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

DEPARTMENT: Fire - Office of Emergency Management

AGENDA DATE: December 1, 2015

CONTACT PERSON/PHONE: AVELARDO TALAVERA, EMERGENCY MGMT. COORDINATOR, 838-3263
SAMUEL PEÑA, FIRE CHIEF, 485-5605

DISTRICT(S) AFFECTED: ALL

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

SUBJECT:

City Council's adoption and approval of the City's portion of the 2015 Multi-Jurisdictional Hazard Mitigation Action Plan with the correction of minor typographical errors and minor clarification being recommended to the RGCOG, Federal Emergency Management Agency and/or the Governor's Division of Emergency Management, Mitigation Section, as made by the City Manager or his designee without further action of City Council.

BACKGROUND / DISCUSSION:

The purpose of the Hazard Mitigation Plan is to identify the potential hazards that may pose a danger to people and property within the community. The Plan identifies potential mitigation actions that can be implemented in order to reduce risk within the area. By having an approved Plan, should a disaster occur in Texas, Mitigation Action funds are made available for jurisdictions. Lastly, if the County and the City of El Paso have a disaster that is declared a "Presidential Disaster," El Paso can access FEMA dollars.

Selection Summary:
N/A

PRIOR COUNCIL ACTION:
The 2007 Hazard Mitigation Plan was adopted and approved on April 17, 2007.

AMOUNT AND SOURCE OF FUNDING:
N/A

BOARD / COMMISSION ACTION:
N/A

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

DEPARTMENT HEAD: _____

RESOLUTION

WHEREAS, the City of El Paso recognizes the threat that natural hazards (including, but not limited to flooding, hail, drought, extreme heat and high winds), pose to people and property within the community; and

WHEREAS, the purpose of hazard mitigation is to implement actions that eliminate the risk from hazards, or reduce the severity of the effects of hazards on people and property; and

WHEREAS, the City of El Paso assisted with and participated in the development and implementation of the 2015 El Paso County, Texas, Multi-Hazard Mitigation Action Plan ("Plan") in collaboration with the Rio Grande Council of Governments ("RGCOG"); and

WHEREAS, the RGCOG is a voluntary association of local governments that was established under state law to promote coordination and cooperation in the delivering of governmental services within the Upper Rio Grande State Planning Region in accordance with the Texas Local Government Code, Chapter 391; and

WHEREAS, the Plan has been reviewed by community residents, business owners, and representatives of federal, state, and local agencies to reflect their concerns; and

WHEREAS, the Plan recommends actions that will reduce the potential for damage due to natural hazards; and

WHEREAS, the Federal Emergency Management Agency ("FEMA") requires approval of the City's portion of the Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF EL PASO:

That the City of El Paso hereby officially adopts and approves the City's portion of the 2015 El Paso County Multi-Jurisdictional Hazard Mitigation Action Plan ("Plan"), and that the City Manager or his designee, without further action necessary by City Council, is authorized to submit corrections of minor typographical errors and minor clarifications to the Plan, to the Rio Grande Council of Governments, Federal Emergency Management Agency and/or the Governor's Division of Emergency Management, Mitigation Section.

APPROVED AND ADOPTED on this date ___ day of _____, 2015.

CITY OF EL PASO

_____
Oscar Leeser
Mayor

ATTEST:

_____
Richarda Duffy Momsen
City Clerk

APPROVED AS TO FORM:

_____
Josette Flores
Assistant City Attorney

APPROVED AS TO CONTENT:

_____
Samuel Peña, Fire Chief
El Paso Fire Department

15-1006-557/475809/Far West Texas Hazard Mitigation Action Plan/JF

Office of Emergency Management

2015 Multi-Hazard Mitigation Action Plan

2015 Multi-Hazard Mitigation Action Plan

What is a Hazard Mitigation Action Plan?

The **Multi-Hazard Mitigation Action Plan** recommends actions that would reduce the potential impacts of hazards and would make an area more sustainable and less vulnerable to damage, facilitating recovery and redevelopment following occurrence of a natural or man-made hazard.

The Plan also aligns with **City Strategic Goal 2:** Set the Standard for a Safe and Secure City and **Action 3.9:** Enhance City's capability to prepare for, respond to and recover from disasters with the purpose of reducing risk and effects from hazards.

Local Hazards

The Plan Covers Eight Sections

Overview

- The planning was a two year process.
- The Plan is updated every 5 years .
- The Rio Grande Council of Government coordinated the plan with local and state emergency management officials.
- The Plan was grant funded.
- It covers the City of El Paso, Anthony, Vinton, Horizon, Socorro, Clint as well as the entire County of El Paso.
- Assists in identifying vulnerabilities within the City to address in the resilience initiative.

Why is the adoption of the plan important for the City of El Paso?

- The plan is needed in order to receive federal public assistance.
  - Presidential Emergency
  - Disaster Declaration

Thank You!
Questions?

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

URS

To be adopted in 2015 by

El Paso County, TX

City of El Paso, TX

City of Socorro, TX

Town of Anthony, TX

Town of Clint, TX

Town of Horizon City, TX

Town of Vinton, TX

Prepared by

Rio Grande Council of Governments

8037 Lockheed Drive, Suite 100

El Paso, TX 79925

Technical assistance provided by

URS Corporation of

El Paso, Texas and Germantown, Maryland

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Attachment to the El Paso County Hazard Mitigation Plan

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1. Introduction

Facilitated by the Rio Grande Council of Governments (RGCOG), residents of El Paso County and the incorporated municipalities which include the Town of Anthony, City of El Paso, City of Socorro, Town of Horizon City, Town of Vinton, and Town of Clint in the County worked with representatives of neighboring jurisdictions to update this Hazard Mitigation Plan.

This section explains the purpose of hazard mitigation, the intent of the plan, and the Federal regulations that guide the content of the plan. This section also defines the planning area and describes the organization of the plan.

1.1. Purpose of Hazard Mitigation

Hazard mitigation reduces or eliminates the potential for damage to property or for injury or loss of life due to a hazard. The benefits of mitigating the potential impacts of hazards include making an area more sustainable and less vulnerable to damage, facilitating recovery and redevelopment following occurrence of a natural hazard, and establishing eligibility for Hazard Mitigation Assistance funding.

1.2. Intent of the Plan

The intent of the plan is to recommend cost-effective and appropriate actions that will permanently reduce the potential for loss. Hazard mitigation planning requires coordination and collaboration among multiple agencies, organizations, and local jurisdictions.

Furthermore, the intent of the plan is to update the previous hazard mitigation action plan that was adopted by El Paso County and each participating municipality in 2007. The RGCOG began the development of the previous hazard mitigation plan for El Paso County as well as for the other five Texas counties in the Far West Texas region in 2004. The RGCOG began the process of developing this updated hazard mitigation plan in 2012. Figure 1 shows the location of El Paso County relative to that of the other Far West Texas Counties.

Figure 1: Members of the RGCOG

1.3. Authority

The plan will be adopted by participating jurisdictions prior to implementation and after FEMA Region VI indicates that the plan is approvable. An approvable plan complies with the requirements of Title 44 of the Code of Federal Regulations Section 201.6.

1.4. The Planning Area

This is the multi-hazard mitigation plan for El Paso County and for the six incorporated municipalities in the County:

- City of El Paso
- City of Socorro

- Town of Anthony
- Town of Clint
- Town of Horizon City
- Town of Vinton

Change Since Last Plan

Ysleta Del Sur Pueblo, a federally recognized U.S. American Indian tribe, participated in the development of the previous plan and adopted it in 2007. The Ysleta Del Sur Pueblo did not participate in the update of the plan.

1.5. Organization of the Plan

The El Paso County Hazard Mitigation Plan Update, referred to as the "plan," has eight major sections.

- **Section 1** introduces hazard mitigation planning and this updated plan.
- **Section 2** summarizes the planning process followed to develop the previous plan, which was adopted in 2007, and provides details about the process implemented to develop this plan. This information will facilitate the process the next time the plan is updated.
- **Section 3** identifies the natural hazards that can occur in the planning area and profiles or describes the characteristics of each hazard as a first step in analyzing risk. This information is used to develop an understanding of how natural hazards can lead to damage in the planning area.
- **Section 4** summarizes community capabilities and resources that may facilitate the implementation of hazard mitigation actions. This information is important for identifying mitigation actions that are appropriate for each participating jurisdiction.
- **Section 5** describes a systematic assessment of risk and concludes with short descriptions of potential problems. This information is important for developing mitigation actions that respond to precise threats or vulnerabilities in the planning area.
- **Section 6** presents specific recommendations for solving the identified problems through a variety of mitigation actions. Recommendations include strategies for maintaining the plan so that it remains scientifically accurate and relevant to participating jurisdictions. After the plan is adopted, responsible parties will implement the mitigation actions.
- **Section 7** lists sources of information consulted for the development of this plan update. This information will be particularly helpful when the plan is next updated.
- **Section 8** includes copies of documents prepared for and used during the plan update process and, after the plan is adopted by participating jurisdictions, it will also include copies of the resolutions of adoption.

2. The Planning Process

This section provides details of the planning process for development of both the previous plan, which was adopted in 2007, and this updated plan, which was developed in 2012 and 2013. The two planning processes were substantially similar, with the addition of an online survey in 2012.

2.1. 2007 Planning Process Summary

Beginning in August 2003, the Assistant Coordinator for the Office of Emergency Management for the City and County of El Paso, the RGCOG Regional Services Director, and representatives of RGCOG member governments gathered and analyzed data to develop the previous hazard mitigation plan.

2.1.1. 2007 Planning Team

The Planning Team identified hazards and provided data for plan development to RGCOG. RGCOG led the planning process throughout the review of existing planning mechanisms; hazard identification and analysis; assessment of risk and vulnerability; identification, evaluation, and prioritization of mitigation actions; and development of mitigation strategies. As proposed in the plan, RGCOG was responsible for monitoring and evaluating the plan as the participating jurisdictions implemented the mitigation actions and for initiating the plan update process. Table 1 lists Planning Team participants.

Table 1: 2007 Planning Team

Jurisdiction	Name
RGCOG	Ms. Marisa Quintanilla
City / County of El Paso	Lt. Ray Resendez
City / County of El Paso	Mr. Larry Nichols
Disaster District Chair	Lt. Najera
Federal Bureau of Investigation	Special Agent Hemund
State of Texas, Regional Lead Organization	Mr. Hargrove
Town of Anthony	Mayor Franco
Town of Clint	Ms. Garza
Town of Horizon City	Chief Aguilar
Town of Socorro	Mayor Sanchez
Town of Vinton	Mayor Ontiveros
Ysleta Del Sur Pueblo	Governor Sinclair

2.1.2. 2007 Stakeholder and Public Involvement

Public involvement was encouraged through the previous plan development process. Information about hazard mitigation was updated regularly on the RGCOG Web site (www.riocog.org). Planning Team meetings were announced in the local newspaper and posted in city/county office buildings and were open to the public. All residents of the six-county region to include City of El Paso, City of Anthony, Village of Vinton, Town of Horizon, Town of Clint, City of Socorro, and El Paso County were invited to offer comments on the draft plan. A final public comment period was held prior to plan adoption.

2.1.3. 2007 Technical Assistance

RGCOG did not contract with an outside firm for technical assistance to develop the initial local hazard mitigation plan. RGCOG relied on the FEMA Series 306, the How-To guides, as well as input from Texas Department of Public Safety and FEMA Region VI for developing the previous plan.

2007 Participation of Neighboring Jurisdictions

The multi-jurisdictional nature of the planning process ensured the involvement of neighboring jurisdictions, including Hudspeth, Culberson, Jeff Davis, Brewster, and Presidio Counties. With RGCOG leadership, each of the neighboring counties developed and adopted a hazard mitigation plan shortly after the El Paso plan was completed.

2.1.4. 2007 Plan Adoption

The previous plan was submitted to the Governor's Department of Emergency Management for initial review in July 2004. The plan was revised as required by the State and by FEMA Region VI. The El Paso County plan was adopted by participating jurisdictions in 2007.

2.2. 2012–2013 Planning Process Summary

The plan update process began in 2012 with the re-establishment of the Planning Team. RGCOG contacted leaders of each jurisdiction that adopted the previous plan and requested that they assign a representative to the Planning Team. The RGCOG staff telephoned representatives of neighboring jurisdictions, the University of Texas at El Paso, El Paso Community College, Fort Bliss Army Base, Ysleta Del Sur Pueblo, and Texas state agencies to invite them to be part of the Planning Team. The Ysleta Del Sur Pueblo declined the invitation, indicating that they would be developing a Tribal Hazard Mitigation Plan.

2.2.1. 2012–2013 Planning Team

The RGCOG scheduled an initial Planning Team meeting on October 18, 2012. Planning Team participants are listed in Table 2, which also summarizes how individuals contributed throughout the plan development process.

Table 2: Plan Update Team

Jurisdiction/ Agency Represented	Planning Team Participant for 2013 Plan Update	Contributions
City of El Paso / El Paso County	Lt. Richard Gonzalez, Assistance Coordinator City and County Emergency Management Mr. Gilbert Saldana, P. E.	Participated in October 2012 meeting; Provided information regarding flooding issues within all jurisdictions in El Paso County Submitted hazards information using November 2012 survey; November 2012 telephone interview

Jurisdiction/ Agency Represented	Planning Team Participant for 2013 Plan Update	Contributions
City of El Paso	Chief Scott D. Calderwood Ms. Rosalinda Horstman	Participated in December 2012 meeting; Discuss the need to address Threat and Risk Assessment within El Paso County Reviewed draft plan
City of Socorro	Mr. Martin Widtfeldt, Texas Department of Emergency Management	Participated in October 2012 meeting; Participated in December 2012 meeting; Mr. Widtfeldt met with City of Socorro officials to discuss their input regarding the plan. Officials noted that due to construction in Horizon, the path of the water has created a problem with flooding in the City of Socorro Reviewed draft plan
Town of Anthony	Mr. Hector Parada	Participated in October 2012 meeting; Discussed minor flooding issues in the Town of Anthony due to the lack of drainages Submitted hazards information using November 2012 survey
Town of Clint	Mayor Dale Reinhardt Chief Pedro Hernandez	Participated in October 2012 meeting; Chief Hernandez's was concerned with the derbris that is collected in the drainage system Submitted hazards information using November 2012 survey
Town of Horizon City	Chief Michael McConnell Mr. Memo Reyes	Participated in October 2012 meeting; Discussed the need for more water pumps to helping pumping standing water Submitted hazards information using November 2012 survey
Town of Vinton	Mayor Madeleine Praino Ms. Jessica Garza	Participated in October 2012 meeting; Discussed the need for an outdoor warning system to warn the residents of an emergency Submitted hazards information using November 2012 survey
Texas Department of Emergency Management	Lt. Ray Resendez Capt. Luis Najera	Participated in October 2012 meeting; Submitted hazards information using November 2012 survey; Participated in December 2012 meeting; Reviewed draft plan
Texas Department of State Health Services	David Kolberson, R. N., Manager Epidemiology Response Team	Participated in October 2012 meeting; Submitted hazards information using November 2012 survey
RGCOG Regional Services	Ms. Marisa Quintanilla, Regional Services Director	Managed the plan updated process; Facilitated public participatory process; Reviewed draft plan

2.2.2. 2012–2013 Stakeholder and Public Involvement

Stakeholder and public involvement is critical for a planning process. Stakeholders and the public provide valuable information about hazards and potential losses. These entities must evaluate proposed actions because implementation requires the dedication of community resources, including time and money.

RGCOG has a great deal of experience in scheduling and conducting public meetings throughout the six counties in Far West Texas. Established procedures for announcing and holding meetings have been very effective in obtaining participation of representatives from El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint and the public at meetings. The Office of Emergency Management for the City/County of El Paso, the Town of Horizon City, and the Town of Anthony disseminated meeting notice through web postings and publishing of agenda prior to the meeting dates. Therefore, no changes were made from the 2008 Stakeholder and Public Involvement processes used to develop the previous mitigation plan; process included: 1) Planning Team meetings were announced in the local newspaper, and 2) posted in county office buildings, and 3) were open to the public. Lastly, all residents of the six-county Far West Texas region, including El Paso County and its six participating jurisdictions, were invited to offer comments on the draft plan. A final public comment period was held prior to plan adoption. The only addition to the process used to involve stakeholders and the public to update the plan was the addition of an online survey. The currently used planning process used derived from the "*Mitigation Planning How-To Guide #2 (FEMA 386-2)*" and *"Local Mitigation Planning Handbook March, 2013 (FEMA)."*

<u>October 18, 2012 Planning Team Meeting</u>

On October 18, 2012, RGCOG staff and planners from URS described the scope of work and expectations for participation by members of the Planning Team and participating jurisdictions. The Planning Team reviewed and approved a proposed schedule and determined a method for obtaining participation during the planning process. Section 8.1.1 displays:

- List of people invited to attend the meeting
- Public announcement of the meeting
- Meeting agenda
- Meeting notes
- Copy of the sign-in sheet for the meeting
    - Eleven members of the El Paso County Planning Team attended. Each participating jurisdiction was represented.
    - Four members of the public attended from El Paso County and two members of the public attended representing neighboring jurisdictions
    - All meeting participants were invited to participate throughout the meeting and to ask questions, offer observations, and provide information

- Information provided by members of the public and by committee members was used to finalize the planning process and to identify hazards

November 2012 Community Survey

In November 2012, RGCOG sent a request to representatives of each participating jurisdiction to reply to an online survey about the nature of hazards in the County. A sample of the individualized e-mail message sent to a representative of each participating jurisdiction inviting a response to the survey is displayed in Section 8.1.2. The pages of the survey are also displayed in Section 8.1.2. Responses to the survey were received from:

- El Paso County
- Town of Anthony
- Town of Clint
- Town of Horizon City
- Town of Vinton

A telephone interview that included survey topics was conducted with an official of the City of El Paso.

January 2013 Press Releases

On January 17, 2013, articles about the hazard mitigation plan update were printed in the *Big Bend Sentinel*, the *Alpine Avalanche*, and the *Van Horn Advocate*. An article about the plan was also featured on the RGCOG Web site (http://www.riocog.org/Notices/FarWestTexasHazardMitigatioPlanUpdatePressRelease.pdf) beginning on January 22, 2013, and continuing through February 2013.

Section 8.1.4 contains copies of the press releases.

February 2013 Review of Preliminary Draft Plans

Representatives of participating jurisdictions reviewed one or more of the plans being developed for the Far West Texas region including El Paso County and its six participating jurisdictions. This provided residents and officials of participating jurisdictions to review information presented in the other plans when reflecting on the accuracy of the information presented in the draft of this plan. Section 8.1.5 contains a copy of the message sent to plan reviewers as well as a list of plan reviewers. Twenty two individuals including Planning Team members reviewed the El Paso County draft plan.

February 2013 Announcement to Elected Officials

An update on the status of the planning process was provided to elected officials at the February 15, 2013 meeting of the Rio Grande Council of Governments Board of Directors. Section 8.1.6 shows an update on the mitigation action plans as an agenda item.

March 5, 2013 El Paso Public Meeting

On March 5, 2013, RGCOG staff and planners from URS facilitated a meeting at the RGCOG office in El Paso, TX. Representatives of jurisdictions in the entire six-county Far West Texas region, which included El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, City and Town of Clint, were invited to participate in the meeting. The purpose of the meeting was to review initial findings of the Risk Assessment and review potential hazard mitigation actions. Meeting participants discussed the feasibility of potential hazard mitigation actions to develop a set of proposed actions.

Section 8.1.7 displays:

- Methods for inviting participants to the meeting
    - Invitations to each meeting were issued to the public by local officials through e-mail, telephone calls, and signs being posted in public places (local municipal office building and County office). Documentation of the planning process is not available for invitations beyond those that originated with the RGCOG.
    - Public announcements of the meeting which provided meeting location(s) and time(s). Public announcement included web posting and tweeter feeds
- Meeting agenda
- Meeting notes
- Copy of the sign-in sheet for the meeting
    - Eight members of the El Paso County Planning Team attended this meeting; each participating jurisdiction had a representative at the meeting
    - Seven members of the public attended; some live and/or work in neighboring jurisdictions

- All meeting participants were invited to participate throughout the meeting and to ask questions, offer observations, and provide information
- Information provided by the public and by committee members was integrated into the plan to determine the feasibility of potential mitigation strategies

2.2.3. 2012–2013 Technical Assistance

RGCOG contracted with URS Corporation to provide technical assistance throughout the process of updating the hazard mitigation plan.

2.2.4. 2012–2013 Participation of Neighboring Jurisdictions

The plan was developed as part of a multi-county planning effort and facilitated by RGCOG. Plans were developed simultaneously for the six counties in the RGCOG area and their 12 incorporated jurisdictions to include Fort Bliss through the Emergency Manager.

Stakeholders including local officials, residents, and business owners from all six counties were invited to each Planning Team meeting during the plan development process to share information about hazards and suggestions for mitigation. Each meeting of the Planning Team was open to the public; meeting notices were posted on the Texas Secretary of State Web site in accordance with RGCOG practice.

Participation of representatives from the six county Far West Texas which included El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint region ensured that the six hazard mitigation plans would be consistent with one another and that information about hazards experienced in one county could inform the understanding of the characteristics of that hazard in neighboring counties. Similarly, the multi-county effort allowed representatives to learn from one another about opportunities for and challenges encountered in implementing mitigation actions.

2.2.5. Existing Information

Existing plans, studies, reports, and technical information were consulted early in the planning process to identify any changes in development that have occurred in the planning area since the previous plan was developed and to gather better information about hazards that have occurred in the area. As appropriate, information gleaned from existing documents was incorporated into the plan and used in the Risk Assessment.

The RGCOG and Planning Team identified some documents that had been developed in the past 6 years. Plan developers reviewed the document and searched the Internet for other relevant reports and articles. Plan developers from RGCOG reviewed the documents by reading them and noting information relevant to the planning area. In general, existing documents provided some information about the planning area and established completion of some previously proposed mitigation actions. The El Paso County Planning Team met informally prior to the March 5th planning meeting to identify any modifications to the draft mitigation plan needed in order to make the mitigation plan consistent with

existing planning mechanisms. Section 7 contains a detailed list of references consulted for the development of this updated plan. Of particular relevance to the plan and key sources of information incorporated into the assessment of risk are:

- City of El Paso
    - Plan El Paso (2012)
        - The comprehensive plan for the City provides information on land use policies that support hazard mitigation
    - Drainage Design Manual (2008)
    - Code of Ordinances, Title 18: Building and Construction (2010)
    - Capital Improvement Plan (2011)
    - Regional Growth Management Plan (2008)
    - Stormwater Master Plan (2009)
- El Paso County
    - Stormwater Management Program (2007)
    - Stormwater Master Plan (2009)
- El Paso City/County Threat and Hazard Identification and Risk Assessment (January 2013)
- El Paso City/County Emergency Operations Plan (January 2011)
    - The Emergency Operations Plan explains how local jurisdictions will manage the consequences of a variety of hazards
- National Climactic Data Center (2012)
    - The database provides information about previous occurrences of storms and associated fatalities, injuries, property damages, and crop losses
- RGCOG
    - Comprehensive Economic Development Strategy for the West Texas Economic Development District (2011)
- Spatial Hazard Events and Losses Database for the United States (SHELDUS) (2008)
    - The database includes information about previous occurrences of storms and associated fatalities, injuries, property damages, and crop losses
- State of Texas Hazard Mitigation Plan (2010)
    - The State plan provides an overview of hazards that can affect the area
- Town of Anthony
    - Municipal Code (2008)
    - Economic Development Plan

- Town of Horizon City
    - Comprehensive and Strategic Plan (2011)
        - Specifically says that “schools and residences will not be located adjacent to land uses with significant hazards” (page 51) and that heavy rains “have the potential to cause severe flash flooding, particularly in arroyos, or washes, where development has occurred in recent years” (page 13)
    - Zoning Ordinance (2008)
    - Master Plan for Parks and Open Space (2010)
- Town of Vinton
    - Subdivision Ordinance (1991)
    - Zoning Ordinance (1994)
    - Flood Damage Prevention Ordinance (2006)
    - Stormwater Management Plan (2008)
    - Master Park Plan (2009)
    - Planning and Capacity Study (2012)

El Paso County and each of the six participating jurisdictions participate in the National Flood Insurance Program (NFIP). Each has an ordinance that governs development in FEMA identified Special Flood Hazard Areas, is enforced by local officials, and that meets NFIP requirements.

Other documents consulted during the planning process include:

- Articles about recent wildfires and the 2011 ice storm
- Local zoning and development codes
- Books and articles about earthquakes
- Reports by Texas and Federal agencies about behavior of various hazards in the region
- Scales used to quantify the magnitude of hazards

2.2.6. 2013 Plan Adoption

When FEMA Region VI and the Hazard Mitigation Officer for the State of Texas indicate to the RGCOG that the plan meets all Federal planning regulations and is approvable, the plan will be submitted according to established practices to elected officials of each participating jurisdiction for adoption. Each participating jurisdiction will be given 30 days in order to allow and receive public input from their citizens prior to plan approval. Copies of resolutions of adoption will be included in Section 8.2.

3. Hazard Identification

In this section of the plan, hazards that can occur in the County are identified and described. For each hazard type, the plan describes the locations that can be affected, the potential severity, and previous occurrences of the hazard in the County. This information is used to estimate the probability of an occurrence of the hazard in any given year. The plan describes the impact of each hazard, and reviews changes in development that have occurred over the past few years as well as mitigation accomplishments that may have changed the impact of the hazard. For each hazard, a brief description is about included about how future development will be at risk of damage.

3.1. Threat and Hazard Identification and Risk Assessment

The El Paso City/County Office of Emergency Management has developed an all-hazards Threat and Hazard Identification and Risk Assessment (THIRA) document. The January 2013 THIRA is an all-hazards capability-based assessment of local threats/hazards and their impacts, which may vary according to time of occurrence, season, location, and other community factors. The THIRA is designed to assess El Paso County's and its municipalities (City of El Paso, Town of Anthony, Village of Vinton, Town of Horizon, City of Socorro, and Town of Clint) risks and to determine desired outcome. Through a different program (Emergency Preparedness) these jurisdictions were participated in completing the THRIA.

3.2. Hazard Identification

Identification of hazards began by reviewing the hazards listed in the previous plan; with the input provided by team members and stakeholders led to six changes:

1. **Flood/Flash Flood** was listed as a hazard in the previous plan. Because the damage in either case is from water, this hazard is now identified simply as "**Flooding.**"

2. **Hazardous Material Spill**, although not a natural hazard, was added to the plan because of concerns for the short- and long-term effects of an accidental spill occurring in a populated area.

3. **Hurricane or Tropical Storm** was listed as a hazard in the previous plan. Because damage associated with hurricane or tropical storm is from ensuing flooding from rain, high winds, tornadoes, or hail, and because each of these hazards is identified, the RGCOG and the Planning Team determined it was not useful to identify the weather phenomenon Hurricane/Tropical Storm as a separate hazard.

4. **Severe Thunderstorms** was listed as a hazard in the previous plan. Because damage associated with severe thunderstorms can be caused by flooding from rain, high winds, or hail, and because each of these hazards is identified, the RGCOG and the Planning Team determined it was not useful to identify the weather phenomenon Severe Thunderstorm as a separate hazard. However, **"Lightning"** is now listed as a hazard.

5. **Windstorm/Downburst** was listed as a hazard in the previous plan. Because the damage in a downburst is due to wind, this hazard is now identified simply as "**Wind**."

6. **Winter Storm (Snow, and Ice)** was considered in the previous plan. For the purpose of this plan snow and ice were identified as separate hazards. The process of identifying hazards continued with a survey of participating jurisdictions in November 2012.

7. The process of identifying hazards continued with a survey of participating jurisdictions in November 2012.

3.3. Hazard Profiles

Methodology

Five sources of data were used to profile each hazard.

1. The **National Climactic Data Center** (NCDC) information, which was used in the previous plan to examine flood or flash flood, hail, wind, and tornado, was updated using the July 2012 NCDC data.

2. The most recent version of the **Spatial Hazard Events and Losses Database for the United States** (SHELDUS) was used to update information about other hazards. SHELDUS data cover the period 1960 to 2008.

3. The **FEMA 2012 Disaster Declaration** database was consulted.

4. The Planning Team and local officials provided data at meetings and through the **November 2012 Survey**

5. Resources published on the **Internet** provided further information about hazards.

The plan discusses the eight different characteristics of each identified hazard listed in Figure 2.

Figure 2: Characteristics of Each Hazard Addressed in the Plan

3.3.1. Flooding

Flooding Description: **Flooding**, the inundation of normally dry land caused by an increase in the water level in an established watercourse such as a river, stream, or drainage ditch, or by water ponding.

Location

Flooding does not affect the entire County in a similar manner. Flooding is most likely to occur in low-lying parts of El Paso County, particularly near the Rio Grande and its tributaries and near undeveloped arroyos, which are generally dry but carry water, sometimes a great deal of fast-moving water, during heavy rains. The area at risk of flood damage is the areas south of Interstate 10; areas that are prone to flooding elsewhere in El Paso County or in the Town of Antony, Town of Vinton, City of Socorro, Town of Horizon City, and Town of Clint are undeveloped. In the Town of Horizon, flooding mostly occurs on Duansberg Street which drains storm water into the Opossum Collection Pond. In the City of Socorro, flooding occurs on Stockyard Drive and Thunder Road.

The Federal Emergency Management Agency (FEMA) produces maps for the National Flood Insurance Program (NFIP) that designates locations with at least a 1-percent chance of flooding in any given year. These maps are called Flood Insurance Rate Maps (FIRMs).

The Towns of Anthony and Clint and the City of Socorro do not have any floodplains or Special Flood Hazard Areas identified on FIRMs. Nevertheless, flash flooding or ponding can occur in these

municipalities. The attachment displays FEMA flood maps for the Towns of Anthony, Clint, and Vinton and shows that there are no flood maps for the City of Socorro.

In the County, maps are currently being developed and updated. The process of developing a FIRM and then having the FIRM used for regulatory purposes takes several months. As this plan was being updated, some preliminary findings were under review. Figure 3 shows Special Flood Hazard Areas that have been part of floodplain management in the County for many years. Figure 4 shows potential Special Flood Hazard Areas or flood zones that are currently under review.

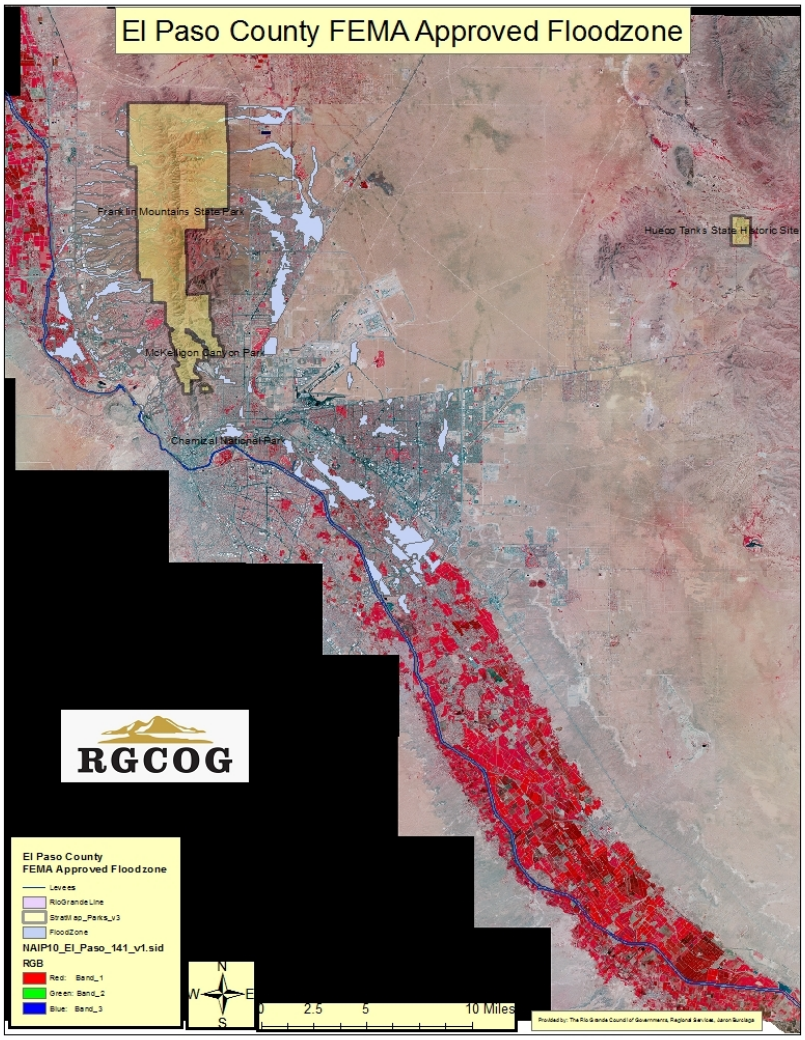


Figure 3: Approved Special Flood Hazard Areas

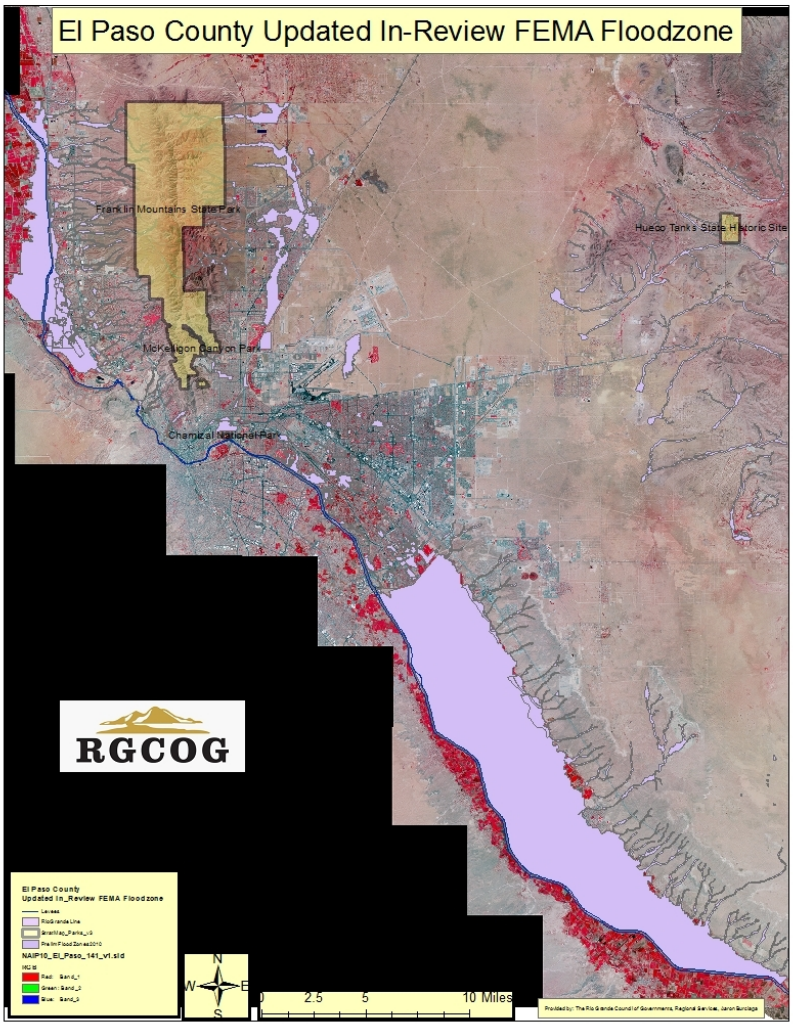


Figure 4: Special Flood Hazard Areas Currently Under Review

Extent

The magnitude or severity of flooding varies across the County. In the Town of Horizon, the extent of flooding depends on the amount of rain fall. Normally an inch or two is the average flooding. In the City of Socorro, the extent is greater due to the rain fall that is traveling from the Town of Horizon. Low-lying areas can experience slow-moving water or ponding, whereas steep slopes can have fast-moving flood waters carrying mud or rocks.

