief Investigator ME Office |
| El Paso County | Marketing Coordinator |
| El Paso County | Aquatics Manager |
| El Paso County | Senior Grant Analyst |
| City of El Paso | 211 TX RGAIC Director |
| City of El Paso | ARFF Battalion Chief |
| City of El Paso | Emergency Management Specialist (1) |
| City of El Paso | Emergency Management Specialist (2) |

APPENDIX A: PLANNING TEAM

| ORGANIZATION / DEPARTMENT | TITLE |
|---------------------------|-------------------------------------|
| City of El Paso | Emergency Management Specialist (3) |
| City of El Paso | Battalion Chief |
| City of El Paso | PHEP Program Manager |
| City of El Paso | Officer |
| City of El Paso | Streetcar Safety Manager |
| City of San Elizario | Aldersperson |
| City of Socorro | Building Official |
| City of Socorro | Coordinator |
| Town of Anthony | Town Clerk |

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 E¹.

Table A-3. Stakeholders

| AGENCY | TITLE |
|---------------------------------------|--------------------------|
| American Red Cross | Disaster Program Manager |
| Anthony Water and Sanitation District | Office Manager |
| Anthony Water and Sanitation District | Superintendent |
| Anthony Water and Sanitation District | Lead Operator |
| Border RAC | Executive Director |
| Border RAC | HPP Specialist TSA-1 |
| Bureau of Reclamation | Civil Engineer |
| Community Options | Program Manager |
| Customs and Border Patrol (DHS) | CBP AMO |

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

APPENDIX A: PLANNING TEAM

| AGENCY | TITLE |
|---|--|
| Customs and Border Patrol | BP Agent |
| Cyber and Critical Infrastructure Security Agency | PSA |
| Del Sol Medical Center | Security Director |
| Del Sol Medical Center | Safety Officer |
| Department of State Health Service | Epidemiologist |
| Department of State Health Service | Training Specialist / Preparedness & Epidemiology Response Program |
| Department of State Health Service | R.N., Manager Epidemiology Response Team |
| Department of State Health Service | MD, MPH Regional Medical Director Region 9/10 |
| Department of State Health Service | Regional Planner |
| D&H | Environmental Sales Representative |
| Education Service Center (ESC) Region 19 | Executive Director |
| El Paso County / City IT Security | Information Security Assurance Manager |
| El Paso County Tornillo WID | Business Manager |
| El Paso County Tornillo WID | Field Manager |
| El Paso County Water Improvement District No.1 | District Engineer |
| El Paso Electric | Senior Risk Analyst |
| El Paso Fire Department | ARFF Battalion Chief |
| El Paso Fire Department | Fire Marshall Office / Deputy Chief |
| El paso Fire Department | Chief Deputy |
| El Paso Fire Department | Battalion Chief |
| El Paso Fire Department | Communications |
| El Paso International Airport | Airport Security Coordinator |
| El Paso Police Department | Sergeant |
| El Paso Police Department | Officer |
| El Paso Public Affairs | Strategic Communications Director |
| El Paso Public Affairs | JIC |
| El Paso Streets and Maintenance | Streets and Maintenance Director |

APPENDIX A: PLANNING TEAM

| AGENCY | TITLE |
|---|--|
| El Paso Water District 1 | Maintenance Manager |
| El Paso Water | Utility Security & Emergency Response Coordinator |
| El Paso Water Utility | Emergency Management Specialist |
| Emergence Health Network | Chief Nursing Officer |
| EPISD | Safe and Secure Schools Manager |
| Fabens Water District | General Manager |
| Fabens Water District | Office Manager |
| Fort Bliss Emergency Management | Fort Bliss Emergency Manager |
| Fort Bliss Fire Department | Ft. Bliss Fire Safety |
| Horizon PD | Horizon PD |
| Horizon PD | HCPD |
| Horizon Regional MUD | Operations Manager |
| International Boundary and Water Commission | Chief, Security Services Division (Emergency Management) |
| International Boundary and Water Commission | Operations Department / Principal Engineer |
| Las Palmas Medical Center | Safety Officer |
| Las Palmas Medical Center | Facilities Director |
| Lower Valley Water District | General Manager |
| NWS El Paso | Warning Coordination Meteorologist |
| Parkhill | Engineer |
| Peseo Del Este Municipal Water District | General Manager |
| Rio Grande Council of Governments | Regional Services Coordinator |
| Rio Grande Council of Governments | Regional Services Director |
| Salvation Army | Social Services Manager |
| Sheriff's Office | Sergeant |
| Sheriff's Office | Deputy |
| SISD | Superintendent of Schools |
| SISD | SISD PD |

APPENDIX A: PLANNING TEAM

| AGENCY | TITLE |
|---|---|
| SISD | RN |
| Sun Metro | Sun Metro Safety-Security |
| TCEQ | Support Contractor / BIO Watch |
| TDEM | TDEM Assistant Chief Region 4 |
| TDEM | Administrative Associate |
| TDEM – DC8 | District Coordinator |
| TSA (DHS) | TSA/FAMS |
| TXDOT | Transportation Engineer |
| Union Pacific Railroad | Hazardous Material Manager SW Region |
| United Way | Vice President of Community Impact |
| University Medical Center / Children's Hospital | Safety and Emergency Management Specialist* |
| University of Texas at El Paso | Assistant Professor |
| University of Texas at El Paso | Environmental Health & Safety Assistant, Vice President |
| University of Texas at El Paso | Safety Manager |
| USIBWC | GIS Geographer |
| Urgent Care Hospice | LMSW |
| Volunteer Organizations Active in Disasters (VOAD) | Vice President of Community Impact |
| Ysleta Del Pueblo Sur (YDPS) | Director of Community Development |
| Ysleta Del Pueblo Sure (YDPS) PD | Chief of Police |
| Ysleta Del Pueblo Sure (YDPS) FD | YDSP Fire |
| Ysleta Del Pueblo Sur (YDPS) – Tribal Department of Public Safety | Emergency Management Coordinator |
| Ysleta ISD | Director, Emergency Operations |
| 311 | Unit Coordinator |
| 911 District | CAD Manager |

APPENDIX B: PUBLIC SURVEY RESULTS

Overview 1
Public Survey Results 2

OVERVIEW

El Paso County 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’s website, along with participating jurisdictions. This survey link was also distributed at public meetings and stakeholder events throughout the planning process.

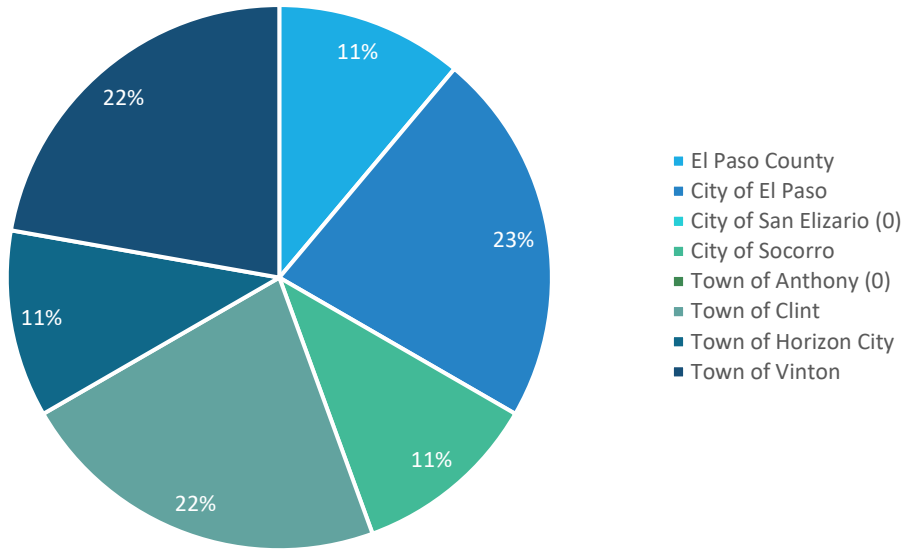
A total of 9 surveys were collected, the results of which are analyzed in Appendix B. The purpose of the survey was twofold: 1) to solicit public input during the planning process, and 2) to help the jurisdictions identify any potential actions or problem areas.

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.