There is scientific evidence suggesting that heavier than previously experienced precipitation is likely in the future; this would lead to more severe floods in the planning area (FEMA, 2011).

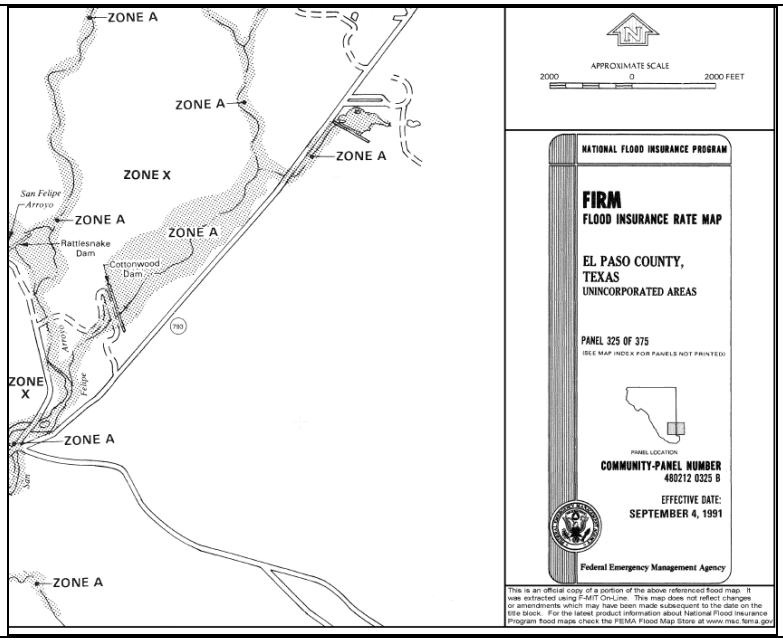
In some locations, flood depths with a 1 percent chance of occurring in any given year have been estimated by engineering models; this is called the Base Flood Elevation (BFE). The BFE is provided on FIRMs and is given in feet above sea level. Where the BFE has been calculated, it is anticipated that the

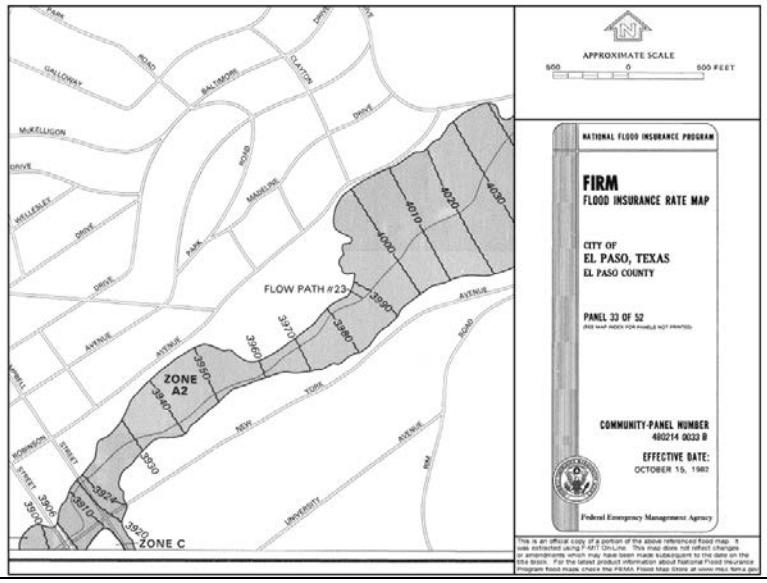
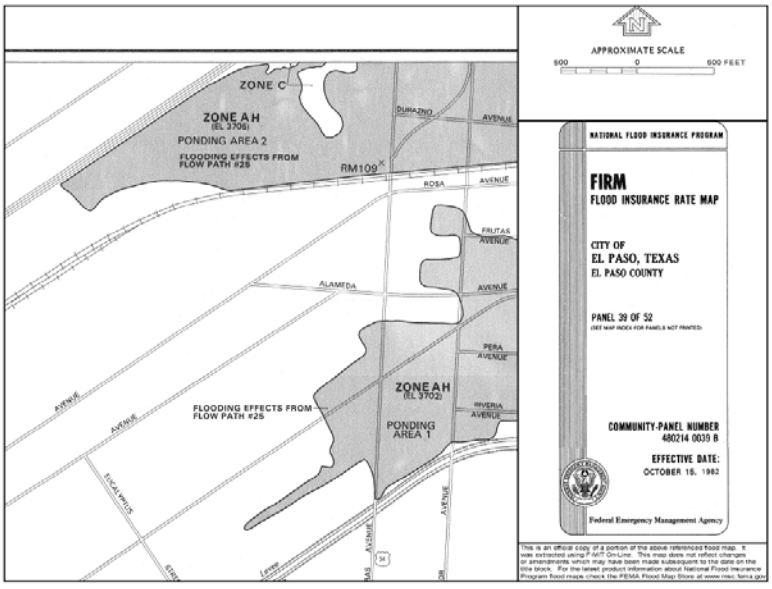
probability of the level of flooding reaching or exceeding the BFE is 1 percent in any given year; however, flooding at levels below the BFE can still be damaging.

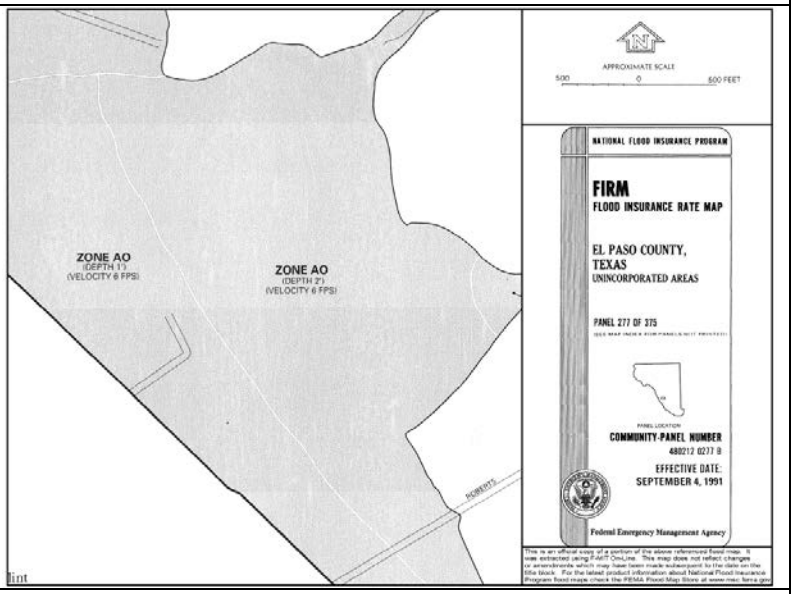
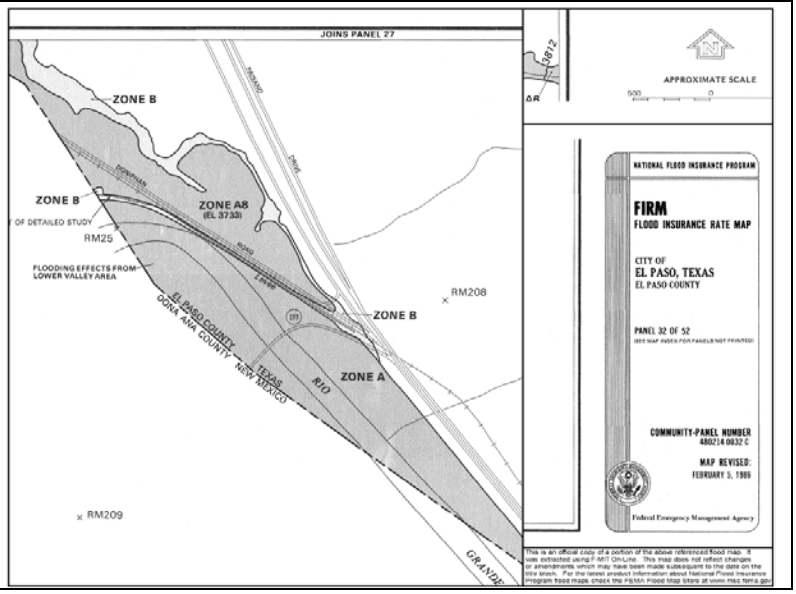
FIRMs show that in areas of ponding, water depth can be up to two feet. FIRMs show that BFE has been estimated to be around 3,700 feet in flood prone areas of El Paso County and the City of El Paso; the ground elevation in the center of the City of El Paso is 3,800 feet. The Town of Horizon City uses the El Paso County FIRMs. The Towns of Anthony and Clint have been studied and do not have any Special Flood Hazard Areas. BFEs have not been calculated for the Town of Vinton. Anecdotal and pictorial evidence indicate that the depth of water due to flooding varies from one inch to about three feet.

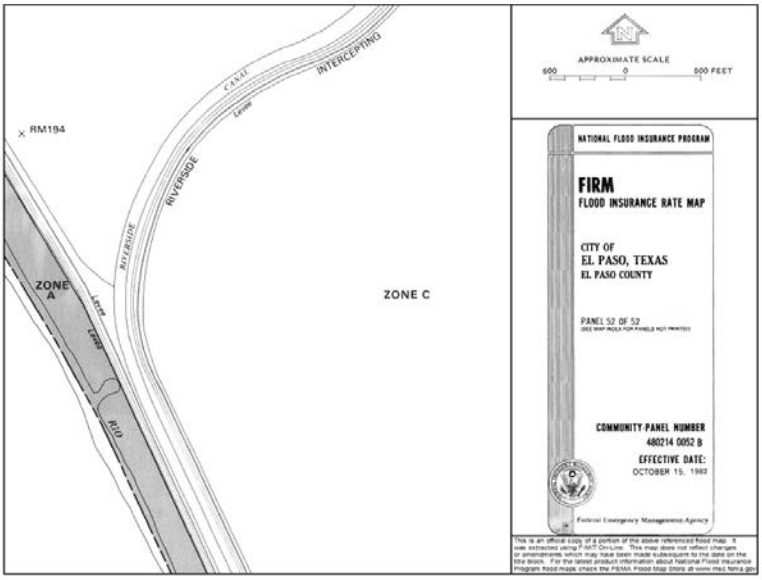
FIRMs use letters to designate the extent of flooding; Table 3 summarizes the letter designations used on FIRMs for the County:

Table 3: Categories for Extent of Flooding

Category	Extent	Illustration
Zone A	The 1 percent chance depth of flooding in Zone A is not provided. The floodplain was mapped using approximate methods. The BFE has not been determined.	

Category	Extent	Illustration
Zone A1 through A30 or Zone AE	The 1 percent chance depth of flooding or the BFE is provided. Flooding to a lower level has a greater than 1 percent chance of occurring in any given year.	
Zone AH	Shallow flooding can occur. The BFE is provided in parentheses on the map.	

Category	Extent	Illustration
Zone AO	Sheet flow, ponding, or shallow flooding can occur. Base flood depths are provided in feet above ground rather than in feet above sea level.	
Zone B or X (shaded)	Area of moderate flood hazard or area protected by levees from the 1 percent chance flood, or shallow flooding area with average depth of less than 1 foot or drainage area less than 1 square mile	

Category	Extent	Illustration
Zone C or X (un-shaded)	Zone C is an area of minimal flood hazard where ponding and local drainage problems may occur. Zone X un-shaded areas have a less than 0.2 percent chance of flooding in any given year.	

Previous Occurrences

Table 4 lists 75 previous occurrences of flooding in the County (NCDC, 2012). These 75 floods occurred over the 18-year period from 1995 through 2012.

Table 4: Previous Occurrences of Flooding

Date	Property Damage (at time of event)	Location or County	Date	Property Damage (at time of event)	Location or County	Date	Property Damage (at time of event)	Location or County
30-Jun-95	$50,000	El Paso	6-Jul-06	$0	N/A	28-Sep-07	$0	El Paso IntrAprt
28-Aug-96	$0	El Paso IntrAprt	15-Jul-06	$0	El Paso	8-Jul-08	$120,000	El Paso
24-Jul-97	$0	El Paso	27-Jul-06	$110,000	El Paso	26-Jul-08	$50,000	Alamo Alto El Paso
14-Sep-97	$0	El Paso	28-Jul-06	$10,000	El Paso	27-Jul-08	$0	Canutillo
21-Jun-99	$50,000	El Paso	30-Jul-06	$0	El Paso	7-Sep-08	$0	Montoya El Paso
16-Jul-99	$0	El Paso	30-Jul-06	$0	El Paso	14-Sep-08	$5,000	Socorro
20-Jul-99	$0	El Paso	1-Aug-06	$200,000,000	Northwest El Paso	22-Jun-09	$0	Socorro
5-Aug-99	$0	El Paso	3-Aug-06	$100,000	El Paso	23-Jun-09	$50,000	El Paso IntrAprt
30-Jun-00	$0	El Paso	4-Aug-06	$500,000	El Paso	28-Jun-09	$150,000	Newman El Paso
1-Jul-00	$75,000	El Paso	5-Aug-06	$0	El Paso	30-Jun-09	$0	Anthony
25-Jun-01	$30,000	El Paso	15-Aug-06	$20,000	West El Paso	27-Aug-09	$0	Canutillo
2-Jul-02	$0	El Paso IntrAprt	16-Aug-06	$100,000	El Paso	11-Sep-09	$20,000	Socorro
19-Jul-02	$0	El Paso IntrAprt	29-Aug-06	$0	El Paso	19-Sep-09	$50,000	Tobin El Paso
2-Aug-02	$200,000	El Paso	30-Aug-06	$0	El Paso	14-Apr-10	$30,000	El Paso
19-Jun-04	$0	El Paso IntrAprt	31-Aug-06	$0	El Paso	29-Jun-10	$25,000	El Paso
29-Jun-04	$0	El Paso IntrAprt	1-Sep-06	$0	El Paso	16-Jul-10	$150,000	Clint
14-Aug-04	$0	El Paso	4-Sep-06	$100,000	El Paso	24-Jul-10	$10,000	Sunland Park El Paso
25-Sep-04	$0	Socorro	13-Sep-	$20,000	Southeast El Paso	13-Sep-	$0	SmelterTown

Date	Property Damage (at time of event)	Location or County	Date	Property Damage (at time of event)	Location or County	Date	Property Damage (at time of event)	Location or County
			06			10		El Paso
29-Sep-04	$5,000	Northwest El Paso	2-May-07	$5,000	El Paso IntrAprt	16-Sep-10	$0	Tobin El Paso
30-Jul-05	$0	Vinton	8-May-07	$10,000	El Paso	22-Sep-10	$10,000	El Paso IntrAprt
12-Aug-05	$10,000	EL Paso	13-Jul-07	$10,000	El Paso	26-Jul-11	$0	El Paso
26-Aug-05	$0	EL Paso	28-Jul-07	$0	El Paso IntrAprt	28-Jul-11	$0	Isla El Paso
5-Sep-05	$0	EL Paso	29-Jul-07	$0	El Paso	17-Aug-11	$0	El Paso IntrAprt
6-Sep-05	$20,000	EL Paso	2-Aug-07	$55,000	El Paso	15-Sep-11	$0	Socorro
14-May-06	$0	El Paso IntrAprt	24-Aug-07	$0	El Paso	6-Jul-12	$0	El Paso IntrAprt

Probability

Seventy-five floods were identified in the County and the participating jurisdictions over the 18-year period from 1995 through 2012. This suggests that, on the whole, the probability of a flood in any given year is 75/18, which is greater than 1, indicating that El Paso County and its municipalities can reasonably anticipate at least one flood per year.

The probability of flooding in a location designated as a floodplain or Special Flood Hazard Area is at least 1 percent in any given year. This means that the probability of flooding in some parts of Special Flood Hazard Areas is actually much higher than 1 percent in any given year.

Vulnerability

Within the planning area (El Paso County to include Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon City, City of Socorro, and Town Clint), the most vulnerable and most impacted populations are to all hazards identified in this plan: elderly, special needs individuals, infants, and children. Structures and infrastructure in identified Special Flood Hazard Areas are vulnerable to damage due to flooding. Many identified Special Flood Hazard Areas, especially arroyos in the County that are critical for discharge of floodwaters, are undeveloped. All participating jurisdictions are prone to flooding depending on the amount of rain. The Town of Anthony, this jurisdiction is approximately six square miles and borders the Rio Grande River. The majority of the jurisdiction is south of Interstate which depending on the amount of streets may flood as the water makes it way to the Rio Grande River. The Village of Vinton is contiguous to the Town of Anthony. The Village Vinton is approximately less than three square miles. They may experience street flooding on occasion depending on the amount of rainfall received. Adjacent to the Village of Vinton is the City of El Paso which is the largest MSA within El Paso County. The City of El Paso is approximately 255 square miles. The City of El Paso is comprised of six areas, Upper valley, Westside, Central, Northeast, Lower Valley, and Eastside. Each of these areas is prone flooding when stormwater runoff exceeds the capacity of an arroyo or channel. The Town of Horizon City is approximately less nine square miles and located north of the Interstate. Horizon also on occasion is vulnerable to street flooding. However, as the water travels south making it was to the Rio Grande River. The City of Socorro and the Town of Clint are two municipalities that are very prone to flooding as stormwater runoff exceeds the capacity of an arroyo or channel. Critical infrastructures identified in Attachment II may be vulnerable to flooding in the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) and County of El Paso exceeds their average range of 1” or greater of precipitation. In addition, Attachment II states each of the critical infrastructures vulnerability to the identified hazard and the impacts of each identified hazard to each jurisdiction.

Impact

Flooding is not expected affect the Towns of Anthony and Clint because they have no identified Special Flood Hazard Areas. Flooding may affect roads that cross arroyos and this will delay the flow of traffic in El Paso or the City of El Paso County.

Flooding may cause damage in the County and in the City of El Paso, Horizon City, Vinton, or Socorro if it reaches the first floor of a residential or commercial structure. Minor repairs and replacement of some contents would be necessary. Vehicles may also be damaged if left in areas that flood.

The impact of flooding can be no damage or very little damage if, for example, flooding is localized with low-level, slow-moving water. The impact of flooding can be a moderate amount of water damage or a great deal of water damage if, for example, flooding is widespread and water is deep and/or moves quickly. Fast-moving flood waters may also cause erosion along arroyos and carry mud, debris, or rocks, which can cause additional damage to structures and infrastructure (El Paso Water Utilities, 2009).

The most property damage for a single flood event was $200 million in 2006 dollars.

Loss of life or injury may occur when structures and/or infrastructure, such as roads, are flooded. A total of four fatalities and two injuries due to flooding are reported by the NCDC in the County since 1995.

Repetitive Flood Loss Properties

The impact of flooding is particularly costly for properties that flood repeatedly. The NFIP identifies a property that has had at least two paid flood losses of more than $1,000 each in any 10-year period as "Repetitive Flood Loss Property."

In 2012, 11 Repetitive Flood Loss Properties were identified in the City of El Paso (FEMA, 2012). The Repetitive Flood Loss database is cumulative and lists all properties so defined since 1978, the year the NFIP began to operate widely. This is an increase from the three repetitive loss properties in the City of El Paso identified in the previous plan. Data on whether repetitive flood loss structures are residential or commercial or how they were constructed was not available for development of this plan.

As when the previous plan was developed, there are no Repetitive Flood Loss Properties in the other municipalities in the County. For the current plan, FEMA repetitive flood data shows 11 repetitive loss properties in the City of El Paso, 9 are residential and 5 are non-residential. There are no repetitive loss properties in the other participating jurisdictions in the planning area.

The NFIP defines a Severe Repetitive Loss Property as a residential property that has had at least four NFIP claim payments of over $5,000 each and for which the sum of at least two separate claims payments exceeds the market value of the building. There are no Severe Repetitive Loss Properties in the County.

Changes in Development

The population of the County has increased since the last plan was developed. Additional urbanization has occurred in the municipalities and in areas of the County that were previously developed. The additional structures and infrastructure have neither altered the location of areas prone to flooding nor exacerbated the flooding problem.

Modifications to some levees along the Rio Grande pose an additional threat of flooding to land to the east of the levees. While the levees prevent river water from spilling eastward onto dry land, they also prevent water from draining westward and into the river, which may cause ponding.

Because of a potential increase of impervious surface due to development on and near the University of Texas at El Paso campus, concern was voiced at a public meeting about increased flooding along University Avenue and Hawthorn Street and along sidewalks in the middle of campus, which could make moving through campus hazardous.

Mitigation Accomplishments

El Paso Water Utilities has a Stormwater Engineering Department that actively works to alleviate drainage problems in the area. The department provides recommendations on drainage when new subdivisions are planned and inspects the stormwater drainage infrastructure of existing subdivisions. Among other projects, the department completed a flood control structure near Fort Bliss and repaired components of the stormwater drainage infrastructure. Other projects are currently in the construction or design phases including a project to improve the Rio Grande levees, outfall channels, pump stations, and retention basins.

Since the previous plan was developed, in addition to the stormwater drainage projects of El Paso Water Utilities, some flood risk has been alleviated using FEMA Hazard Mitigation Grant Program (HMGP) funds, and some regulatory modifications were made as proposed in the plan. Accomplishments include:

- City of El Paso: Acquired the Saiepan subdivision, which was prone to flooding, for open space usage
- City of El Paso: Acquired the Mowad subdivision, which was prone to flooding, for open space usage
- El Paso County: Development regulations require detention ponds where a new residential or commercial area is built
- City of El Paso: Updated the Flood Damage Prevention ordinance Number 16356 or Section 18.60.220 of the Code of Ordinances (MuniCode, 2012)
- City of El Paso: Completed Stormwater Master Plan

    - The plan says that the City expects to spend $650 million on capital improvements over the next 30 years that will reduce the risk of flood damage
- El Paso County Commissioners Court : Adopted the El Paso County Flood Damage Prevention Order on December 18, 2006
- El Paso County: Acquired land adjacent to the El Paso Community College (Mission Del Paso Campus) for a future flood control project
- El Paso County: Constructed channel improvements in the Canutillo area to reduce flooding of existing residential property
- El Paso County: Completed Stormwater Master Plan
- Vinton: Built new detention pond to store flood water
- Vinton: Excavated existing detention pond to increase capacity for storing flood water
- Vinton: Increased size of two culverts that contributed to flooding

Future Development

El Paso County and each of the six incorporated municipalities in the County are in good standing with the NFIP. In addition, they all enforce the standards required by the NFIP to protect new development from flood damage, such as by elevating the first floor of structures in Special Flood Hazard Areas to the BFE. Four circumstances suggest that future development will not exacerbate levels of flooding or occur in areas at risk of flooding:

- First, future development that does occur in floodplains will be mitigated to reduce the potential for flooding in accordance with the existing Flood Damage Prevention Ordinance of each participating jurisdiction.
- Second, information about potential flood depths is being updated as new FIRMs are being prepared for the County.
- Third, the Future Land Use map in *Plan El Paso* shows land in and adjacent to the Franklin Mountains where flash flooding can occur and near the Rio Grande, another potential source of damaging floods, as reserved in either the Preserve or the Natural categories of land use (City of El Paso, 2012). These categories of land use will not be developed and are intended to be kept in their natural state “for drainage, natural habitat, and scenic protection” (City of El Paso, 2012, page 1.30). In this way, *Plan El Paso* supports hazard mitigation.
- Fourth, the El Paso Smart Growth Principles support flood hazard mitigation by specifying that, where “development must occur within floodplains, development should be located on previously developed floodplains or in non-conveyance areas” (City of El Paso, Policy 2.1.7, page 2.102).

3.3.2. Wildfire

Wildfire Description: **Wildfire**, is any outdoor fire is not controlled or prearranged. The spread of wildfire may cause destructive conflagration which can result in widespread damage to property and loss of life. As El Paso County residents move farther into "natural" areas to advantage of raising cattle, privacy, natural beauty, recreational opportunities, and affordable living; fire departments are increasingly fighting fires along the wild land Urban Interface (WUI). WUI is defined as areas where homes are built near or among lands that may be prone to wild land fire. Depending on the community fire departments might refer to wild land fires as brush fires, range fires or something else; all pose the same threat to local assets.

Location

The areas of particular concern for wildfire are near Franklin Mountains State Park and Hueco Tanks State Park. Both of these areas are largely undeveloped and uninhabited. Franklin Mountains State Park is located to the north of the City of El Paso; Franklin Mountains State Park is the largest urban wilderness in the country (Texas Parks and Wildlife, 2012). Hueco Tanks State Park is located 32 miles to the east-northeast of the City of El Paso; Hueco Tanks State Park is an area of high altitude desert and is an undeveloped area (University of Texas Austin, 2012).

Figures included in the Attachment show that Franklin Mountains State Park and Hueco Tanks State Park are not populated (sources: Texas Wildfire Risk Assessment Map and Hueco Tanks State Park map).

Wildfire is unlikely to occur in the incorporated municipalities; if grass or brush fires were to occur, local fire departments would be available to bring them under control.

Extent

The extent or severity of a wildfire depends on a number of different variables. In general, the threat of wildfire in El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint region is not as severe as in some other parts of the country. Key factors that affect the severity of wildfire are:

- Fuel
- Temperature
- Wind
- Humidity
- Topography

According to the *State of Texas Hazard Mitigation Plan* (Texas Department of Public Safety, 2010), wildfires are fueled almost exclusively by natural vegetation in El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint. These communities

are an arid region, and fuel for fires is relatively sparse. Graphics in the Attachment show that populated parts of each participating jurisdiction are at low risk of wildfire.

Temperature or the time of year can affect the extent of wildfires. In El Paso to include the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) extreme drought conditions coupled with lighting make the probability likely for the County and two municipalities experience wildfires. According to the *State of Texas Hazard Mitigation Plan*, wildfires are most common in the spring and summer months, but can occur at any time (Page 62). In the spring and summer months, there is more fuel for wildfires and the fuel is pre-heated and dried by the sun. Warm, dry brush burns more rapidly than cold, damp brush.

Another factor that affects the severity of wildfire is wind, which can cause a wildfire to spread. The stronger the wind, the more quickly a fire can spread. Wind is a critical factor in determining the severity of wildfires in the communities of El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.

Humidity or the amount of water vapor in the air can also affect the severity of a wildfire; wildfire will be more severe when the air is dry than when the air is humid.

The severity of wildfire depends on topography, as fire tends to move up steep slopes and to move more quickly the steeper the slope.

There is scientific evidence suggesting that longer periods of drought are likely in the future; this may lead to more severe wildfires in the planning area (FEMA, 2011).

Previous Occurrences

The previous plan listed three previous occurrences of wildfires in the County just to the west of the Franklin Mountains State Park. Table 5 lists the locations and dates of the three identified wildfires.

Table 5: Previous Occurrences of Wildfires

Approximate Location	Location or County	Date
5821 Burning Tree Drive, El Paso	City of El Paso	October 10, 2004
5890 Bandolero Drive, El Paso	City of El Paso	May 12, 2001
5890 Bandolero Drive, El Paso	City of El Paso	May 17, 2001

Neither the SHELDUS database nor the NCDC lists any more recent occurrences in the County. The 2012 Comprehensive Plan, *Plan El Paso,* does not mention the need for suppression of wildfires or grass fires. Therefore, the list of previous occurrences has not changed since the previous plan was developed.

Probability

With three instances of wildfire occurring in the past 49 years (from 1962 until 2010), the probability of a wildfire is estimated to be 3/49 or about 6 percent in any given year in the County and in the City of El Paso. The probability of wildfire is zero in the other participating jurisdictions.

Another way of examining the probability of wildfire is to consider drought conditions at a particular point in time using the Keetch-Byram Drought Index, which was developed in 1968. Inputs used to develop the index include latitude, mean annual precipitation, and the last 24 hours of rainfall (U.S. Forest Service, 2012). Measures on the Keetch-Byram Drought Index vary from the 0-to-200 category, indicating moisture level is high and the probability of wildfire is relative low, to the 600-to-800 category, indicating severe drought conditions and an increased potential for wildfire. For El Paso County and its municipalities that include Town of Anthony, Town of Vinton,

Vulnerability

Structures and infrastructure that are surrounded by open space are vulnerable to the effects of wildfire. Structures and infrastructure in developed areas are not vulnerable to damage due to wildfires because of the proximity to fire departments; this includes the City of Socorro and the Towns of Anthony, Clint, Vinton, and Horizon City.

Critical infrastructures identified in Attachment II may be vulnerable to flooding in the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) and County of El Paso. In addition, rural residential structures and agricultural structures are vulnerable to damage by wildfire in El Paso County.

Transmission lines in remote areas that bring power to each of the participating jurisdictions are vulnerable to damage due to wildfire.

Impact

Wildfire is a natural phenomenon that can benefit a natural area. As with all natural hazards, problems or losses occur when a severe hazard interacts with the built environment. Previous occurrences of wildfire did not lead to property losses. However, should a wildfire occur and extend from the wildland into an urbanized area, flames up to 30 feet in length, short-range spotting common, medium range spotting possible (Texas Division of Emergency Management) structures that are against the Franklin Mountains could be damaged or destroyed, people may be temporarily or permanently displaced and in need of emergency shelter, and fire fighters and other emergency responders would be called upon to manage the situation. If power lines are affected, power outages and resulting economic losses associated with closure of businesses would occur.

Changes in Development

Both of the areas where the previous wildfires occurred are now developed as either an area of single-family detached houses (Burning Tree Drive) or as an apartment or townhouse complex (Bandolero Drive). As a developed area, the potential for damage from wildfire has increased since the previous plan.

Mitigation Accomplishment

One mitigation action, namely to reduce existing and future structures from exposure to wildfire, was proposed in the previous plan and has been implemented.

The County and municipalities adopted an ordinance that requires a permit for open burning. The County adopted part 105.6.30 of the Municipal Code, which says that an operational permit is required for the kindling or maintaining of an open fire or a fire on any public street, alley, road, or other public or private ground (MuniCode, 2012).

Another mitigation accomplishment is widespread public education through the distribution of printed materials prepared by the Texas Forest Service and posters in public spaces about the wildfire hazard.

Future Development

The future land use map developed for *Plan El Paso* indicates that urbanization is expected to occur just to the west of Franklin Mountains State Park. This is the area where the three previous occurrences of wildfire were identified. This suggests that new development near the Franklin Mountains State Park may be at risk of damage due to wildfire.

There are very few, if any, structures in the rural, remote area surrounding Hueco Tanks State Park, and this is not an area designated for future development.

3.3.3. Drought

Drought Description: **Drought,** a deficiency of moisture caused by a natural reduction in the amount of precipitation received over an extended period of time.

Location

Drought can affect all or any part of El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.

Extent

The magnitude or severity of drought can be measured objectively using the Palmer Drought Severity Index (see attachment figure 2a), which was developed in 1965 to measure duration and intensity of

long-term drought conditions. Measurements depend on the cumulative effects of both precipitation and temperature, and vary from -4.0 for extreme drought conditions, to +4.0 for extremely wet conditions. A measurement between -0.49 and +0.49 indicates that moisture conditions are near normal for El Paso County to include the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint).

The Attachment includes information for particular days showing the Keetch-Byram Index as well as the U.S. Drought Monitor; each index shows that the entire El Paso County area (including the participating municipalities) was not experiencing drought conditions on a particular day in either January 2014 or September 2013.

Previous Occurrences

Normal precipitation in El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint is between 10 and 15 inches per year (Texas Commission on Environmental Quality, 2012). Because the region is normally very dry, few instances of drought conditions occur.

The previous plan did not mention any occurrences of drought. The SHELDUS database lists two instances of drought occurring in El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint since 1962. Drought occurred in

- August 1996
- December 1998

The National Climactic Data Center lists a more recent period of drought in the region in

- May 2011 through January 2012

Although crops are lost due to drought, no fatalities, injuries, or damage to structures or infrastructure are attributed to these periods of drought.

Probability

With three identified occurrences of drought in El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint over the 51-year period from 1962 through 2012, probability of drought in any given year is estimated as 3/51 or about 6 percent. There is scientific evidence suggesting that prolonged periods of drought are increasingly likely in the future in the planning area (FEMA, 2011).

Vulnerability

Agriculture and wildlife are vulnerable to the effects of drought.

Critical infrastructures identified in Attachment II may become vulnerable if drought conditions persist.

Impact

Drought has negative consequences for crops and wildlife, but has not caused damage to structures or the infrastructure in the planning area. The economic impact of drought would be loss of income for agricultural enterprises.

Changes in Development

The population of the County has increased since the last plan was developed. Additional urbanization has occurred in the municipalities and in areas of the County that were previous developed. The additional structures and infrastructure have not changed the likelihood or impact of drought in the planning area.

Mitigation Accomplishments

The previous plan recommended community education so that residents can prepare for the effects of hazards including drought. This mitigation action is accomplished through the El Paso County Sheriff's Office, which posts information about preparing for weather conditions on its Web site.

The County Code of Ordinances Chapter 15.13 has included water conservation measures since at least 2001 that, among other things, establish days of the week and time of day when outdoor irrigation is allowed (MuniCode, 2012).

Future Conditions

Widespread drought conditions in the region may contribute to an inadequate supply of water for the population; however, a localized drought would not affect the supply of water because about 90 percent of municipal water in the County is supplied from the Rio Grande, which is fed from snowmelt runoff in southern Colorado and northern New Mexico (El Paso Water Utilities, 2007). Future conditions may change, however, as decisions change about the amount of water retained and then released at the Elephant Butte Dam in New Mexico. Furthermore, drought may be problematic in the Town of Vinton where some private systems draw water directly from the water table, which is affected by the amount of water in the Rio Grande.

3.3.4. Extreme Heat/Cold

This section addresses extreme temperatures. Extreme heat in El Paso County is addressed first. This is followed by a discussion of extreme cold as experienced in El Paso County.

3.2.5.1 EXTREME HEAT

Description of Extreme Heat: Extreme Heat, persistent and unusually high temperatures and high humidity or temperatures that are above average.

Location

Extreme heat affects all of the entire El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, City of Horizon, and Town of Clint area uniformly and does not vary by location.

Extent

The highest temperature recorded in the region that includes El Paso County and the six participating jurisdictions is 114 degrees Fahrenheit (°F), which occurred in June 1994 (Texas Commission on Environmental Quality, 2012).

The previous plan defined extreme heat as occurring when temperatures hover 10 degrees or more above the average high temperature for the region for several weeks.

Previous Occurrences

SHELDUS data only listed extreme heat as having occurred in the County on two separate occasions during the period of 1962 through 2008:

- June 1990
- June 1994

There were no previous occurrences for extreme heat listed for El Paso County, City of El Paso, Village of Vinton, Town of Anthony, Town of Anthony, City of Socorro, and Town of Clint during the period of 2009 through December 31, 2014.

Probability

Because two separate occurrences of extreme heat have been identified over the 47-year period from 1962 through 2008, the probability of experiencing extreme heat conditions in any given year is estimated as 2/47 or 4 percent. There is scientific evidence suggesting that prolonged periods of extreme heat are increasingly likely in the future in the planning area (FEMA, 2011).

Vulnerability

Within the planning area (El Paso County to include Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon City, City of Socorro, and Town Clint), the most vulnerable and most impacted populations are to all hazards identified in this plan: elderly, special needs individuals, infants, and children. All participating jurisdictions are vulnerable to extreme heat due to the County's elevation of

3917 feet and their proximity to each other. People in poor health are vulnerable to the negative effects of extreme heat. Critical infrastructures identified in Attachment II may become vulnerable if extreme heat temperatures exceed 10 degrees above the average of 77.5 degrees.

Impact

Extreme heat can have negative effects on the health of people and animals as well as agricultural productivity. There were two fatalities associated with the extreme heat conditions of June 1994. Emergency preparation or emergency response actions are appropriate for addressing negative health impacts. To explain the relationship between extreme heat and humidity, NOAA provides a graphic showing how a combination of high heat and humidity can lead to a heat disorder. The graphic is provided in the Attachment.

Businesses and residents may experience higher than normal charges for electricity consumption due to the higher cost of operating air-conditioning equipment during periods of extreme heat.

Changes in Development

The population of the County has increased since the last plan was developed. Additional urbanization has occurred in the municipalities and in areas of the County that were previous developed. The additional structures and infrastructure have not changed the likelihood or impact of extreme heat in the planning area.

Mitigation Accomplishments

The previous plan recommended community education so that residents can prepare for the effects of hazards including extremely hot weather. This action is routinely implemented as the El Paso County Sheriff's Office posts information about preparing for weather conditions on its Web site.

The previous plan recommended an emergency preparedness and response actions for extreme heat that are routinely implemented by the RGCOG:

- Conduct fan drive in advance of extreme hot weather
- Activate cooling centers during periods of extreme heat

The previous plan recommended that the County amend the Property Maintenance Code to ensure that new buildings have adequate cooling systems; this mitigation action was completed with the August 2010 update of the Property Maintenance Code (MuniCode, 2012). Furthermore, the County adopted the International Residential Code, 2009 Edition, regarding insulating plumbing within exterior walls.

Future Development

Future development will have adequate cooling systems to protect residents during periods of extreme heat due to adoption of the Property Maintenance Code, Code of Ordinances Section 18.50, and the International Residential Code, Code of Ordinances Section 18.10.

3.3.4.1. EXTREME COLD

Description of Extreme Cold: Extreme Cold, persistent and unusually low temperatures that are near or below freezing.

Location

Extreme cold can affect the entire El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, City of Horizon, and Town of Clint area uniformly and does not vary by location.

Extent

The lowest temperature recorded anywhere in El Paso County, including the City of El Paso, City of Socorro, and Towns of Anthony, Clint, Horizon City, and Vinton, was **-8°F,** which occurred in January 1962 (Texas Commission on Environmental Quality, 2012). This means that frostbit can occur within 30 minutes or less depending on wind chill effects. The Attachment includes information about wind chill provided by NOAA, "The Wind Chill Chart".

Previous Occurrences

SHELDUS data list extreme cold conditions as having occurred in the County on five separate occasions during the period of 1962 through 2008. The Planning Team identified one additional occurrence in February 2011 for which dollar estimates of damages are not available. Table 6 lists previous occurrences of extreme cold.

Table 6: Previous Occurrences of Extreme Cold

Date	Location or County	Property Damage (2011 dollars)
1/9/1962	El Paso	$146,235
1/2/1979	El Paso	$0
3/29/1987	El Paso	$0
12/21/1989	El Paso	$36,491
12/20/1990	El Paso	$3,467
2/1-4/2011	El Paso	Not available

Probability

Because six separate occurrences of extreme cold have been identified over the 50-year period from 1962 through 2011, the probability of experiencing extreme cold conditions in any given year is estimated as 6/50 or 12 percent.

Vulnerability

El Paso County and six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) residents, businesses, governmental entities, and critical infrastructures as identified in Attachment II may be vulnerable when extreme cold reaches temperatures 10 degrees below the average cold of 51.8. People who lack proper shelter are vulnerable to the effects of extreme cold. Crops are vulnerable to damage due to extreme cold. People who lack proper shelter are vulnerable to the effects of extreme cold.

Structures identified in Attachment II may become vulnerable if they are exposed or poorly protected water pipes may be damaged when pipes freeze during period of extreme cold and then burst when water is once again flowing. Generators may also freeze during periods of extreme cold.

Impact

The extreme cold weather in February 2011 led to damage in the region because electric generators froze and some structures were without power. The cold weather also led to frozen water utility systems, including exposed pipes on private property, which lead to interior flooding or floors, carpets, and wall board; low pressure in natural gas pipes and natural gas outages, which led to a lack of power; problems with generation of electricity and the resulting need for conservation; and the need for warming shelters for residents without heated homes and in homes experiencing power failure (El Paso County Sheriff, 2011).

The most property damage attributed to an occurrence of extreme cold was in 1962; the losses were valued at $146,235 in 2011 dollars.

In general, businesses and residents may experience higher than normal charges for electricity consumption due to the higher cost of operating heating systems during periods of extreme cold.

Changes in Development

The population of the County has increased since the last plan was developed. Additional urbanization has occurred in the municipalities and in areas of the County that were previous developed. The additional structures and infrastructure have not changed the likelihood or impact of extreme cold in the planning area.

Mitigation Accomplishments

The previous plan recommended community education so that residents can prepare for the effects of hazards including extreme cold weather. This action is routinely implemented as the El Paso County Sheriff's Office posts information about preparing for weather conditions on its Web site.

The previous plan recommended emergency preparedness and response actions for extreme temperatures that are routinely implemented by the RGCOG:

- Conduct blanket drive in advance of extreme cold weather
- Activate warming shelters during periods of extreme cold

Since adoption of the previous mitigation plan, the County adopted the International Residential Code, 2009 Edition, regarding insulating plumbing within exterior walls.

After the freezing cold weather of February 2011 and the damage incurred by the electric power plant, as repairs were made, water pumps were insulated so that they will not freeze the next time extreme cold temperatures occur.

Future Development

Future development is protected from damage caused by water pipes that freeze during periods of extreme cold and then burst causing flooding of the interior. The County adopted the International Residential Code, 2009 Edition, and the Code of Ordinances Section 18.10.266 prohibits placement of plumbing in exterior walls unless there is adequate protection from freezing and prohibits placement of water pipes in ceiling or attic areas unless the water lines are placed on the heated side of the structure with a minimum of 10 inches of insulation on the exterior or roof side of the structure.

Summary of Extreme Temperatures: The County of El Paso to include the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) and County of El Paso experience an average of 51.8 degrees of cold temperatures. During the summer, the average heat for both cities is 77.5 degrees. The planning area considers that any temperature above or below 10 degrees the average range to be extreme.

3.3.5. Snow

Description of Snow: **Snow**, heavy, frozen precipitation.

Location

Snow can affect any part of the entire El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint region.

Extent

As much as 18.2 inches of snow has fallen in the northern, mountainous part of El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint region in a year, and up to 2 inches has accumulated in the southern end of the region (Texas Commission on Environmental Quality, 2012; Texas A&M University, 2012). The table provided in the Attachment shows that snow of this depth is considered to have the potential to cause only moderate effects.

Previous Occurrences

The previous plan listed only one occasion when a measurable quantity of snow fell in the region. The update includes data from SHELDUS and other Internet sources.

SHELDUS lists 12 occurrences of snow falling in the County over the 48-year period from 1961 through 2008. SHELDUS lists three fatalities (one fatality each in November 1961, December 1983, and March 1984) and six injuries associated with snow over the 51-year period. In addition, KVUE.com reported 2 inches of snow falling in the region in December 2009, and AccuWeather.com lists 1 inch of snow as falling in the region in December 2011. Table 7 lists the 14 separate occurrences of snow falling in the planning area.

Table 7: Previous Occurrences of Snow

Date	Location or County	Property Damage (2011 dollars)
11/13/1961	El Paso	$0
1/3/1971	El Paso	$27,368
1/8/1973	El Paso	$10,236
11/12/1976	El Paso	$0
4/12/1980	El Paso	$547,368
11/16/1980	El Paso	$54,737
11/24/1980	El Paso	$54,737
4/4/1983	El Paso	$0
12/15/1983	El Paso	$0
3/5/1984	El Paso	$0
1/12/1985	El Paso	$15,380
12/16/1989	El Paso	$8,293
12/1/2009	El Paso	Not available
12/23/2011	El Paso	Not available

Probability

There are 14 identified occurrences of snow falling in El Paso County or any of its municipal jurisdictions over the 51-year period 1961 to 2011. Thus, the probability of snow in the planning area in any given year is estimated at 14/51 or 27 percent.

Vulnerability

In El Paso County and six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) participating jurisdictions vehicles are vulnerable to sliding when snow accumulates on roadways. Critical infrastructures identified in Attachment II may become vulnerable if a category 5, RSI value of 18.0+ snowfall event were to occur in El Paso County.

Impact

The American Society of Civil Engineers (ASCE) provides recommendations for building to support the weight of snow. Many different factors affect the way snow will collect on roofs, including the slope and shape of the roof and the way the snow drifts. Taking all relevant factors into account, engineering studies have led the ASCE to conclude that roofs in the planning area do not need to be designed to handle snow loads because snow is not expected to lead to structural failure (ASCE, 2006). However, even a small amount of snow can lead to traffic accidents and associated vehicle damage.

The County has enforced a building code since 1936 (*Plan El Paso,* page 1.18), which suggests that the great majority of existing buildings meet standards sufficient to withstand the pressure or weight of up to 7 inches of snow.

The most property damage attributed to a single occurrence of snowfall is $547,368 in 2011 dollars. The data do not specify the types of damages, but the RGCOG attributes most of these damages to vehicle damage due to dangerous driving conditions.

Snow may impact all of the participating jurisdictions equally because of their proximity to each other. No effects on structures or infrastructure are anticipated due to snow in within the planning area of El Paso County to include the Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint. The only potential economic loss anticipated in conjunction with snowfall is the closing of schools and businesses, governmental offices, repair to vehicles, and repair to roads.

Changes in Development

Changes in development that have occurred in the County, where the population has increased since the previous plan was developed, are not expected to increase damage to structures or infrastructure due to snow because the amount of snowfall in the region is low.

Mitigation Accomplishment

The previous plan recommended community education so that residents can prepare for the effects of all hazards including snow. The impact that snow can cause on El Paso County and the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) in the future may lead to significant economic loss for business owners, governmental entities, school systems, and citizens. This action is routinely implemented as the El Paso County Sheriff's Office posts information about preparing for weather conditions in the region on its Web site.

The previous plan did not recommend upgrading building standards to address the weight of snow, but in 2010 the County did adopt the International Residential Code, 2009 Edition, Climactic and Geographic Design Criteria to accommodate roof snow load of up to 7 pounds per square foot.

Future Development

Each participating jurisdiction has adopted the 2009 International Building Code, which requires future structures to be built to a standard that is adequate to prevent collapse due to the accumulation of snow.

3.3.6. Wind

Description of Wind: **Wind**, horizontal movement of the air.

Location

Wind can affect any part of the entire El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint region.

Extent

The magnitude or severity of a wind storm can be measured using the Beaufort wind scale. The Beaufort scale rates the force of wind from category 0 for calm winds of less than 1 mile per hour to category 12 for violent storms with winds of more than 74 miles per hour. Table 8 further describes the conditions experienced on land for various classifications in the Beaufort scale (Rowlett, 2001).

Table 8: Beaufort Wind Scale

Rating	Wind Speed in Miles per Hour	Description	Conditions on Land
0	<1	Calm	Smoke rises vertically
1	1-4	Light air	Smoke drifts, leaves rustle
2	5-7	Light breeze	Wind felt on face
3	8-11	Gentle breeze	Flags extended, leaves move
4	12-18	Moderate breeze	Dust and small branches move

Rating	Wind Speed in Miles per Hour	Description	Conditions on Land
5	19-24	Fresh breeze	Small trees begin to sway
6	25-31	Strong breeze	Large branches move, wires whistle, umbrellas difficult to control
7	32-38	Near gale	Inconvenience in walking; whole trees in motion
8	39-46	Gale	Difficult to walk against the wind; twigs and small branches blown off trees
9	47-54	Strong gale	Minor structural damage (e.g., shingles blown off roofs)
10	55-63	Storm	Trees uprooted, structural damage likely
11	64-73	Violent storm	Widespread structural damage
12	74+	Hurricane	Severe structural damage to buildings

Data provided by the NCDC for wind magnitude show that high winds in the region have been measured at up to 78 knots or, using the conversion factor of 1 knot = 1.15078 miles per hour, 90 miles per hour, which can cause severe structural damage (NCDC, July 2012). This means that wind has the potential to cause severe structural damage in El Paso County, the City of El Paso or Socorro, or the Towns of Anthony, Clint, Horizon City, or Vinton.

Previous Occurrences

Data provided in the previous plan on occurrences of high wind have been updated with data provided by the NCDC and are presented in Table 9. The Table 9 is representative of all previous occurrences for all jurisdictions which include El Paso County, the City of El Paso or Socorro, the Towns of Anthony, Clint, Horizon City, or Vinton. The NCDC reports one fatality associated with wind; the fatality occurred on August 3, 1993.

Table 9: Previous Occurrences of Wind

Date	Location or County	Magnitude (knots)	Property Damage (at time of event)	Date	Location or County	Magnitude (knots)	Property Damage (at time of event)
23-JUL-57	El Paso	70	$0	01-JUL-02	El Paso Intl Arpt	52	$0
08-SEP-61	El Paso	0	$0	02-JUL-02	El Paso Intl Arpt	66	$5,000
26-JUL-66	El Paso	0	$0	02-AUG-02	El Paso Intl Arpt	60	$0
27-JUL-66	El Paso	65	$0	02-AUG-02	El Paso Intl Arpt	60	$50,000
18-JUL-	El Paso	50	$0	03-OCT-03	El Paso	52	$1,000

Date	Location or County	Magnitude (knots)	Property Damage (at time of event)	Date	Location or County	Magnitude (knots)	Property Damage (at time of event)
68					Intl Arpt		
05-SEP-70	El Paso	55	$0	13-AUG-04	El Paso Intl Arpt	55	$0
12-JUL-72	El Paso	50	$0	29-SEP-04	El Paso Intl Arpt	58	$0
18-AUG-72	El Paso	56	$0	11-JUL-05	El Paso Intl Arpt	59	$5,000
30-JUN-74	El Paso	53	$0	26-AUG-05	El Paso	52	$0
22-JUN-76	El Paso	56	$0	28-AUG-05	El Paso	52	$0
26-SEP-76	El Paso	0	$0	20-JUN-06	El Paso Intl Arpt	53	$0
29-JUN-77	El Paso	52	$0	27-AUG-06	Fabens	61	$10,000
08-JUL-77	El Paso	0	$0	20-JUN-07	El Paso	52	$1,000
14-AUG-77	El Paso	50	$0	13-JUL-07	El Paso	54	$0
24-AUG-77	El Paso	52	$0	13-JUL-07	El Paso	56	$5,000
21-OCT-78	El Paso	51	$0	20-JUL-07	El Paso	51	$0
31-JUL-79	El Paso	63	$0	20-JUL-07	El Paso	52	$5,000
27-JUL-81	El Paso	56	$0	06-AUG-07	El Paso	61	$10,000
22-JUN-86	El Paso	56	$0	31-AUG-07	El Paso	53	$0
19-JUL-86	El Paso	0	$0	28-SEP-07	El Paso	52	$0
13-AUG-86	El Paso	52	$0	28-SEP-07	El Paso	61	$100,000
13-SEP-87	El Paso	0	$0	12-AUG-08	El Paso	52	$0
22-AUG-88	El Paso	0	$0	20-AUG-08	El Paso	61	$20,000
20-SEP-88	El Paso	52	$0	22-JUL-09	El Paso	56	$10,000
21-JUN-	El Paso	78	$0	19-SEP-09	El Paso	54	$0

Date	Location or County	Magnitude (knots)	Property Damage (at time of event)	Date	Location or County	Magnitude (knots)	Property Damage (at time of event)
89							
12-SEP-89	El Paso	0	$0	06-JUN-10	El Paso	50	$0
27-JUL-90	El Paso	62	$0	28-JUN-10	El Paso	54	$0
03-AUG-93	El Paso	0	$50,000	16-JUL-10	El Paso	52	$0
12-DEC-93	El Paso	0	$50,000	13-AUG-10	El Paso	56	$4,000
01-JUN-94	El Paso	60	$50,000	01-JUN-11	El Paso	52	$0
08-AUG-95	El Paso	0	$125,000	01-JUN-11	El Paso	53	$0
14-JUL-97	El Paso	50	$150,000	26-JUL-11	El Paso	68	$5,000
06-AUG-97	El Paso	51	$0	28-JUL-11	El Paso	55	$0
27-OCT-98	El Paso Intl Arpt	58	$0	17-AUG-11	El Paso	52	$0
26-AUG-99	El Paso	60	$0	15-SEP-11	El Paso	52	$0
12-JUN-00	El Paso	51	$20,000	15-SEP-11	El Paso	52	$2,000
30-AUG-00	Canutillo	52	$10,000	15-JUN-12	El Paso	56	$0
30-JUL-01	El Paso	62	$0	15-JUN-12	El Paso	58	$0
14-JUN-02	Fabens	52	$75,000				

Probability

NCDC data show 77 instances of high winds occurring in the County or participating jurisdictions over the 56-year period of 1957 through 2012. This suggests that, on the whole, the probability of winds in any given year is 77/56 or greater than 1 percent; thus the County, on the whole, can reasonably anticipate at least one wind storm per year.

Vulnerability

Power lines and trees that are in poor health are at risk of damage due to wind.

Critical infrastructures identified in Attachment II may become vulnerable if winds exceed more than their average of 74+ within El Paso County. Roofs of residential and commercial structures in the planning area are at some risk of damage due to wind.

Vehicles are vulnerable to damage due to wind as they may be struck by flying debris.

Impact

Not all winds cause property damage. When wind does cause damage, the types of property damage experienced in the region generally include trees and power poles being knocked over, and roofs and vehicles being damaged by flying debris.

The County has enforced a building code since 1936 (*Plan El Paso,* page 1.18), which suggests that the great majority of existing buildings meet standards sufficient to withstand the impact of wind.

The most damage associated with a single wind storm is $150,000 in 1997 dollars.

Over the course of 56 years, one fatality and 30 injuries have been attributed to winds. The injuries and fatalities were reported in conjunction with thunderstorms with winds in September 1987 (3 injuries), August 1993 (1 fatality), and August 1995 (27 injuries) (NCDC, 2012).

Wind may impact all of the participating jurisdictions equally because of their proximity to each other. Economic losses due to the occurrence of wind would be the costs of some residential businesses and governments' roof repair, replacement of some windows damaged by wind or by wind-borne debris, repair of damage to vehicles and repair of power lines and power poles.

Changes in Development

Changes in development that have occurred in the County, where the population has increased since the previous plan was developed, may slightly increase the level of damage caused by wind because there are more structures.

Mitigation Accomplishments

The previous plan did not recommend upgrading building standards to address the force of wind, but in 2010 the County did adopt the International Residential Code, 2009 Edition, Climactic and Geographic Design Criteria to accommodate wind speeds of up to 90 miles per hour.

Future Development

Each participating jurisdiction has adopted the 2009 International Residential Code, which suggests that future structures will be built to a standard that is adequate to prevent structural damage due to wind.

3.3.7. Ice

Description of Ice: **Ice**, the accumulation of frozen precipitation on cold surfaces.

Location

Ice storms can affect the entire region, which includes El Paso County, the Cities of El Paso and Socorro, and the Towns of Anthony, Clint, Horizon City, and Vinton.

Extent

Ice storms in the region are generally not severe because the accumulation of ice is generally less than an eighth of an inch.

The Sperry-Piltz Accumulation Index describes the effects of ice accumulation. It shows that ice accumulation of less than ¼ inch (which is more than the expected magnitude of an ice storm in the planning area) can, in combination with winds, lead to utility interruption. The index is included in the Attachment and is available at http://www.spia-index.com/.

Previous Occurrences

Table 10 presents SHELDUS data on four previous occurrences of ice storms in the County for the 48-year period from 1961 through 2008. A fifth costly ice storm occurred in February 2011; this is also listed in Table 10, but, as it is not listed in SHELDUS, comparable damage estimates are not available.

Table 10: Previous Occurrences of Ice

Date	Location or County	Property Damage (2011 dollars)
11/13/1961	El Paso	$0
12/10/1972	El Paso	$1,077
1/8/1973	El Paso	$10,236
4/12/1980	El Paso	$547,368
2/2/2011	El Paso	Not available

Probability

With five ice storms identified over the 51-year period from 1961 through 2011, the probability of an ice storm occurring in El Paso County or any of the participating jurisdictions in any given year is 5/51 or 10 percent.

Vulnerability

Within the planning area (El Paso County to include Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon City, City of Socorro, and Town Clint), the most vulnerable and most impacted populations are to all hazards identified in this plan: elderly, special needs individuals, infants, and children. Ice may impact all of the participating jurisdictions equally because of their proximity to each other. Critical infrastructures identified in Attachment II may become vulnerable if the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) and County of El Paso exceed a level three (3) as described on the Sperry-Piltz Ice Accumulation Index (SPIA Index).

Impact

The County has enforced a building code since 1936 (*Plan El Paso,* page 1.18), which suggests that the great majority of existing buildings meet standards sufficient to withstand ice.

Ice may impact all of the participating jurisdictions equally because of their proximity to each other. Minor effects on structures or infrastructure are anticipated due to ice in within the planning area of El Paso County to include the Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint. The most property damage associated with a single ice storm was $547,368 in 2011 dollars. The data do not specify the types of damage, but the RGCOG and the Planning Team are of the opinion that damage occurs to vehicles due to icy roads.

Changes in Development

Changes in development that have occurred in the County, where the population has increased since the previous plan was developed, may slightly increase the level of damage caused by ice because there is the potential for more vehicles to be on icy roadways. However, because building codes are enforced, new structures will not be damaged by ice.

Mitigation Accomplishments

The previous plan recommended community education so that residents can prepare for weather events such as an ice storm. This mitigation action is accomplished through the El Paso County Sheriff's Office, which posts information about preparing for weather conditions on its Web site.

Future Development

Each participating jurisdiction has adopted and enforces a building code, which suggests that future structures will be built to a standard that is adequate to prevent structural damage in an ice storm.

3.3.8. Hail

Description of Hail: **Hail**, precipitation in the form of small balls or lumps of clear ice and compact snow.

Location

Hail can occur at any location in the planning area, which is El Paso County, the Cities of El Paso and Socorro, and the Towns of Anthony, Clint, Horizon City, and Vinton.

Extent

Hail has been measured in El Paso County ranging from **0.75 inch to 3.25 inches in diameter. The average size of hail in the County is 1.2 inches.**

The TORRO Hailstorm Intensity Scale rates the potential for damage caused by different size hail. Categories of hail are denoted by the labels H0 through H10, and potential impacts are described in Table 11.

Table 11: TORRO Hailstorm Intensity Scale

Category	Intensity	Maximum diameter in inches	Impacts
H0	Hard Hail	0.2	No damage
H1	Potentially Damaging	0.6	Slight general damage to plants, crops
H2	Significant	0.8	Significant damage to fruit, crops, vegetation
H3	Severe	1.2	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	1.6	Widespread glass damage, vehicle bodywork damage
H5	Destructive	2.0	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	2.4	Bodywork of grounded aircraft dented, brick walls pitted
H7	Destructive	3.0	Severe roof damage, risk of serious injuries
H8	Destructive	3.5	Severe damage to aircraft bodywork
H9	Super Hailstorms	3.9	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>3.9	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

The County has experienced damage from the H0 through the H8 categories. Thus, according to the TORRO scale, any of the participating jurisdictions may experience severe roof damage, pitted vehicles, aircraft, and brick walls, destruction of glass, and the potential for serious injuries.

Previous Occurrences

Table 12 lists 92 previous occurrences of hail in the County for the 55-year period from 1958 through 2012 (NCDC, 2012).

Table 12: Previous Occurrences of Hail

Date	Location or County	Magnitude (inches)	Property Damage (at time of event)	Date	Location or County	Magnitude (inches)	Property Damage (at time of event)
15-MAY-58	El Paso	1	$0	28-AUG-05	El Paso Intl Arpt	0.75	$0
23-MAY-63	El Paso	0.75	$0	09-OCT-05	El Paso Intl Arpt	0.75	$0
09-JUN-69	El Paso	1.75	$0	14-MAY-06	El Paso Intl Arpt	0.75	$0
09-JUN-69	El Paso	2	$0	14-MAY-06	El Paso Intl Arpt	1.5	$10,000
04-OCT-70	El Paso	0.87	$0	31-MAY-06	Clint	1	$0
25-AUG-71	El Paso	1.75	$0	15-JUL-06	Fabens	1	$0
23-SEP-71	El Paso	1.75	$0	11-SEP-06	El Paso Intl Arpt	0.88	$0
30-APR-74	El Paso	0.75	$0	11-SEP-06	El Paso Intl Arpt	0.88	$0
30-APR-74	El Paso	1.75	$0	11-SEP-06	El Paso Intl Arpt	1	$1,000
22-OCT-74	El Paso	3.25	$0	09-OCT-06	Tornillo	1.75	$20,000
23-OCT-74	El Paso	0.75	$0	15-OCT-06	El Paso	0.75	$0
10-MAY-75	El Paso	1.75	$0	15-OCT-06	El Paso	0.75	$0
20-APR-77	El Paso	1.75	$0	02-MAY-07	El Paso Intl Arpt	0.75	$0
31-JUL-79	El Paso	1.75	$0	02-MAY-07	El Paso Intl Arpt	1	$2,000
31-MAY-86	El Paso	2	$0	02-MAY-07	El Paso Intl Arpt	1.75	$5,000
21-JUN-86	El Paso	1.75	$0	07-MAY-07	El Paso Intl Arpt	1.75	$10,000
22-JUN-86	El Paso	0.75	$0	08-MAY-07	El Paso Intl Arpt	1.5	$5,000

Date	Location or County	Magnitude (inches)	Property Damage (at time of event)	Date	Location or County	Magnitude (inches)	Property Damage (at time of event)
19-OCT-86	El Paso	1.75	$0	08-MAY-07	El Paso Intl Arpt	1.25	$4,000,000
19-OCT-86	El Paso	1.75	$0	20-JUN-07	El Paso	0.75	$0
27-MAY-89	El Paso	2	$0	20-JUN-07	El Paso	0.88	$0
21-APR-90	El Paso	1.25	$0	20-JUN-07	El Paso	1.75	$0
21-MAY-91	El Paso	0.75	$0	28-SEP-07	El Paso Intl Arpt	0.75	$0
21-MAY-91	El Paso	1	$0	28-SEP-07	El Paso Intl Arpt	1	$0
21-MAY-91	El Paso	1.5	$0	28-SEP-07	El Paso Intl Arpt	2	$8,000,000
21-MAY-92	El Paso	1	$0	17-JUL-08		0.75	$0
22-MAY-92	El Paso	0.75	$0	20-AUG-08	El Paso Intl Arpt	1.75	$350,000
23-MAY-92	El Paso	2	$0	11-SEP-09	El Paso	0.88	$0
21-MAY-94	El Paso	1	$0	11-SEP-09	El Paso	1	$0
21-MAY-94	El Paso	1	$0	16-SEP-09	Tornillo	1	$0
30-JUN-95	El Paso	0.75	$0	16-SEP-09	El Paso Intl Arpt	1	$0
15-JUN-97	Socorro	0.75	$0	16-SEP-09	Biggs AFB	1	$0
27-OCT-98	El Paso	1.75	$0	16-SEP-09	Socorro	1.75	$0
17-JUL-99	El Paso	0.75	$0	16-SEP-09	Socorro	1.75	$50,000
01-JUL-00	El Paso IntlArpt	1.75	$0	16-SEP-09	Socorro	1.75	$10,000,000
02-JUL-02	El Paso IntlArpt	1	$0	16-SEP-09	El Paso	1.5	$20,000,000
18-OCT-02	Tornillo	0.75	$0	16-SEP-09	Socorro	1.75	$20,000,000
18-OCT-02	El Paso	1	$5,000	16-SEP-09	El Paso	1.75	$100,000,000
15-MAY-04	Tornillo	1	$0	12-APR-10	El Paso	1.75	$0
15-MAY-04	El Paso IntlArpt	1.5	$0	14-APR-10	Tornillo	1	$0
11-AUG-04	El Paso IntlArpt	0.75	$0	23-AUG-10	El Paso	0.75	$0
11-AUG-04	Socorro	1	$0	15-SEP-10	Socorro	1.75	$0
29-AUG-04	El Paso	1	$250,000	20-OCT-10	El Paso IntlArpt	0.75	$0
29-SEP-04	El Paso IntlArpt	1	$0	20-OCT-10	El Paso Intl Arpt	0.75	$0
29-SEP-04	El Paso IntlArpt	1.5	$0	20-OCT-10	Socorro	1	$0

Date	Location or County	Magnitude (inches)	Property Damage (at time of event)	Date	Location or County	Magnitude (inches)	Property Damage (at time of event)
26-JUL-05	El Paso IntlArpt	0.75	$0	15-SEP-11	El Paso Intl Arpt	0.75	$0
26-AUG-05	El Paso	1	$1,000	08-APR-12	Vinton	1	$0

Probability

The NCDC lists 92 occurrences of hail in the County and the participating jurisdictions for the 55-year period from 1958 through 2012. The probability of hail occurring in any given year is estimated as 92/55, which is greater than one; thus, there is estimated to be a 100 percent chance of hail in any given year.

Vulnerability

Critical infrastructures identified in Attachment II may become vulnerable if the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) and County of El Paso experience/receive a category H9 (intensity) “super hailstorm” with hail in diameter of 75-100 or greater. Roofs and windows of residential and commercial structures are vulnerable to hail damage as are the bodies of motor vehicles and aircraft.

Impact

The County has enforced a building code since 1936 (*Plan El Paso,* page 1.18), which suggests that the great majority of existing buildings meet standards sufficient to withstand the impact of hail.

Hail may impact all of the participating jurisdictions equally because of their proximity to each other. Minor effects on structures or infrastructure are anticipated due to hail in within the planning area of El Paso County to include the Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint. The single most costly hailstorm occurred in 2009 for which property damages were an estimated $100 million. Property damage included roof damage and damage to windows and the bodies of motor vehicles.

Over the 55-year period from 1958 through 2012, the 92 occurrences of hail have not led to any fatalities, but a 2009 hailstorm led to 10 injuries.

Changes in Development

The population of the County has increased since the previous plan was developed. New development and the addition of vehicles mean that property damages may increase in the future because more structures and vehicles are exposed to hail.

Mitigation Accomplishments

The previous plan recommended that windows and roofs of public buildings be reinforced to limit damage from hail, but these mitigation actions were deferred until funding is available.

Future Development

Each participating jurisdiction has adopted and enforces a building code, which suggests that future structures will be built to a standard that is adequate to prevent structural damage from hail.

3.3.9. Dam/Levee Failure

Description of Dam Failure: **Dam Failure**, the failure of a structure resulting in the uncontrolled release of water.