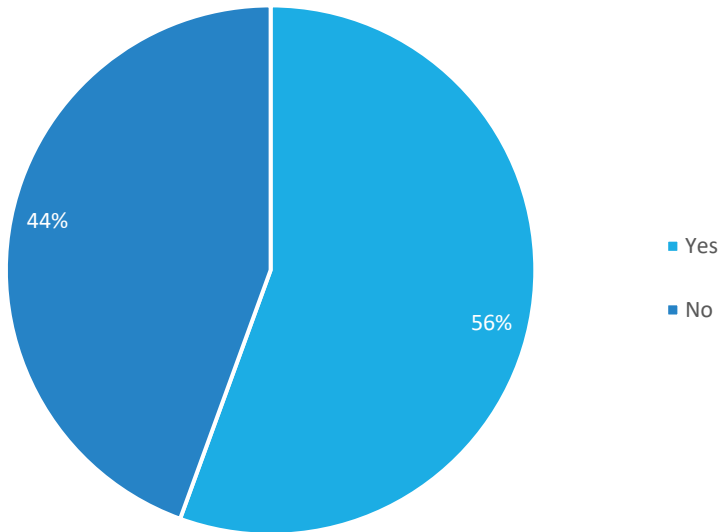
APPENDIX B: PUBLIC SURVEY RESULTS

PUBLIC SURVEY RESULTS

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

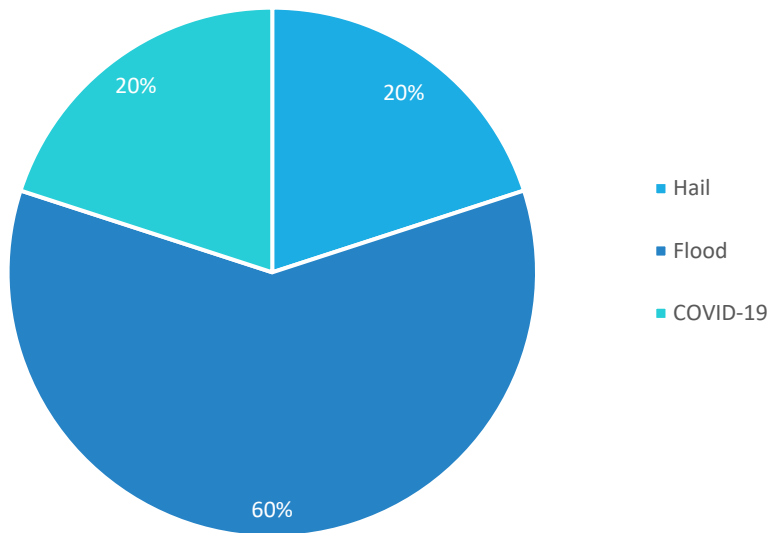


2. Have you ever experienced or been impacted by a disaster?

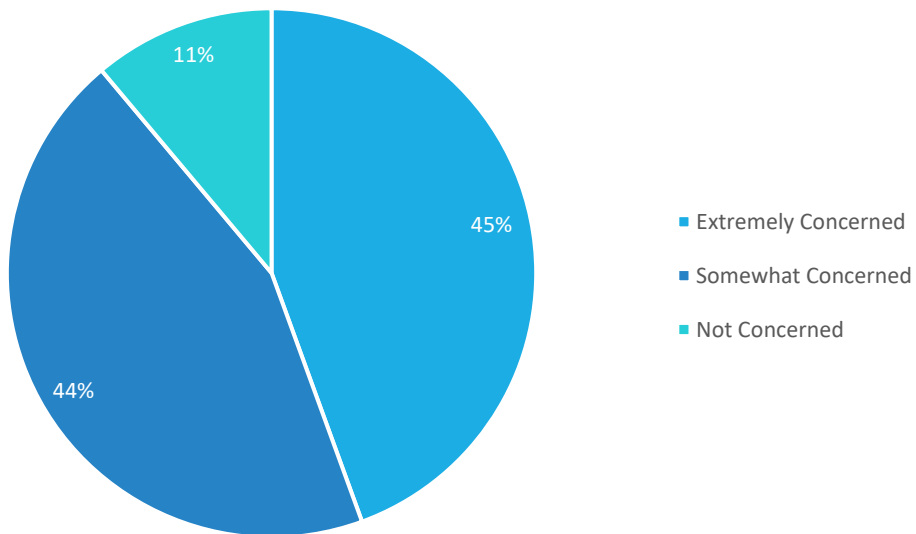


APPENDIX B: PUBLIC SURVEY RESULTS

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

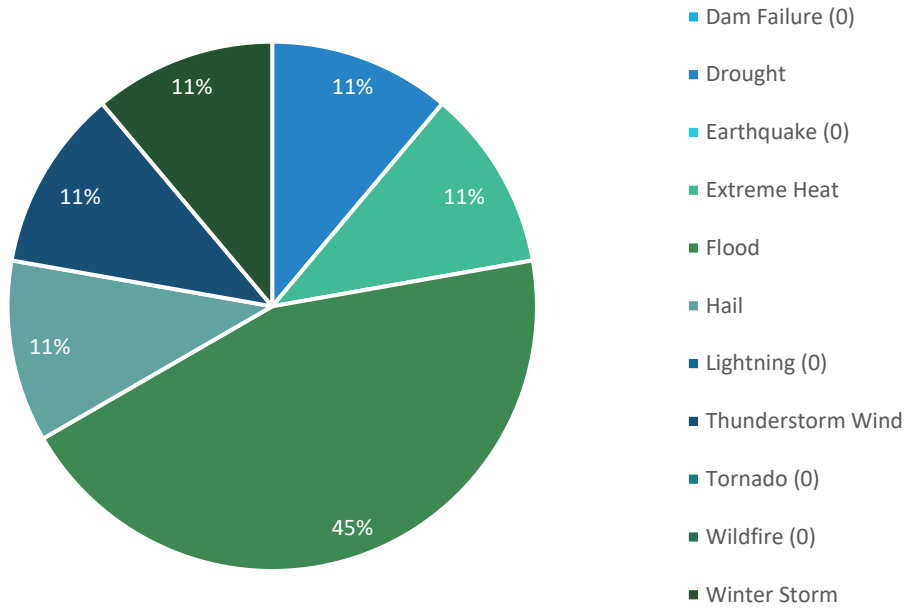


4. How concerned are you about the possibility of your community being impacted by a disaster?

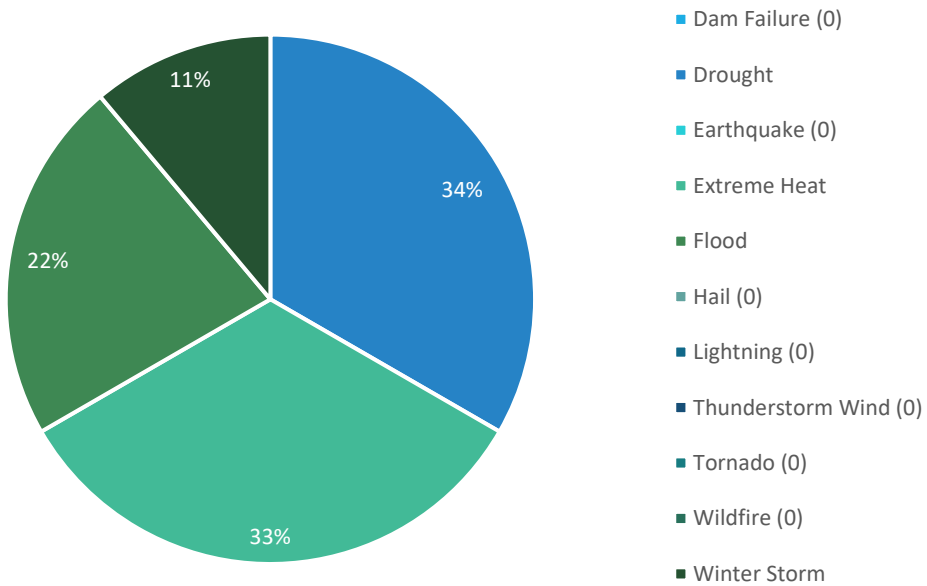


APPENDIX B: PUBLIC SURVEY RESULTS

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

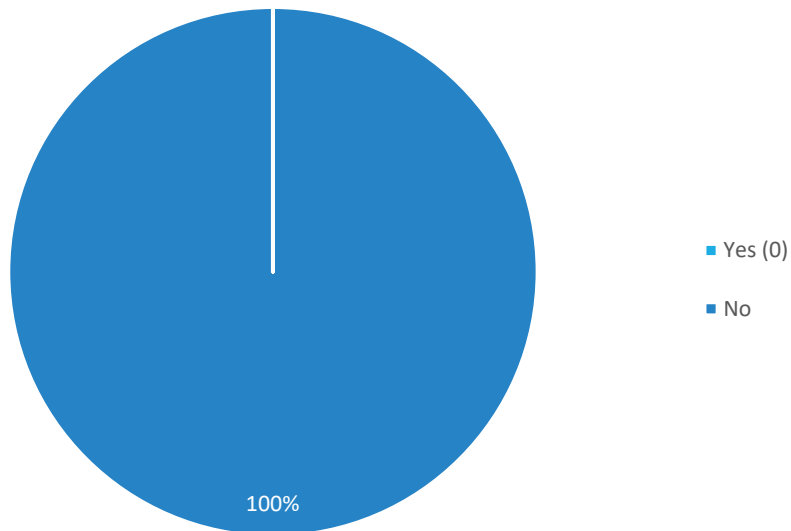


6. Please select the one hazard you think is the second highest threat to your neighborhood:



APPENDIX B: PUBLIC SURVEY RESULTS

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

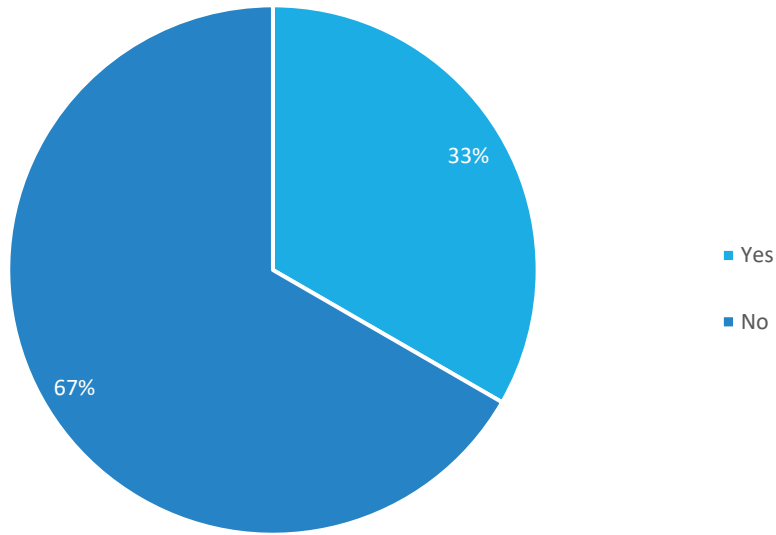


8. If you answered "Yes" to Question #7, please explain.

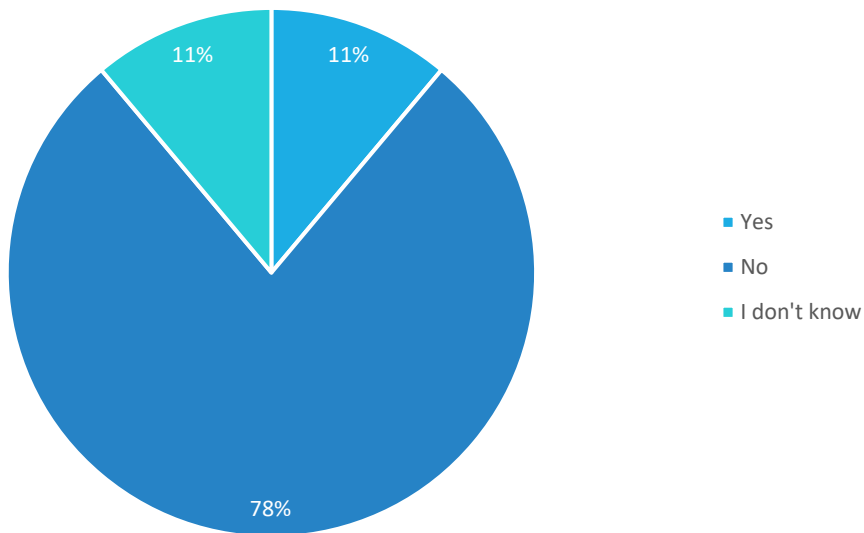
There were no responses to this question.

APPENDIX B: PUBLIC SURVEY RESULTS

9. Is your home located in a floodplain?

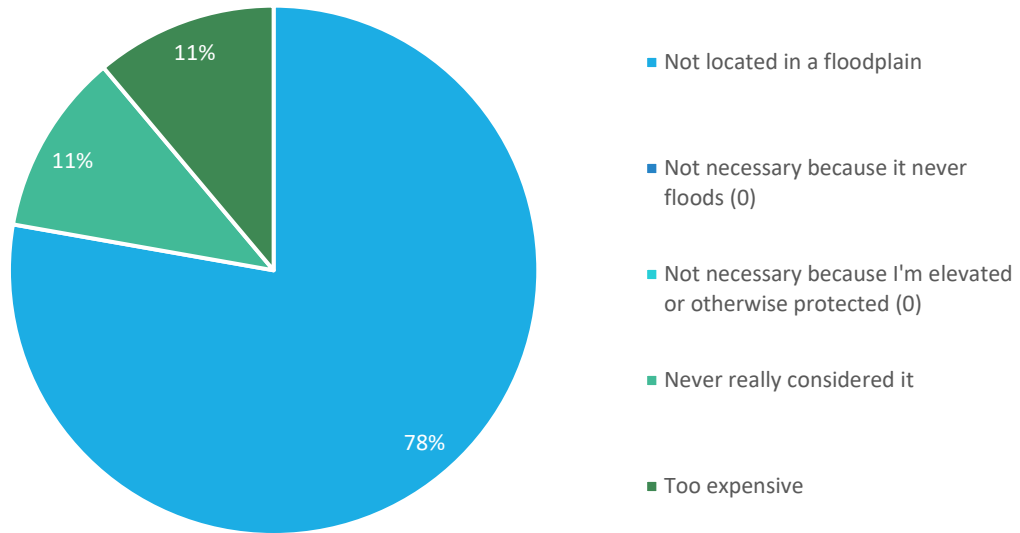


10. Do you have flood insurance?

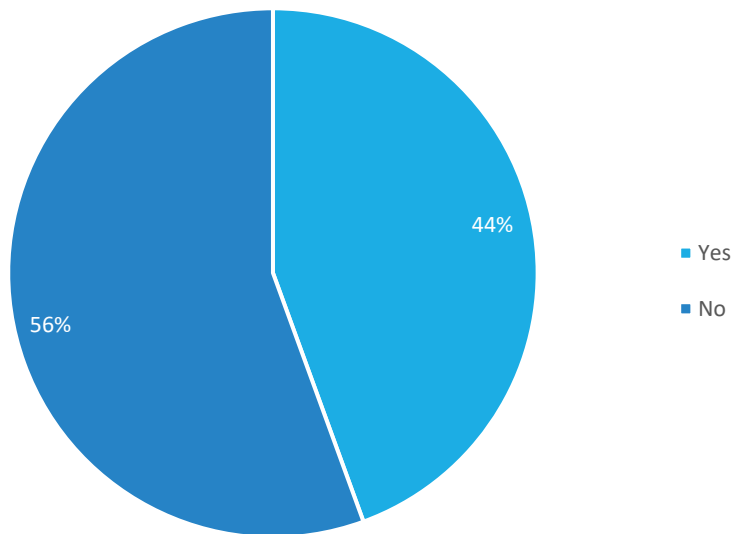


APPENDIX B: PUBLIC SURVEY RESULTS

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

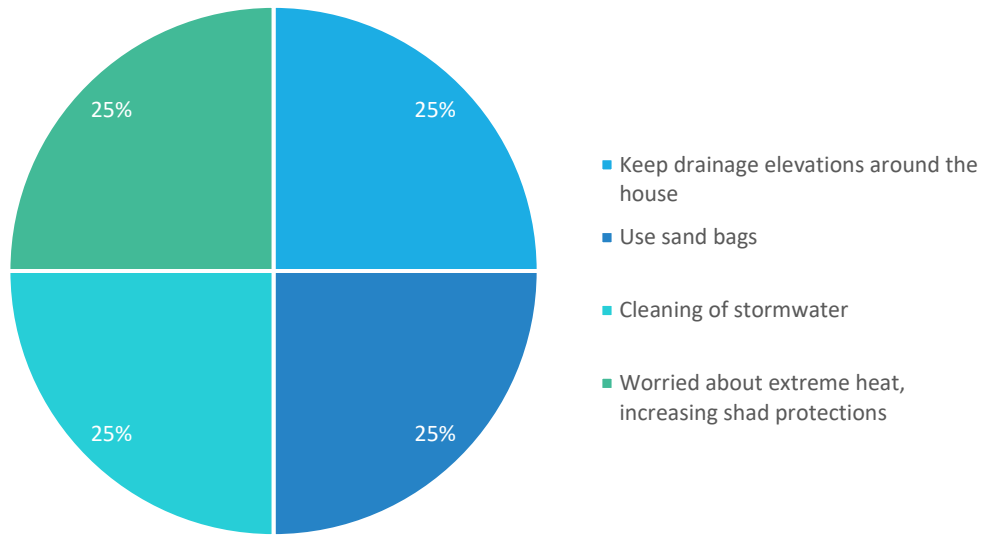


12. Have you taken any actions to make your home or neighborhood more resistant to hazards?

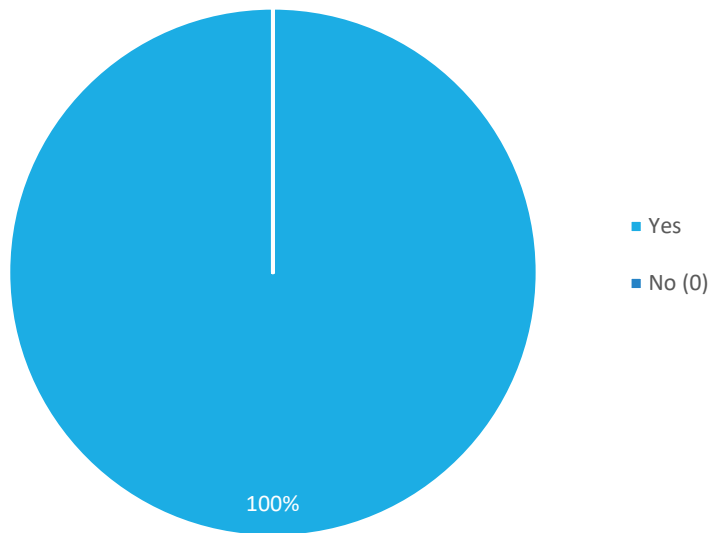


APPENDIX B: PUBLIC SURVEY RESULTS

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

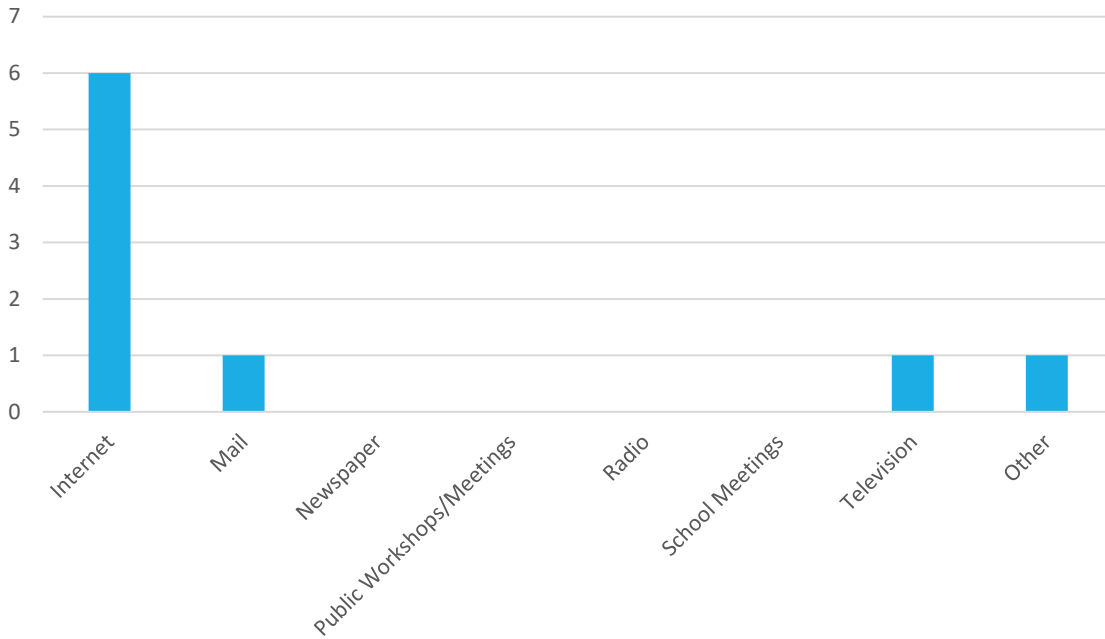


14. Are you interested in making your home or neighborhood more resistant to hazards?



APPENDIX B: PUBLIC SURVEY RESULTS

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

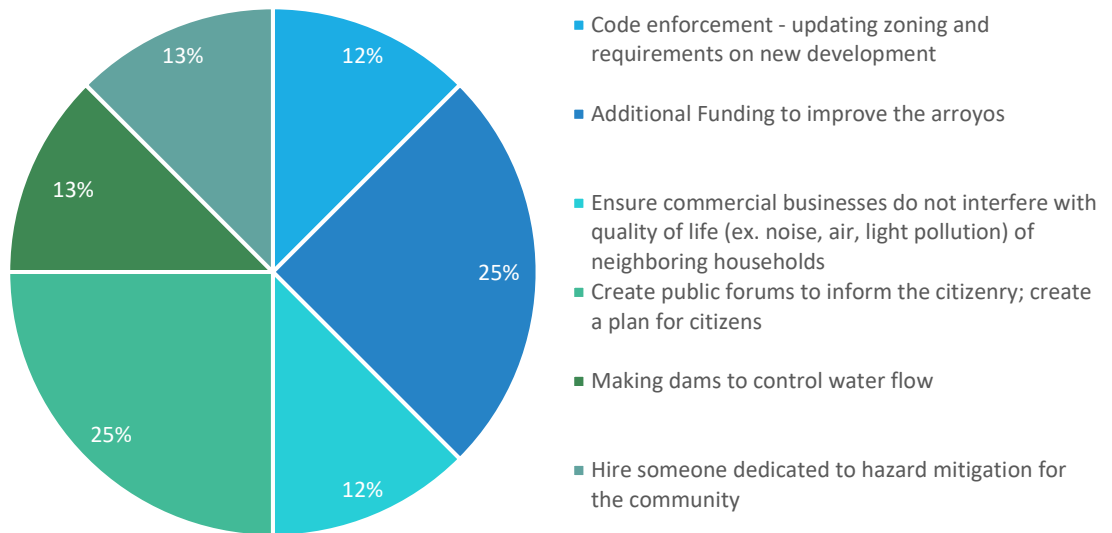


16. If you answered "Other" to Question #15, please explain.

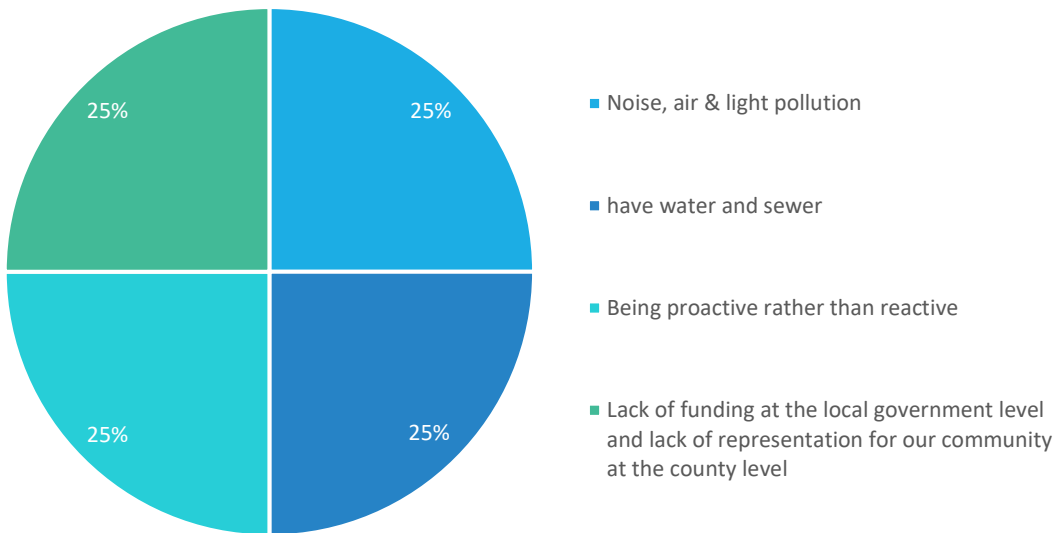
There were no responses to this question.