Location

Dams have been constructed to impound water along the Rio Grande in New Mexico. Levees have been constructed in the planning area just beyond the east or north bank of the Rio Grande. Because El Paso County, the City of El Paso, and the Town of Vinton, which are located along the Rio Grande, have participated in the NFIP for decades, land in the inundation area is generally undeveloped or structures comply with NFIP regulations and are not prone to damage due to flooding.

Upstream of El Paso are the Caballo Lake and Elephant Butte Lake dams. The Caballo Lake Dam is about 80 miles north of the northernmost part of El Paso County; Elephant Butte Dam is about 20 miles farther north.

Should a dam fail, the large amount of water that could be released from the reservoirs has the potential to cause flooding in the identified Special Flood Hazard Area along the Rio Grande. The U.S. Bureau of Reclamation mapped the inundation area for dam failure in 1991; the maps cover a vast area and are not precise.

The U.S. Section of the International Boundary and Water Commission (IBWC) operates and maintains levees along the Rio Grande. If levee failure were to occur, the floodplain along the Rio Grande would be flooded.

FEMA Flood Insurance Rate Maps are available through the FEMA Map Service Center showing expected locations of flooding. These are either included or listed in the Attachment. Dam or levee failure might affect El Paso County, the City of El Paso, or the Town of Vinton. Dam or levee failure would not affect the other participating jurisdictions.

Extent

The variables that affect the extent or severity of dam failure include the type of dam failure, the amount of water impounded and/or released, and the degree to which the ground in the area is saturated at the time of the release.

Dam failure could mean the release a small amount of water if there is a malfunction in the operating system of the structure, or dam failure may simply involve overtopping or the failure of the dam to hold back the flow of the river. Dam failure may result in the release of some, but not all of the water impounded. Conversely, cam failure could be a catastrophic collapse of a dam with the sudden release of a large amount of fast-moving water from the impoundment.

The more water released by dam failure, the greater the severity and potential extent of the hazard. As the amount of water that flows from the dam increases, the potential for downstream flooding increases.

If the ground in the region where the water from the dam flows is saturated, water released by the dam would not be absorbed, and more water would reach El Paso County than if the ground in the region were dry and the released water were absorbed by the ground between the location of the dam and the County.

Along the floodplain of the Rio Grande in El Paso County, the City of El Paso or the Town of Vinton inundation from dam or levee failure would be expected to be equivalent to the calculated base flood elevation of between 3,725 feet and 3,742 feet above mean sea level because the dams are located between 80 and 100 miles away and a great deal of the water leaving the impoundments would be absorbed by the ground as it travels from a dam to the planning area.

Previous Occurrences

There have been no previous occurrences of dam or levee failure causing damage in the County.

Probability

The previous plan estimated that the probability of dam failure is 1/10 in any given year and, as there is no history of failure, the estimate of probability has not changed. Both dams are listed on the Bureau of Reclamation Web site and are closely monitored and regularly maintained by the U.S. Bureau of Reclamation (U.S. Bureau of Reclamation, 2009a and 2009b).

Similarly, the probability of levee failure is estimated to be close to zero; the levees are monitored and maintained by the International Boundary and Water Commission (IBWC, 2012).

Vulnerability

Because El Paso City and County and participating jurisdictions have participated in the NFIP for decades, any structures remaining in the floodplain comply with NFIP minimum standards are at low risk for damage due to the flooding. Infrastructure, too, is at low risk of damage due to dam or levee failure. However, the following jurisdictions especially the elderly, special needs individuals, infants, and children are vulnerable to flooding should there be a Dam/Levee failure. They are: Town of Anthony, Village of Vinton, City of El Paso (Upper Valley, Downtown, and Lower Valley areas), City of Socorro, and Town of Clint.

Critical infrastructure identified in Attachment II in the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) and County of El Paso could become vulnerable in the event of a dam failure.

Impact

The impact of dam or levee failure would be flooding along the Rio Grande. Enforcement of local flood damage prevention ordinances has required structures and infrastructure along the river to be designed and built to withstand the force of rising or moving water. Thus, the impact of dam failure would be roughly equivalent to the impact of flooding along the river. The impacted jurisdictions are as follows: Town of Anthony, Village of Vinton, City of El Paso (Upper Valley, Downtown, and Lower Valley areas), City of Socorro, and Town of Clint. The impact of a dam or levee failure can be extensive for the West El Paso County, with approximate estimated in impact of $5,000,000.

Changes in Development

New development in the County close to the Rio Grande has been limited to infill or redevelopment. Development since the last plan was adopted has occurred primarily to the east and away from an inundation area. Thus, changes in development have not increased or decreased exposure to damage due to dam or levee failure.

Mitigation Accomplishments

The previous plan proposed improving data about structures and infrastructure located in the inundation area; this is an ongoing effort led by the RGCOG GIS department.

The previous plan proposed dredging the Rio Grande so that, should a dam fail, the river would accommodate the volume of water released so that it would move through the planning area without causing flooding; this action was deferred and will be deleted from the plan because it is not the responsibility of local governments to dredge the river.

Future Development

No expansion of development is anticipated in the County along the Rio Grande; thus, future development will not be vulnerable to damage from dam or levee failure.

3.3.10. Earthquake

Description of Earthquake: **Earthquake,** the shaking or trembling of the earth.

Location

Earthquakes that have been recorded in the six Far West Texas counties have been centered along fault lines located in the Franklin Mountains, which is in El Paso County; in Valentine, TX, which is in Jeff Davis County; and in Alpine, TX, which is in Brewster County. There are also several smaller faults located in Culberson County; these are East Sierra Diablo fault, West Delaware Mountains fault, West Lobo Valley (Fay, Mayfield, and Neal sections) faults, and West Wylie Mountains fault (USGS, 2012). If an earthquake were to occur, the entire El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint region may be affected.

Extent

The previous plan indicated that the maximum **expected magnitude of an earthquake associated with the East Franklin Mountain fault line is 6.8 on the Richter scale**. Table 13 summarizes the types of damage caused by earthquakes of various categories on both the Richter and Mercalli scales.

Table 13: Categories of Earthquakes

Mercalli Scale	Richter Scale	Description of Impact
I	1.0 to 1.9	People are generally not aware of the earthquake
II	2.0 to 2.9	Earthquake is noticed by people at rest or on upper floors
III	3.0 to 3.9	Earthquake is felt indoors; hanging objects swing
IV	4.0 to 4.3	Vibration is similar to that of heavy trucks passing; vehicles rock; windows, dishes, doors rattle; glasses clink; wooden walls creak
V	4.4 to 4.8	Earthquake is felt outdoors; sleepers awake; liquids are disturbed; doors swing; small objects are displaced
VI	4.9 to 5.4	Earthquake is felt by all; persons walk unsteadily; windows, dishes, glassware is broken; books and other objects fall off shelves; pictures fall off walls; furniture moves; small bells ring; trees shake
VII	5.5 to 6.1	People have difficulty standing; hanging objects quiver; furniture may break; masonry cracks; weak chimneys break at roof line; plaster, loose bricks, stones, tiles, and cornices fall; waves appear on standing water; large bells ring; concrete irrigation ditches are damaged
VIII	6.2 to 6.5	It is difficult to steer a vehicle; stucco and some masonry walls fall; chimneys, factory stacks, monuments, towers, and elevated tanks twist

Mercalli Scale	Richter Scale	Description of Impact
		and collapse; frame houses move on foundations; branches fall from trees; cracks appear in wet ground and on steep slopes
IX	6.6 to 6.9	There is general panic; masonry structures are destroyed or heavily damaged; reservoirs are damaged; underground pipes break; cracks appear in ground
X	7.0 to 7.3	Most masonry and frame structures are destroyed along with their foundations; dams, levees, and embankments are seriously damaged; landslides occur; water is thrown out of canals, rivers, and lakes; sand and mud shift horizontally on beaches; rails bend slightly
XI	7.4 to 8.1	Rails bend greatly; underground pipelines are destroyed
XII	8.1 or greater	Damage is nearly total; large rock masses are displaced; objects are thrown into the air

Should an earthquake occur, parts of the planning area, in particular locations close to the Franklin Mountains, according to the descriptions shown in the table above, would experience destruction of masonry, broken pipes underground, and some cracks would appear in the ground.

Previous Occurrences

There have been no earthquakes in the region since the previous plan was prepared; however, this update contains more information about previous earthquakes than the previous plan. Table 14 lists earthquakes that have recorded in the region since 1889 (USGS, 2012; Frohlich and Davis, 2002; Texas State Historical Association, 2012).

Table 14: Previous Occurrences of Earthquakes in the Planning Area

Date	Time of Day	Location or County	Magnitude (Richter Scale)
31-May 1889	8:00 PM	El Paso	3.6
07-March 1923	5:03 AM	El Paso	4.7
02-October 1931	Not available	El Paso	3.2
08-August 1936	1:40 AM	El Paso	3.0
15-October 1936	6:00 PM	El Paso	3.0
31-March 1937	11:45 PM	El Paso	3.0
12-May 1969	8:26 AM	El Paso	3.9
12-May 1969	8:49 AM	El Paso	3.6
09-December 1972	5:58 AM	El Paso	3.0
09-December 1972	2:37 PM	El Paso	3.0
14-April 1995	Not available	El Paso	5.7
15-April 1998	Not available	El Paso	3.6

Probability

Twelve earthquakes have been recorded in the planning area, which includes El Paso County, the Cities of El Paso and Socorro, and the Towns of Anthony, Clint, Horizon City, and Vinton, in the 124 years since 1889. The probability of an earthquake occurring in any given year is estimated as 12/124 or 10 percent.

Vulnerability

Structures to include critical infrastructures identified in Attachment II, especially old residential structures built before any of the participating jurisdictions adopted building codes, would be vulnerable to damage should an earthquake occur. Underground pipes and ground surface structures such as parking areas may break or crack.

Impact

Damage recorded in previous earthquakes in the region include a building being badly cracked, some rocks sliding in the mountains, an adobe house collapsing, windows breaking, and cracks in a ceiling and on a driveway. The adobe house that collapsed led to one fatality in nearby Juarez, Mexico. However, in the event that El Paso County experiences an Earthquake, the City of El Paso (Westside, Central, and Northeast areas) would be impacted.

An earthquake of magnitude 6.8 on the Richter scale in this region would cause considerable damage in ordinary buildings and partial collapse of some structures. Damage would be greater in poorly built structures, especially in unreinforced masonry structures. Chimneys, monuments, columns, and walls may fall and furniture may be overturned. The alignment of even well-designed structures, such as those with reinforced masonry walls, could become skewed, and buildings may shift off foundations. Underground pipes and ground surface structures such as parking areas may break or crack.

The County and City have enforced a building code since 1936 (*Plan El Paso,* page 1.18), which suggests that the great majority of existing buildings meet standards sufficient to withstand the shaking associated with an earthquake up to magnitude 6.8, the largest magnitude predicted for the area.

Changes in Development

With an increasing population, the County and municipalities have more structures and infrastructure than when the previous plan was developed. However, because building codes are enforced, new structures should withstand the forces of an earthquake of the magnitude anticipated in the planning area.

Mitigation Accomplishments

Previously proposed mitigation actions related to the earthquake hazard were to update mapping of the seismic hazard and to strengthen building codes to the 2006 International Building Code. The University of Texas at El Paso is currently conducting research on earthquakes fault lines in the region. The Building Code was updated in the City of El Paso in 2010 to the 2009 Edition of the International Building Code.

Future Development

Each participating jurisdiction has adopted and enforces a building code, which suggests that future structures will also be built to a standard that is adequate to prevent damage from earthquakes.

However, building codes do not address how objects are arranged inside of a structure. Injury and damage can be caused by falling objects such as ceiling fans, light fixtures, and tall bookcases and cabinets.

3.3.11. Tornado

Description of Tornado: **Tornado**, a rapidly rotating vortex or funnel of air extending to the ground.

Location

A tornado can occur anywhere in El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint region.

Extent

Magnitude or severity of a tornado is measured on either the Fujita (F) or the Enhanced Fujita (EF) scale, which assign tornadoes to categories based on their wind speed. T**ornadoes that have occurred in the region in the past have been in categories F-0 or F-1**. Table 15 compares the two scales and describes the types of damage typically associated with each category.

Table 15: Categories of Tornadoes

F Number	3-Second Gust (mph)	EF Number	3-Second Gust (mph)	Description of Damage
0	45-78	0	65-85	Light damage: some damage to chimneys, sign boards, gutters, and siding; branches break off trees
1	79-117	1	86-109	Moderate damage: damage to roofs; mobile homes pushed off foundations or overturned; vehicles pushed off the roads; loss of exterior doors; windows broken
2	118-161	2	110-137	Considerable damage: roofs torn off houses; mobile homes demolished; boxcars pushed over; large trees

F Number	3-Second Gust (mph)	EF Number	3-Second Gust (mph)	Description of Damage
				snapped or uprooted
3	162-209	3	138-167	Severe damage: roofs and some walls torn off well-constructed houses; damage to large buildings such as shopping malls; trains overturned; most trees uprooted
4	210-261	4	168-199	Devastating damage: well-constructed houses leveled; structures blown some distance; cars thrown; large missiles generated
5	262-317	5	200-234	Incredible damage: strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized objects fly through the air in excess of 100 yards; trees debarked; steel reinforced concrete structures badly damaged

Previous Occurrences

No tornadoes have occurred in the County since the previous plan was developed. Table 16 lists date of occurrence, magnitude, and impact of tornadoes in the County (NCDC, 2012). NCDC data used to develop this plan did not specify the exact location of previous tornadoes.

Table 16: Previous Occurrences of Tornadoes

Date	Magnitude (F)	Location or County	Property Damage (at time of event)
19-JUL-72	1	El Paso	$0
14-JUN-88	0	El Paso	$0
21-JUN-92 (6:50 PM)	1	El Paso	$250,000
21-JUN-92 (7:00 PM)	1	El Paso	$250,000
21-JUN-92 (7:15 PM)	1	El Paso	$2,500,000

Probability

Five tornadoes have been identified in the County, which includes the Cities of El Paso and Socorro and the Towns of Anthony, Clint, Horizon City, and Vinton, for the 55-year period from 1958 through 2012. The probability of a tornado in any given year is estimated as 5/55 or 9 percent.

Vulnerability

Critical infrastructures identified in Attachment II may become vulnerable in the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) and County of El Paso experiences/receives a category F-2 tornado or greater. In addition, trees, chimneys, gutters, siding, and road and commercial signs are vulnerable to damage by a tornado of the expected magnitudes of F-0 or F-1 in the planning area.

Impact

The impact of an EF-0 or EF-1 tornado would include damage to trees, roofs, chimneys, sign boards, gutters, windows, and siding. Mobile homes may be pushed off foundations or overturned. The following jurisdictions will be impacted in the event of a tornado. They are: Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint. Minor effects on structures or infrastructure are anticipated due to tornado in within the planning area of El Paso County to include the Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint.

The County has enforced a building code since 1936 (*Plan El Paso,* page 1.18), which suggests that the great majority of existing buildings meet standards sufficient to withstand the effects of an EF-0 tornado.

The most property damage caused by a tornado was $2,500,000 in 1992.

No fatalities or injuries have been associated with tornadoes in the County.

Changes in Development

With an increasing population, the County and municipalities have more structures and infrastructure than when the previous plan was developed, and damage from tornadoes would be somewhat greater than suggested in the previous plan.

A particular concern identified at public meetings relates to students with mobility impairment at the University of Texas at El Paso. If a tornado were to occur, these students may not be able to navigate stairs and pathways quickly enough to reach safety.

Mitigation Accomplishments

The previous plan recommended updating the County building code to provide additional protection from damage due to tornadoes. The County did amend the Building Code in September 2010 and again in March 2012 (MuniCode 2012).

Future Development

Each participating jurisdiction has adopted and enforces a building code, which suggests that future structures will be built to a standard that is adequate to prevent damage to an EF-0 tornado. The County updated building code requirements most recently in March 2012.

3.3.12. Lightning

Description of Lightning: **Lightning**, a massive electrostatic discharge associated with a thunderstorm.

Location

A severe lightning storm can occur anywhere in El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint region.

Extent

A typical lightning bolt contains 1 billion volts, but Internet sources indicate that a lightning bolt measuring 6 billion volts was recorded as the strongest (Answers.com, 2012).

Previous Occurrences

Three instances of severe lightning strikes in the County are listed by the NCDC (2012). NCDC data did not specify where in the County the lightning strikes occurred.

Date	Location or County	Property Damage (at time of event)
21-APR-94	El Paso	$50,000
22-MAY-94	El Paso	$50,000
08-JUL-98	El Paso	$50,000

Probability

Three lightning strikes have been identified in the County for the 55-year period from 1958 through 2012. The probability of a severe lighting strike in any given year is estimated as 3/55 or 5 percent.

Vulnerability

Critical infrastructures identified in Attachment II may become vulnerable in the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) and

County of El Paso experiences/receives a high-range of frequency of lightning than their average mid-range. In addition, structures without lightning rods or adequate grounding are at risk of damage to electrical system and electrical appliances or even fire due to lightning.

Impact

Lightning strikes can cause a surge in electrical power, which can damage unprotected electrical equipment such as water pumps. The estimated damage associated with a single lightning event in the County is $50,000. Lightning can also be the cause or ignite wildfires.

None of the lightning storms identified in NCDC data caused injuries or fatalities.

Changes in Development

With an increasing population, the County and municipalities have more structures and infrastructure than when the previous plan was developed. However, because building codes are enforced, new structures are not anticipated to be at risk of damage due to lightning.

Mitigation Accomplishments

The County updated building code requirements most recently in March 2012. Building and electrical codes address fire safety and limit the potential for damage by lightning (MuniCode, 2012, Sections 18.28 and 18.16).

Future Development

Each participating jurisdiction has adopted and enforces a building code. Future development will be somewhat protected from damage by lightning if built in compliance with building and electrical codes.

3.3.13. Hazardous Material Spill

Description of Hazardous Material Spill: **Hazardous Material Spill,** an accidental spill of toxic, radioactive, or other harmful material.

Location

A hazardous material spill occurring along railroad tracks and major highways near population centers in the County 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.

Extent

The extent of a hazardous material spill depends on both the type and quantity of material spilled. Even small quantities of highly toxic materials can be very dangerous.

Previous Occurrences

Multiple previous spills of hazardous materials have occurred in the County; an accident of some sort has led to a hazardous material spill at least once each year. Data on exact location of hazardous materials spills were not available for development of this updated plan.

Probability

Hazardous material spills are the result of human error and/or accidents, which cannot be predicted. However, given the amount of traffic through the County and the large population, the probability of a hazardous material spill is estimated by local officials to be nearly 100 percent 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.

Vulnerability

People would be at risk of illness should a hazardous material spill contain a sufficient amount of a chemical that causes illness. In addition critical infrastructures identified in Attachment II may become vulnerable if a hazardous spill would occur within the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) and County of El Paso.

Impact

A hazardous material spill may require temporary or long-term evacuation of an area and sheltering, as well as a medical response to treat people affected by the spill. A hazardous material spill may have long-term negative effects on the quality of the air and the safety of the soil and groundwater.

Changes in Development

As the population increases and additional vehicles utilize area roadways, the potential for an accident leading to a hazardous material spill may increase. As the population increases, an increased number of residents might be exposed to the hazard if it were to occur in a developed area.

Mitigation Accomplishments

The County Sheriff's Department Web site contains information about the Hazardous Materials Response Team. The team is comprised of 34 members, some from the fire department, some from law enforcement, and some volunteers. Team members meet monthly for training.

Future Development

The land along major railroad and transportation corridors has been developed for many decades, and no additional development is anticipated in the future. Future development along the corridors would primarily consist of replacement or renovation of existing structures, so no additional numbers of people will be at risk of negative health effects from hazardous material spills.

4. Capabilities and Resources

A review of capabilities and resources is an essential part of the planning process so that recommended mitigation actions are appropriate for each participating jurisdiction.

This section of the plan identifies the existing capabilities and resources of El Paso County and the Town of Anthony, Town of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint that can be activated or leveraged to support actions that will mitigate the negative effects of the identified natural hazards.

For this plan, four categories of local government capabilities were reviewed:

- Planning and Regulatory Mechanisms
- Technical and Financial Resources

Information is based on data provided by local government officials as part of the November 2012 survey, as well as a review of other local plans, policies, and regulations.

4.1. Planning and Regulatory Mechanisms

Planning and regulatory mechanisms include policies, regulations, ordinances, programs, and local laws that provide the legal authority for local government to manage development and growth. El Paso County along with the Town of Anthony, Village of Vinton, Town of Horizon, City of Socorro, and Town of Clint have, at a minimum, the following planning and regulatory capabilities:

- Comprehensive Plan
    - The comprehensive plan establishes an overall vision of where the community wants to be and will guide future development and governmental decision-making.
- Capital Improvements Plan

    - The plan for capital expenditures over the next several years to meet long-term community needs for improving streets, drainage, parks, and public facilities.
- Stormwater Master Plan
    - The plan provides a clear road map for implementing stormwater quality management activities to protect the health of the public and to meet Clean Water Act standards.
- Economic Development Plan
    - The plan for marketing the jurisdiction to attract new businesses and new investment through the provision of adequate infrastructure, buildings, and construction sites as well as financial support.
- Emergency Operations Plan
    - The plan for managing community resources to prepare for a storm or other hazard, to respond to needs of residents following the event, and to begin the process of recovering from the effects of a storm such as debris removal.
- Threat and Hazard Identification (THIRA)
    - The January 2013 THIRA is an all-hazards capability-based assessment of local threats/hazards and their impacts, which may vary according to time occurrence, season, location, and other community factors.
- Zoning Code
    - The participating municipalities have adopted zoning ordinances to regulate development and land use.
- Building Code
    - Each participating jurisdiction has adopted a building code. The code specifies minimum acceptable levels of safety for construction. The main purpose of the building code is to protect the public safety, health, and general welfare.
- Building Permit Process
    - Municipalities require building permits to ensure that new construction and reconstruction is in compliance with zoning, subdivision, and building codes.
- Flood Damage Prevention Ordinance
    - Each participating jurisdiction participates in the NFIP and has adopted a Flood Damage Prevention Ordinance. This ordinance specifies standards for development in identified Special Flood Hazard Areas.
- Subdivision Ordinance

- Each participating jurisdiction has adopted the State of Texas Model Subdivision Rules, which further specify how land can be developed.

- Parks or Open Space Plan
  - Plan that specifies use of land for active or passive recreational purposes.

Table 17 summarizes the planning mechanisms currently used by participating jurisdictions.

Table 17: Available Planning Mechanisms

Jurisdiction	Comprehensive Plan	Capital Improvements Plan	Stormwater Management Plan	Economic Development Plan	Emergency Operations Plan	Zoning Ordinance	Building Code	Building Permit Process	Floodplain Management Ordinance	Subdivision Ordinance	Park or Open Space Plan
El Paso County		X	X		X				X	X	
City of El Paso	X	X	X	X	X	X	X		X		X
Town of Anthony				X		X		X	X		
Town of Vinton	X	X	X	X		X	X	X	X	X	X
Town of Horizon	X					X	X	X	X		X
City of Socorro			X			X	X	X	X	X	X
Town of Clint						X	X	X	X		

4.2. Technical and Financial Resources

Existing resources include the technical expertise and knowledge of RGCOG and local government staff as well as financial resources and opportunities to obtain grants that will support mitigation actions. However, in order to fully integrate each of the actions identified from each of the participating jurisdictions, additional training will be conducted with the possibility of cross-training staff from each participating jurisdiction to ensure that each technical and financial capability can be improve upon.

Technical Resources

Technical resources include the administrative abilities and knowledge that will be necessary for the implementation of mitigation actions. Technical resources are provided through the RGCOG as well as State of Texas and County and municipal government agencies or departments.

The RGCOG is a voluntary association of local units of governments who work together to address issues of common concern and to pursue opportunities that will benefit the region. In January 1967, elected

officials in El Paso County formed the El Paso Council of Governments. The purpose of the Council was to further intergovernmental cooperation and coordination in the planning, development, and delivery of governmental services within El Paso County. In 1971, it became a regional organization by including the counties of Hudspeth, Culberson, Jeff Davis, Presidio, and Brewster and was renamed West Texas Council of Governments. In 1987, by vote of the membership, Doña Ana County in New Mexico joined the organization and the name was changed to the Rio Grande Council of Governments. RGCOG provides numerous social services, environmental services, GIS mapping, and training for all participating jurisdictions.

The RGCOG includes the Office of Regional Services and the Area Agency on Aging, both of which have a history of supporting hazard mitigation as well as emergency preparedness and response actions.

The County is home to the University of Texas at El Paso and El Paso Community College. Both are available to supply venues and experts to present current information about hazards and protecting people and property to reduce damage caused by hazards.

Local government staff resources vary across participating jurisdictions. Table 18 summarizes the staff resources available to support hazard mitigation actions in each of the participating jurisdictions.

Table 18: Technical Resources

Jurisdiction	Building Official	Community Planner / Planning and Department	Emergency Manager/Coordinator	Director of Public Works	Grant Writer	Zoning Administrator	Floodplain Administrator	City Engineer	GIS Specialist
El Paso County				X			X	X	X
City of El Paso		X	X	X		X	X	X	X
Town of Anthony								X	
Town of Vinton	X		X	X	X	X	X	X	
Town of Horizon	X	X		X		X	X	X	
City of Socorro	X	X		X		X			
Town of Clint	X	X		X	X	X			

Financial Resources

Financial resources are necessary for implementing mitigation actions and projects. In addition to regular operating budgets, participating jurisdictions have, at a minimum, the following fiscal capabilities or opportunities:

- Capital Improvement Budgets
    - Capital improvements are funded using a variety of techniques including revenue bonds, lease-purchase, authorities and special districts, current revenue, reserve funds, and tax increment financing. Each participating jurisdiction a capital improvements budget.
- Community Development Block Grants (CDBG)
    - These grants are designed to assist the vulnerable populations within the community by ensuring affordable housing, creating jobs, and providing direct services.
- Community Development Block Grants Disaster Recovery Assistance
    - In response to disasters, Congress may appropriate additional funding as CDBG Disaster Recovery grants to rebuild the affected areas and provide money to start the recovery process.
- Hazard Mitigation Assistance Grant Program
    - The Hazard Mitigation Grant Program (HMGP) is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. It provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration.
    - For example, the Town of Vinton flood mitigation projects to excavate and build detention ponds and increase the capacity of culverts, implemented subsequent to the adoption of the previous hazard mitigation plan and following the 2008 floods, were funded through HMGP.

Upon review and approval of the El Paso County Hazard Mitigation Action plan, the Town of Anthony will determine the feasibility and availability of grant funds to implement drainage projects that will prevent street flooding within their jurisdiction. Due to the Village of Vinton's low tax rate, they heavily rely on grant funds to assist with mitigation project. It is their intent to continue to apply for grant funds to implement mitigation strategies. The City of El Paso and in collaboration with the El Paso Water Utilities Public Service Board's Stormwater Master Plan, have incorporated capital improvements projects which include extra ponds, expanded street inlets, enlarged culverts, expanded reservoirs, additional storm drains, enlarged culverts crossings and road underpasses, and lining earthen channels that will prepare the city for major rain events. The projects are financed through cash funding and bonds. The City of Socorro has applied for 2016/2017 Community Development Block Grants funding to mitigate the flooding that is experienced on Thunder and Stockyard roads. The Town of Horizon has

committed to a $15 million bond project. One of the projects under this bond is adding a new drainage system which allows runoff to be collected. The Town of Clint relies on grant funds in order to implement mitigation projects.

5. Risk Assessment

The Risk Assessment builds on findings related to the nature of hazards and their potential impacts. The purpose of conducting a systematic Risk Assessment is to objectively compare the hazards that can occur in the County and identify those for which mitigation action to reduce or eliminate exposure to damage is a top priority.

This section first describes community assets that are at risk of damage or loss due to natural hazards. The section next compares losses experienced in previous occurrences of hazards to develop an understanding of the potential for losses in the future. The section includes a presentation of specific problems faced by the community that can be addressed through hazard mitigation actions and concludes by identifying mitigation priorities.

Change from Previous Plan

To this point in this updated plan, hazards have been discussed in the order they were discussed in the previous plan. For the remainder of this plan, hazards are presented in alphabetical order to make it easier to track the mitigation alternatives that were proposed in the previous plan, evaluated for inclusion in this plan, and proposed for implementation in Section 6.3.

5.1. Community Assets

Community assets include people, components of the economy, the built environment including structures and infrastructure, and natural resources.

People

People are our most important asset. With an estimated population of 820,790 in an area of 1,013 square miles, and approximately 810 people per square mile, the County is relatively densely populated (U.S. Census, 2010). The population of the County is denser along Interstate 10 in the western part of the County, which contains the Cities of El Paso and Socorro and the Towns of Anthony, Vinton, Horizon City, and Clint. The population is sparser in the Franklin Mountains and on most of Fort Bliss Military Reservation.

Built Environment

The built environment includes housing, infrastructure, critical facilities, commercial and industrial facilities, and cultural resources. All components of the built environment are important for the normal functioning of the region.

Of particular importance to the full functioning of the planning area are critical facilities and cultural resources. The critical facilities identified in Attachment II estimate an approximate value in the amount of $2,297,379,138. The County and in the six municipalities (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) could be crippled if four or more critical facilities are destroyed or damaged during any mentioned hazard.

No critical facilities or other key resources are known to be in particular danger of being damaged by an identified hazard due to location or structural characteristics.

Natural Resources

Natural resources in the planning area include mountains, arroyos, and desert areas. As natural hazards are part of the natural process of a natural area, no long-term negative effects of natural hazards are expected for natural resources. Natural resources will recover from damage caused by a natural hazard, albeit with slightly altered characteristics such as with younger plants or a different slope.

5.2. Potential Losses

People

To estimate the number of people vulnerable to injury or loss of life by each hazard in the future, the total number injured or killed by each hazard in the past is used. Table 19 lists the sum of reported injuries and fatalities for each hazard.

Table 19: Number of Injuries and Fatalities from Hazards

Hazard	Total Number of Injuries and Fatalities in Previous Occurrences	Location or County
Dam / levee failure	0	El Paso
Drought	0	El Paso
Earthquake	0	El Paso
Extreme heat / cold	2	El Paso
Flooding	6	El Paso
Hail	10	El Paso
Hazardous material spill	0	El Paso
Ice	0	El Paso
Lightning	0	El Paso
Snow	9	El Paso
Tornado	0	El Paso
Wildfire	0	El Paso
Wind	31	El Paso

Economic

El Paso County's economic is dependent upon the major employers below. In the event of an all-hazards incident, El Paso County could suffer a major economic loss if businesses and governmental agencies closed due to the disaster. This economic loss listed is for El Paso County to include the Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint would severely impact the planning area in the event of any hazards identified occur.

Table 20: Economic Loss

Natural Resources and Mining	955
Construction	15,493
Manufacturing	16,479
Trade, Transportation Utilities	54,313
Information	5,036
Financial Activities	11,380
Professional Business Services	30,707
Educational Health Services	33,818
Leisure Hospitality	27,813
Other Services	6,324
Unclassified	203
Federal	12,470
State	9,100
Local	44,865

Built Environment

This plan does not provide a prediction of future losses. Rather, the plan compares losses due to identified hazards in the past as one step in the process of determining how best to utilize limited community resources to mitigate the potential for future damages.

To compare the potential for damage to structures and infrastructure across hazards, the greatest amounts of damage caused by identified hazards in the past are identified. The plan does not provide a prediction of future losses. To facilitate comparison, estimated losses were converted to 2012 dollars using the Inflation Calculator provided by the U.S. Bureau of Labor Statistics and are displayed in Table 21.

Table 20: Estimates of Greatest Previous Loss

Hazard	Greatest Single Amount of Damage to Structures and Infrastructure in 2012 Dollars	Location or County
Dam / levee failure	$0	El Paso
Drought	$0	El Paso
Earthquake	$0	El Paso
Extreme cold	$149,669	El Paso
Extreme heat	$0	El Paso
Flooding	$2,283,938	El Paso
Hail	$107,310,627	El Paso
Hazardous material spill	$0	El Paso
Lightning	$77,672	El Paso
Tornado	$4,102,300	El Paso
Wildfire	Not available	El Paso
Wind	$215,160	El PasoF

Natural Environment

As natural hazards are a normal environmental condition, no long-term negative effects are expected for natural resources. Natural resources will recover from damage caused by a natural hazard, even if with slightly altered characteristics such as with younger plants or a different slope.

5.3. Summary Statements

The residents, structures, and infrastructure in El Paso County and participating municipalities are vulnerable to losses due to the identified hazards. The key problems or issues that have been identified in association with each hazard are listed in Table 21.

Table 22: Problem Statements

Hazard	Summary of Problems
Dam/levee failure	Dam or levee failure may lead to flooding along the Rio Grande within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso).
Drought	Drought may stress or deplete water supplies within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint).
Earthquake	Earthquakes may cause contents of buildings to fall and cause injuries the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint).
Extreme heat/cold	Extreme cold temperatures can cause frozen water pipes to burst and cause flooding inside of structures the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint).

Hazard	Summary of Problems
Flooding	Flood damage will recur at the 11 insured structures that have flooded repeatedly. Local officials need additional information to regulate development in Special Flood Hazard Areas where the BFE has not been calculated within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint). Levee improvements may exacerbate flooding in and around the Town of Vinton. New flooding problems on University of Texas at El Paso campus.
Hail	Hail may cause damage to vehicles and roofs within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint).
Hazardous material spill	Hazardous material spills may trigger the need for a massive emergency response within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint).
Ice	Ice may cause road hazards and may need treatment prior and during the event. Special populations to include tourists may require additional assistance within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint).
Lightning	Lightning may cause electrical equipment to fail within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint).
Snow	Snow may cause road hazards and may need treatment prior and during the event. Special populations to include tourists may require additional assistance within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint).
Tornado	Tornadoes may cause damage to roofs and to improperly anchored manufactured homes within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint). Students at University of Texas at El Paso with mobility impairment may not be able to reach shelter.
Wildfire	Wildfire may damage new structures located near the Franklin Mountains State Park, where wildfires have occurred in the past within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)..
Wind	Wind may cause damage to roofs and to improperly anchored manufactured homes within the planning area (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint).