APPENDIX B: PUBLIC SURVEY RESULTS

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?

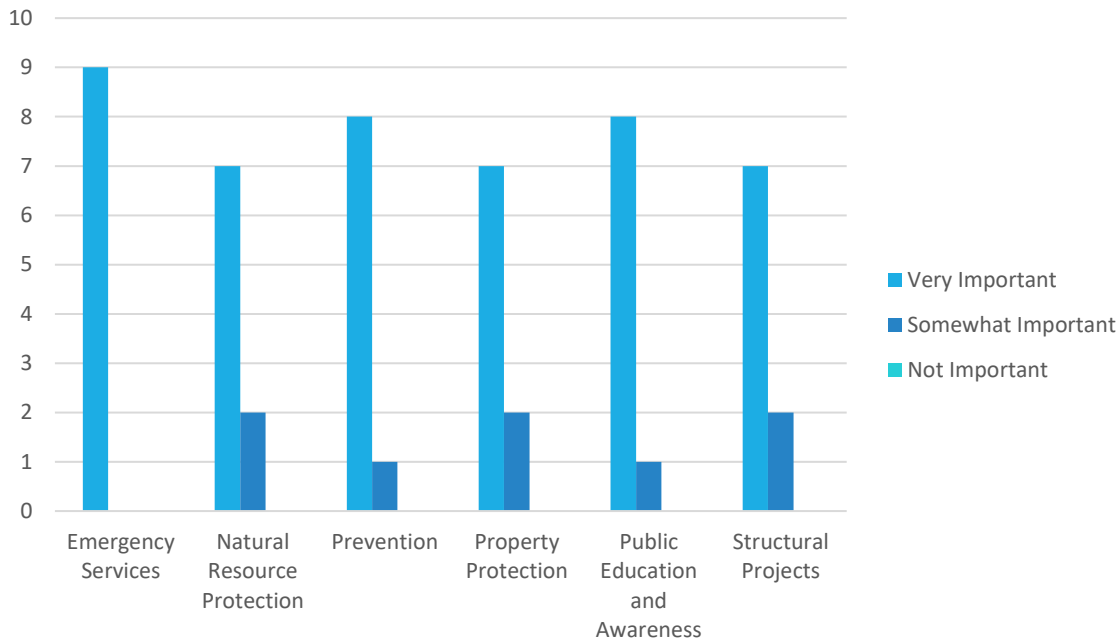


18. Are there any other issues regarding the reduction of risk and loss associated with hazards or disaster in the community that you think are important?



APPENDIX B: PUBLIC SURVEY RESULTS

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

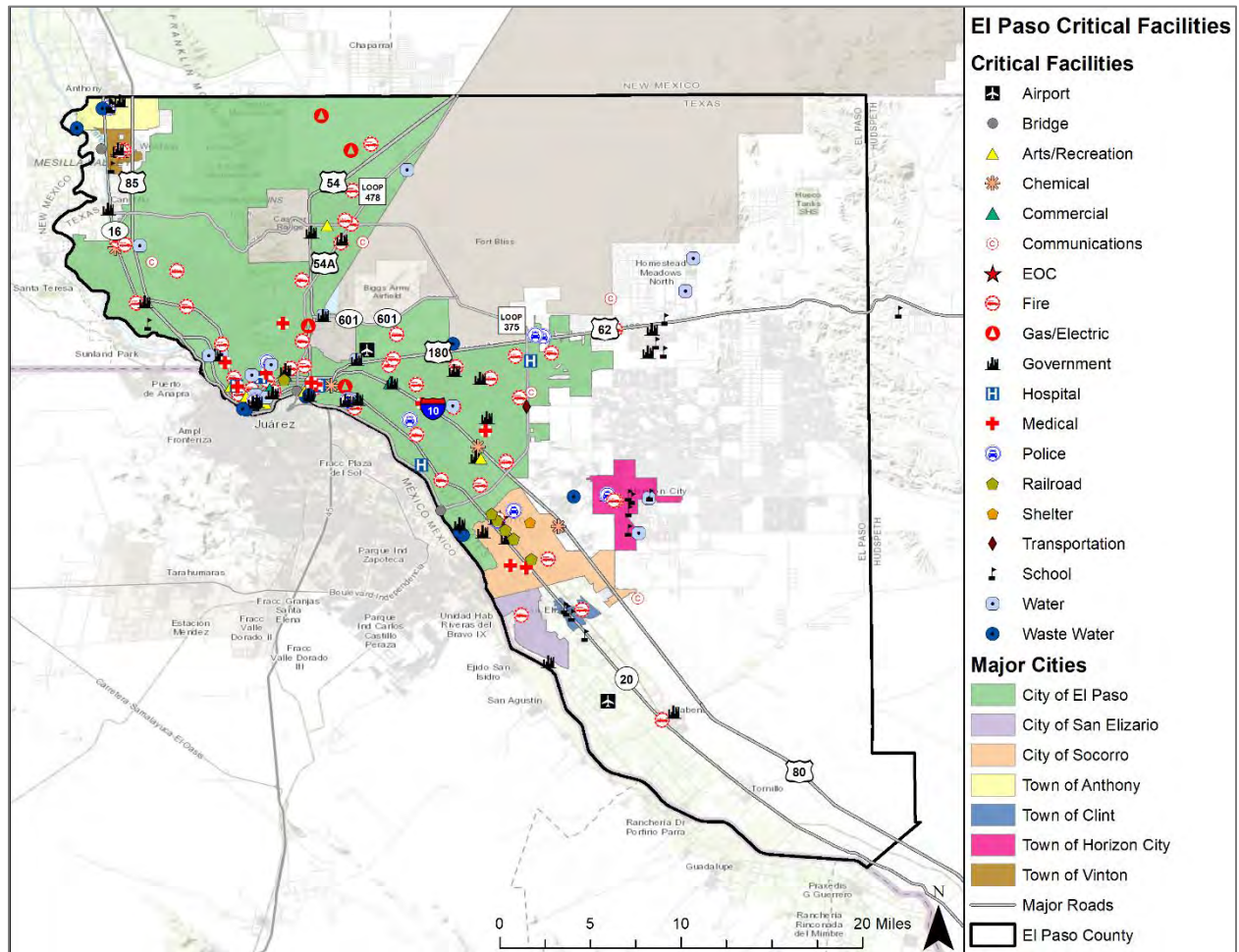
Overview 1
 Critical Facilities 1

OVERVIEW

This Appendix is **For Official Use Only (FOUO)** and may be exempt from public release under FOIA. Figures C-1 through C-8 locate all critical facilities that were included in the risk assessment. Mapped facilities were provided by Planning Team members. Tables C-1 through C-8 note the critical facilities by type.

CRITICAL FACILITIES

Figure C-1. Critical Facilities in El Paso County



APPENDIX C: CRITICAL FACILITIES

Table C-1. Critical Facilities by Type in El Paso County

| TYPE | NUMBER |
|-----------------------|--------|
| Airport | 1 |
| Bridge | 1 |
| Buildings | 23 |
| Dam | 1 |
| International Bridge | 1 |
| Water Tower | 2 |
| Water Booster Station | 1 |

APPENDIX C: CRITICAL FACILITIES

Figure C-2. Critical Facilities in the City of El Paso

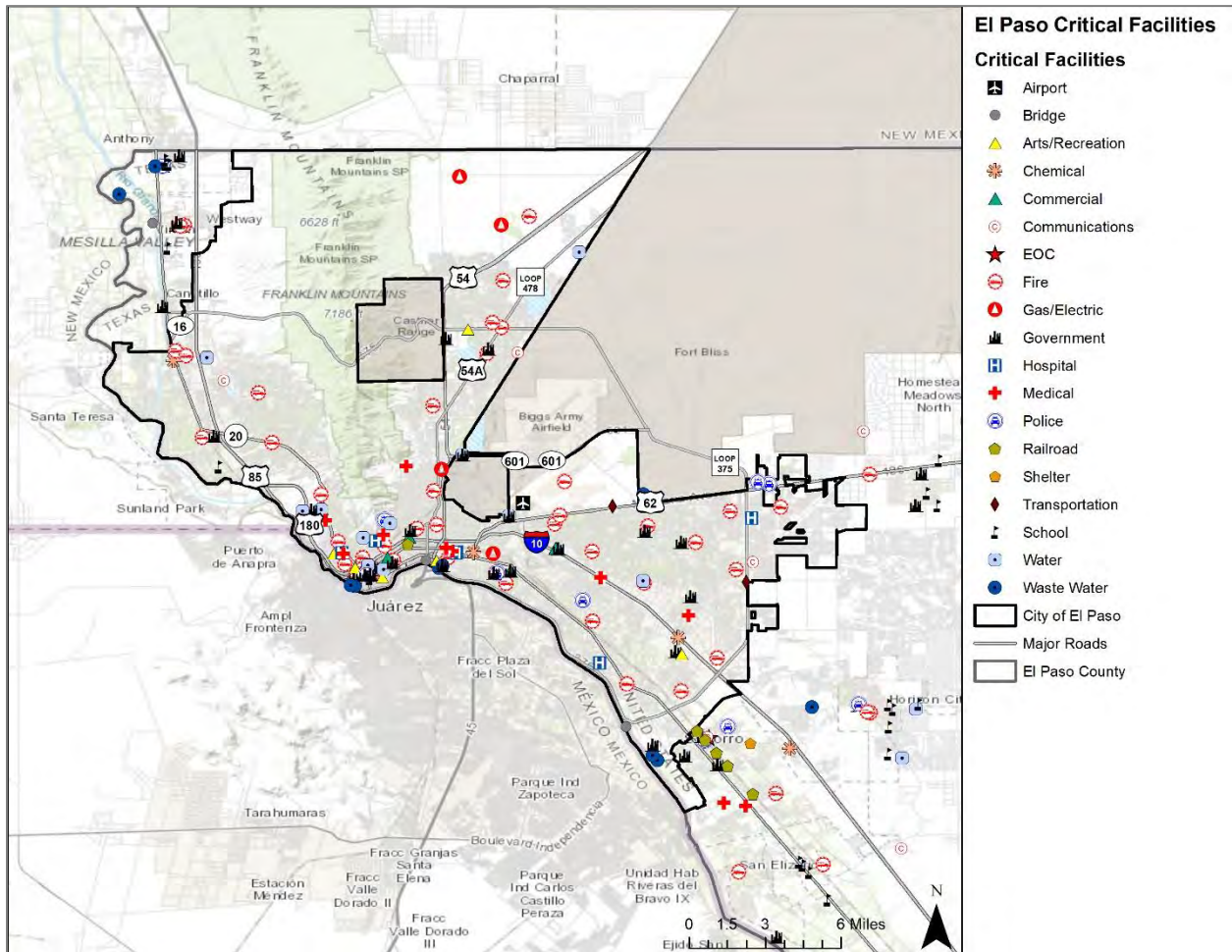


Table C-2. Critical Facilities by Type in the City of El Paso

| TYPE | NUMBER |
|------------------------------|--------|
| Chemical Sector | 4 |
| Communications | 7 |
| Commercial Facilities | 4 |
| Dam Sector | 1 |
| Emergency Service Sector | 49 |
| Energy Sector | 4 |
| Financial Services Sector | 1 |
| Food and Agriculture | 2 |
| Government Facilities | 18 |
| Healthcare and Public Sector | 13 |
| Transportation Sector | 7 |
| Water and Wastewater Systems | 11 |

APPENDIX C: CRITICAL FACILITIES

Figure C-3. Critical Facilities in the City of San Elizario

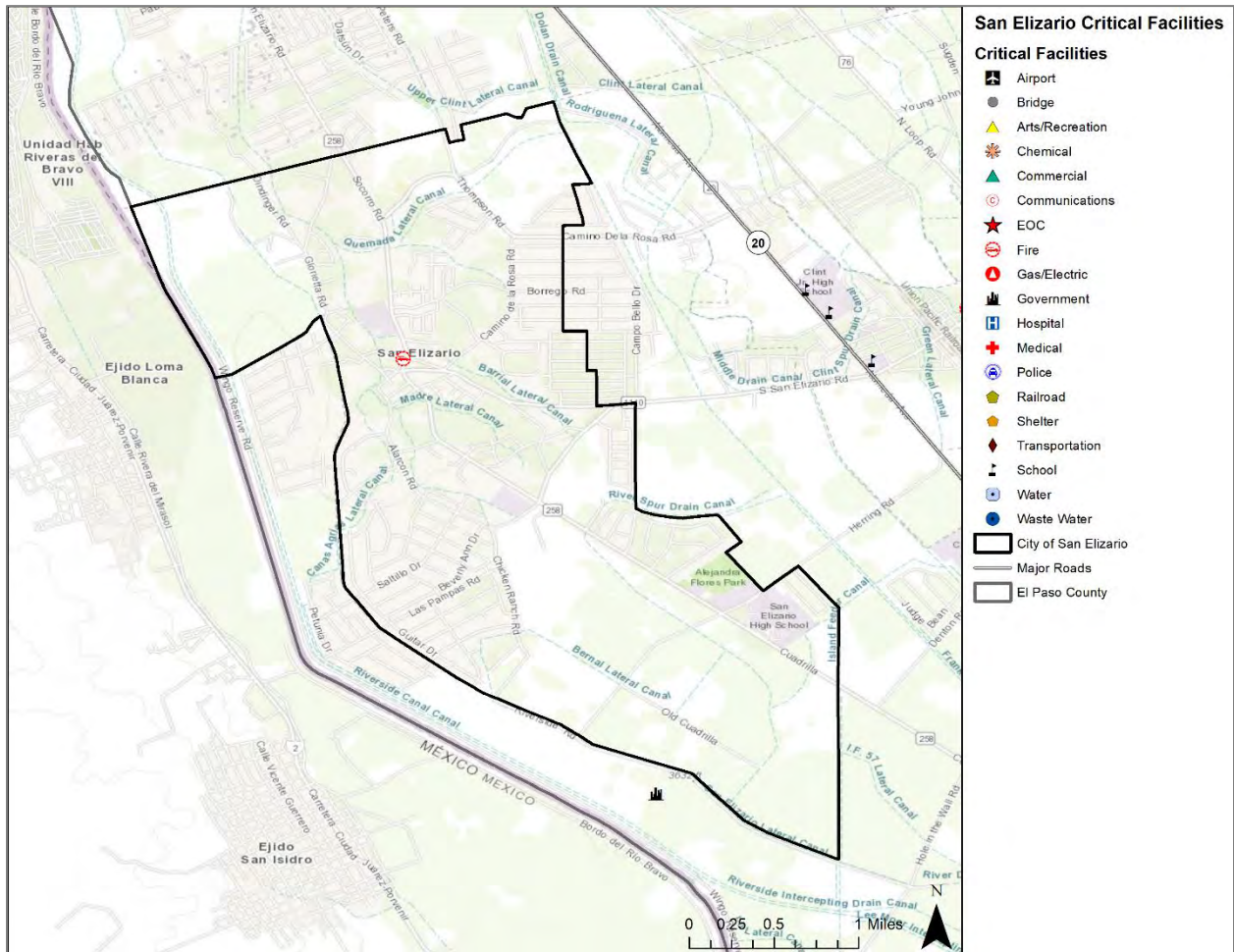


Table C-3. Critical Facilities by Type in the City of San Elizario

| TYPE | NUMBER |
|--|--------|
| San Elizario Fire Department ESD #2 | 1 |

APPENDIX C: CRITICAL FACILITIES

Figure C-4. Critical Facilities in the City of Socorro

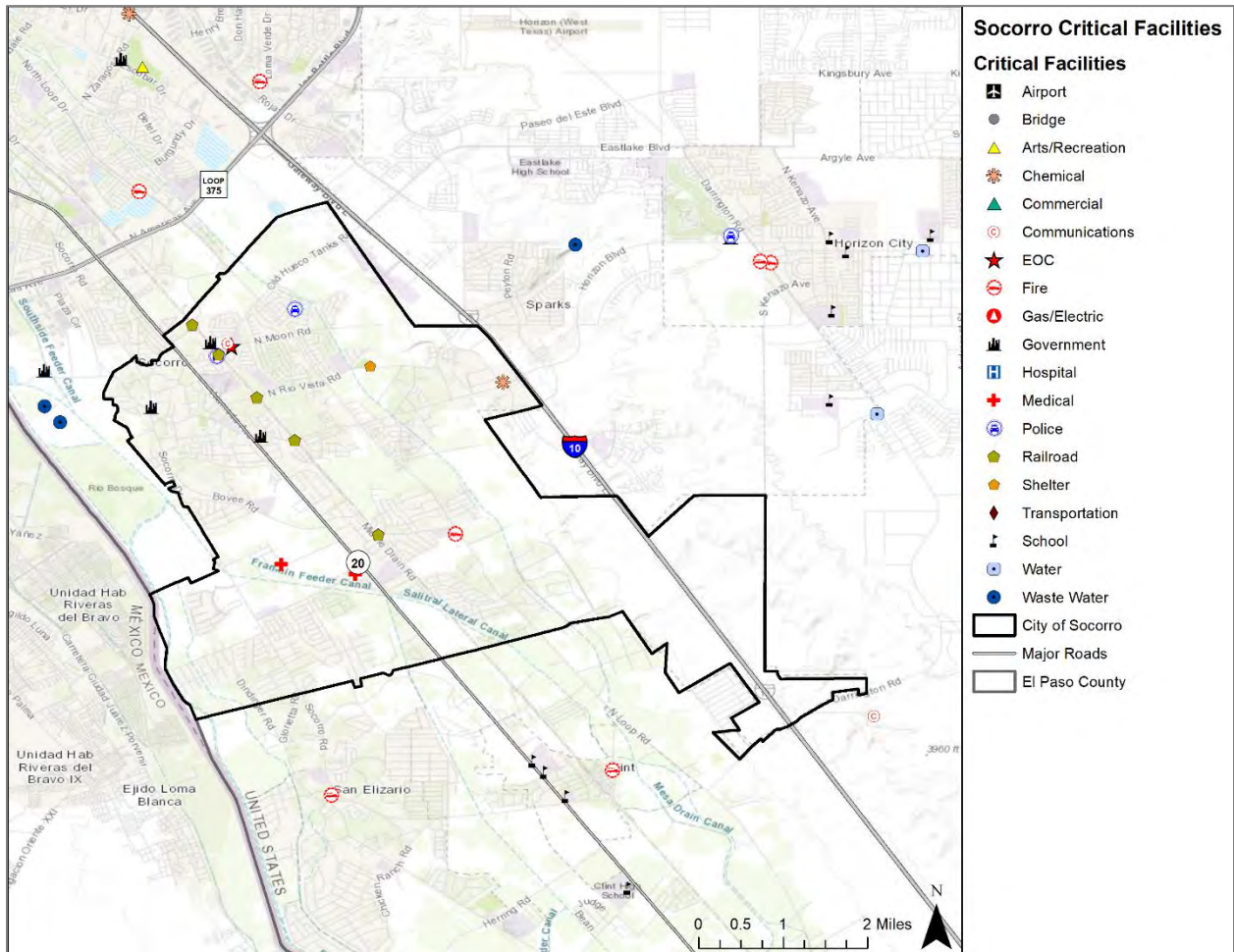


Table C-4. Critical Facilities by Type in the City of Socorro

| TYPE | NUMBER |
|---|--------|
| Communications | 1 |
| Emergency Shelter / Mass Care and Shelter | 2 |
| EMS | 2 |
| EOC | 1 |
| Fire Station | 1 |
| Government | 1 |
| Police Department | 2 |
| Public Works | 1 |
| Transportation | 6 |
| Utility | 3 |
| Water | 1 |

APPENDIX C: CRITICAL FACILITIES

Figure C-5. Critical Facilities in the Town of Anthony

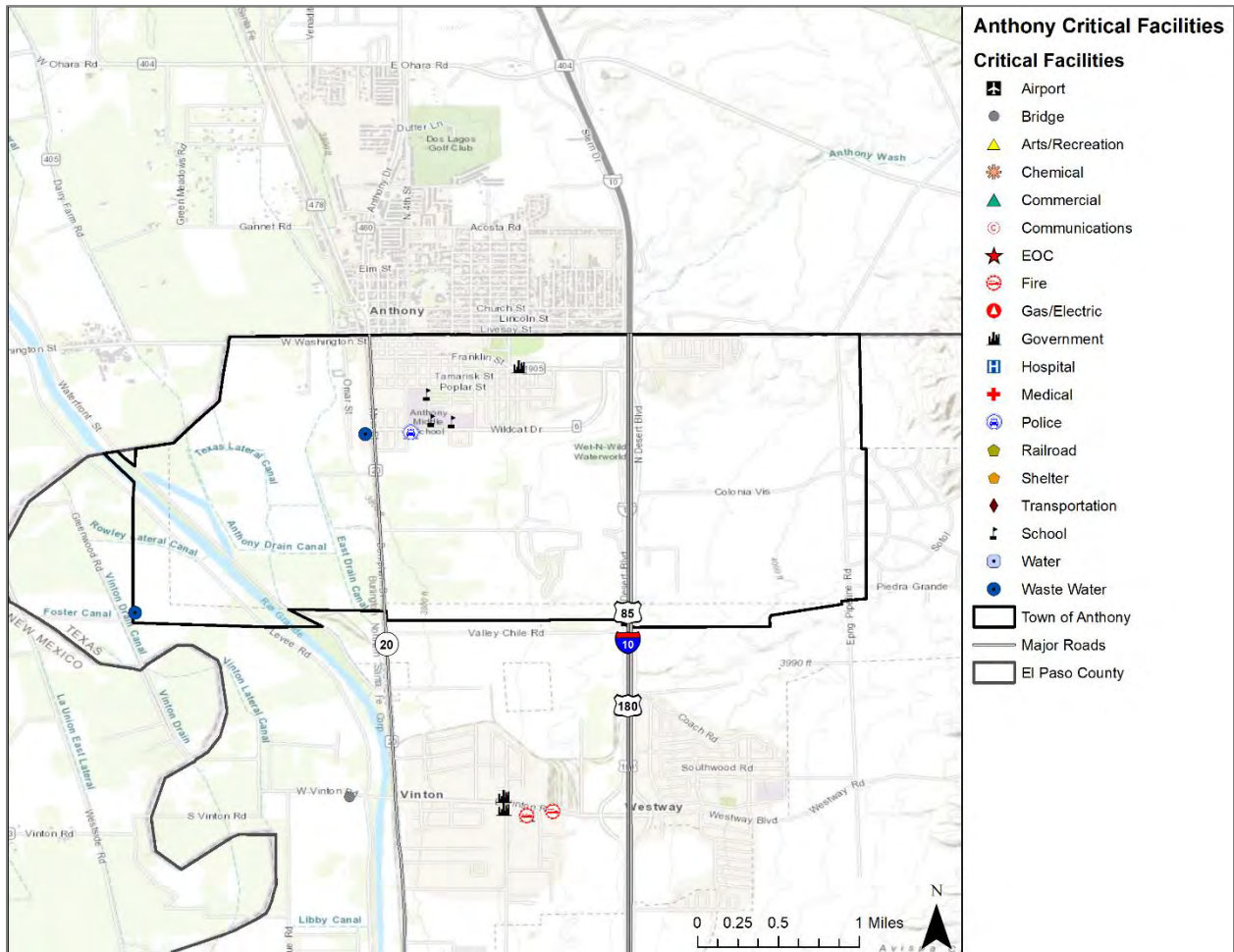


Table C-5. Critical Facilities by Type in the Town of Anthony

| TYPE | NUMBER |
|---------------------------|--------|
| Anthony Police Department | 1 |
| City Hall | 1 |
| Public Works Department | 1 |
| Schools | 3 |
| Waste Water Plant | 1 |

APPENDIX C: CRITICAL FACILITIES

Figure C-6. Critical Facilities in the Town of Clint

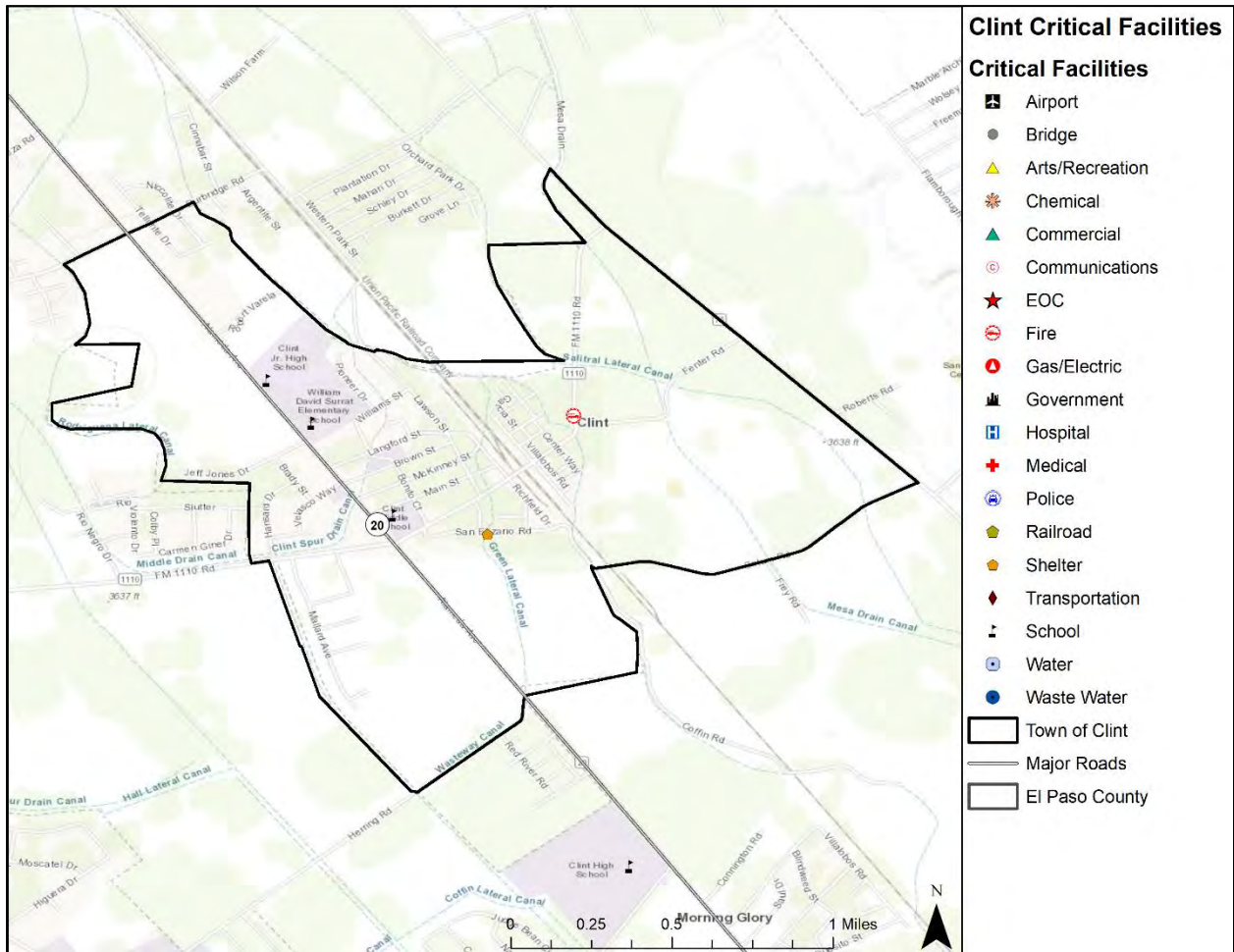


Table C-6. Critical Facilities by Type in the Town of Clint

| TYPE | NUMBER |
|------------------|--------|
| Community Center | 1 |
| Fire Department | 1 |
| Schools | 4 |

APPENDIX C: CRITICAL FACILITIES

Figure C-7. Critical Facilities in the Town of Horizon City

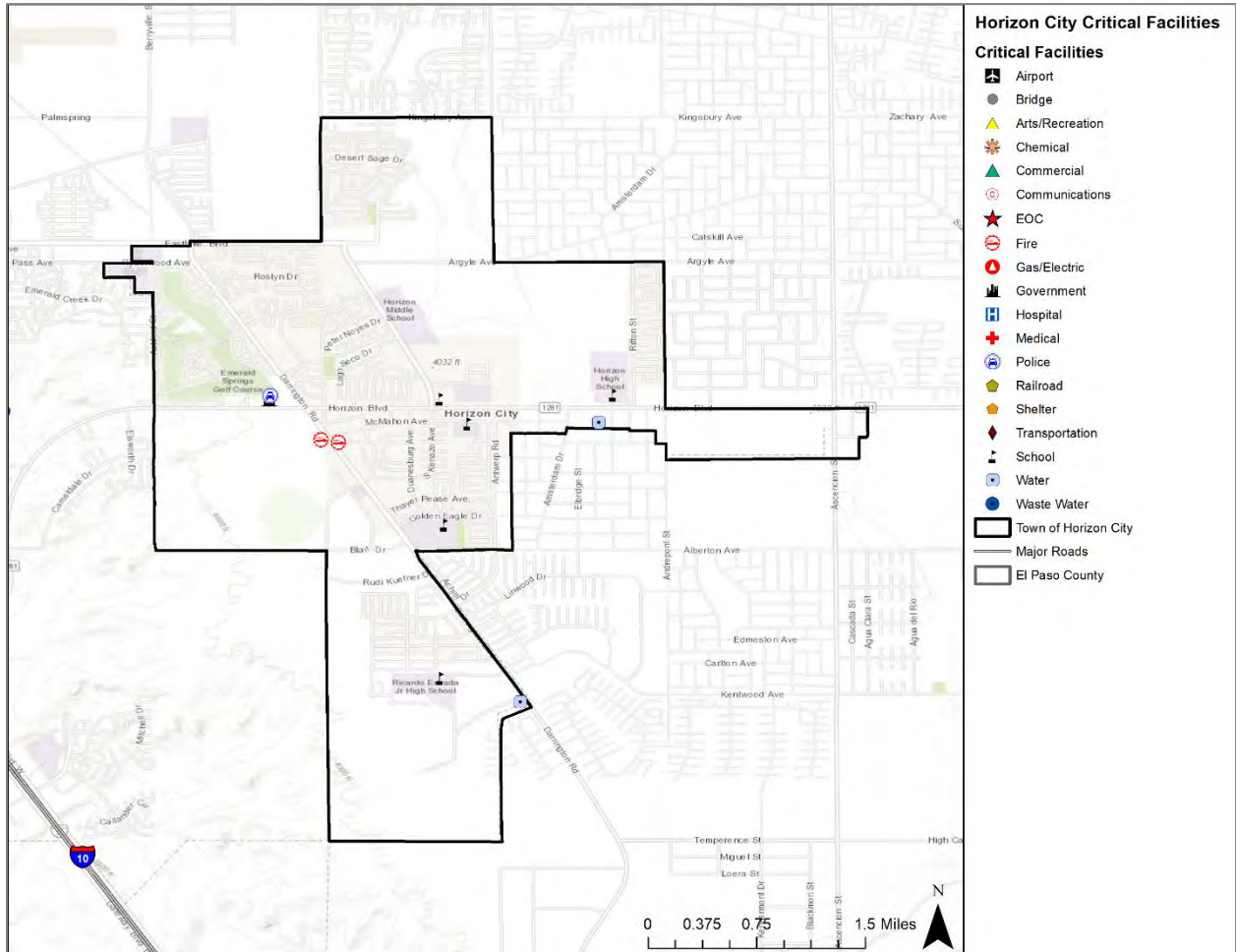


Table C-7. Critical Facilities by Type in the Town of Horizon City

| TYPE | NUMBER |
|----------------------------------|--------|
| City Hall | 1 |
| Police Department | 1 |
| Fire Department / ESD #1 | 1 |
| Horizon MUD | 2 |
| Clint ISD Administrative Offices | 1 |