5.4. Prioritization of Actions

As a result of the Risk Assessment, hazards were grouped into two categories: 1) Hazards that have a high probability of occurrence and the potential to result in costly damage to property, and 2) hazards for which there is no history of extensive damage in the planning area or the probability of occurrence in

any given year is less than 30 percent. The first category should be addressed as soon as possible and the second should be addressed when opportunities arise or funding is available.

The hazards that should be addressed as soon as resources permit are:

- Flooding
- Hail

Actions that should be addressed when opportunities arise are:

- Dam/Levee Failure
- Drought
- Earthquake
- Extreme Heat/Cold
- Hazardous Material Spill
- Ice
- Lightning
- Tornado
- Snow
- Wildfire
- Wind

El Paso County along with the Town of Anthony, Village of Vinton, Town of Horizon, City of Socorro, and Town of Clint will consider actions that reduce risk to existing and future development. The identified actions in the final action plan have been analyzed for technical feasibility, political acceptance, lack of funding and by estimated benefit-cost review (BCA), including qualitative and quantitative benefits. Evaluation(s) criteria include analyze of life safety, property protection, technical, and political alternatives.

6. Mitigation Strategy

The purpose of examining the characteristics and potential impacts of hazards in the planning area is to determine a reasonable course of action that will reduce the potential for loss, injury, damage, and interruption of business when a hazard occurs in the future.

In this section of this updated plan, a strategy for mitigating the potential effects of hazards is presented. It begins by identifying the goals of the participating jurisdictions and presenting the alternative courses of actions that were considered during the planning process, and concludes with a

proposed action plan. By adopting this updated plan, participating jurisdiction make a commitment to implement the proposed action plan as resources permit.

6.1. Goals

This section identifies mitigation goals and measurable objectives. As in the previous plan, the goals of this plan are for each participating jurisdiction to:

A. Reduce the impact of natural hazards on public and private property

   Objective A1: Implement construction projects to protect structures and infrastructure from the negative effects of natural hazards.

   Objective A2: Strengthen ordinances that affect the location and components of the built environment.

B. Improve community safety

   Objective B1: Conduct education and outreach programs to increase awareness of hazards and of emergency preparedness.

   Objective B2: Continue to strengthen partnerships established among RGCOG, counties, and municipalities which include El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.

These goals are consistent with the vision of the RGCOG Regional Services Division to "create a prosperous, safe, healthy, and economically viable region."

As the County works toward realizing each of these mitigation goals, it will become more resilient or safer, healthier, and more economically viable, as the population will suffer fewer injuries, and public, nonprofit, and private sector businesses will be better able to resume normal functioning after a natural hazard occurs.

Changes from Previous Plan

Goals and priorities for protecting people and property from damage have not changed from the previous plan. A few changes have been made in the presentation.

The RGCOG and the Planning Team eliminated one goal statement from the updated plan. A goal of the previous plan was to "Build capacity for hazard mitigation through technical and financial assistance." It was decided that this statement is an implementation strategy rather than a goal.

The two goal statements were slightly reworded by changing the term “natural disasters” to “natural hazards,” by adding a reference to public property, and by removing a reference to health because hazard mitigation actions do not generally improve public health by reducing the incidents of disease.

6.2. Alternatives

Based on the results of the Risk Assessment and the statements of problems, a variety of mitigation actions were considered by representative of El Paso County, the Town of Anthony, Village of Vinton, Town of Horizon, City of Socorro, and Town of Clint during the planning process. Mitigation actions are designed to reduce or eliminate the potential for injuries, fatalities, or property damage. Mitigation actions include modification of plans and regulations, structure and infrastructure projects, natural systems protection, and public education programs.

Alternatives include actions recommended in the previous plan, actions suggested by responses to problem statements, and ongoing actions identified in the review of existing planning documents.

Figure 5 explains the three-stage process used to develop the mitigation action plan:

- First, a comprehensive range of mitigation alternatives were identified. These include actions from the previous plan as well as new alternatives. Alternatives are listed in Section 6.2.1.
- Second, the ongoing, previously deferred, and new alternatives were evaluated; the results of the evaluation are presented in Section 6.2.2.
- Third, the alternatives that were determined to be feasible and appropriate for the participating jurisdictions are listed in an Action Plan, which briefly outlines how the actions will be initiated. The Action Plan is presented in Section 6.3.

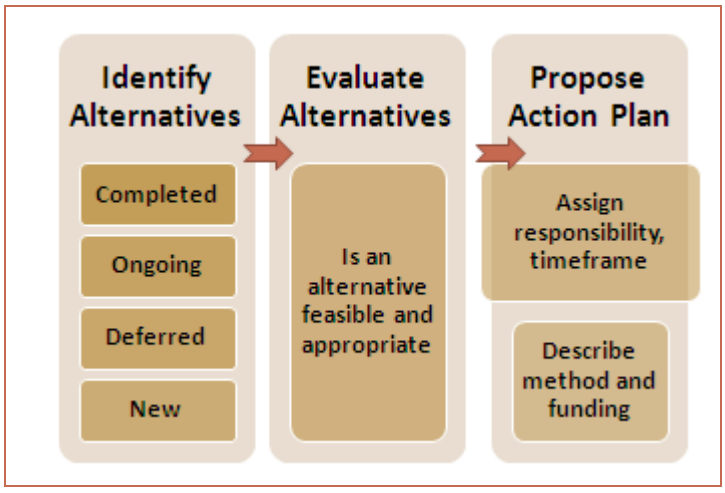


Figure 5: Process for Developing the Action Plan

6.2.1. Range of Alternatives

Table 22 shows the status of previously recommended mitigation, preparedness, and response actions.

Table 22: Actions Recommended in Previous Plan

Hazard	Previously Proposed Action	Jurisdiction	Status of Previously Recommended Action
All hazards	Educate residents on ways to reduce vulnerability	El Paso County	Ongoing – Sheriff's Office posts information on Web site about preparing for hazards
All hazards	Upgrade mapping of critical facilities and infrastructure	City of El Paso	Completed – RGCOG has improved GIS with locations of critical facilities and infrastructure
Dam failure	Dredge Rio Grande River to increase flow capacity and reduce potential of inundation due to dam failure	City of El Paso	Deferred: action item was deferred due to work done by IBWC
Dam failure	Update mapping of inundation area	City of El Paso	Deferred: action item was deferred, FEMA was going to assist with this action item
Earthquake	Update Building Code	City of El Paso	Completed – Building Codes amended September 2010 and March 2012 (MuniCode, 2012)
Earthquake	Update mapping of seismic hazard	City of El Paso	Ongoing by University of Texas at El Paso
Extreme cold	Activate warming shelters during periods of extreme cold	City of El Paso	Ongoing – RGCOG Area Agency on Aging opens warming shelters during periods of extreme cold
Extreme cold	Conduct blanket drive in advance of extreme cold	City of El Paso	Ongoing – RGCOG Area Agency on Aging conducts blanket drive when inventory of blankets is low
Extreme heat	Activate cooling centers during periods of extreme heat	City of El Paso	Ongoing – RGCOG Area Agency on Aging opens cooling centers during periods of extreme heat
Extreme heat	Amend Property Maintenance Code to ensure that new buildings have adequate cooling	City of El Paso	Completed – Property Maintenance code updated August 2010 (MuniCode, 2012)
Extreme heat	Conduct fan drive to prepare for periods of extreme heat	City of El Paso	Ongoing – RGCOG Area Agency on Aging conducts a fan drive when inventory of fans is depleted
Flooding	Acquire homes in Mowad and Saiepan	City of El Paso	Completed – Mowad and Saiepan subdivisions were acquired

Hazard	Previously Proposed Action	Jurisdiction	Status of Previously Recommended Action
	subdivisions		
Flooding	Acquire Homes in the floodplain	Town of Vinton	Deferred- action item was deferred due to inability to obtain grant funds
Flooding	Enhance drainage system	Town of Anthony	Completed – Town of Anthony enlarged two culverts, dredged one detention pond, and built one new detention pond
Flooding	Enhance drainage system in La Tuna Federal Correctional Facility	Town of Anthony	Deferred- action item was deferred due to inability to obtain funding
Flooding	Enhance drainage system maintenance	City of El Paso	Completed – El Paso Water Utility has doubled the amount of maintenance the City had been doing on stormwater drainage systems according to the Stormwater Master Plan
Flooding	Improve drainage system near Stockyard Road	City of Socorro	Deferred- action item was deferred due to inability to obtain grant funds. However, grant funds have been secured through CDBG for grant cycle 2016/2017
Flooding	Improve stormwater drainage through enhanced maintenance	Town of Clint	Ongoing
Flooding	Modify Capital Improvements Plan to address flood hazard mitigation	Town of Horizon City	Completed: –Town adopted a new Master Plan for Parks and Open Space in 2010 that recommends a new park, Rancho Desierto Bello Park, which will include an area of ponding
Flooding	Strengthen Flood Damage Prevention Ordinance	El Paso County	Completed – Flood Damage Prevention Ordinance, Ordinance 16356 or Section 18.60.220 of the Code of Ordinances was updated (MuniCode, 2012) and El Paso County Commissioners Court adopted the El Paso County Flood Damage Prevention Order on December 18, 2006
Flooding	Strengthen Flood Damage Prevention Ordinance by requiring elevation 3 to 6 inches above BFE	City of El Paso	Deferred- action item was deferred due to other stromwater priorities identified throughout the city
Hail / wind	Reinforce windows and roofs of public buildings to prevent damage due to hail and wind	City of El Paso	Deferred-action item was deferred due to lack of funding
Ice	Protect essential	City of El	Completed – Action integrated into El Paso

Hazard	Previously Proposed Action	Jurisdiction	Status of Previously Recommended Action
	facilities from loss of electrical power during ice storm	Paso	County Emergency Operations Plan, Annex K: Public Works, which says: Install emergency generators in key facilities; maintain and periodically test
Tornado	Update Building Code	City of El Paso	Completed – Building Codes amended September 2010 and March 2012 (MuniCode, 2012)
Wildfire	Adopt Outdoor Burning Ordinance	El Paso County	Completed in two ways: First, the County has adopted an ordinance governing open burning: "105.6.30 Open burning. An operational permit is required for the kindling or maintaining of an open fire or a fire on any public street, alley, road, or other public or private ground" (MuniCode, 2012). Second, the action was integrated into El Paso County Emergency Operations Plan, Annex U: Legal, which pertains to the County and all municipalities in the County, contains unsigned Court Orders for Prohibition of Outdoor Burning and Declaration of Wildfire Threat that can be used when appropriate.
Wind	Update Building Code	City of El Paso	Completed – Building Codes amended September 2010 and March 2012 (MuniCode, 2012)

Additional alternatives suggested by the Risk Assessment are listed in Table 23.

Table 23: New Mitigation Actions Reviewed for Updated Plan

Hazard	New Mitigation Action for Evaluation	Jurisdiction
Dam/levee failure	Implement the recommendations of the El Paso City/County Stormwater Management Plans regarding dam safety	El Paso City/County
Drought	Provide education that encourages property owners to landscape with indigenous desert plants	El Paso County
Earthquake	Inventory unreinforced masonry structures to better quantify the potential for earthquake damage	All jurisdictions
Earthquake	Provide community education to encourage people to attach furniture to walls or strengthen wall and ceiling attachment of water heaters, fans, and other fixtures with the potential for falling	All jurisdictions
Extreme cold	Provide community education so that property owners insulate pipes that will be exposed to cold temperatures	All jurisdictions

Hazard	New Mitigation Action for Evaluation	Jurisdiction
Flooding	Acquire and demolish repetitive loss properties	City of El Paso
Flooding	Add requirement to Building Permit application that applicant signify whether the location is part of a Special Flood Hazard Area	All jurisdictions
Flooding	Excavate stormwater detention basins to increase capacity	City of El Paso
Flooding	Increase capacity for conveyance of stormwater away from areas of ponding	City of El Paso
Flooding	Provide opportunities for local officials to become Certified Floodplain Managers	All jurisdictions
Flooding	Update Flood Damage Prevention Ordinances when new FIRMs are adopted (new preliminary FIRMS are currently under review)	All jurisdictions
Flooding	Work with State of Texas and FEMA to calculate BFEs throughout the County and update FIRMs	El Paso County
Flooding	Mitigate the threat posed by levee improvements by constructing additional detention ponds and/or stormwater diversions	Town of Vinton
Flooding	Reinforce manholes and expand capacity of drainage system near University Avenue and Hawthorn Street on University of Texas at El Paso campus	University of Texas at El Paso
Flooding	Construct drainage arroyos through the middle of campus to reduce flooding of walkways	University of Texas at El Paso
Flooding	Stabilize arroyos in steep locations and that show signs of erosion with native vegetation	El Paso City and County
Hail	Build covered garages in which to store vehicles	All jurisdictions
Hail / wind	As public buildings are constructed or re-roofed, use hail-resistant metal roofing	All jurisdictions
Tornado	Construct several small safe rooms at University of Texas at El Paso	University of Texas at El Paso
Wildfire	Limit opportunities for development in the vicinity of Franklin Mountains State Park by amending zoning ordinance to require large lots	City of El Paso
Wildfire	Require vegetation management in the vicinity of Franklin Mountains State Park with an overlay zone to reduce fuel for wildfires	City of El Paso
Wind	As public buildings are constructed or re-roofed, attach roof to the structure with hurricane clips	All jurisdictions
Wind	Trim or prune trees along roadways to prevent interference with power lines during high winds	All jurisdictions
Wind / tornado	Require that electric utility lines be buried when roads are constructed or reconstructed	All jurisdictions

6.2.2. Evaluation of Alternatives

The alternatives were evaluated by RGCOG and the Planning Team for suitability in the planning area using a number of criteria to examine the relative costs and benefits of each action. Monetary and non-monetary costs and benefits were considered. Actions proposed in the Action Plan were further clarified

based on State of Texas and FEMA Region VI comments on the initial draft of the plan. Alternatives were reviewed relative to:

- Technical benefits by asking the question: Will this action solve a problem?
- Social costs by asking the questions: Will the public support this action? Will this action have any negative effects on a portion of the population?
- Administrative costs by asking the question: Does our local government have the capacity to implement this action?
- Political feasibility by asking the question: Do our elected leaders support the use of community resources to implement this action?
- Legal feasibility by asking the question: Do any statutes or existing policies prohibit the implementation of this action?
- Economic costs and benefits by asking the questions: Is it possible for our community to fund this action or to secure outside sources of funding? Will this action save the community money in the long run?
- Environmental costs and benefits by asking the questions: Will this action have negative consequences on the natural environment? Will this action have beneficial impacts on the natural environment?

Many actions were acceptable or feasible relative to many of these criteria. Table 24 summarizes the key findings about the alternatives based on the evaluation of relative costs and benefits.

Table 24: Evaluation of Alternatives

Hazard	Alternative	Jurisdiction	Status of Alternative	Evaluation of Alternative
All hazards	Educate residents on ways to reduce vulnerability	El Paso County	Ongoing – Sheriff's Office posts information on Web site about preparing for hazards	Action is effective and should continue; include in updated plan
Dam / levee failure	Dredge Rio Grande to increase flow capacity and reduce potential of inundation due to dam failure	City of El Paso	Deferred – action is not appropriate for implementation by a local government	Action is not the responsibility of the local government and should not be included in the updated plan

Hazard	Alternative	Jurisdiction	Status of Alternative	Evaluation of Alternative
Dam / levee failure	Update mapping of inundation area	City of El Paso	Deferred	Action will be useful for future planning and should be included in the updated plan
Dam/levee failure	Implement the recommendations of the El Paso City/County Stormwater Management Plans regarding dam safety	City / County of El Paso	New Alternative	El Paso City/County have adopted the Stormwater Management Plans and intend to implement dam safety recommendations; action should be included in the updated plan
Drought	Provide education that encourages property owners to landscape with indigenous desert plants	El Paso County	New Alternative	Action will be effective and should be included in the updated plan
Earthquake	Inventory unreinforced masonry structures to better quantify the potential for earthquake damage	All jurisdictions	New Alternative	Action will be useful for future planning and should be included in the updated plan
Earthquake	Provide community education to encourage people to attach furniture to walls or strengthen wall and ceiling attachment of water heaters, fans, and other fixtures with the potential for falling	All jurisdictions	New Alternative	Action will be effective and low-cost and should be included in the updated plan
Earthquake	Update mapping of seismic hazard	City of El Paso	Ongoing by University of Texas at El Paso	Action will be useful for future planning and should be included in the updated plan
Extreme cold	Activate warming shelters during periods of extreme cold	City of El Paso	Ongoing – RGCOG Area Agency on Aging opens warming shelters during periods of	Emergency response action is effective and should continue; include in updated plan

Hazard	Alternative	Jurisdiction	Status of Alternative	Evaluation of Alternative
			extreme cold	
Extreme cold	Conduct blanket drive in advance of extreme cold	City of El Paso	Ongoing – RGCOG Area Agency on Aging conducts blanket drive when inventory of blankets is low	Emergency preparedness action is effective and should continue; include in updated plan
Extreme cold	Provide community education so that property owners insulate pipes that will be exposed to cold temperatures	All jurisdictions	New Alternative	Action will be effective and should be included in the updated plan
Extreme heat	Activate cooling centers during periods of extreme heat	City of El Paso	Ongoing – RGCOG Area Agency on Aging opens cooling centers during periods of extreme heat	Emergency response action is effective and should continue; include in updated plan
Extreme heat	Conduct fan drive to prepare for periods of extreme heat	City of El Paso	Ongoing – RGCOG Area Agency on Aging conducts a fan drive when inventory of fans is depleted	Emergency preparedness action is effective and should continue; include in updated plan
Flooding	Acquire and demolish repetitive loss properties	City of El Paso	New Alternative	Action will be effective and should be included in the updated plan
Flooding	Acquire homes in the floodplain	Town of Vinton	Deferred	Action will be effective and should be included in the updated plan

Hazard	Alternative	Jurisdiction	Status of Alternative	Evaluation of Alternative
Flooding	Add requirement to Building Permit application that applicant signify whether the location is part of a Special Flood Hazard Area	All jurisdictions	New Alternative	Action will be low cost and can be effective; include in updated plan
Flooding	Enhance drainage system at La Tuna Federal Correctional Facility	Town of Anthony	Deferred	Action is not the responsibility of the local government and should not be included in the updated plan
Flooding	Excavate stormwater detention basins to increase capacity	City of El Paso	New Alternative	Action will be effective and should be included in the updated plan
Flooding	Improve drainage system near Stockyard Road	City of Socorro	Deferred	Action will be effective and should be included in the updated plan
Flooding	Improve stormwater drainage through enhanced maintenance	Town of Clint	Ongoing	Action is effective and should continue; include in updated plan
Flooding	Increase capacity for conveyance of stormwater away from areas of ponding	City of El Paso	New Alternative	Action will be effective and should be included in the updated plan
Flooding	Provide opportunities for local officials to become Certified Floodplain Managers	All jurisdictions	New Alternative	Action will be low cost and will be effective in enforcing NFIP regulations; include in updated plan
Flooding	Strengthen Flood Damage Prevention Ordinance by requiring elevation 3 to 6 inches above BFE	City of El Paso	Deferred	Action should be deleted as there is no scientific evidence to suggest that 3 to 6 inches will reduce flood damage
Flooding	Update Flood Damage Prevention Ordinances when new FIRMs are adopted (new preliminary FIRMS are currently under review)	All jurisdictions	New Alternative	Action will be required when new FIRMs are adopted and should be included in the updated plan; this will facilitate implementation of NFIP regulations

Hazard	Alternative	Jurisdiction	Status of Alternative	Evaluation of Alternative
Flooding	Work with State of Texas and FEMA to calculate BFEs throughout the County and update FIRMs	El Paso County	New Alternative	Action will be useful for future planning and should be included in the updated plan; this will facilitate implementation of NFIP regulations by each participating jurisdiction
Flooding	Mitigate the threat posed by levee improvements by constructing additional detention ponds and/or stormwater diversions	Town of Vinton	New Alternative	Action will be very beneficial and there is potential for funding some activities through Hazard Mitigation Assistance (HMA); action should be included in the updated plan
Flooding	Reinforce manholes and expand capacity of drainage system near University Avenue and Hawthorn Street on University of Texas at El Paso campus	University of Texas at El Paso	New Alternative	Action would improve safety on campus for students and protect campus infrastructure
Flooding	Construct drainage arroyos through the middle of campus to reduce flooding of walkways	University of Texas at El Paso	New Alternative	Action would improve safety on campus
Flooding	Stabilize arroyos in steep locations and that show signs of erosion with native vegetation	City and County of El Paso	New Alternative	Action is integral to stormwater master plans developed for City and County; include in updated plan
Hail	Build covered garages in which to store vehicles	All jurisdictions	New Alternative	Action would be very costly and would require a great deal of land; do not include in updated plan
Hail / wind	As public buildings are constructed or re-roofed, use hail-resistant metal roofing	All jurisdictions	New Alternative	Action will be effective and should be included in the updated plan

Hazard	Alternative	Jurisdiction	Status of Alternative	Evaluation of Alternative
Hail / wind	Reinforce windows and roofs of public buildings to prevent damage from hail and wind	City of El Paso	Deferred	Action would be very costly; do not include in updated plan
Tornado	Construct several small safe rooms at University of Texas at El Paso	University of Texas at El Paso	New Alternative	Action will be effective and funding may be available through HMA; include in updated plan
Wildfire	Limit opportunities for development in the vicinity of Franklin Mountains State Park by amending zoning ordinance to require large lots	City of El Paso	New Alternative	Action will be effective and should be included in the updated plan
Wildfire	Require vegetation management in the vicinity of Franklin Mountains State Park with an overlay zone to reduce fuel for wildfires	City of El Paso	New Alternative	Action will be effective and should be included in the updated plan
Wind	As public buildings are constructed or re-roofed, attach roof to the structure with hurricane clips	All jurisdictions	New Alternative	Action will be effective and should be included in the updated plan
Wind	Trim or prune trees along roadways to prevent interference with power lines during high winds	All jurisdictions	New Alternative	Ongoing action; action is effective in reducing power disruptions and should be included in updated plan
Wind / tornado	Require that electric utility lines be buried when roads are constructed or reconstructed	Al jurisdictions	New Alternative	Action will be effective and should be included in the updated plan

6.3. Action Plan

The Action Plan summarizes how recommended actions will be implemented over the next 5 years. Four different types of actions are recommended for implementation. These are:

- Mitigation actions that will eliminate or ameliorate the negative effects of natural hazards
- Actions to integrate mitigation with other plans
- Actions to continue to involve the public in achieving hazard mitigation goals
- Actions to maintain the plan so that it continues to be relevant to the participating jurisdictions

Proposed actions that are ongoing or will be accomplished within 6 months of plan adoption are considered interim actions and represent mitigation accomplishments. Proposed mitigation actions that will be implemented during the next 6 months to 5 years as resources permit are considered long-term strategies.

6.3.1. Mitigation Actions

After evaluating the alternatives, mitigation actions are proposed for implementation. These actions and the strategies for implementing them are listed in Table 26.

Table 26: Mitigation Action Plan

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
01	Dam / Levee failure	Conduct bi-annual meetings with between Mexico dam owners and emergency management coordinators, EAP to discuss, develop, and implement emergency procedures.	City / County of El Paso / Town of Vinton	• Responsibility: RGCOG • Timeframe: 2015-2016 • Method: : Coordinate and schedule meetings bi-annual (preferably prior to monsoon season) • Funding: Annual operating budget- Estimated cost: $150

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
02	Dam/levee failure	Implement the recommendations of the El Paso City/County Stormwater Management Plans regarding dam safety	City / County of El Paso / Town of Vinton	• Responsibility: El Paso Water Utilities • Timeframe: 2015-2016 • Method: As explained in the Stormwater Master Plans • Funding: As explained in the Stormwater Master Plans: Estimated cost $15,000
03	Drought	Implement water conservation measures during periods of drought by including water conservation suggestions inserts in the utility statements	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: County or Local Emergency Managers • Timeframe: 2015-2016 • Method: Messaging (Public Service Announcements, press releases, social media) • Funding: Annual operating budget- Estimated cost: $1,000 per jurisdiction, annual budget
04	Drought	Develop and implement a plan to use recycled water for industrial use and landscape irrigation during drought	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: County or Local Emergency Managers, Elected Officials • Timeframe: May 2015-October 2016 • Method: Plan and Messaging (Public Service Announcements, press releases, social media) • Funding: Annual operating budget- Estimated cost: $3,000 per jurisdiction, annual budget

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
05	Earthquake	inventory unreinforced masonry structures to better quantify the potential for earthquake damage	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: RGCOG • Timeframe: 2014-2018 • Method: Obtain parcel level data about types of construction and link to existing GIS databases • Funding: Annual budget. Estimated cost $2,000
06	Earthquake	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)	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: University of Texas at El Paso • Timeframe: 2015-2016 • Method: Study/plan potential for earthquakes in El Paso County • Funding: Research grant. Estimated cost: $2,500
07	Extreme cold	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	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: Extreme Weather Task Force • Timeframe: November 2015-March 2016 • Method: Continue to implement this program • Funding: Annual operating budget. Estimated cost $500,00
08	Extreme cold	Conduct blanket drive in advance of extreme cold	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: Extreme Weather Task Force • Timeframe: November 2015-March 2016 • Method: Continue to implement this program

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
				• Funding: Operating budget. Estimate cost: $700
09	Extreme heat	Activate cooling centers during periods of extreme heat	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: Extreme Weather Task Force • Timeframe: June 2015-September 2016 • Method: Continue to implement this program • Funding: Annual operating budget. Estimated cost $1,500
10	Extreme heat	Conduct fan drive to prepare for periods of extreme heat	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: Extreme Weather Task Force • Timeframe: Ongoing • Method: Continue to implement this program • Funding: Annual operating budget. Estimated cost $700
11	Flooding	Acquire and demolish repetitive loss properties	City of El Paso	• Responsibility: City Emergency Manager • Timeframe: 2015-2018 • Method: Work with private property owners, as participation would be voluntary; work with legal department for fee simple property acquisition • Funding: Work through State of Texas to obtain HMGP grant(s). Estimate cost

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
				$TBD
12	Flooding	Acquire homes in the floodplain	Town of Vinton	• Responsibility: Vinton Director of Emergency Management • Timeframe: 2015-2018 • Method: Work with private property owners, as participation would be voluntary; work with legal department for fee simple property acquisition • Funding: Work through State of Texas to obtain HMGP grant. Estimate cost $TBD
13	Flooding	Add requirement to Building Permit application that applicant signify whether the location is part of a Special Flood Hazard Area	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: Building Officials in Vinton, Horizon City, Socorro, and Clint; Zoning administrator in City of El Paso; Engineer for El Paso County and Anthony • Timeframe: 2015-2016 • Method: Revise permits so that permit applicant must learn the potential for flooding at proposed construction site • Funding: Operating budgets. Estimated cost $TBD
14	Flooding	Excavate stormwater detention basins to increase capacity	City of El Paso	• Responsibility: Director of Public Works • Timeframe: 2014-2018 • Method: Integrate with other capital

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
				improvements • Funding: Capital improvements budget. Estimated cost $TBD
15	Flooding	Improve drainage system near Stockyard Road	City of Socorro	• Responsibility: Director of Public Works • Timeframe: 2015-2016 • Method: Integrate with Stormwater Master Plan • Funding: Work through State of Texas to obtain HMGP grant. Estimated cost $50,000
16	Flooding	Improve stormwater drainage through enhanced maintenance	Town of Clint	• Responsibility: Director of Public Works • Timeframe: 2014-2017 • Method: Incorporate action into routine maintenance schedule • Funding: CDBG funds. Estimated cost $100,000
17	Flooding	Increase capacity for conveyance of stormwater away from areas of ponding	City of El Paso	• Responsibility: Director of Public Works • Timeframe: 2015-2017 • Method: Integrate with other capital improvements • Funding: Capital improvements budget. Estimated cost $TBD
18	Flooding	Adopt and enforce ordinance that meet minimum Federal and state requirements to comply with NFIP.	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City,	• Responsibility: Emergency Management Coordinator and government bodies • Timeframe: 2014-2016

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
			and 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 • Funding: Operating budget. Estimate cost $ 5,000
19	Flooding	Update Flood Damage Prevention Ordinances when new FIRMs are adopted (new preliminary FIRMS are currently under review)	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: Local Emergency Managers, City and County Attorneys • Timeframe: 2015-2016 • Method: Review existing ordinances governing development in identified Special Flood Hazard Areas and update to include appropriate higher standards • Funding: Annual operating budgets
20	Flooding	Update Flood Damage Prevention Ordinance to meet current NFIP standards for jurisdictions with no identified BFEs	El Paso County	• Responsibility: El Paso County Emergency Manager • Timeframe: 2015-2016 • Method: Obtain model ordinances; work with County/City Attorneys to draft modified language as necessary • Funding: Operating budgets-Estimated cost: $5,000

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
21	Flooding	Mitigate the threat posed by levee improvements by constructing additional detention ponds and/or stormwater diversions	Town of Vinton	• Responsibility: Vinton City Engineer • Timeframe: 2015-2018 • Method: Design and construct stormwater drainage projects • Funding: HMA funding with local match. Estimate cost $25,000
22	Flooding	Reinforce manholes and expand capacity of drainage system near University Avenue and Hawthorn Street on University of Texas at El Paso campus	City of El Paso (and University of Texas at El Paso)	• Responsibility: University of Texas at El Paso • Timeframe: 2014-2018 • Method: Design project, estimate cost, and apply through State for funding • Funding: Campus Improvement Budget or HMA funding.
23	Flooding	Construct drainage arroyos through the middle of campus to reduce flooding of walkways	City of El Paso (and University of Texas at El Paso)	• Responsibility: University of Texas at El Paso • Timeframe: 2014-2018 • Method: Design project, estimate cost, and apply through State for funding • Funding: Campus Improvement Budget. Estimated cost $TBD
24	Flooding	Stabilize arroyos in steep locations and that show signs of erosion with native vegetation	City and County of El Paso	• Responsibility: City and County Directors of Public Works • Timeframe: 2014-2018 • Method: Refer to stormwater master plans and design projects • Funding: Capital improvements budgets. Estimated

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
				cost $5,000
25	Hail	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	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: County and Municipal Directors of Public Works; Vinton City Engineer • Timeframe: 2015-2016 • Method: Attend community meetings and disseminate information regarding hail dangers • Funding: Capital improvements budgets. Estimated cost $2,000
26	Hail	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	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: County and Municipal Directors of Public Works; Vinton City Engineer • Timeframe: 2014-2015 • Method: Incorporate into capital improvements plans • Funding: Capital improvements budgets. Estimated cost $ 2,500
27	Hazardous material spill	Prepare for emergency response to a hazardous material spill by attending training exercises offered by the State	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: County and Municipal Directors of Public Works; Vinton City Engineer • Timeframe: 2015-2016 • Method: Attend training • Funding: SHSP Estimated cost: $500 per jurisdiction

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
28	Hazardous material spill	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	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: County and Municipal Directors of Public Works; Vinton City Engineer • Timeframe: 2014-2016 • Method: Messaging • Funding: Annual operating budget- Estimated cost: $500 per jurisdiction
29	Lightning	Install adequate surge protection for major electrical equipment in new and existing public buildings	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: County and Municipal Directors of Public Works; Vinton City Engineer • Timeframe: 2015-2016 • Method: Maintenance program • Funding: Annual operating budget- Estimated cost: $500 per jurisdiction
30	Lightning	Inspect public buildings and install lightning rods on public buildings where needed	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: County and Municipal Directors of Public Works; Vinton City Engineer • Timeframe: 2015-2016 • Method: Maintenance program • Funding: Annual operating budget- Estimated cost: $500 per jurisdiction
31	Tornado Hail	Construct several small safe rooms at University of Texas at El Paso and in school buildings	City of El Paso (and University of Texas at El Paso) El Paso County, City of Socorro, Towns of	• Responsibility: University of Texas; School Districts' Superintendents • Timeframe: 2014-2018 • Method: Develop design, estimate cost,

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
			Anthony, Clint, Horizon City, and Vinton	and apply to HMA for funding • Funding: HMA Estimated cost: $75,000
32	Wildfire	Limit opportunities for development in the vicinity of Franklin Mountains State Park by amending zoning ordinance to require large lots	City of El Paso	• Responsibility: City of El Paso Zoning Administrator • Timeframe: 2015-2018 • Method: Work with planning and legal departments to revise zoning code • Funding: Operating budget.
33	Wildfire	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	City of El Paso El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: City of El Paso Zoning Administrator; County and municipal emergency managers • Timeframe: 2015-2016 • Method: Work with planning and legal departments to revise zoning code; and use messaging to make recommendations • Funding: Operating budgets. Estimated cost $3,000
34	Wildfire	Provide public outreach education about how to monitor current conditions and to reduce the potential for damage on private property	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: City, County, and Town Emergency Managers and Fire Departments • Timeframe: May of each year • Method: Obtain printed materials from State and Federal sources and distribute to the public • Funding: Annual

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
				operating budget- Estimated cost: $250
35	Wind	Adopt building codes that require anchoring of mobile homes and public buildings constructed or re-roofed, attach roof to the structure with hurricane clips	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: County and Municipal Directors of Public Works; Vinton City Engineer • Timeframe: 2015-2017 • Method: Incorporate into capital improvements plans • Funding: Capital improvements budgets. Estimated cost $3,000
36	Wind	Trim or prune trees along roadways to prevent interference with power lines during high winds	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: Local government road and bridge departments • Timeframe: 2014-2015 • Method: Incorporate into routine maintenance schedule • Funding: Annual budgets. Estimated cost $1,200
37	Wind Tornado	Require that electric utility lines be buried when new roads are constructed or reconstructed	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: Legal departments • Timeframe: 2015-2017 • Method: Revise regulations to include this additional requirement • Funding: Operating budget. Estimated cost $6,000
38	Snow	Public Outreach: Conduct/implement a “blanket drive” aimed towards the vulnerable populations during the wintry conditions	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City,	• Responsibility: Office of Emergency Management and Extreme Weather Task Force • Timeframe: 2014-2015

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
			and Vinton	• Method: Work with the Area Agency on Aging in order to identify the elderly population • Funding: Private/public donations (Big Bend Action Community Center). Estimated cost $700
39	Snow	Heating Centers: Activate area shelters to ensure that the vulnerable population do not freeze or remain in cold homes	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: Office of Emergency Management and Extreme Weather Task Force • Timeframe: 2014-2015 • Method: Work with the Area Agency on Aging in order to identify the elderly population • Funding: Office of Emergency Management and ISDs
40	Ice	Permanent wrapping of pipes	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: El Paso County Road and Bridge • Timeframe: 2015-2016 • Method: Work with area businesses and governmental entities • Funding: Private/public donations
41	Ice	Critical Infrastructures: Supplying critical infrastructures with generators	El Paso County, City of El Paso, City of Socorro, Towns of Anthony, Clint, Horizon City, and Vinton	• Responsibility: Office of Emergency Management • Timeframe: 2015-2016 • Method: Work with Managers who operate critical

Action Number	Hazard	Action	Jurisdiction	Implementation Strategy
				infrastructures to ensure the installation of generators • Funding: Office of Emergency Management and Homeland Security Grant Program

Table 27 summarizes the actions proposed for implementation by each jurisdiction for each hazard.