APPENDIX C: CRITICAL FACILITIES

Figure C-8. Critical Facilities in the Town of Vinton

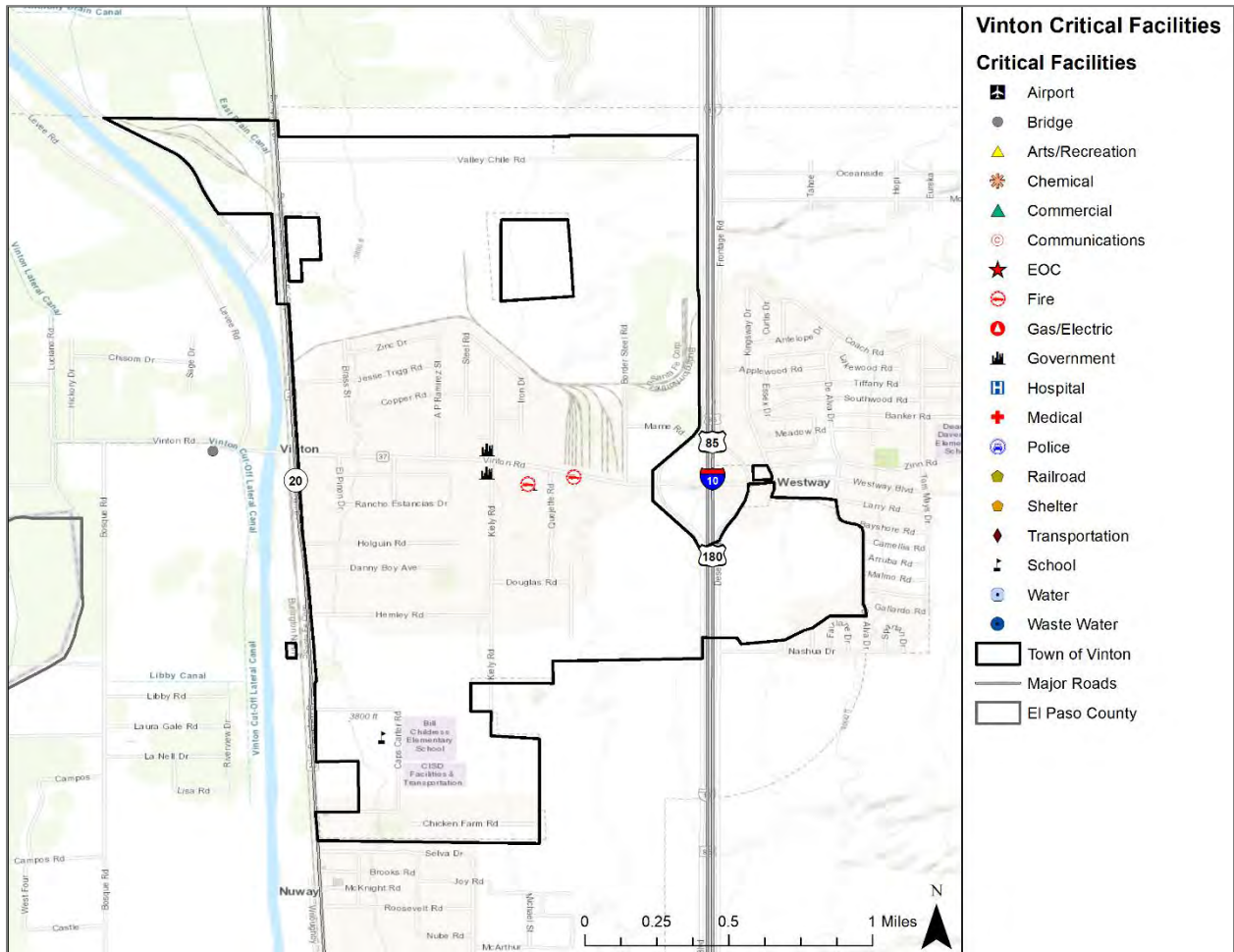


Table C-8. Critical Facilities by Type in the Town of Vinton

| TYPE | NUMBER |
|-----------------|--------|
| Administrative | 1 |
| County Facility | 1 |
| Fire Department | 1 |
| Public Works | 1 |
| School | 1 |

APPENDIX D: DAM LOCATIONS

| | |
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| Dam Locations..... | 1 |

OVERVIEW

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

DAM LOCATIONS

Table D-1 below reflects all dams that are located in the participating jurisdictions within the El Paso County Hazard Mitigation Action Plan Update. This list includes High, Significant, and Low Hazard Dams. Section 6 of the Plan doesn't profile dams that were deemed to pose no past, current, or future risk to the planning area as no loss of life or impact to critical facilities or infrastructure is expected in the event of a breach. The asterisk denotes those that were profiled in the hazard assessment.

Table D-1. List of Dam Locations and Storage Capacities

| JURISDICTION | LATITUDE | LONGITUDE | HEIGHT (Feet) | STORAGE (Acre Feet) |
|----------------------|-------------|--------------|---------------|---------------------|
| City of San Elizario | 31.658477 | -106.328913 | 18 | 400 |
| El Paso County | 31.518585 | -106.125636 | 40 | 1,500 |
| El Paso County | 31.552692 | -106.09696 | 18 | 300 |
| El Paso County | 31.547827 | -106.08929 | 20 | 800 |
| El Paso County | 31.588687 | -106.107295 | 20 | 560 |
| City of El Paso* | 31.851057 | -106.568705 | 50 | 773 |
| City of El Paso | 31.803111 | -106.533657 | 40 | 192 |
| City of El Paso | 31.76199913 | -106.5080032 | 18 | 70 |
| City of El Paso | 31.78300095 | -106.5279999 | 20 | 130 |
| City of El Paso* | 31.866953 | -106.566412 | 60 | 1,113 |
| City of El Paso | 31.875612 | -106.445893 | 67 | 1,931 |
| City of El Paso | 31.888552 | -106.465323 | 94 | 825 |
| City of El Paso* | 31.882562 | -106.424792 | 48 | 3,315 |
| El Paso County | 31.561106 | -106.071656 | 20 | 64 |
| City of El Paso* | 31.841305 | -106.564467 | 58 | 778 |

APPENDIX D: DAM LOCATIONS

| JURISDICTION | LATITUDE | LONGITUDE | HEIGHT (Feet) | STORAGE (Acre Feet) |
|------------------|-----------|-------------|---------------|---------------------|
| City of El Paso | 31.94324 | -106.45039 | 25 | 485 |
| City of El Paso | 31.930261 | -106.485302 | 58 | 151 |
| El Paso County | 31.68738 | -106.281497 | 36 | 240 |
| El Paso County* | 31.3927 | -105.996763 | 12 | 10,405 |
| City of El Paso | 31.930298 | -106.450191 | 41 | 840 |
| El Paso County | 31.9175 | -106.046667 | 35 | 140 |
| City of El Paso* | 31.755832 | -106.371111 | 32 | 330 |
| City of El Paso* | 31.812425 | -106.463352 | 35 | 177.4 |
| City of El Paso | 31.806461 | -106.470602 | 28 | 7.83 |
| City of El Paso | 31.800584 | -106.46356 | 23.8 | 15.41 |
| City of El Paso | 31.799576 | -106.468882 | 25 | 11.1 |
| City of El Paso | 31.79252 | -106.466212 | 11 | 10.5 |
| City of El Paso | 31.790373 | -106.472127 | 40 | 40 |
| City of El Paso | 31.784188 | -106.470848 | 20 | 5 |
| City of El Paso | 31.78443 | -106.474138 | 13 | 6.6 |
| City of El Paso | 31.781672 | -106.474693 | 20 | 9 |
| City of El Paso | 31.7774 | -106.481742 | 18 | 14.37 |
| City of El Paso | 31.868788 | -106.584613 | 43 | 123 |
| City of El Paso | 31.787909 | -106.473924 | 46 | 26.6 |
| City of El Paso* | 31.856363 | -106.462738 | 63 | 235 |
| City of El Paso* | 31.801111 | -106.439443 | 48 | 1,120 |
| City of El Paso | 31.86127 | -106.460301 | 60 | 195 |
| City of El Paso* | 31.827903 | -106.567402 | 50 | 1,020 |
| City of El Paso* | 31.811772 | -106.539363 | 85 | 2,113.79 |
| City of El Paso | 31.826321 | -106.471732 | 105 | 1,430 |
| El Paso County | 31.687263 | -106.304008 | 31 | 694 |
| El Paso County* | 31.7311 | -106.3414 | 27 | 439 |
| El Paso County* | 31.7406 | -106.3492 | 28 | 140 |

APPENDIX D: DAM LOCATIONS

| JURISDICTION | LATITUDE | LONGITUDE | HEIGHT (Feet) | STORAGE (Acre Feet) |
|-----------------|-----------|-------------|---------------|---------------------|
| City of El Paso | 31.786002 | -106.471862 | 26 | 7.4 |
| El Paso County | 31.795974 | -106.468068 | 23 | 6.4 |

APPENDIX E: MEETING DOCUMENTATION

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WORKSHOP DOCUMENTATION

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

El Paso County held a series of Planning Team workshops: a Kickoff Workshop via webinar on October 20, 2020, and a Risk Assessment / Mitigation Strategy Workshop via webinar on December 20, 2020. At each of these workshops members of the Planning Team were informed of the planning process, expressed opinions, and volunteered information. El Paso County hosted public meetings. The sign-in sheets for each workshop and public meeting are included below. For more details on the workshops and planning process, see Section 2.

Figure E-1. El Paso County Kickoff Workshop, October 20, 2020

EL PASO COUNTY HAZARD MITIGATION PLAN
Kickoff Workshop
Adobe Connect Webinar
October 20, 2020

| Name | Department | Title | Email | Phone |
|--------------------|--|---|--------------------------|--------------|
| Joy Leos | City of El Paso – Department of Public Health | 211 TX RGAIC Director | LeosJD@elpasotexas.gov | 915-212-6592 |
| Edward Snyder | El Paso Fire Department | ARFF Battalion Chief | snyderem@elpasotexas.gov | 915-346-6934 |
| Andre Wright | El Paso County Sheriff's Office | Sergeant | Anwright@epcounty.com | 915-538-2208 |
| Leticia Augsberger | El Paso Water | Utility Security & Emergency Response Coordinator | laugsberger@epwater.org | 915-594-5869 |
| Gabriel Arnold | El Paso City/County Office of Emergency Management | Emergency Management Specialist | arnoldgs@elpasotexas.gov | 405-990-7145 |
| Gabriel Gamino | El Paso County Sheriff's Office | Deputy | ggamino@epcounty.com | 915-538-2193 |
| Jennifer Garcia | El Paso City/County Office of Emergency Management | Emergency Management Specialist | garciaj@elpasotexas.gov | 915-222-5672 |

APPENDIX E: MEETING DOCUMENTATION




EL PASO COUNTY HAZARD MITIGATION PLAN
Kickoff Workshop
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October 20, 2020

| Name/Title | Department | Title | Email | Phone |
|--------------------|---------------------------------|-------------------------------------|----------------------------------|--------------|
| Loren Dominguez | El Paso County Sheriff's Office | Deputy | lodominguez@epcounty.com | 915-538-2193 |
| Andrea Carrillo | Village of Vinton | Village Administrator | acarrillo@vinton.tx.us | 915-227-2624 |
| Avelardo Talavera | TDEM Disaster District 8 | District Coordinator | al.talavera@tdem.texas.gov | 915-276-6528 |
| Monica Peralta | Del Sol Medical Center | Safety Officer | monica.peralta@hcahealthcare.com | 915-263-5265 |
| Michael Smith | El Paso County | Golf Professional | mismth@epcounty.com | 915-328-2545 |
| Jason Laney | NWS El Paso | Warning Coordination Meteorologist | jason.laney@noaa.gov | 915-274-9123 |
| Victor Reta | City of Socorro | Director | Vreta@ci.socorro.tx.us | 915-319-0125 |
| Daniel Collins | El Paso County | Governmental Affairs Manager | dcollins@epcounty.com | 915-588-0360 |
| Fernando Hernandez | El Paso County | Director of Infrastructure Services | fehernandez@epcounty.com | 915-546-2015 |




EL PASO COUNTY HAZARD MITIGATION PLAN
Kickoff Workshop
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October 20, 2020

| Name/Title | Department | Title | Email | Phone |
|--------------------|---|---------------------------------------|----------------------------------|--------------|
| Alejandra Valadez | City of Socorro | Grants Coordinator | grants@ci.socorro.tx.us | 915-209-9312 |
| Jeffrey Weidner | University of Texas at El Paso | Assistant Professor | jweidner@utep.edu | 215-292-4830 |
| Ronald Livermore | Ysleta ISD | Director, Emergency Operations | rlivermore@yisd.net | 915-996-4823 |
| Christopher Celaya | University Medical Center/Children's Hospital | Safety and Emergency Mgmt. Specialist | christopher.celaya@umcelpaso.org | 915-235-7736 |
| Nichollette Ruiz | El Paso County Judge's Office | Public Policy Analyst | nruiz@epcounty.com | 915-204-9144 |
| Raymundo Vasquez | Union Pacific Railroad | Hazardous Material Manager SW Region | rvasque@up.com | 402-639-9241 |
| Eddie Castillo | US Army, Fort Bliss | Fort Bliss Emergency Manager | addiel.castillo.civ@mail.mil | 915-744-8142 |
| Irene Santiago | Office of the Medical Examiner | Chief of Operations | isantiago@epcounty.com | 915-532-1447 |
| Jose Romero | Office of the Medical Examiner | Deputy Chief Investigator | joromero@epcounty.com | 915-532-1447 |

APPENDIX E: MEETING DOCUMENTATION




EL PASO COUNTY HAZARD MITIGATION PLAN
Kickoff Workshop
Adobe Connect Webinar
October 20, 2020

| Name/Title | Department | Title | Email | Phone |
|------------------|--|-------------------------------|-----------------------------|------------------------|
| Gerald Grijalva | Lower Valley Water District | General Manager | ggrijalva@lvwd.org | 915-791-4480 ext. 1100 |
| Robert Coleman | Anthony Water & Sanitation District | Office Manager | rcoleman@awsd.us | 575-618-7333 |
| Cynthia Mendez | Rio Grande Council of Governments | Regional Services Coordinator | cynthiam@riocog.org | 915-533-0998 |
| Annabel Salazar | El Paso County Medical Examiner | Chief Investigator ME Office | annsalazar@epcounty.com | 915-873-0370 |
| Kimberly LaBree | Parkhill | Engineer | klabree@parkhill.com | 915-533-6811 |
| Norma Castillo | Town of Anthony | Town Clerk | ngonzalez@townofanthony.org | 915-886-3944 |
| Desiree Gonzalez | El Paso County | Marketing Coordinator | dgonzalez@epcounty.com | 915-487-0270 |
| Nai Holloway | El Paso County | Aquatics Manager | nholloway@epcounty.com | 915-787-0621 |
| Josh Garcia | Tribal Department of Public Safety/EM Division at Ysleta del Sur Pueblo (YDSP) | EMC | jgarcia@ydsp-nsn.gov | 915-859-7913 Ext. 7716 |




EL PASO COUNTY HAZARD MITIGATION PLAN
Kickoff Workshop
Adobe Connect Webinar
October 20, 2020

| Name/Title | Department | Title | Email | Phone |
|----------------------|--|-----------------------------------|------------------------------|--------------|
| Gabriela Camacho | El Paso City/County Office of Emergency Management | Emergency Specialist | camachog@elpasotexas.gov | 915-838-3277 |
| Tonya Clark | El Paso City/County Office of Emergency Management | Emergency Management Specialist | ClarkeTE@elpasotexas.gov | 915-240-3172 |
| Tony Muro | El Paso City/County Office of Emergency Management | AEMC / Battalion Chief | muroax@elpasotexas.gov | 915-838-3271 |
| Jorge Rodriguez | El Paso City/County Office of Emergency Management | Emergency Management Coordinator | Rodriguezja2@elpasotexas.gov | 915-240-3171 |
| Gustavo Tavaréz | El Paso Fire Department | Battalion Chief | tavarezgg@elpasotexas.gov | 915-240-3303 |
| Georgina De la Torre | El Paso City/County Office of Emergency Management | Emergency Management Specialist | delatorreg@elpasotexas.gov | 915-838-6497 |
| Paul Chavez | El Paso City/County Office of Emergency Management | Emergency Management Lead Planner | chavezap@elpasotexas.gov | 915-838-3269 |

APPENDIX E: MEETING DOCUMENTATION




EL PASO COUNTY HAZARD MITIGATION PLAN
Kickoff Workshop
Adobe Connect Webinar
October 20, 2020

| Name/Title | Department | Title | Email | Phone |
|------------------|--|------------------------------------|----------------------------|--------------|
| Manuel Leos | Village of Vinton | Mayor | m.leos1428@gmail.com | 915-886-5104 |
| Ricardo Gonzalez | El Paso City/County Office of Emergency Management | Assistant EMC / Special Operations | gonzalezrz@elpasotexas.gov | 915-820-7021 |
| Erica Ortega | El Paso County | Senior Grant Analyst | eortega@epcounty.com | 915-920-7676 |
| Ruth Castillo | City of El Paso Department of Public Health | PHEP Program Manager | castillore@elpasotexas.gov | 915-471-5062 |
| Rhonda Murphy | H2O Partners | Mitigation Planner | rmurphy@h2opartnersusa.com | 214-707-0056 |
| Heidi Watson | H2O Partners | Mitigation Specialist | heidi@h2opartnersusa.com | 512-568-2259 |

Figure E-2. El Paso County Risk Assessment / Mitigation Strategy Workshop, December 10, 2020




EL PASO COUNTY HAZARD MITIGATION PLAN
Risk Assessment and Mitigation Strategy Workshop
Adobe Connect Webinar
December 10, 2020

| Name | Department | Title | Email | Phone |
|--------------------|---|---|----------------------------------|--------------|
| Michael McConnell | Town of Horizon City Police Dept. | Police Chief | chief@horizoncity.org | 915-852-1047 |
| Alejandra Valadez | City of Socorro | Grants Coordinator | grants@ci.socorro.tx.us | 915-209-9312 |
| Andrea Carrillo | Village of Vinton | Village Administrator | acarrillo@vinton.tx.us | 915-886-5104 |
| Ramon Bracamontes | El Paso County | Chief Aide | rbracamontes@epcounty.com | 915-546-2215 |
| Leticia Augsberger | El Paso Water | Utility Security & Emergency Response Coordinator | laugsberger@epwater.org | 915-594-5769 |
| Joy Leos | City of El Paso – Department of Public Health | Health Training & Promotions Manager / 211 RGAIC Director | LeosJD@elpasotexas.gov | 915-212-6592 |
| Ernesto Arriola | City of El Paso | Information Security Assurance Manager | arriola@elpasotexas.gov | 915-212-1410 |
| Job Terrazas | City of Socorro | Building Official | jtterrazas@ci.socorro.tx.us | 915-872-8531 |
| Richard Avitia | Las Palmas Medical Center | Safety Officer | Richard.Avitia@hcahealthcare.com | 915-474-5287 |
| Raul Lozano | City of El Paso Police Department | Sergeant | 1476@elpasotexas.gov | 915-494-7424 |

APPENDIX E: MEETING DOCUMENTATION




EL PASO COUNTY HAZARD MITIGATION PLAN
Risk Assessment and Mitigation Strategy Workshop
Adobe Connect Webinar
December 10, 2020

| Name/Title | Department | Title | Email | Phone |
|--------------------|--|---|------------------------------------|--------------|
| Oscar Giron | City of El Paso Police Department | Officer | 2075@elpasotexas.gov | 915-212-4153 |
| Jason Laney | NWS El Paso | WCM | jason.laney@noaa.gov | 915-274-9123 |
| Susana Rodriguez | Town of Clint | Town Clerk | townofclint@sbcglobal.net | 915-637-3588 |
| Gabriela C | El Paso City/County Office of Emergency Management | Emergency Specialist | camachog@elpasotexas.gov | 915-541-5132 |
| Jeffrey Weidner | University of Texas at El Paso | Assistant Professor | jweidner@utep.edu | 215-292-4830 |
| Ronald Livermore | Ysleta ISD | Director, Emergency Operations and Preparedness | rlivermore@yisd.net | 915-996-4823 |
| Ryan Hallum | Federal Air Marshal Service | AFSD-LE | Eddie.Hallum@tsa.dhs.gov | 609-442-5647 |
| Valerie Armendariz | Town of Anthony | Deputy Town Clerk | varmendariz@townofanthony.org | 915-886-3944 |
| Johnny Balcazar | Sun Metro / El Paso Streetcar | Streetcar Safety Manager | Balcazarjm@elpasotexas.gov | 915-212-3466 |
| David Cantu | City of San Elizario | Aldersperson P1 2 | alderperson2@cityofsanelizario.com | 915-974-8766 |
| Victor Reta | City of Socorro | Director | Vreta@ci.socorro.tx.us | 915-319-0125 |




EL PASO COUNTY HAZARD MITIGATION PLAN
Risk Assessment and Mitigation Strategy Workshop
Adobe Connect Webinar
December 10, 2020



| Name/Title | Department | Title | Email | Phone |
|--------------------|--|-------------------------------------|------------------------------|--------------|
| Erin Ritter | TDEM Region 4 | Administrative Associate | Erin.ritter@tdem.texas.gov | 915-234-8680 |
| Lizabeth Castro | City of Socorro | Recreation Coordinator | lcastro@ci.socorro.tx.us | 915-491-4306 |
| Paul Chavez | El Paso Office of Emergency Management | Emergency Management Lead Planner | chavezap@elpasotexas.gov | 915-838-3269 |
| Eduardo Lopez | City of El Paso Police Department | Officer | 1890@elpasotexas.gov | 915-494-7461 |
| Daniel Collins | El Paso County | Gov. Affairs Manager | dcollins@epcounty.com | 915-588-0360 |
| Jorge Rodriguez | El Paso Office of Emergency Management | Emergency Management Coordinator | Rodriguezjal@elpasotexas.gov | 915-240-3171 |
| Fernando Hernandez | El Paso County | Director of Infrastructure Services | fehernandez@epcounty.com | 915-546-2915 |
| Betsy Keller | El Paso County | Chief Administrator | bkeller@epcounty.com | 915-546-2215 |

APPENDIX E: MEETING DOCUMENTATION




EL PASO COUNTY HAZARD MITIGATION PLAN
Risk Assessment and Mitigation Strategy Workshop
Adobe Connect Webinar
December 10, 2020

| Name/Title | Department | Title | Email | Phone |
|------------------|--|---------------------------------|--------------------------------|--------------|
| Jason Allen | Del Sol Medical Center | Security Director | jason.allen@hcahealthcare.com | 915-217-9376 |
| Laura Rodriguez | El Paso Electric | Senior Risk Analyst | laura.rodriguez@epelectric.com | 915-472-2386 |
| Tony Muro | El Paso Office of Emergency Management | Battalion Chief | muroax@elpasotexas.gov | 915-240-3301 |
| Eddie Smith | City of Socorro Police Department | Lieutenant | esmith@ci.socorro.tx.us | 915-249-1171 |
| Matthew Taberski | El Paso Water Utility | Emergency Management Specialist | MATaberski@epwater.org | 915-731-5250 |
| Ben Raitz | American Red Cross | Disaster Program Manager | Ben.Raitz@redcross.org | 915-318-0668 |
| Tonya Clarke | El Paso Office of Emergency Management | Emergency Management Specialist | ClarkeTE@elpasotexas.gov | 915-240-3172 |
| Gabriel Arnold | El Paso Office of Emergency Management | Emergency Management Specialist | arnoldgs@elpasotexas.gov | 405-990-7145 |

EL PASO COUNTY HAZARD MITIGATION PLAN
Risk Assessment and Mitigation Strategy Workshop
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| Name/Title | Department | Title | Email | Phone |
|----------------------|--|---------------------------------|--------------------------------------|--------------|
| Georgina De la Torre | El Paso Office of Emergency Management | Emergency Management Specialist | delatorreg@elpasotexas.gov | 915-820-6497 |
| Rosalinda Horstman | Las Palmas Medical Center | Facilities Director | Rosalinda.Horstman@hcahealthcare.com | 915-238-6258 |
| Rhonda Murphy | H2O Partners | Mitigation Planner | rmurphy@h2opartnersusa.com | 214-707-0056 |
| Heidi Watson | H2O Partners | Mitigation Specialist | heidi@h2opartnersusa.com | 512-568-2259 |

APPENDIX E: MEETING DOCUMENTATION

PUBLIC MEETING DOCUMENTATION

As discussed in Section 2, public meetings were held in El Paso County. Documentation in the form of sign-in sheets for each of the meetings follows.

Figure E-3. Public Meeting, October 20, 2020



EL PASO COUNTY HAZARD MITIGATION PLAN
Kickoff Public Meeting
Adobe Connect Webinar
October 20, 2020

| Name | Department | Title | Email | Phone |
|------------------------|--|-----------------------------------|----------------------------|--------------|
| Jessica Varela | SISD | RN | Powell.jessica.c@gmail.com | 915-355-1385 |
| Kristi Lai | | Constituent | Kristilai@gmail.com | 915-781-4961 |
| Tony Muro | El Paso City/County Office of Emergency Management | AEMC / Battalion Chief | muroax@elpasotexas.gov | 915-838-3271 |
| Gabriela Camacho | El Paso City/County Office of Emergency Management | Emergency Specialist | camachog@elpasotexas.gov | 915-838-3277 |
| Paul Chavez | El Paso City/County Office of Emergency Management | Emergency Management Lead Planner | chavezap@elpasotexas.gov | 915-838-3269 |
| Daniel Collins | El Paso County | Governmental Affairs Manager | dcollins@epcounty.com | 915-588-0360 |
| Kim LaBree | Parkhill | Engineer | klabree@parkhill.com | 915-533-6811 |
| Ramon Bracamontes | El Paso County | Chief Aide | rbracamontes@epcounty.com | 915-546-2215 |
| Imelda Hernandez Sokol | Urgent Care Hospice | LMSW | Imelda_hernanz@yahoo.com | 915-500-9858 |
| Fainot Pierre | | Resident | fatnop@gmail.com | 917-745-7802 |

APPENDIX E: MEETING DOCUMENTATION




EL PASO COUNTY HAZARD MITIGATION PLAN
Kickoff Public Meeting
Adobe Connect Webinar
October 20, 2020

| Name | Department | Title | Email | Phone |
|-----------------|---|-----------------------|----------------------------|--------------|
| Myra Hernandez | El Paso | Resident | Cuevasml1@aol.com | 915-227-4550 |
| Daniel Barnes | El Paso | Advocacy Specialist | Danieljbarnes22@gmail.com | 915-667-1481 |
| Raul Pere | Cyber and Critical Infrastructure Security Agency | PSA | Raul.perez@cisa.dhs.gov | 202-306-7229 |
| Miriam Cruz | Socorro | Community Member | miriamcruzlaw@gmail.com | 915-996-1899 |
| Woodrow Irving | Bureau of Reclamation | Civil Engineer | wirving@usbr.gov | 915-241-3071 |
| Nai Holloway | El Paso County | Aquatics Manager | nholloway@epcounty.com | 915-787-0621 |
| Jeffrey Weidner | University of Texas at El Paso | Assistant Professor | jweidner@utep.edu | 915-747-6913 |
| Rhonda Murphy | H2O Partners | Mitigation Planner | rmurphy@h2opartnersusa.com | 214-707-0056 |
| Heidi Watson | H2O Partners | Mitigation Specialist | heidi@h2opartnersusa.com | 512-568-2259 |

Figure E-4. Public Meeting, December 10, 2020




EL PASO COUNTY HAZARD MITIGATION PLAN
Risk Assessment & Mitigation Strategy Public Meeting
Adobe Connect Webinar
December 10, 2020

| Name | Department | Title | Email | Phone |
|-----------------------|--|-------------------------------------|----------------------------|--------------|
| Norma Rivera Palacios | El Paso County | Executive Public Works Director | npalacios@epcounty.com | 915-546-2015 |
| Paul Chavez | El Paso City/County Office of Emergency Management | Emergency Management Lead Planner | chavezap@elpasotexas.gov | 915-838-3269 |
| Daniel Bueno | El Paso County | Resident | dani_wz10@hotmail.com | 915-549-5715 |
| Fernando Hernandez | El Paso County | Director of Infrastructure Services | fehernandez@epcounty.com | 915-546-2015 |
| Martha Gonzales | Community Options | Program Manager | Martha.gonzales@comop.org | 915-892-6396 |
| Rhonda Murphy | H2O Partners | Mitigation Planner | rmurphy@h2opartnersusa.com | 214-707-0056 |
| Heidi Watson | H2O Partners | Mitigation Specialist | heidi@h2opartnersusa.com | 512-568-2259 |

APPENDIX E: MEETING DOCUMENTATION

PUBLIC NOTICES

Public notices to announce El Paso County’s participation in the Plan Update development process were posted 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.

Figure E-5. El Paso Office of Emergency Management Public Notice, Facebook

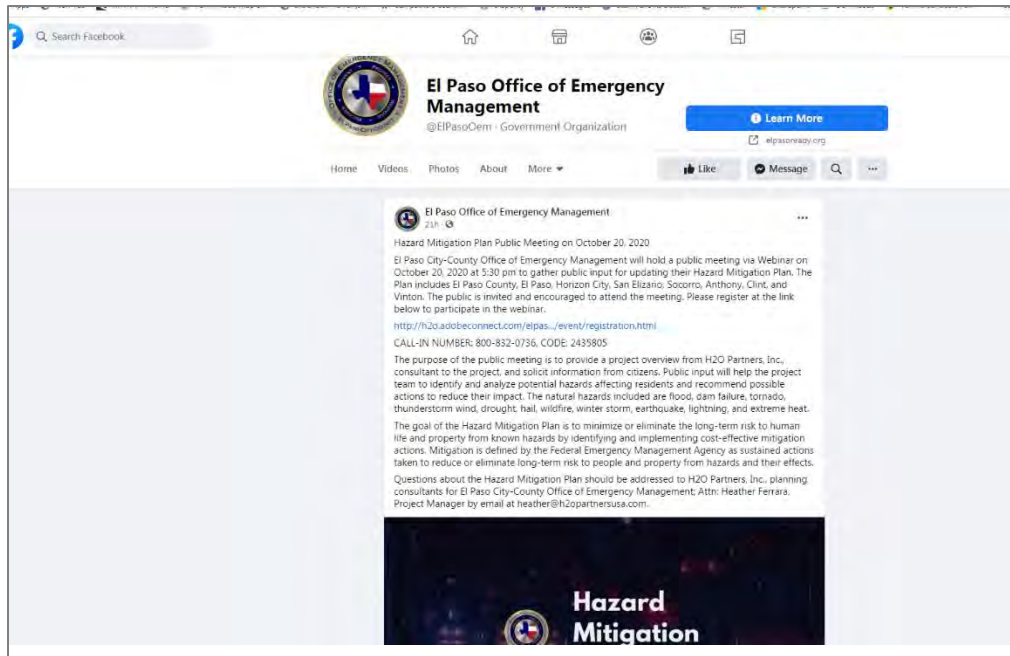
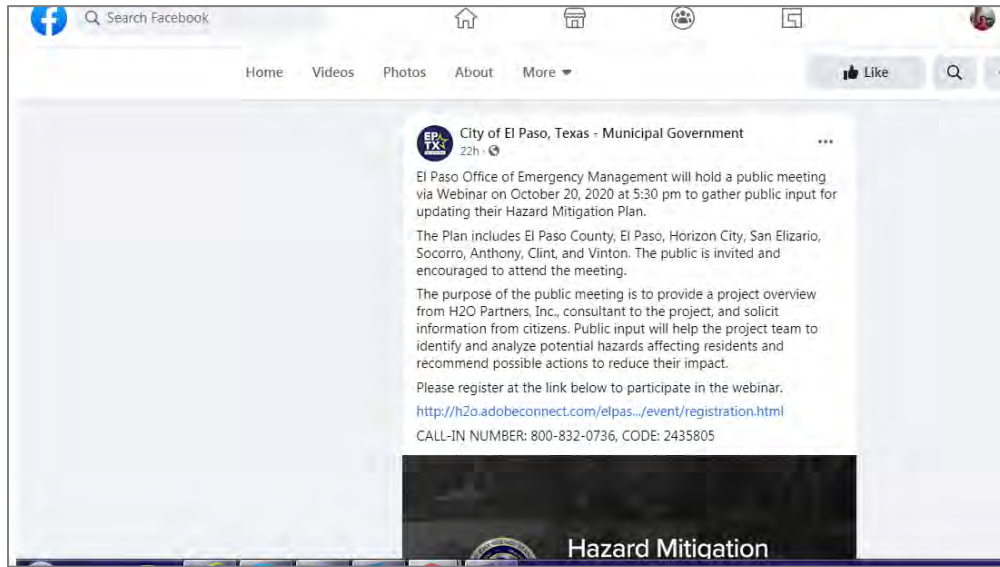