Table 27: Summary of Action Plan by Hazard and Jurisdiction

HAZARD	El Paso County	City of El Paso	City of Socorro	Town of Anthony	Town of Clint	Town of Horizon City	Town of Vinton
Dam/Levee Failure	01, 02	01, 02	Not applicable (n/a)	n/a	n/a	n/a	01, 02
Drought	03, 04	03, 04	03, 04	03, 04	03, 04	03, 04	03, 04
Earthquake	05, 06	05, 06	05, 06	05, 06	05, 06	05, 06	05, 06
Extreme Cold	07, 08	07, 08	07, 08	07, 08	07, 08	07, 08	07, 08
Extreme Heat	09, 10	09, 10	09, 10	09, 10	09, 10	09, 10	09, 10
Flooding	13, 18, 19, 20	13, 14, 17, 18, 19, 22, 23, 24	13, 15, 18, 19	13, 18, 19	13, 16, 18, 19	13, 18, 19	12, 13, 18, 19, 21
Hail	25, 26	25, 26, 31	25, 26	25, 26	25, 26	25, 26	25, 26
Hazardous material spill	27, 28	27, 28	27, 28	27, 28	27, 28	27, 28	27, 28
Lightning	29, 30	29, 30	29, 30	29, 30	29, 30	29, 30	29, 30

HAZARD	El Paso County	City of El Paso	City of Socorro	Town of Anthony	Town of Clint	Town of Horizon City	Town of Vinton
Tornado	31, 37	31, 37	31, 37	31, 37	31, 37	31, 37	31, 37
Wildfire	33, 34	32, 33, 34	33, 34	33, 34	33, 34	33, 34	33, 34
Wind	35, 36, 37	35, 36, 37	35, 36, 37	35, 36, 37	35, 36, 37	35, 36, 37	35, 36, 37
Snow	38, 39	38, 39	38, 39	38, 39	38, 39	38, 39	38, 39
Ice	40, 41	40, 41	40, 41	40, 41	40, 41	40, 41	40, 41

Table 28 distinguishes between actions that will mitigate the potential effects of a hazard on new buildings or infrastructure and on existing buildings or infrastructure. Table 73 does not list study actions because study, while a necessary first step for some mitigation actions, will not by itself reduce the potential for damage. Similarly, actions designed to provide training, protect people, or conserve natural resources, but not to reduce the potential for damage to structures or infrastructure, are not part of Table 28.

Table 28: Mitigation affects New and Existing Buildings and Infrastructure

Action Number	Hazard	Action	Mitigates New or Existing Buildings/Infrastructure
02	Dam/levee failure	Implement the recommendations of the El Paso City/County Stormwater Management Plans regarding dam safety	New and Existing Buildings and Infrastructure
04	Drought	Conduct annual inspection of water systems in public buildings to check for leaks and make needed repairs to reduce waste of water	Existing Buildings
11	Flooding	Acquire and demolish repetitive loss properties	Existing Buildings
12	Flooding	Acquire homes in the floodplain	Existing Buildings
13	Flooding	Add requirement to Building Permit application that applicant signify whether the location is part of a Special Flood Hazard Area	New Buildings
14	Flooding	Excavate stormwater detention basins to increase capacity	New and Existing Buildings and Infrastructure
15	Flooding	Improve drainage system near Stockyard	Existing Buildings and

Action Number	Hazard	Action	Mitigates New or Existing Buildings/Infrastructure
		Road	Infrastructure
16	Flooding	Improve stormwater drainage through enhanced maintenance	Existing Buildings and Infrastructure
17	Flooding	Increase capacity for conveyance of stormwater away from areas of ponding	New and Existing Buildings and Infrastructure
19	Flooding	Update Flood Damage Prevention Ordinances when new FIRMs are adopted (new preliminary FIRMS are currently under review)	New and Existing Buildings and Infrastructure
21	Flooding	Mitigate the threat posed by levee improvements by constructing additional detention ponds and/or stormwater diversions	New and Existing Buildings and Infrastructure
22	Flooding	Reinforce manholes and expand capacity of drainage system near University Avenue and Hawthorn Street on University of Texas at El Paso campus	Existing Buildings and Infrastructure
23	Flooding	Construct drainage arroyos through the middle of campus to reduce flooding of walkways	Existing Buildings and Infrastructure
24	Flooding	Stabilize arroyos in steep locations and that show signs of erosion with native vegetation	New and Existing Buildings
25	Hail	As public buildings are constructed or renovated, use hail-resistant metal roofing	New and Existing Buildings
29	Lightning	Install adequate surge protection for major electrical equipment in new and existing public buildings	Existing Buildings and Infrastructure
30	Lightning	Inspect public buildings and install lightning rods on public buildings where needed	Existing Buildings
31	Tornado Hail	Construct several small safe rooms at University of Texas at El Paso Construct safe rooms in school buildings	Existing Buildings
32	Wildfire	Limit opportunities for development in the vicinity of Franklin Mountains State Park by amending zoning ordinance to require large lots	New Buildings and Infrastructure
35	Wind	As public buildings are constructed or re-roofed, attach roof to the structure with hurricane clips	New and Existing Buildings

Action Number	Hazard	Action	Mitigates New or Existing Buildings/Infrastructure
36	Wind	Trim or prune trees along roadways to prevent interference with power lines during high winds	New and Existing Infrastructure
37	Wind Tornado	Require that electric utility lines be buried when new roads are constructed or reconstructed	New and Existing Infrastructure
39	Snow	Encourage businesses and government entities to wrap the facility's pipes in order to avoid pipes freezing	New
40	Ice	Provide and install generators in critical infrastructure in order to provide redundancy to critical structures during any and all hazards	New

6.3.2. Actions to Integrate with Other Plans

Some of the recommended actions are already part of other planning mechanisms and established procedures:

- The City of Socorro Department of Parks is already trimming and pruning trees to limit the degree to which limbs fall on power lines.
- The Future Land Use map in *Plan El Paso* already shows that land in and adjacent to the Franklin Mountains State Park where flash flooding can occur, as well as land near the Rio Grande, should remain undeveloped and in their natural state. As the Preserve or Natural categories of land use, the land is intended to be kept in its natural state "for drainage, natural habitat, and scenic protection" (City of El Paso, page 1.30).

As in the past, to further integrate hazard mitigation actions into other community planning mechanisms, particularly into the revised Town of Vinton Zoning Ordinance:

- Responsibility: RGCOG Director of Regional Services
- Timeframe: Ongoing
- Method: Attend local government meetings on revision of development ordinances, and capital improvements and economic development plans. Identify opportunities for linking mitigation actions with other community objectives. Explain to plan developers the rationale for including mitigation actions in community plans by suggesting, for example, that:

- Comprehensive plans should discourage development near wildland to minimize the potential for loss due to wildfire.
- Capital improvements should include enhancement of stormwater drainage systems to reduce localized flooding.
- Economic development plans will be enhanced if the community is more disaster resilient and is actively mitigating the effects of hazards.

- Funding: RGCOG operating budget

In addition, El Paso County and all participating jurisdictions (Town of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon, and City of Clint) recognize the importance of incorporating hazard mitigation into the full range of community planning activities. Existing and future planning mechanisms must integrate mitigation in order to influence the built environment to be safe and more resilient to the hazards faced by each jurisdiction. Furthermore, only through the integration of mitigation into such planning mechanisms can the participating jurisdictions ensure the sustainability of their communities. The table below identifies the process by which participating jurisdictions (Town of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon, and City of Clint) will integrate the requirements of the mitigation plan into existing and future planning mechanisms.

Planning Mechanism	How MAP will be Incorporated
Comprehensive/General Plans	Hazard identification, risk assessment information, and hazard mitigation goals will be included in the language of the comprehensive/general plan. Additionally, during the annual review of the plan, a hazard mitigation matrix will be used to track where and how mitigation is integrated throughout each element of the plan. Responsibility for Implementation: City Administration/County Commissioners Scheduled Review: Annual Review for Five Year Submission Applicable Jurisdictions: El Paso County, City of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.

Zoning Ordinances and Municipal Codes	Zoning ordinances will be updated over time to guide development away from the most hazard prone areas. Land use ordinances will be updated to restrict the use of land that is considered to be substantially more hazardous than other area, such as in flood prone areas. Floodplain ordinances will be maintained and updated as required by the NFIP. Municipal codes will be updated in order to ensure that construction and electrical standards being used are those that offer the most protection from the hazards identified by the jurisdiction. Responsibility for Implementation: City Administration/County Commissioners Scheduled Review: Annually Applicable Jurisdictions: All participating jurisdictions
Capital Improvement and Infrastructure Programs	The placement and design of critical facilities, including fire stations, water and wastewater treatment plants, and sewer lines, will be determined based on community need as well as the consideration of mitigation efforts identified in the MAP, including the continued functioning of the facility and the location of the facility in relation to hazard-prone areas. Funding through such programs will also be considered for use in carrying out identified mitigation actions. Responsibility for Implementation: City Administration/County Commissioners Scheduled Review: Scheduled Review: Annual Review for Five Year Submission Applicable Jurisdictions: Applicable Jurisdictions: El Paso County, City of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.

Area Plans	Hazard identification and the prevalence of hazard within specific areas will be included in such plans. The recognition of such hazards and their prevalence will form the foundation of area plans and guide the policies relating to the plan and the area(s) encompassed by the plan. Responsibility for Implementation: City Administration Scheduled Review: Every five years Applicable Jurisdictions: Applicable Jurisdictions: El Paso County, City of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.
Stormwater Management Plans	The development of stormwater management infrastructure will be based on flooding risks as identified in flood-prone areas, such as documented on the jurisdiction's FIRM. Responsibility for Implementation: Public Works/County Commissioners/City Administration Scheduled Review: Annual Review for Five Year Submission Applicable Jurisdictions: Applicable Jurisdictions: El Paso County, City of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.
Wastewater Management Plans	Such plans shall incorporate flood protection for pump stations located in flood-prone areas and the installment of stations in areas not subject to the flood hazard. Responsibility for Implementation: Public Works Scheduled Review: Annual Review for Five Year Submission Applicable Jurisdictions: Applicable Jurisdictions: El Paso County, City of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.

Park, Recreation, and Open Space Plans	Such plans shall be updated to assist in mitigation efforts by directing development away from hazard-prone areas. One such example would be to utilize open-space in flood-prone areas to divert development into areas with less or no risk of flooding. Responsibility for Implementation: Public Works Scheduled Review: Annual Review for Five Year Submission Applicable Jurisdictions: El Paso County, City of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.
Transportation Plans	Plans will incorporate hazard-prone areas into planning practices in order to ensure that new development is not induced in high hazard areas by the development of new transportation infrastructure. Responsibility for Implementation: City Administration/County Commissioners Scheduled Review: Every five years Applicable Jurisdictions: El Paso County, City of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.
Economic Development Plans	Structural and other protective measures will be included as recommendations for commercial developments. Mitigation goals will be incorporated into such plans to guide private investment to areas that are less vulnerable to known hazards. Economic Development Plan goals will mirror the MAPs focus on protecting and sustaining the community through sound development practices, including the encouragement of a diverse economic base that is not overly reliant on businesses or industries that are particularly vulnerable to the impacts of disaster. Responsibility for Implementation: Economic Development Scheduled Review: Every two years Applicable Jurisdictions: El Paso County, City of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.

Emergency Operations Plans	Such plans will incorporate the MAPs analysis of potential natural or manmade hazard threats to the community that may result in an emergency or disaster operation. Responsibility for Implementation: Office of Emergency Management/City Administration Scheduled Review: Every two years Applicable Jurisdictions: El Paso County, City of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.
Post-Disaster Recovery and Reconstruction Plans	Housing and business area reconstruction and economic development metrics within long-term recovery planning will incorporate the MAPs hazard analysis in order to encourage enhanced resiliency and discourage reconstruction in hazard-prone areas. Such plans will also integrate long-term hazard mitigation goals as identified in the MAP. Responsibility for Implementation: County Commissioners/City Administrators Scheduled Review: Every five years Applicable Jurisdictions: El Paso County, City of Anthony, Village of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint.

6.3.3. Actions to Continue Public Involvement

It is important that the mitigation planning process be open and accessible by the public. Therefore, included in the mitigation strategy are actions to continue public involvement.

Changes Since Last Plan

This process is identical to the process recommended in the previous plan. However, the process is described in greater detail in this updated plan.

Continue Public Involvement

As in the past, the RGCOG will continue to involve the public about hazard mitigation plans and accomplishments. As in the past, to provide opportunities for continued public involvement, the mitigation strategy is:

- Responsibility: RGCOG Director of Regional Services and each representative from El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint
- Timeframe: January 1, 2014-Ongoing
- Method:
    - Post documents on RGCOG Web site (http://riocog.org/REGSVCS/rs.htm#hazard.htm) for review and invite the public to ask the RGCOG Regional Services Director questions about the plan or to suggest modifications to the plan at any time.
    - Each jurisdiction which includes El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint will annually post documents on their website for review and invite the public to ask questions about the plan or suggest modifications to the plan at any time.
    - Each jurisdiction mentioned above will maintain a file with comments and suggestions provided by the public and provide them for consideration at the annual plan evaluation meetings.
    - Each jurisdiction mentioned above will post notices of annual mitigation plan evaluation meetings using the usual methods for posting meeting announcement in the region to invite the public to participate.
        - RGCOG will provide a copy of the El Paso County's Hazard Mitigation Action to the six jurisdictions (Town of Anthony, Village of Vinton, City of El Paso, Town of Horizon, City of Socorro, and Town of Clint) in order to allow for public comment for thirty days prior to the formal jurisdictional adoption. RGCOG will disseminate public notice flyer to each jurisdiction for posting in public venues. A copy of the flyer will be included in the attachment segment of the plan.

- Funding: RGCOG and El Paso County, Town of Anthony, Town of Vinton, City of El Paso, City of Socorro, Town of Horizon City, and Town of Clint operating budget

6.3.4. Actions to Maintain the Plan

It is important to maintain the plan so that it continues to be accurate and appropriate for participating jurisdictions. Maintenance entails annual monitoring, evaluation, and further updating. In order for each jurisdiction to be able to monitor their actions, annually they will complete a matrix which is to be provided to the Emergency Management Coordinator of the actions initiated, in-progress, or completed. This will assist the jurisdictions to maintain and log their actions. This section describes a process for regular, at a minimum annually, monitoring of mitigation actions, evaluating the planning process, reviewing the information used for the risk assessment, reviewing community priorities, and updating

the plan again within 5 years. In addition, El Paso County's Hazard Mitigation Action Plan will be made available to the public through the Rio Grande Council of Governments website. The website has contact information available to the public for commentary. Future meetings will also be posted on the Rio Grande Council of Governments Online Calendar and under the Notices/Meetings link.

Changes Since Last Plan

The plan maintenance process recommended in this updated plan includes more detail about responsibilities, timeframes, and approach or method than did the previous plan, but the process is essentially the same. Responsibility for plan maintenance is assigned to the RGCOG Regional Services Director along with El Paso City/County of El Paso Office of Emergency Management. Monitoring and evaluation meetings were not held subsequent to adoption of the previous plan.

Monitor the Plan

- Responsibility: RGCOG Regional Services Director and El Paso City/County of El Paso Office of Emergency Management
- Timeframe: Annually on or about the anniversary date of adoption of this updated plan
- Method:
    - The RGCOG Regional Services Director will contact the Emergency Management Coordinator of each participating jurisdiction by telephone or e-mail and ask for provide information about mitigation accomplishments, as well as about changes in hazard vulnerability and mitigation priorities.
    - El Paso County and six municipalities will advertise hazard mitigation meeting(s) in public venues.
    - Use of local web sites, social and traditional media platforms to inform the public of any maintenance or periodic review activities taking place.
    - If progress is not made by a jurisdiction with plan implementation, the RGCOG Regional Services Director will contact responsible parties to identify obstacles and discuss strategies for overcoming the obstacles.
- Funding: RGCOG operating budget

Evaluate the Plan

- Responsibility: RGCOG Regional Services Director
- Timeframe: Within a year of receiving a disaster declaration or every other year, approximately one month after the annual monitoring of mitigation actions
- Method:

- RGCOG Regional Services Director will facilitate a meeting of representatives of participating jurisdictions
- The meeting will include a presentation of the results of the monitoring and attendees will be asked to address the following questions:
  - Are new sources of data available that will improve the risk assessment?
  - Have conditions in the County changed so that findings of the Risk Assessment should be updated?
  - Do mitigation goals and objectives reflect current community concerns?
  - For each mitigation action that has not been completed, what are the obstacles to implementation? What are potential solutions for overcoming these obstacles?
  - Is each completed mitigation action effective in reducing risk? What action is required to further reduce the risk addressed by the completed action?
  - What mitigation actions should be added to the plan and proposed for implementation?
  - Based on the evaluation, should the plan be updated as soon as possible or should the plan be updated as scheduled 5 years after it was adopted?
- Documentation of the annual evaluation meeting will be attached to the paper and electronic files of this plan within 1 month for accessibility when the plan is next updated.

- Funding: RGCOG operating budget

Update the Plan

This plan must be updated within 5 years and again adopted by the County and participating jurisdictions in order to maintain compliance with the regulations stated in 44 CFR Part 201.6 and ensure eligibility for applying for and receiving certain Federal mitigation grant funds. The action of updating the plan will be accomplished using the following strategy:

- Responsibility: RGCOG Regional Services Director and El Paso County/City Office of Emergency Management
- Timeframe: Within 3 years of plan adoption or at the discretion of RGCOG and participants of the annual plan evaluation meeting
- Method: Develop a schedule and identify responsibilities for updating the plan
- Funding: RGCOG operating budget or other source of funding as available

7. Sources of Information

Sources of information used to updated the hazard mitigation plans for the six counties in the Far West Texas region are provided in this section of the plan so that residents and public officials can find additional information about hazards, verify the data presented, and use these or similar sources of information to update the plan in the future.

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8. Documentation

This section contains documentation of the planning process undertaken to update these plans as well as a sample Resolution of Adoption. The sample Resolution of Adoption or a form that is regularly used

by a participating jurisdiction will be signed when the plans are adopted by the governing body. A copy of the signed Resolutions of Adoption will be inserted into the updated plans at that time.

Public participation:

Public participation in the development of the plan occurred at two levels: (1) the planning team which consisted of stakeholders, subject matter experts, and elected officials from El Paso County along with the Town of Anthony, Village of Vinton, Town of Horizon, City of Socorro, and Town of Clint . (2) In addition, a public meeting was held in order to present the previous plan, explain to citizens the need for updating the plan and process, and to solicit input. The community was notified of the meeting and request for community input through newspaper ads, Texas Register posting, and web posting at www.riocog.org/Notices/Meetings.htm.

The planning team which had representation from El Paso County along with the Town of Anthony, Village of Vinton, Town of Horizon, City of Socorro, and Town of Clint utilized a survey in order to gather community input, see attached. The planning team worked with each community in obtaining information for the El Paso County Hazard Mitigation Plan. Once the draft plan was available, the plan was sent electronically to participants soliciting comments. In addition, the Rio Grande Council of Governments' Board of Directors was given an update regarding each of the plans.

A follow up meeting was held on March 5, 2013 which was opened to the public regarding the final draft plan. All communities within the Rio Grande Council region were invited to attend. The public was notified via posting at www.riocog.org/Notices/Meetings.htm, Texas Register posting, posting at city hall(s), and social media.

8.1. Planning Process

8.1.1. October 18, 2012 Meeting

October 18, 2012 Meeting Invitation List

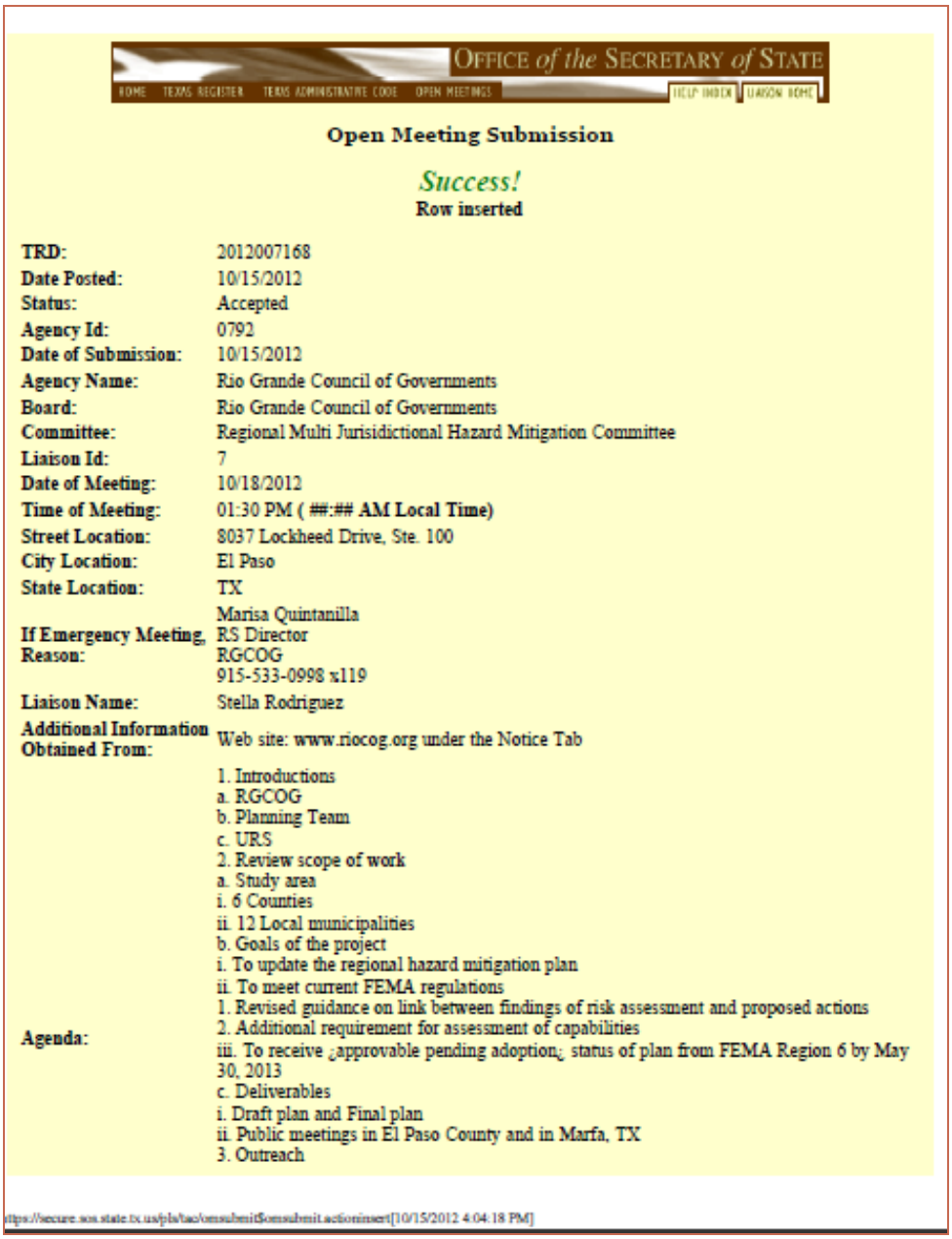
Invitations to the first meeting of the Planning Team were issued by telephone to:

Jurisdiction / Organization / Agency	Name	Telephone
Town of Anthony	Chief Enriquez	915-886-3838
Town of Vinton		915-886-5104
Town of Horizon, City	Chief McConnell	915-852-1047
Town of Clint	Chief Hernandez	915-851-3146 or 915-851-1600
City of Socorro	Samuel Leony	915-872-8531
El Paso City / County	Ruben John Vogt Gilbert Saldana ,Senior Engineer of Public Works	915-546-2098 915-546-2015

	Department	
TX Department of State Health Services	Art Avarado	915-834-7675
TX Department of Transportation	Edgar Fino	915-790-4306 or 915-373-4616
El Paso Community College	Chief Ramirez	915-831-2634
University of Texas at El Paso	Chief Walsh	915-747-5000
TX Department of Public Safety	Captain Najera	915-849-4000
Fort Bliss Army Base	Mike Lister	915-744-6921 or 915-621-6921

October 18, 2012 Planning Team Meeting Public Announcement

The October 18, 2012 Planning Team Meeting was open to the public. The public announcement was posted on https://secure.sos.state.tx.us/pls/tac/omsubmit$omsubmit.actioninsert on 10/15/2012. RCGOG used this same method of announcing mitigation planning meetings for the2007-2007 mitigation planning process.



OFFICE of the SECRETARY of STATE

HOME TEXAS REGISTER TEXAS ADMINISTRATIVE CODE OPEN MEETINGS HELP INDEX LIAISON HOME

Open Meeting Submission

Success!

Row inserted

TRD:	2012007168
Date Posted:	10/15/2012
Status:	Accepted
Agency Id:	0792
Date of Submission:	10/15/2012
Agency Name:	Rio Grande Council of Governments
Board:	Rio Grande Council of Governments
Committee:	Regional Multi Jurisidictional Hazard Mitigation Committee
Liaison Id:	7
Date of Meeting:	10/18/2012
Time of Meeting:	01:30 PM (##:## AM Local Time)
Street Location:	8037 Lockheed Drive, Ste. 100
City Location:	El Paso
State Location:	TX
If Emergency Meeting, Reason:	Marisa Quintanilla RS Director RGCOG 915-533-0998 x119
Liaison Name:	Stella Rodriguez
Additional Information Obtained From:	Web site: www.riocog.org under the Notice Tab
Agenda:	1. Introductions a. RGCOG b. Planning Team c. URS 2. Review scope of work a. Study area i. 6 Counties ii. 12 Local municipalities b. Goals of the project i. To update the regional hazard mitigation plan ii. To meet current FEMA regulations 1. Revised guidance on link between findings of risk assessment and proposed actions 2. Additional requirement for assessment of capabilities iii. To receive ¿approvable pending adoption¿ status of plan from FEMA Region 6 by May 30, 2013 c. Deliverables i. Draft plan and Final plan ii. Public meetings in El Paso County and in Marfa, TX 3. Outreach

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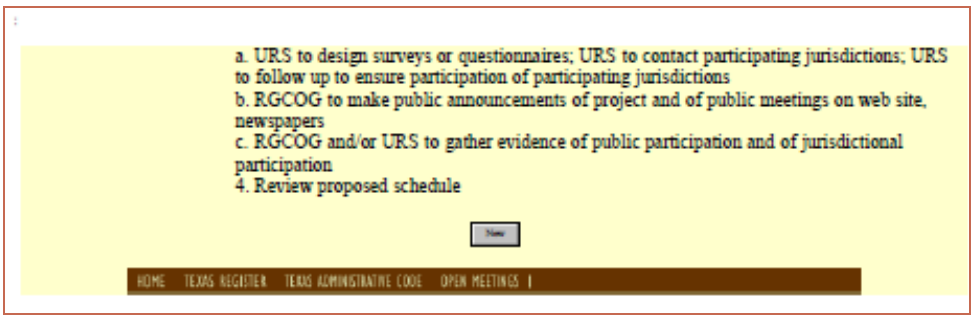


a. URS to design surveys or questionnaires; URS to contact participating jurisdictions; URS to follow up to ensure participation of participating jurisdictions
b. RGCOG to make public announcements of project and of public meetings on web site, newspapers
c. RGCOG and/or URS to gather evidence of public participation and of jurisdictional participation
4. Review proposed schedule

New

HOME TEXAS REGISTER TEXAS ADMINISTRATIVE CODE OPEN MEETINGS

October 18, 2012 Planning Team Meeting Agenda

Rio Grande Council of Governments

Regional Multi-Jurisdictional Hazard Mitigation Action Plan Update Kickoff Meeting Agenda

1:30 PM October 18, 2012

Rio Grande Council of Governments
1100 North Stanton, Suite 610 (new RGCOG location)
El Paso, TX 79902

1. Introductions
    a. RGCOG
    b. Planning Team
    c. URS
2. Review scope of work
    a. Study area
        i. 6 Counties
        ii. 12 Local municipalities
    b. Goals of the project
        i. To update the regional hazard mitigation plans
        ii. To meet current FEMA regulations
            1. Revised guidance on link between findings of risk assessment and proposed actions
            2. Additional requirement for assessment of capabilities
        iii. To receive "approvable pending adoption" status of plans from FEMA Region 6 by May 30, 2013
    c. Deliverables
        i. Draft plans and final plans
        ii. Public meetings in El Paso County and in Marfa, TX
3. Outreach
    a. URS to design surveys or questionnaires; URS to contact participating jurisdictions; URS to follow up to ensure involvement of participating jurisdictions
    b. RGCOG to make public announcements of project and of public meetings on the RGCOG Web site and newspapers
    c. RGCOG and/or URS to gather evidence of public participation and of jurisdictional participation
4. Review proposed schedule

Responsibility	Task	Timeframe
URS	Conduct content analysis of previous plan	October 2012
RGCOG, Planning Team, URS	Schedule and conduct initial meeting of local mitigation planning team to: • Identify new plans, studies, or other data • Review changes in hazards, priorities, problems and conditions	October 18, 2012
URS	Contact participating jurisdictions to collect the following data from RGCOG, local jurisdictions • Plans, studies, Internet resources • Changes in priorities, problems, conditions • Location of structures and infrastructure • Capabilities • Mitigation accomplishments	October – November 2012
RGCOG, Planning Team, URS	Schedule and conduct second meeting of local mitigation planning team to review: • Status of actions • Public participatory process • Plan maintenance process • Integration of mitigation with other objectives	Late November 2012
RGCOG	Schedule and publicize initial public meeting	December 2012
URS	Contact RGCOG and participating jurisdictions to review: • Status of actions • Public participatory process • Plan maintenance process • Integration of mitigation with other objectives	November 2012 – January 2013
RGCOG, Planning Team, URS	Conduct initial public meeting to review mitigation goals and accomplishments, changes in priorities, problems, conditions	January 2013
URS	• Conduct assessment of capabilities • Update data on repetitive flood loss • Conduct analysis of risk and vulnerability o Develop problem statements o Update goal statements o Update proposed mitigation action and implementation strategies	January – February 2013
URS	• Develop first draft • Conduct quality assurance review using FEMA Plan Review Tool • Conduct technical edit of first draft	February 15, 2013
RGCOG	Schedule and publicize second public meeting	February 2013
RGCOG and Planning Team	Circulate and review first draft	March 1 – March 15, 2013
RGCOG, Planning Team, URS	Conduct second public meeting to review proposed mitigation action implementation strategies	March 2013
URS	Revise and develop second draft	March 15 – April 1, 2013
Texas Department of Public	FEMA review and approval process	April 1 – May 30,

Responsibility	Task	Timeframe
Safety, FEMA Region 6 RGCOG, URS as needed		2013
Participating jurisdictions	Plan adoption	June 2013

October 18, 2012 Planning Team Meeting Notes

Location: RGCOG office

Time: 1:30 PM

Attendees

- Planning Team - Participating Jurisdictions and Regional Partners
    - City/County of El Paso
    - Culberson County
    - El Paso County
    - Fort Bliss Army Base
    - Hudspeth County
    - State of Texas Department of Public Safety
    - State of Texas Department of State Health Services
    - State of Texas Division of Emergency Management
    - Town of Anthony
    - Town of Clint
    - Town of Horizon City
    - University of Texas at El Paso
- RGCOG Staff
- URS Contractors

Attendees introduced themselves.

Marisa Quintanilla gave a brief presentation on the scope of the project.

Sam Irrinki introduced the role of the URS contractors.

Mary Shaw reviewed the agenda for the meeting.

Determinations made by the Planning Team:

RGCOG would verify the need to develop a separate plan for each county rather than a single plan for the six counties.

- Online surveys would be an effective way to gather some data, with URS following up to ask additional questions as needed

- Given the size of the planning area and the distance between jurisdictions, it will be appropriate for Planning Team meetings to have a conference call option for representatives of jurisdictions several miles away from the location of the meeting
- RGCOG will issue invitations to the public and representatives of stakeholder agencies to attend public meetings to be held in Marfa and in El Paso during the planning process

The participants agreed to the project schedule proposed by URS.