Figure E-6. City of El Paso Public Notice, Twitter



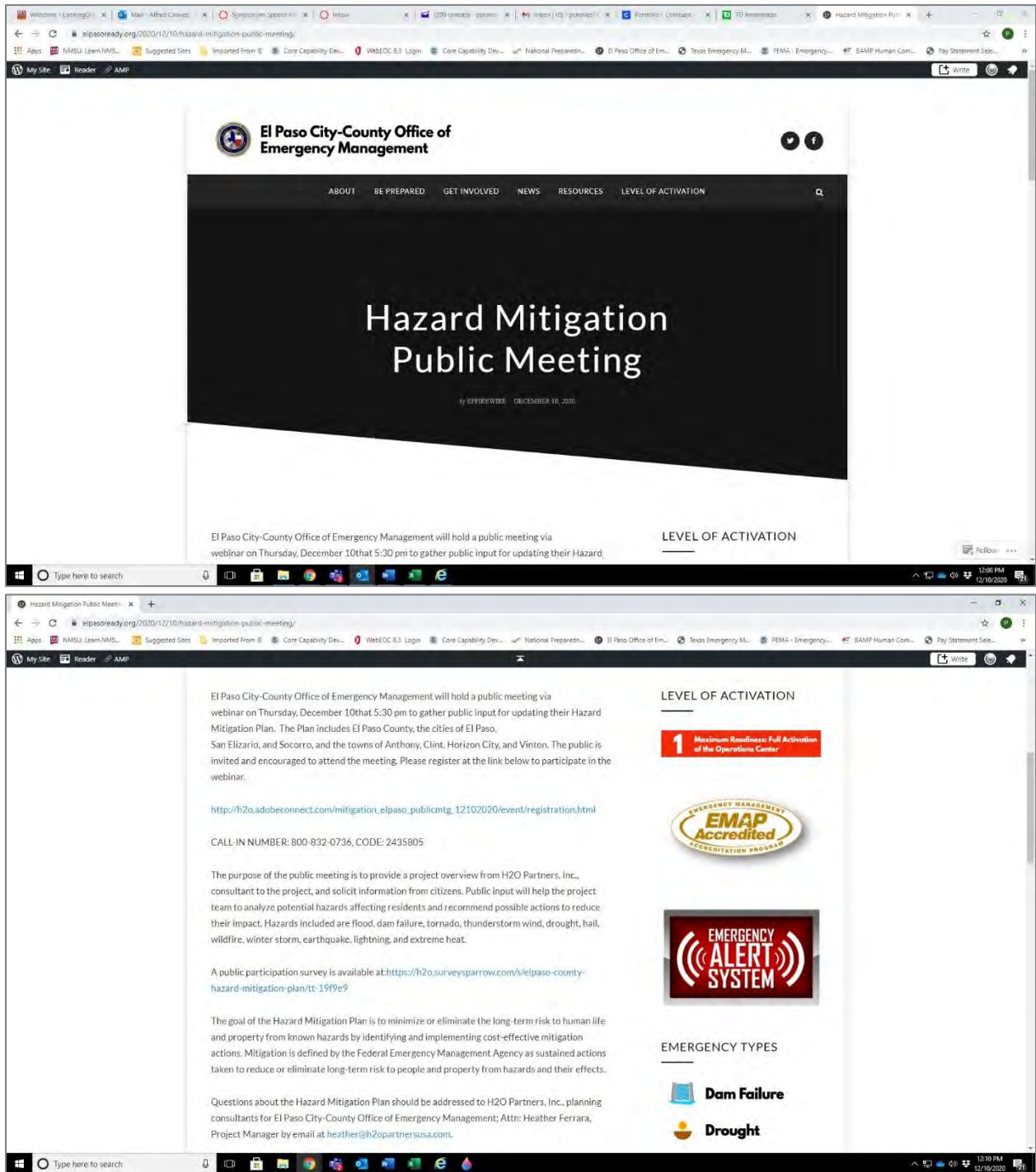
APPENDIX E: MEETING DOCUMENTATION

Figure E-7. City of El Paso, Texas – Municipal Government Public Notice, Facebook



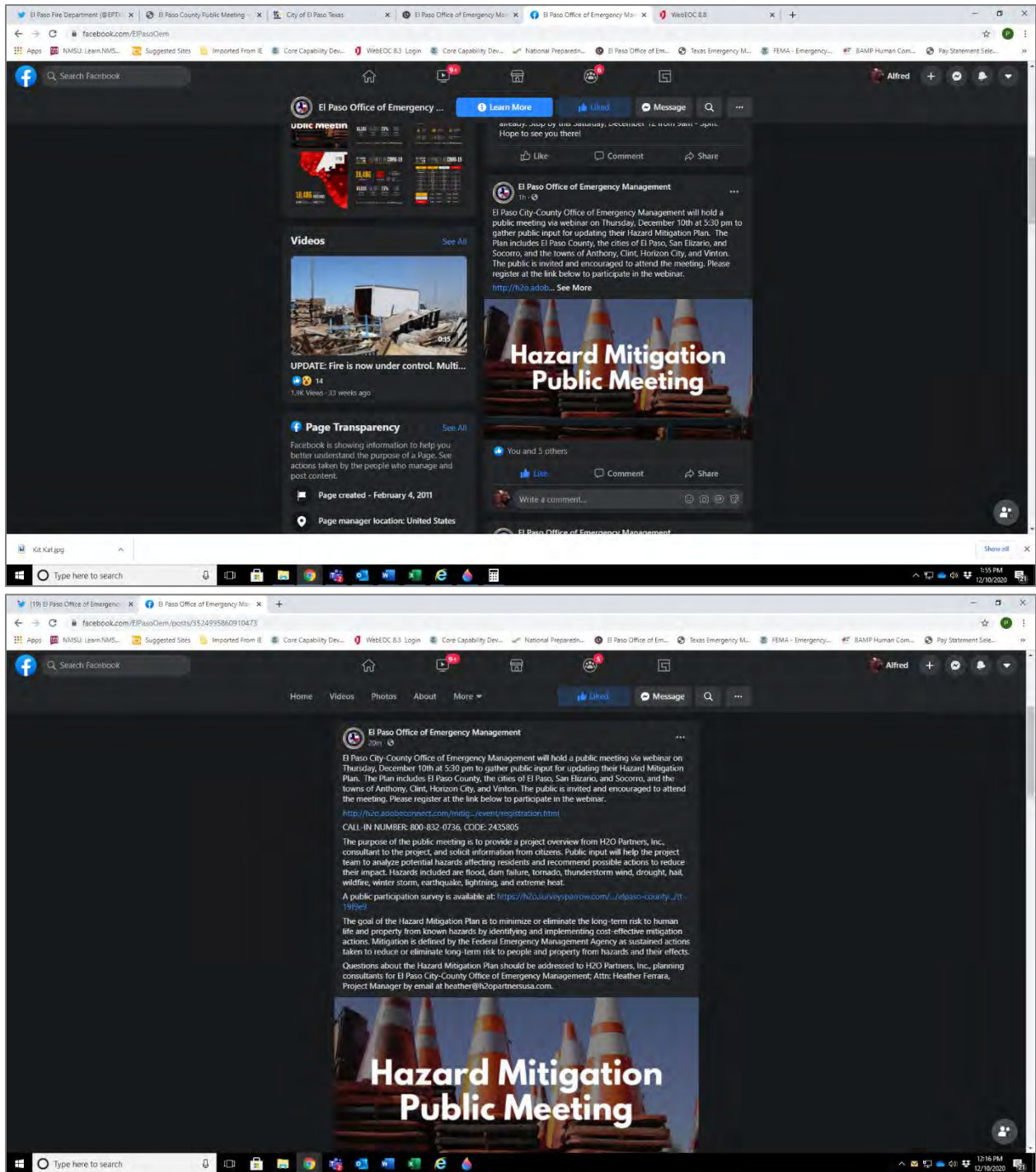
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Figure E-8. El Paso City-County Office of Emergency Management Public Notice, Website



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Figure E-9. El Paso Office of Emergency Management Public Notice, Facebook



APPENDIX E: MEETING DOCUMENTATION

Figure E-10. El Paso County Judge Public Notice, Facebook

El Paso County Judge Ricardo Samaniego
Published by Nicole Ruiz · Just now ·

The El Paso City-County Office of Emergency Management will hold a public meeting via webinar today at 5:30 pm to gather public input for updating their Hazard Mitigation Plan.

The purpose of the public meeting is to provide a project overview from H2O Partners, Inc., consultant to the project, and solicit information from citizens. Public input will help the project team to analyze potential hazards affecting residents and recommend possible actions to reduce their impact. Hazards included are flood, dam failure, tornado, thunderstorm wind, drought, hail, wildfire, winter storm, earthquake, lightning, and extreme heat. To join the meeting later today, please register via the link below. You can also dial in!

<http://h2o.adobeconnect.com/mitig.../event/registration.html>

CALL-IN NUMBER: 800-832-0736, CODE: 2435805

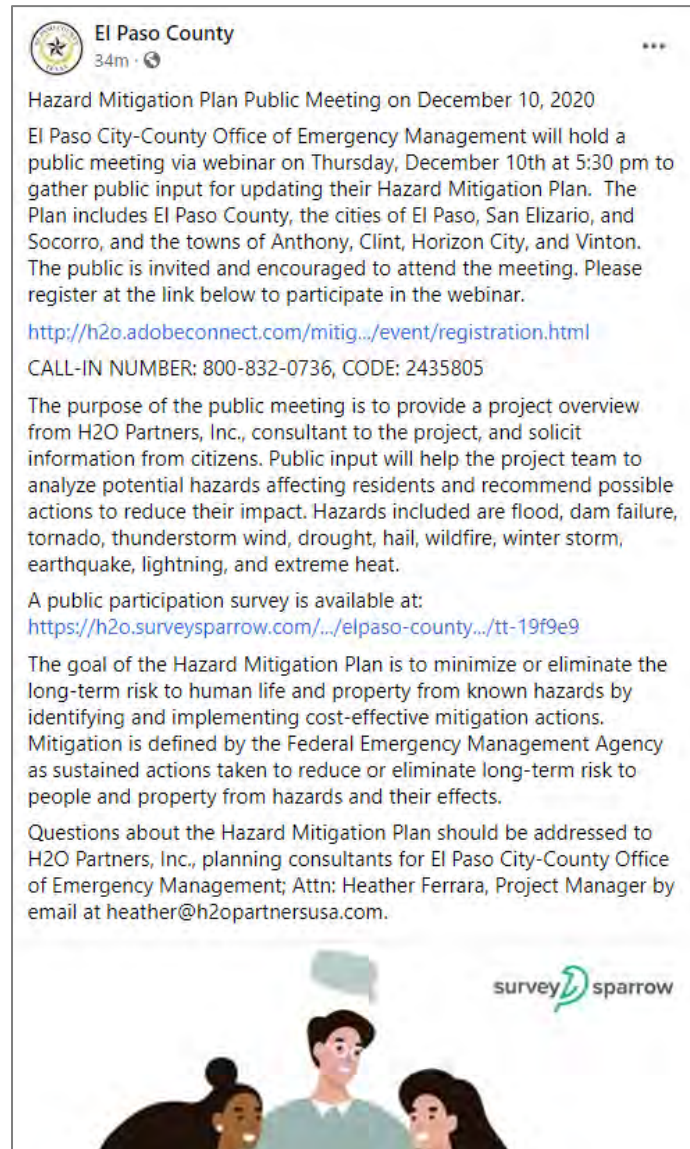
0 People Reached 0 Engagements **Boost Post**

Like Comment Share

Comment as El Paso County Judge Ricardo ...

APPENDIX E: MEETING DOCUMENTATION

Figure E-11. El Paso County Public Notice, Facebook



APPENDIX E: MEETING DOCUMENTATION

Figure E-12. El Paso County Public Notice, Twitter



APPENDIX E: MEETING DOCUMENTATION

Figure E-13. City of Socorro Public Notice, website

The screenshot shows the City of Socorro website with a navigation bar at the top containing links for Home, About, Departments, Municipal Court, Public Services, Public Engagement, Newsroom, and Webmail. The main heading is "SPECIAL PUBLIC NOTIFICATION" in large red letters. Below this is the City of Socorro seal and the date "12/1/2020". The text "FOR IMMEDIATE RELEASE" is centered. The main title is "Hazard Mitigation Plan Public Meeting on December 10, 2020". The body text states: "El Paso City-County Office of Emergency Management will hold a public meeting via webinar on Thursday, December 10th at 5:30 pm to gather public input for updating their Hazard Mitigation Plan. The Plan includes El Paso County, the cities of El Paso, San Elizario, and Socorro, and the towns of Anthony, Clint, Horizon City, and Vinton. The public is invited and encouraged to attend the meeting. Please register at the link below to participate in the webinar." A registration link is provided: http://h2o.adobeconnect.com/mitigation_elpaso_publicmtg_12102020/event/registration.html. At the bottom, the call-in number is listed as 800-832-0736, CODE: 2435805.

Figure E-14. City of Socorro Public Notice, Facebook

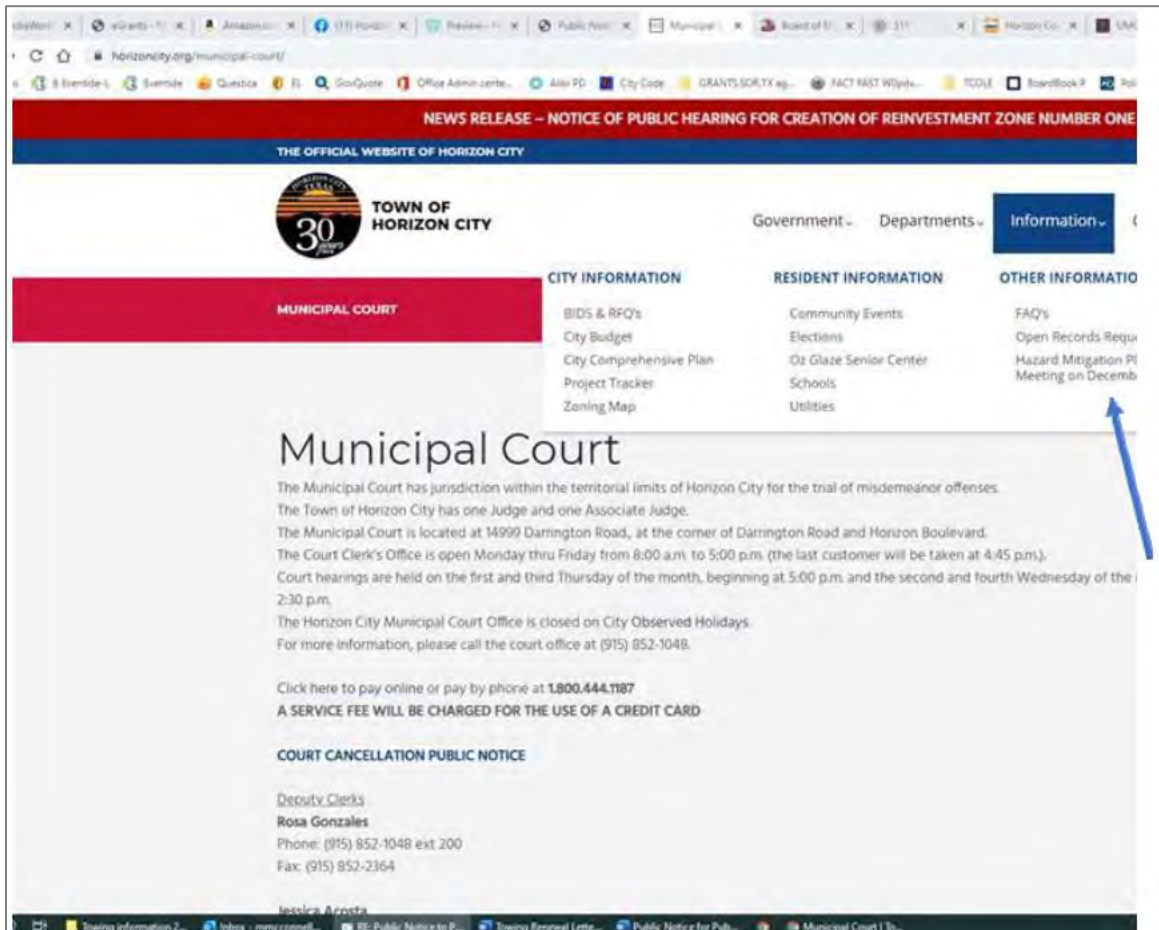
The screenshot shows a Facebook post from the City of Socorro, Texas, dated December 1st at 4:00 PM. The post content is identical to the website version, including the navigation bar, seal, date, "FOR IMMEDIATE RELEASE" text, title, body text, registration link, and call-in number. The post also includes a detailed description of the meeting's purpose: "The purpose of the public meeting is to provide a project overview from H2O Partners, Inc., consultant to the project, and solicit information from citizens. Public input will help the project team to analyze potential hazards affecting residents and recommend possible actions to reduce their impact. Hazards included are flood, dam failure, tornado, thunderstorm/wind, drought, hail, wildfire, winter storm, earthquake, lightning, and extreme heat." It also mentions a public participation survey available at <https://h2o.surveymonkey.com/s/elpaso-county-hazard-mitigation-survey>. The goal of the Hazard Mitigation Plan is to minimize or eliminate long-term risk to human life and property from known hazards by identifying and implementing cost-effective mitigation actions. The post has 3 shares and a comment section with the prompt "Write a comment...".

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Figure E-15. Town of Anthony Public Notice, Facebook

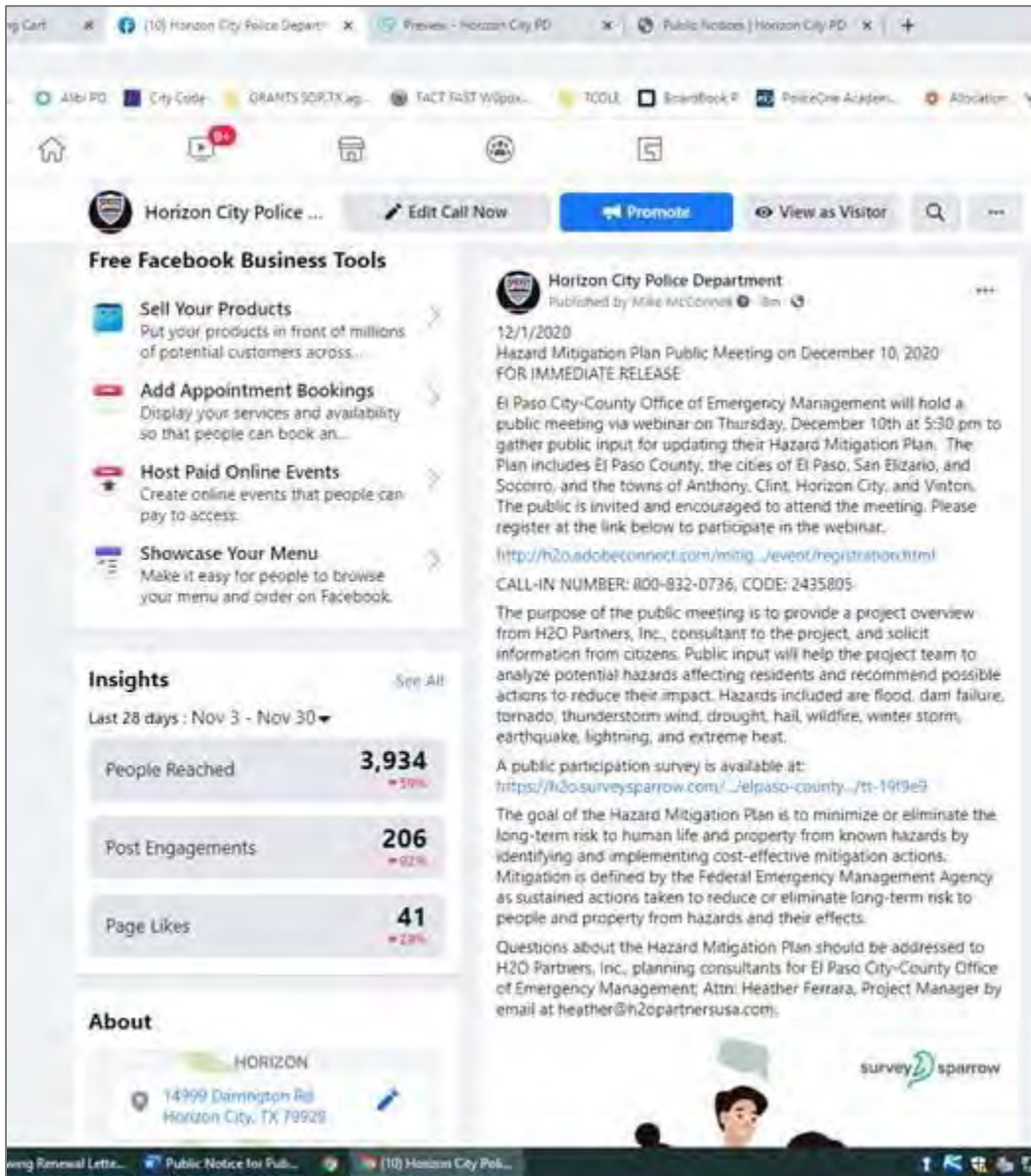


Figure E-16. Town of Horizon City Public Notice, Website



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Figure E-17. Town of Horizon City Police Department Public Notice, Facebook



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Figure E-18. Town of Horizon City PD Public Notice, Website

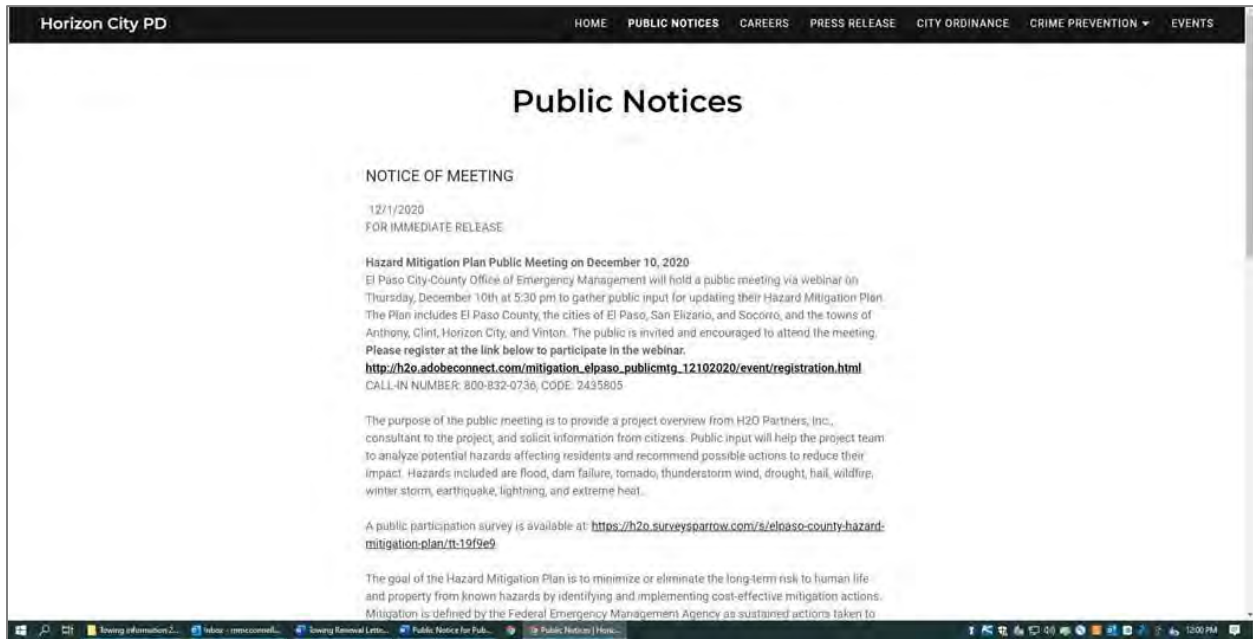


Figure E-19. Village of Vinton Public Notice, Website

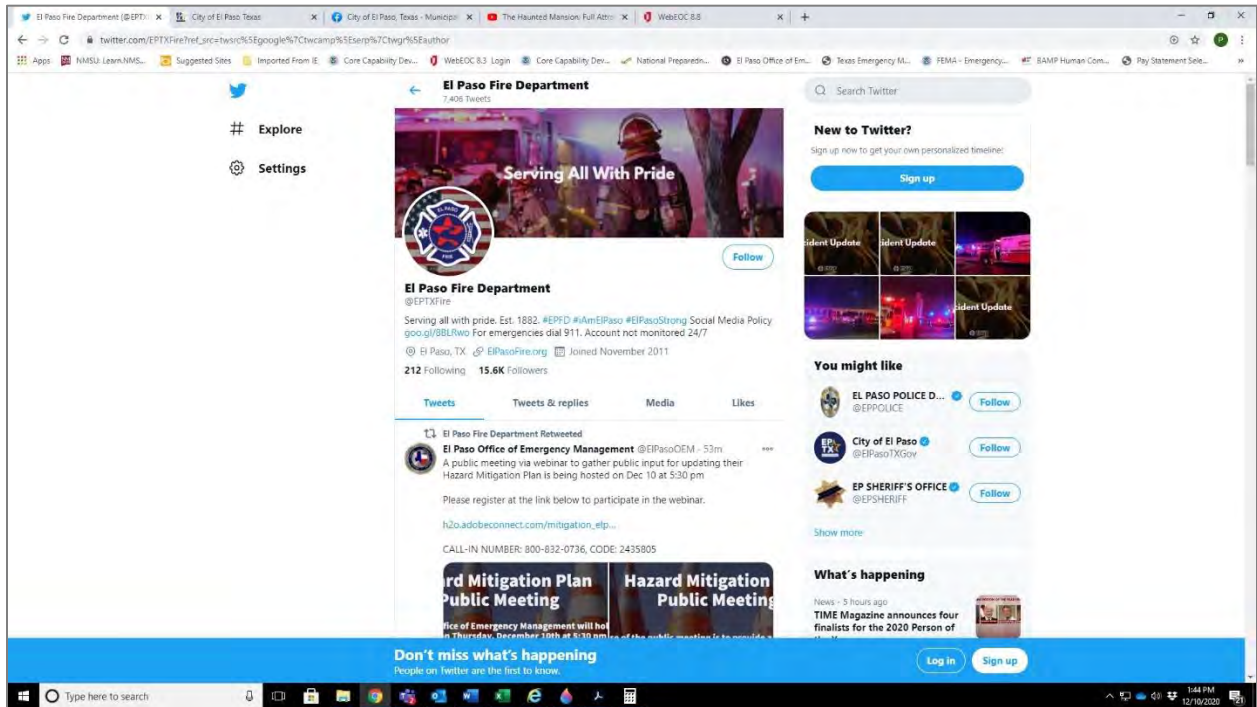


APPENDIX E: MEETING DOCUMENTATION

Figure E-20. Village of Vinton Public Notice, Facebook



Figure E-21. El Paso Fire Department Public Notice, Twitter



APPENDIX F: CAPABILITY ASSESSMENT

Overview 1
Community Capability Assessments.....2

OVERVIEW

A Community Capability Assessment is an integral component of the Hazard Mitigation Planning Process. It is an invaluable tool in assessing a community’s existing planning and regulatory capabilities to support implementation of mitigation strategy objectives.

Beginning on Page 2, a completed Capability Assessment Checklist provides information on existing policies, plans, and regulations in place for Planning Team members at the local level or that may be provided by the County on an as-needed basis. El Paso’s Office of Emergency Management offers existing resources including technical assistance to the participating jurisdictions, to help with planning mechanisms including Annual budget reviews, Capital Improvement Plans, Comprehensive Plans, Floodplain Management Plans, Grant Applications, and Regulatory Plans. **Participation is denoted with an “x” on the Checklist.**

APPENDIX F: CAPABILITY ASSESSMENT

COMMUNITY CAPABILITY ASSESSMENTS

| COMMUNITY CAPABILITY CHECKLIST | <i>El Paso County</i> | <i>City of El Paso</i> | <i>City of San Elizario</i> | <i>City of Socorro</i> | <i>Town of Anthony</i> | <i>Town of Clint</i> | <i>Town of Horizon City</i> | <i>Town of Vinton</i> |
|---|-----------------------|------------------------|-----------------------------|------------------------|------------------------|----------------------|-----------------------------|-----------------------|
| Plans | | | | | | | | |
| Capital Improvements Plan | x | x | | x | x | | x | x |
| Community Wildfire Protection Plan | x | x | | | | | | |
| Comprehensive / Master Plan / Land Use Plan | x | x | x | x | x | | x | x |
| Continuity of Operations | x | x | x | x | | | | x |
| Emergency Operations Plan | x | x | x | x | | | x | |
| Evacuation Plan | x | x | x | x | | | | |
| Hazard Mitigation Plan | x | x | x | x | x | x | x | x |
| Stormwater Management Plan | x | x | x | x | x | | x | x |
| Policies/Ordinances | | | | | | | | |
| Building Codes | | x | x | x | x | x | x | x |
| Fire Code | | x | | x | | x | x | |
| Floodplain Ordinance | x | x | x | x | x | x | x | x |
| Stormwater Ordinance | x | x | | x | x | | x | x |
| Subdivision Regulations | x | x | x | x | x | | x | x |
| Wildfire Ordinance | x | x | | x | | | | |
| Zoning Ordinance/Land Use Restrictions | x | x | x | x | x | x | x | x |
| Programs | | | | | | | | |
| Floodplain Maps/Flood Insurance Studies | x | x | x | x | x | | x | x |

APPENDIX F: CAPABILITY ASSESSMENT

| COMMUNITY CAPABILITY CHECKLIST | <i>El Paso County</i> | <i>City of El Paso</i> | <i>City of San Elizario</i> | <i>City of Socorro</i> | <i>Town of Anthony</i> | <i>Town of Clint</i> | <i>Town of Horizon City</i> | <i>Town of Vinton</i> |
|--|-----------------------|------------------------|-----------------------------|------------------------|------------------------|----------------------|-----------------------------|-----------------------|
| Hydrologic/Hydraulic Studies | x | x | | x | | | | |
| Mutual Aid Agreement | | x | | x | | | | x |
| National Flood Insurance Program Participant | x | x | x | x | x | x | x | x |
| NFIP Community Rating System Participant | x | x | | x | | | | |
| Property Acquisition Program | x | x | | x | | | | x |
| Public Education/Awareness Programs | x | x | x | x | | | | x |
| Storm Drainage Systems Maintenance Program | x | x | | x | x | | | x |
| Stream Maintenance Program | x | x | | x | | | | x |
| Warning Systems/Services | x | x | | x | | | | |
| Staff/Departments | | | | | | | | |
| Building Code Official | | x | x | x | x | x | x | x |
| Emergency Manager | x | x | x | x | | | x | |
| Engineer | x | x | x | x | x | | x | x |
| Environmental Conservation Specialist | | x | | | x | | | |
| Floodplain Administrator | x | x | x | x | x | x | x | x |
| GIS Coordinator | x | x | | x | | | x | x |
| Planner | x | x | | x | | x | x | |
| Public Information Official | x | x | | x | x | | x | |
| Resource Development/Grant Writer | x | x | | x | x | x | x | x |

APPENDIX G: CITY OF EL PASO FLOOD MAP

| | |
|--------------------------------|---|
| Overview..... | 1 |
| City of El Paso Flood Map..... | 1 |

OVERVIEW

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

CITY OF EL PASO FLOOD MAP

Figure G-1 is the flood map of the City of El Paso. The green in the map is areas of City of El Paso that used to be in the flood zone but have been resolved and removed from the flood map. The areas in red are current flood zone locations. This flood map is considered the best available data for development in the City of El Paso planning area and may be utilized in the permitting process to determine flood zone locations.

Figure G-1. City of El Paso Flood Map