October 18, 2012 Sign-in Sheet

Regional Multi-Jurisdictional Hazard Mitigation Action Plan Update Kick-off Meeting
Rio Grande Council of Governments
8037 Lockheed Drive
El Paso, Texas 79925
October 18th, 2012
Roster

Name (Please Print)	Organization/Entity	Physical Address	Phone Number	Email Address
Carie G. Urias	Culberson County	300 La Caverna Van Horn TX	432-283-2059	[illegible] co.culberson.tx.us
Guadalupe Kelly	Hudspeth County	108 Millican Sierra Blanca, TX	(915)369-2321	HCADMINGKELLY@windstream.net
Hector Parada	Clint	200 [illegible]	915 [illegible]	
[illegible]	Clint PD	126 N. Fenton [illegible]	915-[illegible]	[illegible]@gmail.com
Ray Resendez	TDEM	11612 Scotts [illegible]	915 849-4005	raymond.[illegible]@dps.Texas.gov
Martin Whitfield	TDEM	11612 Scott Simpson	915-261-5781	martin.whitfield@dps.texas.gov
Ricardo Granado	EP OEM	300 N. Kansas El Paso TX 79901	(915)240-3172	granadora@elpasotexas.gov
Mike McConnell	H.C.P.D.	14999 Darrington, H.C 79928	852-1047	chief@horizoncity.org
Memo Reyes	Town of H.C.	14999 Darrington	852-1975	[illegible]@horizoncity.org
Sam Irrinki	URS	—	512 419 6441	Sam.Irrinki@urs.com
Carlos Enriquez	Anthony PD	401 Wildcat Dr.	886-3836	Cenriquez@[illegible]anthony.org
Mary Shaw	URS	—	301 448 0657	mary.shaw@urs.com
Luis Noyes	DPS	11612 Scott Simpson	915 849-4003	Luis.Noyes@dps.Texas.gov
Gilbert Salcido	EP County	800 E. Overland	915 546 2015	GSALCIDO@EPCOUNTY.COM
Ken Wimmer	UTEP	3118 Sun Bowl	525-8465	
David Kolberson	DSHS	401 E. Franklin	915 309-1031	David.Kolberson@dshs.state.tx.us
Marc Methvin	Fort Bliss DPTMS	1BP [illegible] Bldg 11685	915-744-6960	marc.a.methvin.civ@mail.mil
Mike Lister	Fort Bliss DPTMS	" "	915-744-6920	michael.j.lister.civ@mail.mil

8.1.2. November 2012 Survey

November 2012 Survey Letter of Invitation

From: Marisa Quintanilla [marisaq@riocog.org]

To: Tom.santry@co.brewster.tx.us

Friday, November 09, 2012 3:00 PM

Hi there Mr. Santry,

Hope that this email finds you in the best of health. As you know, five years [ago], the RGCOG submitted a Comprehensive Multi-Jurisdictional Hazard Mitigation Action Plan which received FEMA approval. Well, the five years are up and we need to submit an updated plan for our region.

Can you please help me out in completing a survey as it relates to the county's hazards? Now, since you are the EMC for Brewster County, I'm not sure if the survey will allow you to "radio click" multi jurisdictions (Alpine & Brewster County). If it doesn't, then we might have to complete the surveys individually.

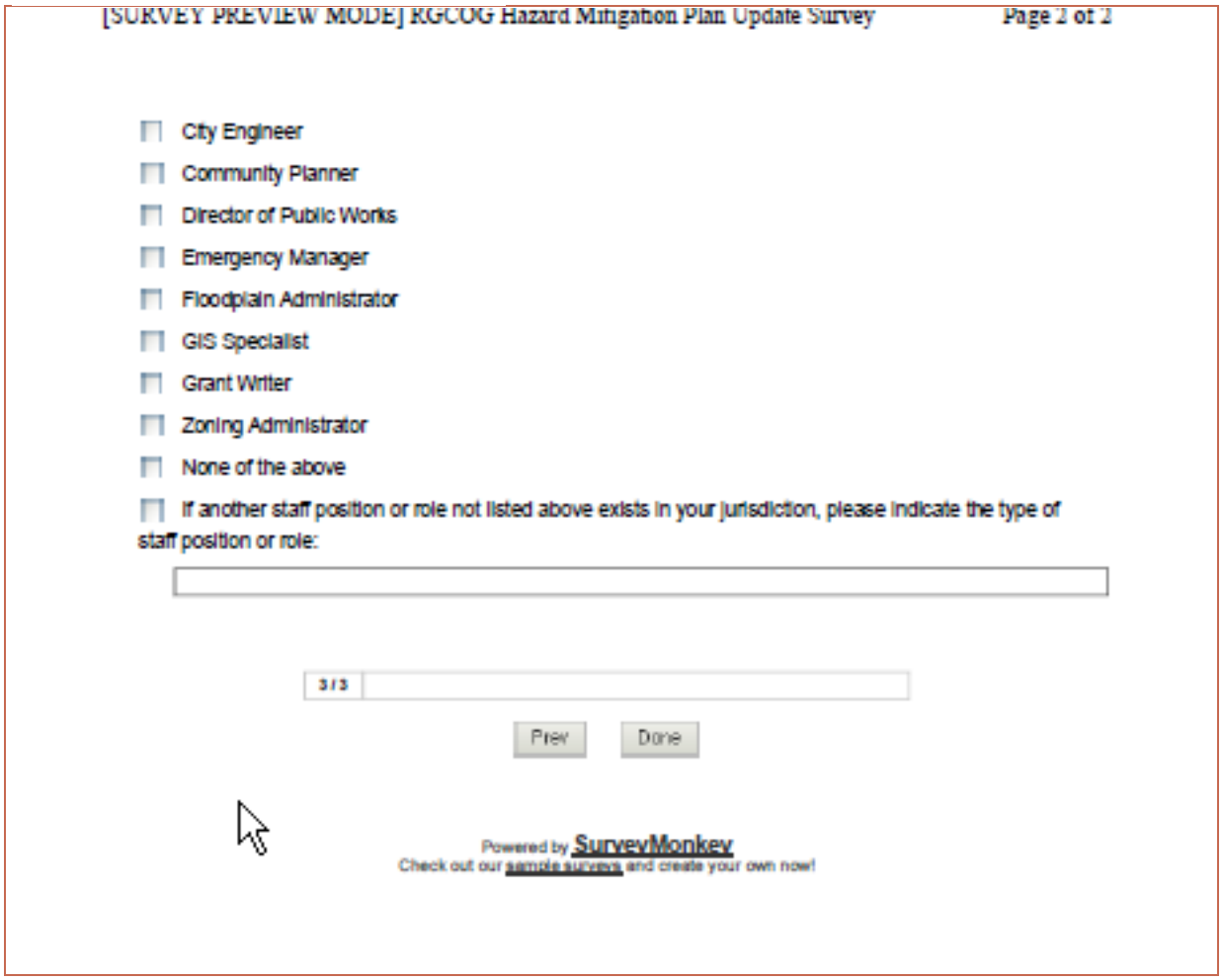
The completion of the survey shouldn't take more than ten minutes.

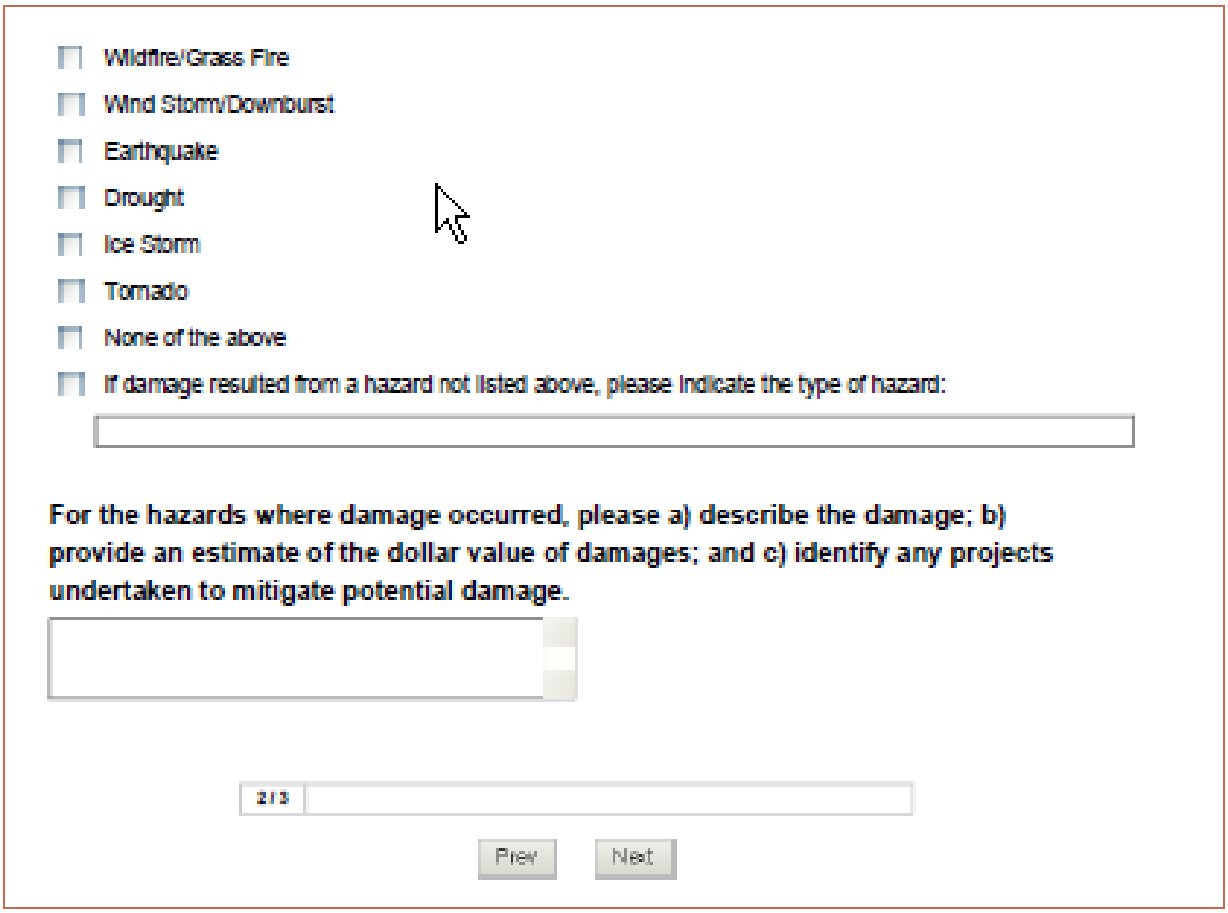
Follow the link to the finalized survey:

http://www.surveymonkey.com/s/GNY7LQB

Thank you for all you help in this project.

Marisa Quintanilla
Regional Services Director
RGCOG
8037 Lockheed, Ste. 100
El Paso, Texas 79925
915.533.0998 x 119 (Office)
915.532.9385 (Fax)
Email: Marisaq@riocog.org


[SURVEY PREVIEW MODE] RGCOG Hazard Mitigation Plan Update Survey
Page 2 of 2
City Engineer
Community Planner
Director of Public Works
Emergency Manager
Floodplain Administrator
GIS Specialist
Grant Writer
Zoning Administrator
None of the above
If another staff position or role not listed above exists in your jurisdiction, please indicate the type of staff position or role:
3 / 3
Prev
Done
Powered by SurveyMonkey
Check out our sample surveys and create your own now!


Wildfire/Grass Fire
Wind Storm/Downburst
Earthquake
Drought
Ice Storm
Tornado
None of the above
If damage resulted from a hazard not listed above, please indicate the type of hazard:
For the hazards where damage occurred, please a) describe the damage; b) provide an estimate of the dollar value of damages; and c) identify any projects undertaken to mitigate potential damage.
2 / 3
Prev
Next

November 2012 Survey Response Summary

The survey was sent to officials of 18 different jurisdictions in the Far West Texas region:

- El Paso County: Cities of El Paso and Socorro; Towns of Anthony, Vinton, Horizon City, and Clint
- Hudspeth County: City of Dell City
- Culberson County: Town of Van Horn
- Jeff Davis County: City of Valentine
- Presidio County: Cities of Marfa and Presidio
- Brewster County: City of Alpine

Responses were received from 14 jurisdictions plus the State of Texas:

- El Paso County and Towns of Anthony, Vinton, Clint, Horizon City
- Hudspeth County and City of Dell City
- Culberson County and Town of Van Horn
- Brewster County and City of Alpine
- Presidio County
- Jeff Davis County and City of Valentine
- State of Texas (regarding occurrence of hazards in the region)

1. Hazards that have occurred in the jurisdiction

Top Priority Hazard	Number of Jurisdictions	Medium Priority Hazard	Number of Jurisdictions	Low Priority Hazard	Number of Jurisdictions
Flood	9	Extreme cold	0	Wildfire	6
Wind	8	Snow	5	Drought	6
Hail	5	Ice	7	Extreme heat	9
Tornado	3			Dam/Levee Failure	3
				Earthquake	2

2. Hazards that have resulted in damage

Top Priority Hazard	Number of Jurisdictions	Medium Priority Hazard	Number of Jurisdictions	Low Priority Hazard	Number of Jurisdictions
Flood	9	Extreme cold	0	Wildfire	7
Wind	8	Snow	5	Drought	5
Hail	6	Ice	4	Extreme heat	5
Tornado	0			Dam/Levee Failure	3
				Earthquake	0

3. Impact of hazards
    a. Flood – wash out of local roads; debris on the berms; repair costs of up to $75K
    b. Dam failure – led to flooding
    c. Drought – affected pastures and cropland; may affect tourism as well as livestock and wildlife
    d. Extreme cold – broken water lines / pipes
    e. Extreme cold – homes flooded due to frozen water lines
    f. Extreme heat – evaporative cooling systems failed in extreme heat
    g. Flood – damage due to flooding of houses
    h. Flood – roads were washed out; debris blocked culverts; buildings were flooded (damage of about $7 million)
    i. Hail – hail storm ruined crops
    j. Hail – damage to roofs
    k. Ice – caused damage to pumps and pipes
    l. Ice – downed electric lines (cost about $10K for labor/parts)
    m. Ice – extensive traffic accidents due to ice; cost was for overtime hours
    n. Wildfire – destroyed feed for livestock; damaged crops and agricultural infrastructure
    o. Windstorm – caused roof damage
4. Mitigation
    a. Extreme cold – provided education on insulation
    b. Ice – obtained sand for future ice storms
    c. Flood – reconstructed culverts to allow greater flow capacity
    d. Flood – created new detention pond
    e. Flood – built small berms
    f. Flood – added requirement for retention pond when there is new development
    g. Wildfire – enhanced emergency response capabilities though the State Homeland Security Grant Program
5. Capabilities

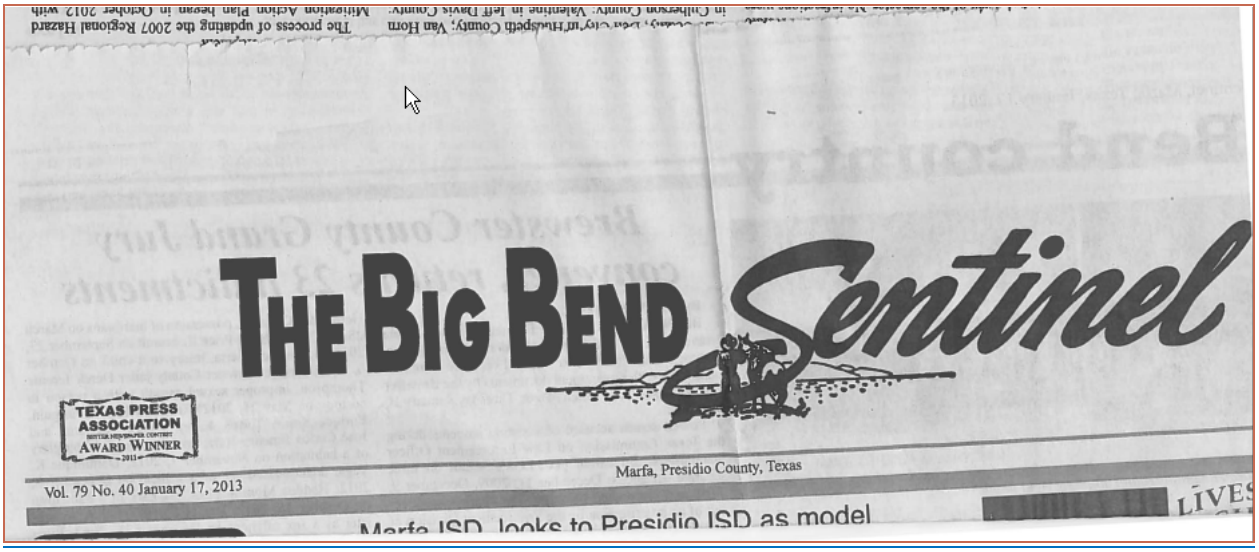
Code, Ordinance, or Plan	Number of Jurisdictions
Building Code	8
Building Permit	9
Capital Improvement Plan	4
Comprehensive Plan	3
Conservation / Natural Resource Protection Plan	1
Economic Development Plan	3
Emergency Operations Plan	7
Flood Damage Prevention Ordinance	7
Historic Preservation Plan	2
Parks or Open Space Plan	3
Post-Disaster Recovery plan	1

Stormwater Management Plan	4
Subdivision Ordinance	5
Zoning Ordinance	7
None	1

6. Staff Resources

Staff Resources	Number of Jurisdictions
Building Official	6
City Engineer	5
Community Planner	3
Director of Public Works	9
Emergency Manager	7
Floodplain Administrator	4
GIS Specialist	1
Grant Writer	4
Zoning Administrator	4
None	1

8.1.3. January 2013 Press Releases



THE BIG BEND Sentinel

TEXAS PRESS ASSOCIATION AWARD WINNER 2013

Vol. 79 No. 40 January 17, 2013

Marfa, Presidio County, Texas

Marfa ISD looks to Presidio ISD as model

Far West Texas hazard mitigation plan update

FAR WEST TEXAS - Six Far West Texas counties, epresented by their county governments and offices of emergency management, the Rio Grande Council of Governments, and the Texas Department of Public Safety are sponsoring the update of previously developed hazard mitigation plans.

The participating counties are El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, and Brewster. The incorporated municipalities participating in the effort are El Paso, Clint, Horizon City, Socorro, and Vinton in El Paso County; Dell City in Hudspeth County; Van Horn in Culberson County; Valentine in Jeff Davis County; Presidio and Marfa in Presidio County; and Alpine in Brewster County.

The purpose of this planning initiative is to develop a comprehensive natural hazard mitigation plan for each jurisdiction. The plan will establish eligibility for receipt of certain future Federal funds, especially the Hazard Mitigation Grant Program. Hazard mitigation funds have been used in the region to acquire and demolish homes that had flooded repeatedly and to enlarge storm water detention basins to reduce flooding problems.

Mitigation Plan Format

The plan will outline actions designed to reduce the negative impacts of a full range of natural hazards facing Far West Texas counties including flooding, extreme cold temperatures, and earthquakes.

The plan for each county and the incorporated jurisdictions in that county will include eight sections. These are an introduction, a summary of the planning process, a description of the characteristics of the natural hazards that can occur in the planning are, a summary of local government capabilities and resources, an assessment of risk, and, most importantly, specific recommendations for reducing risk. The plan will also include a detailed list of sources consulted and documents used during the planning process.

Process of Development

The process of updating the 2007 Regional Hazard Mitigation Action Plan began in October 2012 with a kick-off meeting, which was open to the public, at the Rio Grande Council of Governments office in El Paso. The process included a completion of a survey about hazards and previous hazard mitigation accomplishments in November by representatives of each participating jurisdiction. A planning meeting, which was open to the public, was held in Marfa in early December. Draft plans for each county will be posted on the Rio Grande Council of Governments website in February and a public meeting to discuss the draft plans will be scheduled by RGCOG.

The plan will be reviewed by FEMA to establish compliance with Title 44 of the Code of Federal Regulations, Section 201.6. After FEMA notifies the Rio Grande Council of Governments that the plan is compliant, the plan will be presented to elected officials of each participating jurisdiction for adoption.

On Saturday, Presidio County's first championship

Region's hazard mitigation plan being updated

By Marisa Quintanilla
Special to the Avalanche

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Marisa Quintanilla is Regional Services Director for the Rio Grande Council of Governments.

The Van Horn Advocate
Thursday, January 17, 2013
Vol. 103 Number 3

Far West Texas hazard mitigation plan update from the Rio Grande Council of Governments

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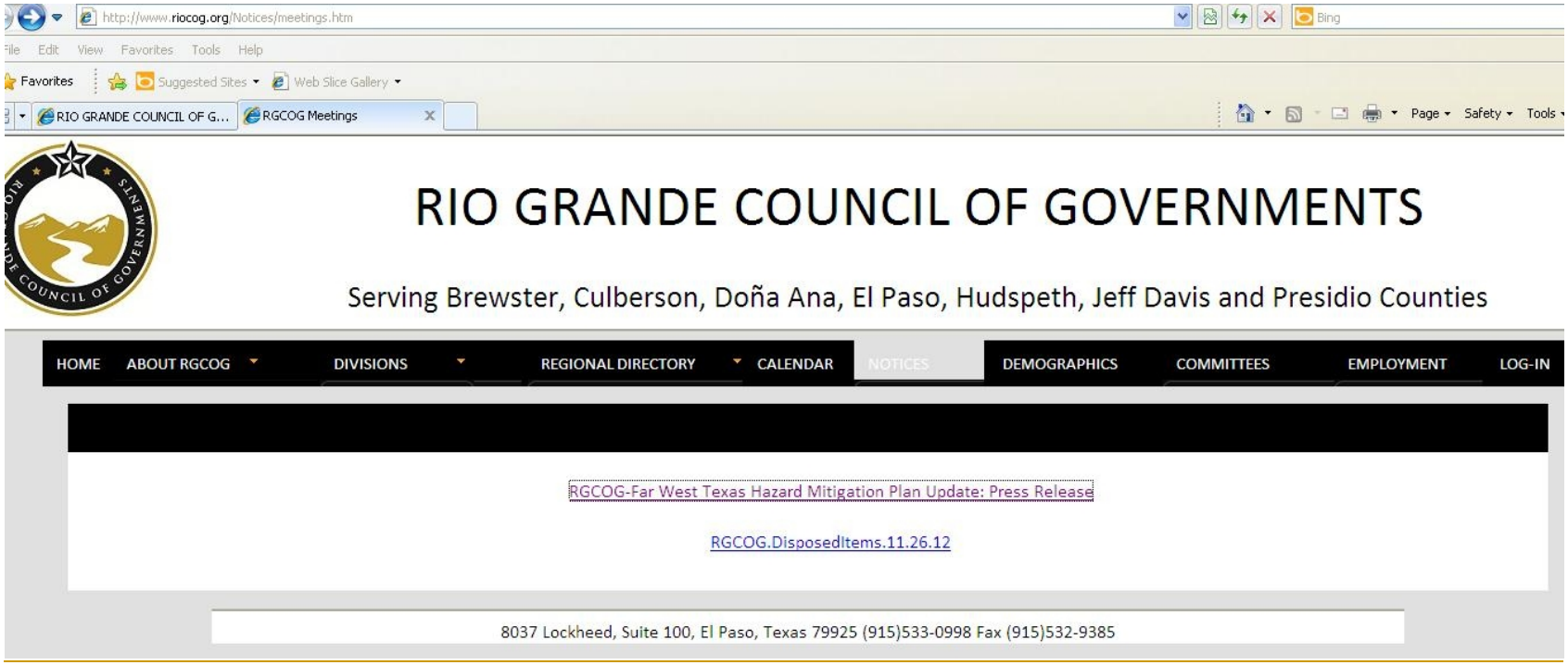
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Favorites
Suggested Sites
Web Slice Gallery
RIO GRANDE COUNCIL OF G...
RGCOG Meetings
Page
Safety
Tools
RIO GRANDE COUNCIL OF GOVERNMENTS
Serving Brewster, Culberson, Doña Ana, El Paso, Hudspeth, Jeff Davis and Presidio Counties
HOME
ABOUT RGCOG
DIVISIONS
REGIONAL DIRECTORY
CALENDAR
NOTICES
DEMOGRAPHICS
COMMITTEES
EMPLOYMENT
LOG-IN
RGCOG-Far West Texas Hazard Mitigation Plan Update: Press Release
RGCOG.DisposedItems.11.26.12
8037 Lockheed, Suite 100, El Paso, Texas 79925 (915)533-0998 Fax (915)532-9385

Far West Texas Hazard Mitigation Plan Update

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8.1.4. Example of February 2013 Review of Preliminary Draft Plan

E-mail Message to Plan Reviewers

Dear Hazard Mitigation Reviewers:

Attached please find the preliminary draft of the updated hazard mitigation plan for Jeff Davis County. The purpose of your review at this stage of the planning process is to indicate specific corrections, additions, and deletions that you'd like made to the plan.

To manage the size of attachments, the plan for Jeff Davis is provided in two separate files. The first file contains Sections 1 through 6, which present data, make the argument for mitigation, and recommend an action plan. Your review should focus on Sections 1 through 6.

Section 7 contains a long list of resources consulted by URS planners to develop the plan. Section 8 contains information about the planning process.

Please pay particular attention to the paragraphs in Section 3 titled "Future Conditions" (for Brewster, Culberson, Hudspeth, Jeff Davis, and Presidio Counties) or titled "Mitigation Accomplishments" (for El Paso County) and to Section 6, which includes the new Action Plan. Contractors tried to draft something reasonable based on what was learned at the planning meetings, but they are anxious for your input on these sections.

To save on the cost of developing the plan and because modifications are anticipated subsequent to review of the preliminary draft, the plan have not been through a technical edit. Please focus on the content of the plan and do not waste time identifying typos or suggesting ways to improve the wording.

Line numbers are included in the preliminary draft plan for ease of indicating where changes are in order. Line numbers will not be included in subsequent versions of the plan.

You may provide information about needed modifications to URS in the format that is most convenient for you. Please send the results of your review using e-mail to mary.shaw@urs.com or using regular mail to: URS Corporation, Attention Mary Shaw, 12420 Milestone Center Drive, 5th Floor, Germantown, MD 20876.

Please send your information to Mary before February 15th so that planners can then begin to make modifications and prepare the drafts that will be submitted to the State in the spring for a formal compliance review.

Please let me know if you have any questions.

Thank you,
Marisa Quintanilla
Regional Services Director

RGCOG
8037 Lockheed, Ste. 100
El Paso, Texas 79925
915.533.0998 x 119 (Office)
915.532.9385 (Fax)
Email: Marisaq@riocog.org

Distribution List for Preliminary Draft Plans

Reviewer	Plan(s) Reviewed	Reviewer	Plan(s) Reviewed
Betse Esparaza	Brewster County	Ricardo Gonzalez	El Paso County
Conrad Arreola	Brewster County	Rosalinda Horstman	El Paso County
Jesus "Chuy" Garcia	Brewster County	Ruben Vogt	El Paso County
Judge Val C. Beard	Brewster County	Susan Rodriquez	El Paso County
Fran Malafronte	Culberson County	Mayor Dale Reinhardt	El Paso County
Judge Carlos Urias	Culberson County	Martin Widtgeldt	El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, Brewster
Capt. Luis Najera	El Paso County	Ray Resendez	El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, Brewster
Carlos Enriquez	El Paso County	Bob Dickerson	Hudspeth County
Chief Scott D. Calderwood	El Paso County	Judge Doyle	Hudspeth County
David Kolberson	El Paso County	Lupe Kelly	Hudspeth County
Gilbert Saldana	El Paso County	Mayor Marcy Guillen (Dell City)	Hudspeth County
Hector Parada	El Paso County	Bart Medley	Jeff Davis County
Jessica Garza	El Paso County	Judge Grubb	Jeff Davis County
Ken Wimmer	El Paso County	Mayor Calderon	Jeff Davis County
Marc Methvin	El Paso County	David Marquez	Jeff Davis, Presidio, Brewster Counties
Marisa Quintanilla	El Paso County	Eddie Montezuma	Presidio County
Mayor Madeleine Praino	El Paso County	Gary Mitschke	Presidio County
Memo Reyes	El Paso County	Jim Mustrad	Presidio County
Michael D. Lister	El Paso County	Judge Paul Hunt	Presidio County
Michael McConnell	El Paso County	Marco Beaza	Presidio County
Pedro Hernandez	El Paso County	Mayor Dan Dunlap	Presidio County

8.1.5. February 2013
Announcement to Elected Officials

At the February 15, 2013 meeting of the RGCOG, an update on the mitigation planning process was provided. The meeting was attended by elected officials of participating jurisdictions. The mitigation planning process is item number 2 on the agenda.

Meeting Agenda

RIO GRANDE COUNCIL OF GOVERNMENTS

BOARD OF DIRECTORS MEETING

FEBRUARY 15, 2013

10:00 A.M. MST

PLACE:	*RIO GRANDE COUNCIL OF GOVERNMENTS* 8037 Lockheed, Ste. 100 El Paso, Texas 79925 (915) 533-0998
PRESIDING:	*Representative Carl Robinson* President, RGCOG
EXECUTIVE DIRECTOR:	*Annette Gutierrez*

A G E N D A

ROLL CALL AND DETERMINATION OF QUORUM

APPROVAL OF MINUTES OF THE PREVIOUS MEETING HELD ON JANUARY 18, 2012

DISCUSS AND ACT UPON AS NEEDED

REGIONAL SERVICES

1. ***Contract Amendment: URS Corporation by Marisa Quintanilla***
   Board of Directors' approval is requested to allow the RGCOG to amend its Contract with URS Corporation.

2. ***Multi-Jurisdictional Hazard Mitigation Action Plan Update, by Marisa Quintanilla***
   Update: Hazard Mitigation Action Plans for the Rio Grande Council of Governments region.

   THIS IS AN INFORMATION ITEM; NO ACTION IS REQUIRED

3. ***Texas Department of Agriculture: Program Year 2013–2014 Texas Community Development Block Grant Applications, by Marisa Quintanilla***
   The Executive Director accepted and signed several contracts from the Texas Department of Agriculture for the purpose of providing administrative assistance to the Regional Review Committees of the Panhandle Region, South Plains Region, North Texas Region and West Central Texas Region.

   THIS IS AN INFORMATION ITEM; NO ACTION IS REQUIRED

4. ***Rural Business Enterprise Grant: Anthony, NM, by Raul Gonzalez***
   Board of Directors' approval is requested to allow the Rio Grande Council of Governments to submit the Rural Business Enterprise Grant (RBEG) application.

5. ***HUD: Fair Housing Month", by Raul Gonzalez***
   Board of Directors' approval is requested to adopt a resolution recognizing April, 2013 as "Fair Housing Month".

6. ***Presidio County Intermodal Feasibility Study: Request for Proposals, by Raul Gonzalez***
Board of Directors' approval is requested to allow the Regional Services Division to seek Request for Proposals.

7. ***RGCOG First Responders Preparedness Planning Group Meeting Overview, by Michael Ada***
The First Responders Preparedness Planning Group convened on Thursday, February 14, 2013 at the Rio Grande Council of Governments.

THIS IS AN INFORMATION ITEM; NO ACTION IS REQUIRED

8. ***RGCOG SCIP Executive Delegate and Alternate Appointment, by Michael Ada***
Board of Directors' approval is requested to ratify the First Responders Preparedness Planning Group's recommendation.

ADMINISTRATIVE

9. ***Acceptance of the Annual Audit and Compliance Report for Fiscal Year Ended September 30, 2012, by Hector Diaz***
Board of Directors' acceptance is requested on the Rio Grande Council of Government's Annual Audit and Compliance Report.

EXECUTIVE DIRECTOR'S REPORT

- Attended Representative Marisa Marquez's Open House on February 1, 2013 at the Cortez Building in El Paso
- Assisting Senator Rodriguez's office with County Days in Austin- Date TBD

PRESIDENT'S REPORT

- RGCOG Board of Directors' meeting on April 19, 2013, in Marfa, Texas

ANNOUNCEMENTS

ADJOURNMENT

8.1.6. March 5, 2013 Meeting

March 5, 2013 Meeting Invitation to Representatives of Participating Jurisdictions

Regional Multi-Jurisdictional Hazard Mitigation Action Plan Update

Marisa Quintanilla [marisaq@riocog.org]
Sent: Tuesday, February 26, 2013 11:43 AM
To:

Cc: Shaw, Mary
Attachments:

Dear Group:

The Rio Grande Council of Governments in collaboration with URS will be hosting a Regional Multi-Jurisdictional Hazard Mitigation Action Plan Meeting at 9:30 a.m. on March 5, 2013 at 8037 Lockheed, Ste. 100 El Paso, Texas 79925.

Attached is the Agenda for your review.

Since the meeting is open to the public, please disseminate the meeting notice your constituents.

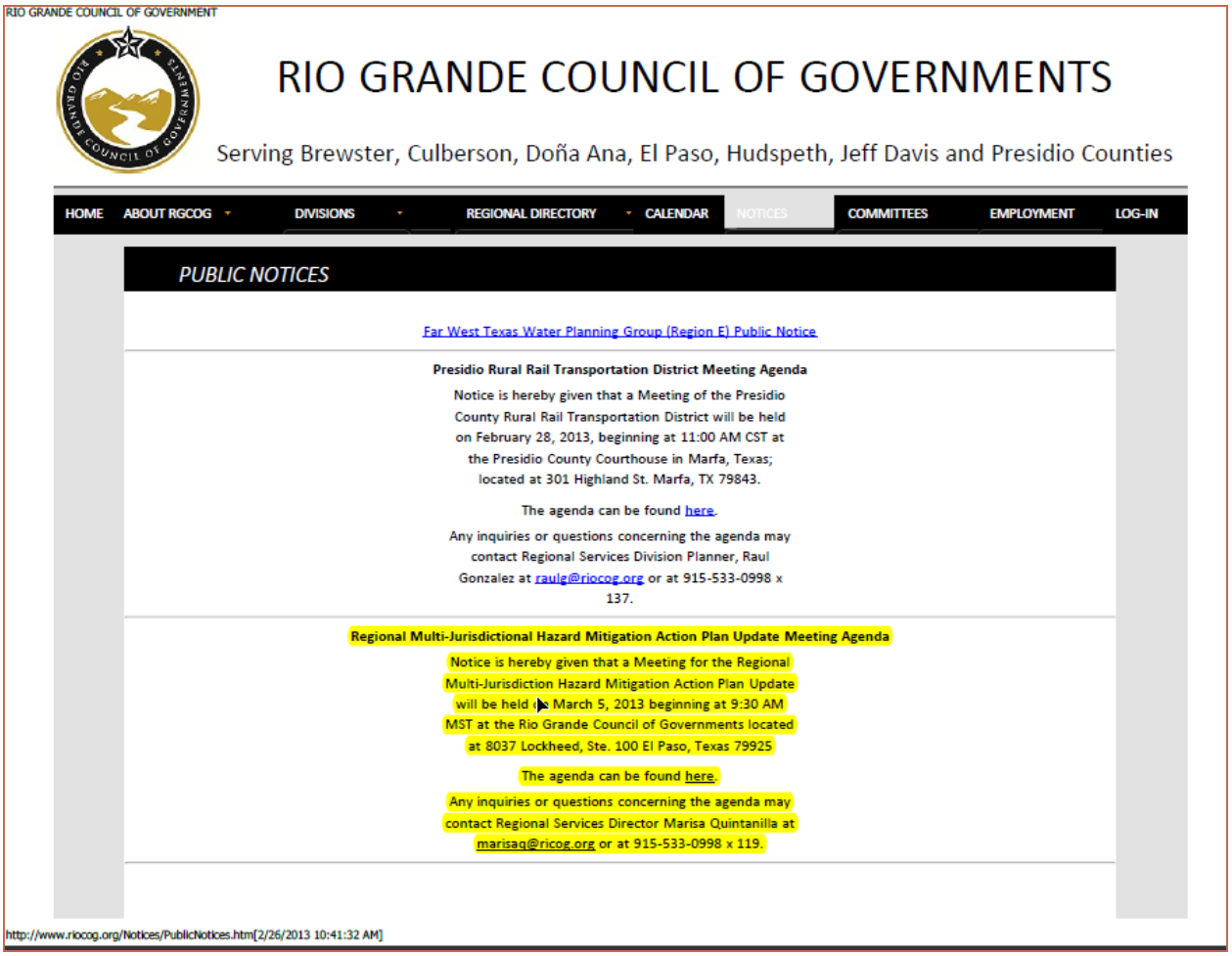
Thank you,

Marisa Quintanilla
Regional Services Director
RGCOG
8037 Lockheed, Ste. 100
El Paso, Texas 79925
915.533.0998 x 119 (Office)
915.532.9385 (Fax)
Email: Marisaq@riocog.org

Invitations to each meeting were issued to the public by local officials through e-mail, telephone calls, and signs being posted in public places (local municipal office building and County office). Documentation of the planning process is not available for invitations beyond those that originated with the RGCOG.

March 5, 2013 Mitigation Planning Meeting Public Announcements

1. Rio Grande Council of Governments Web Page



2. Horizon City Police Department Web site; the same message was also posted on bulletin boards at City Hall and the Police Department in Horizon City

Speed Trailer Request
Submit a Crime Tip
Careers at HCPD

Vacation Watch Request
TIP411
Citizen Police Academy

- Home
- Chief of Police
- Careers at HCPD
- Important Links
- Citizen Police Academy
- Speed Trailer Request
- Police Explorer Program
- Movies in the Park
- Crime Prevention Tips
- Mission Statement
- Monthly and Annual Reports
- Vacation Watch Request
- Submit a Crime Tip
- Report Graffiti
- Crime Prevention
- Teen Dating Violence Awareness
- Code Enforcement
- Contact Us
- Block Party Permit Request

Thank you for helping make the Movies at The Park Summer Series a great success! We will be back next summer! For information on how to sponsor a movie please contact Officer Marie Casillas at mcasillas@horizoncity.org.

Rio Grande Council of Governments Meeting Notice (Click here to read the meeting notice)

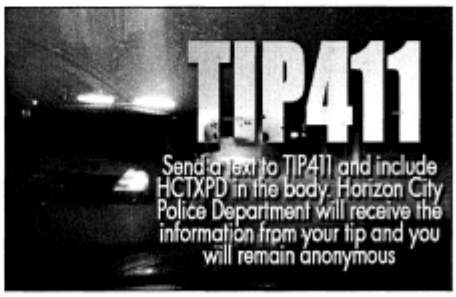
Regional Multi-Jurisdictiona lHazard mitigation Action Plan Update

Rio Grande Council of Governments

8037 Lockheed, Suite 100

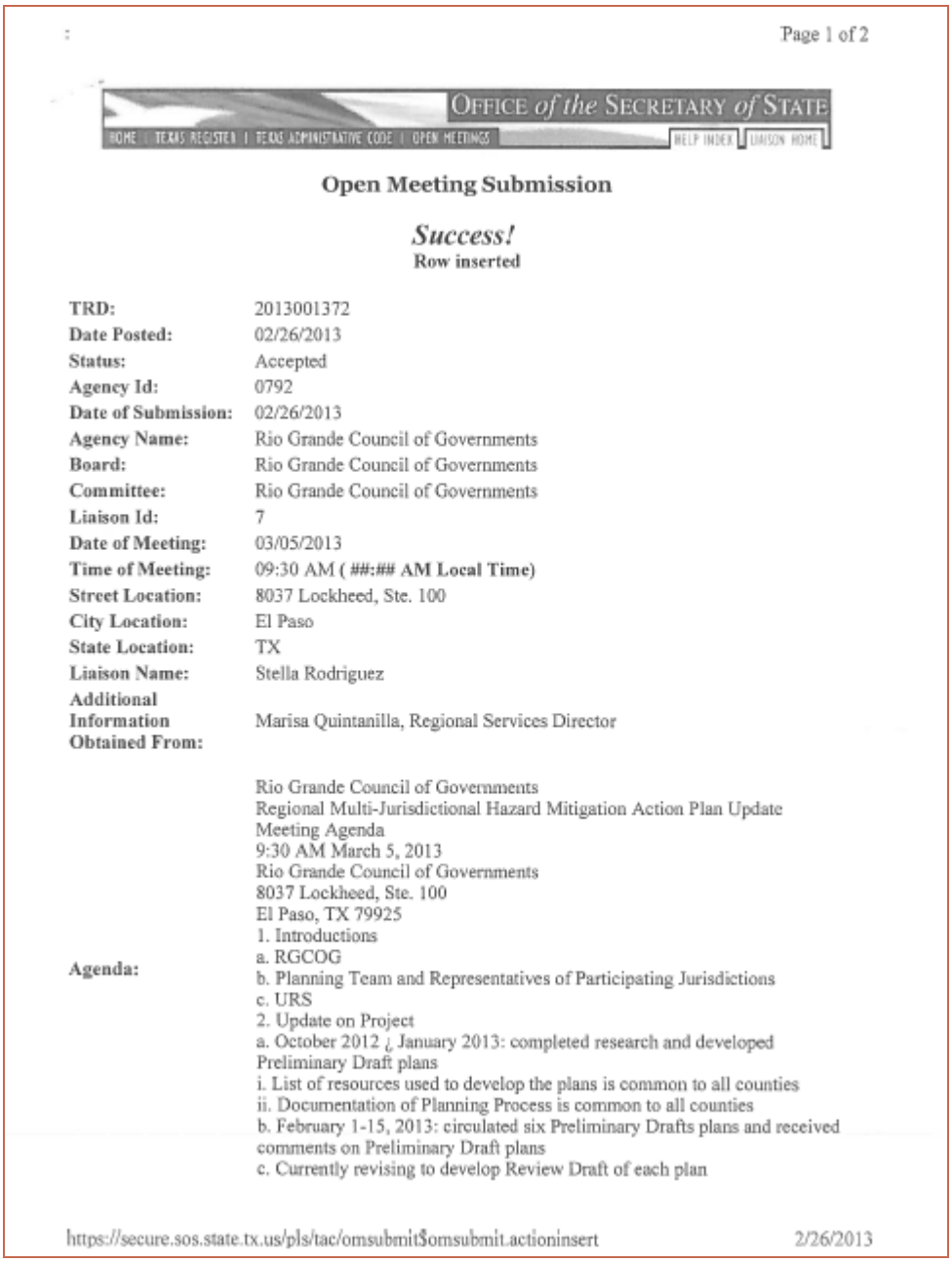
El Paso Texas

March 5, 2013 9:30 am



3. Horizon City Facebook Page

4. Office of the Texas Secretary of State Web Site



OFFICE *of the* SECRETARY *of* STATE

HOME | TEXAS REGISTER | TEXAS ADMINISTRATIVE CODE | OPEN MEETINGS | HELP INDEX | LIAISON HOME

Open Meeting Submission

Success!
Row inserted

TRD:	2013001372
Date Posted:	02/26/2013
Status:	Accepted
Agency Id:	0792
Date of Submission:	02/26/2013
Agency Name:	Rio Grande Council of Governments
Board:	Rio Grande Council of Governments
Committee:	Rio Grande Council of Governments
Liaison Id:	7
Date of Meeting:	03/05/2013
Time of Meeting:	09:30 AM **(##:## AM Local Time)**
Street Location:	8037 Lockheed, Ste. 100
City Location:	El Paso
State Location:	TX
Liaison Name:	Stella Rodriguez
Additional Information Obtained From:	Marisa Quintanilla, Regional Services Director
Agenda:	Rio Grande Council of Governments Regional Multi-Jurisdictional Hazard Mitigation Action Plan Update Meeting Agenda 9:30 AM March 5, 2013 Rio Grande Council of Governments 8037 Lockheed, Ste. 100 El Paso, TX 79925 1. Introductions a. RGCOG b. Planning Team and Representatives of Participating Jurisdictions c. URS 2. Update on Project a. October 2012 ¿ January 2013: completed research and developed Preliminary Draft plans i. List of resources used to develop the plans is common to all counties ii. Documentation of Planning Process is common to all counties b. February 1-15, 2013: circulated six Preliminary Drafts plans and received comments on Preliminary Draft plans c. Currently revising to develop Review Draft of each plan

3. Meeting Today
a. Review Mitigation Strategies
b. Discussion Questions
i. Are recommended mitigation actions reasonable?
ii. Are recommendations for responsible parties reasonable?
iii. What additional mitigation actions / projects should be included in the plan?

1. E.g., elevations, acquisitions, saferoom, structural retrofit, non-structural retrofit, project creating ¿defensible space¿ by removing flammable vegetation, installation of non-combustible roofing
2. Must be specific (location, number of structures¿)
4. Next Steps
a. Submit Review Draft of each plan to Texas State Hazard Mitigation Officer / FEMA Region 6
b. Receive ¿approvable pending adoption¿ status of plan from FEMA Region 6

c. Provide Final Draft of each plan to elected officials of each jurisdiction for adoption

New

5. City of El Paso Web Site

March 5, 2013 Mitigation Planning Meeting Agenda

Rio Grande Council of Governments

Regional Multi-Jurisdictional Hazard Mitigation Action Plan Update Meeting Agenda

9:30 AM March 5, 2013

Rio Grande Council of Governments
8037 Lockheed, Ste. 100
El Paso, TX 79925

1. Introductions
    a. RGCOG
    b. Planning Team and Representatives of Participating Jurisdictions
    c. URS
2. Update on Project
    a. October 2012 – January 2013: completed research and developed Preliminary Draft plans
        i. List of resources used to develop the plans is common to all counties
        ii. Documentation of Planning Process is common to all counties
    b. February 1-15, 2013: circulated six Preliminary Drafts plans and received comments on Preliminary Draft plans
    c. Currently revising to develop Review Draft of each plan
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    b. Discussion Questions
        i. Are recommended mitigation actions reasonable?
        ii. Are recommendations for responsible parties reasonable?
        iii. What additional mitigation actions / projects should be included in the plan?
            1. E.g., elevations, acquisitions, safe room, structural retrofit, non-structural retrofit, project creating “defensible space” by removing flammable vegetation, installation of non-combustible roofing
            2. Must be specific (location, number of structures…)
4. Next Steps
    a. Submit Review Draft of each plan to Texas State Hazard Mitigation Officer / FEMA Region 6
    b. Receive “approvable pending adoption” status of plan from FEMA Region 6
    c. Provide Final Draft of each plan to elected officials of each jurisdiction for adoption

March 5, 2013 Mitigation Planning Meeting Notes

Introductions were made with representatives of the Town of Vinton, City and County of El Paso, Town of Clint, Hudspeth County, Town of Horizon City, City of Socorro, and Town of Anthony as well as the Rio Grande Council of Governments and the U.S. Bureau of Reclamation.

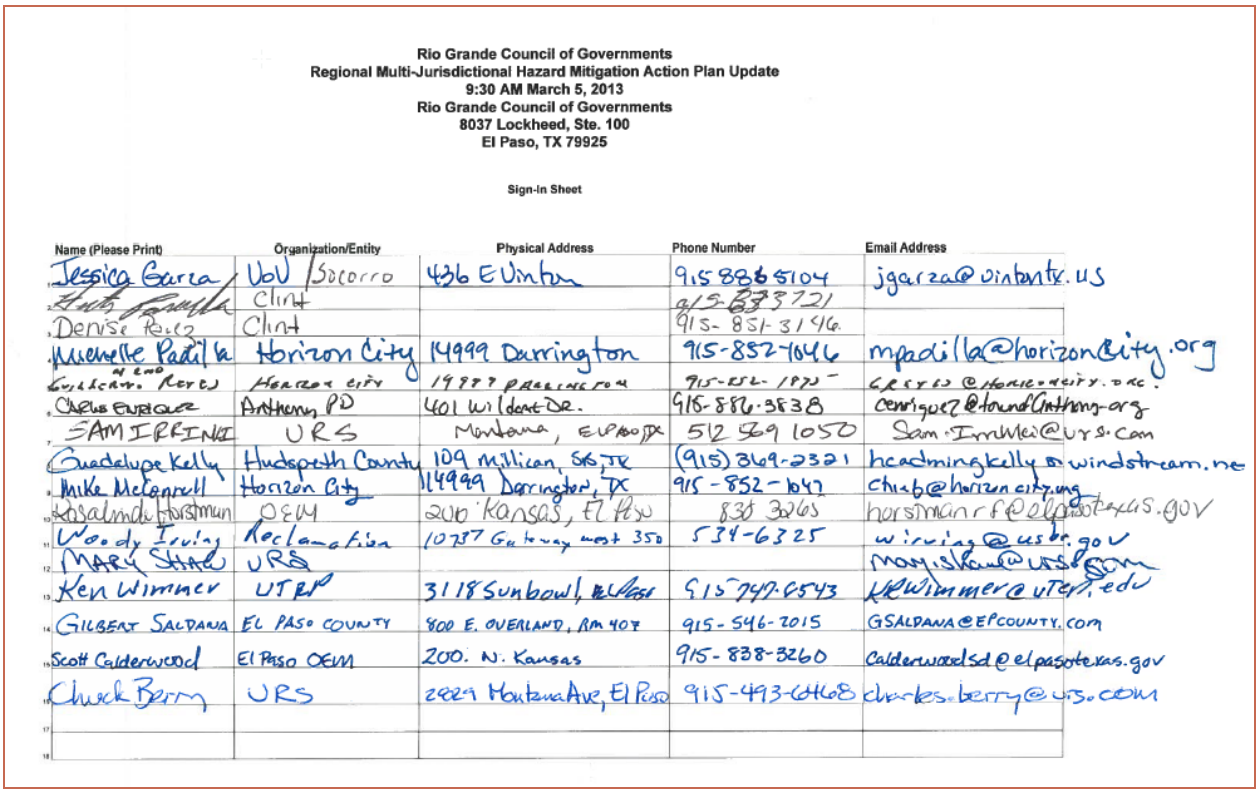
The progress made to date in the work of updating the hazard mitigation plans was reviewed as was the schedule for reviews by the State and FEMA Region 6.

Meeting participants discussed some specific projects that could be added to the plan and determined that the need for flood mitigation projects in Vinton due to modification of levees along the Rio Grande should be added to the plan. El Paso City/County Emergency Management requested that a separate section of the plan explain that a Threat and Hazard Identification and Risk Assessment has already been developed that addresses manmade and technological hazards. The Town of Vinton indicated that it will be updating zoning codes and will be incorporating floodplain management strategies into the codes and that this should be cited in the plan.

University of Texas and Hudspeth County requested that opportunities for comment on the plan be extended until March 15th.

URS contractors specified that in the next few weeks, requested modifications will be made to draft plans, a cover will be designed for the plans, the section describing the planning process will be updated to account for the March 5th meeting, and the Plan Review Tool will be used to create a review document for each plan that directs the State or FEMA reviewer to relevant sections of the plan.

March 5, 2013 Mitigation Planning Meeting Sign-in Sheet



Rio Grande Council of Governments
Regional Multi-Jurisdictional Hazard Mitigation Action Plan Update
9:30 AM March 5, 2013
Rio Grande Council of Governments
8037 Lockheed, Ste. 100
El Paso, TX 79925

Sign-In Sheet

Name (Please Print)	Organization/Entity	Physical Address	Phone Number	Email Address
Jessica Garcia	VoV / Socorro	436 E Vinton	915 886 5104	jgarza@vintontx.us
[illegible]	Clint		915-873721	
Denise Reyes	Clint		915-851-3146	
Michelle Padilla	Horizon City	14999 Darrington	915-852-1046	mpadilla@horizoncity.org
Guillermo Reyes	Horizon City	14999 Darrington	915-852-1046	greyes@horizoncity.org
Carlos Enriquez	Anthony PD	401 Wildcat Dr.	915-886-3838	cenriquez@townofanthony.org
Sam Irrinki	URS	Montana, El Paso TX	512 569 1050	Sam.Irrinki@urs.com
Guadalupe Kelly	Hudspeth County	109 Millican, Sts, TX	(915) 369-2321	hcadmingkelly@windstream.net
Mike McConnell	Horizon City	14999 Darrington, TX	915-852-1047	chiefb@horizoncity.org
Rosalinda Horstman	OEM	200 Kansas, El Paso	830 3265	horstmanr@elpasotexas.gov
Woody Irving	Reclamation	10737 Gateway west 350	534-6325	wirving@usbr.gov
Mary Stahl	URS			mary.stahl@urs.com
Ken Wimmer	UTEP	3118 Sunbowl, El Paso	915 747-6543	kpwimmer@utep.edu
Gilbert Saldana	El Paso County	800 E. Overland, Rm 407	915-546-2015	GSALDANA@EPCOUNTY.com
Scott Calderwood	El Paso OEM	200. N. Kansas	915-838-3260	calderwoodsd@elpasotexas.gov
Chuck Berry	URS	2929 Montana Ave, El Paso	915-493-6468	charles.berry@urs.com

8.2. Plan Adoption

When Resolutions of Adoption are signed, copies will be inserted here. A template of a Resolution of Adoption is included as a placeholder until the plan is deemed to be approvable-pending-adoption by FEMA Region VI.

Resolution of Adoption
Hazard Mitigation Plan Update
Resolution Number ____

_____, TX

WHEREAS the local governing body recognizes the threat that natural hazards pose to people and property within the community; and

WHEREAS the Rio Grande Council of Governments has worked with community officials and residents to update the hazard mitigation plan that recommends actions that will reduce the potential for damage due to natural hazards; and

WHEREAS the plan has been reviewed by community residents, business owners, and representatives of Federal, state, and local agencies to reflect their concerns;

BE IT RESOLVED THAT

The plan is hereby adopted as an official plan of the community; and

The RGCOG is established as a permanent custodian of the plan with the responsibility of monitoring mitigation actions and updating the plan.

Passed this _____ day of _____, 2014

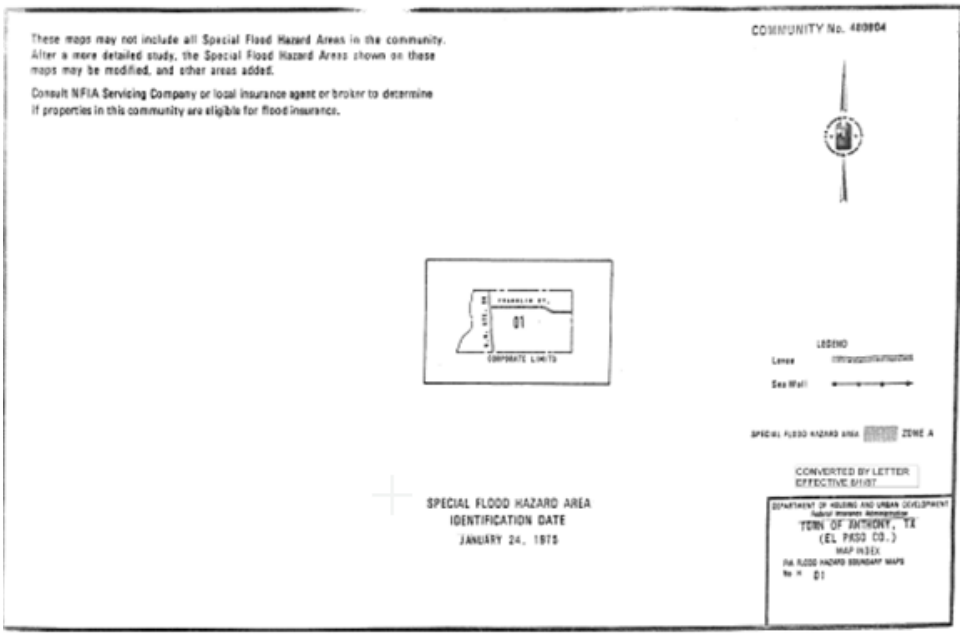
_____ _____

Attachment to El Paso County Hazard Mitigation Plan

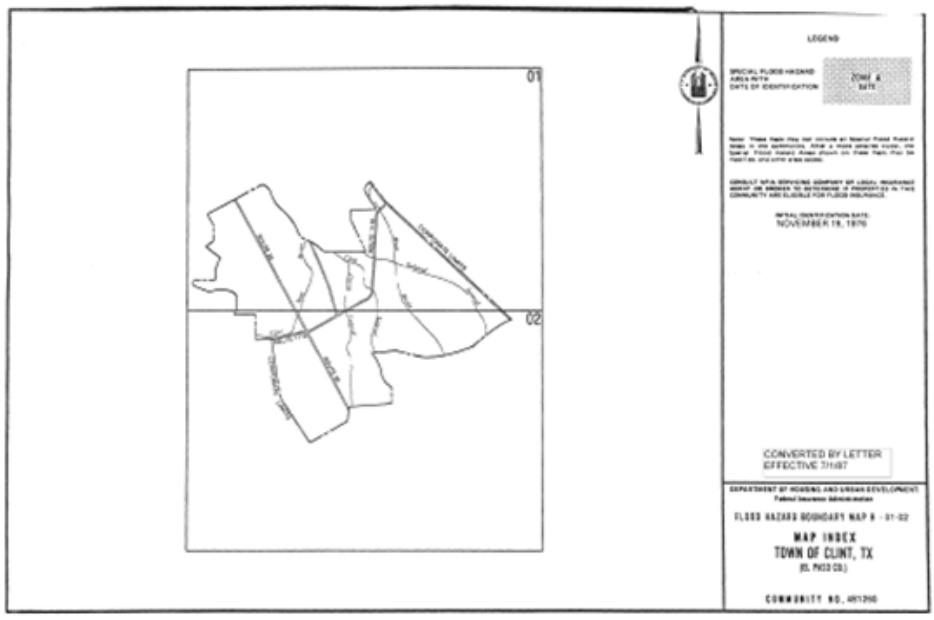
Contents

Flooding

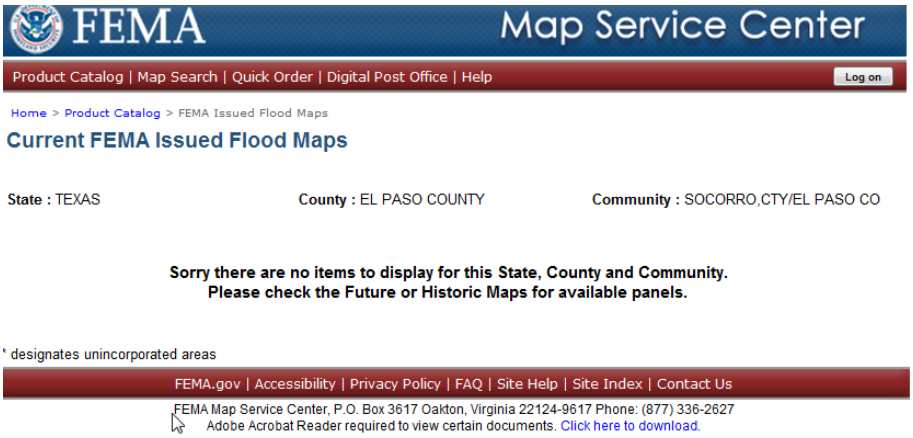
Flood Insurance Rate Maps are displayed below for some of the participating jurisdictions.



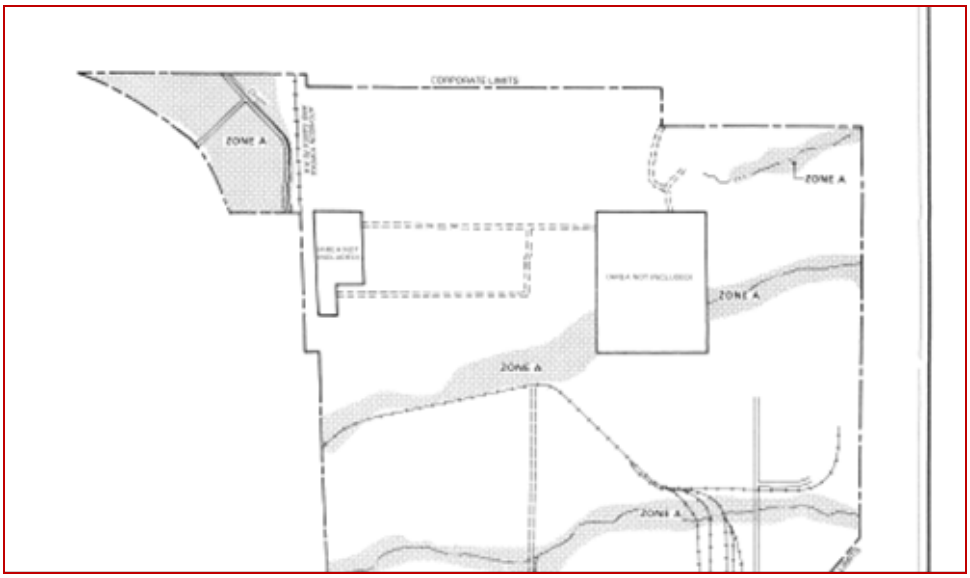
FIRM for Town of Anthony, retrieved from FEMA Map Service Center March 31, 2014



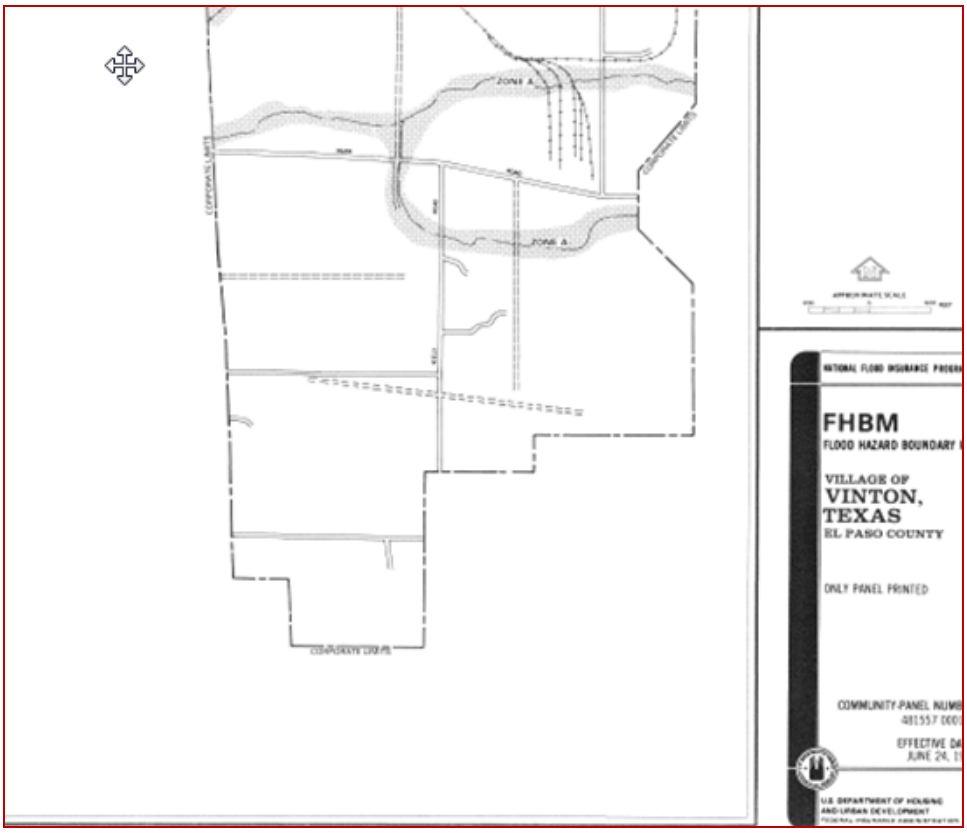
FIRM for Town of Clint, retrieved from FEMA Map Service Center March 31, 2014



FEMA Map Service Center does not have a FIRM for the City of Socorro; image retrieved March 31, 2014



FIRM for northern part of the Town of Vinton retrieved from FEMA Map Service Center March 31, 2014



FIRM for southern half of the Town of Vinton retrieved from FEMA Map Service Center March 31, 2014

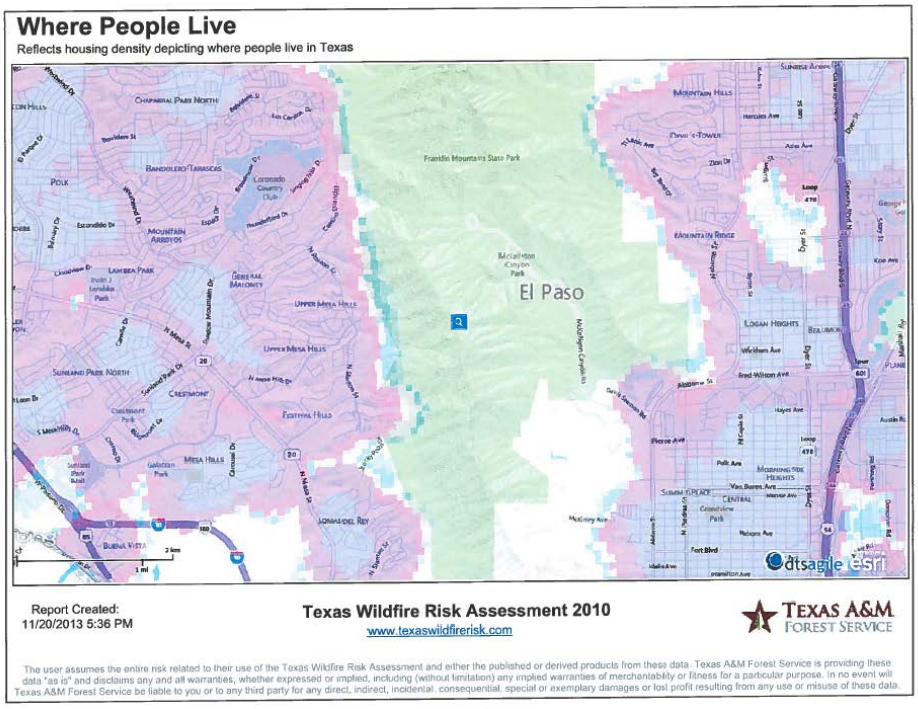
There are 21 FIRMs for the City of El Paso and El Paso County. These are listed below but are not displayed. Each can be viewed from the FEMA Map Service Center, https://msc.fema.gov/webapp/wcs/stores/servlet/CategoryDisplay.

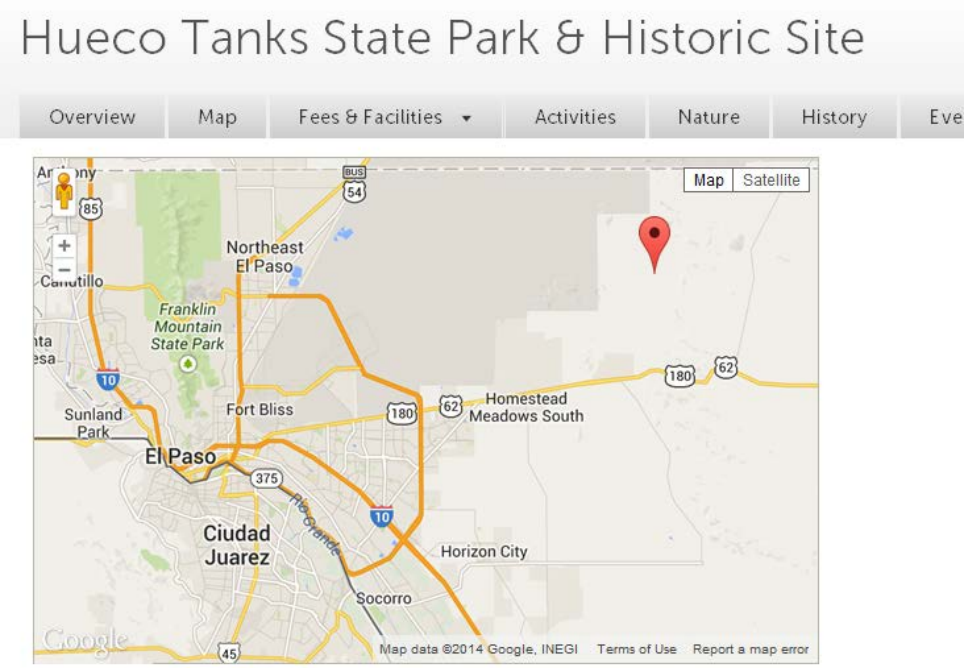
4802120025B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120050B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120075B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120100B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120125B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120150B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120175B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120200B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120236B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120237B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120239B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120250B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120275B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120277B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120279B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120281B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120283B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120300B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120325B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991

4802120350B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991
4802120375B	FLOOD INSURANCE RATE MAP (FIRM)	09/04/1991

Wildfire

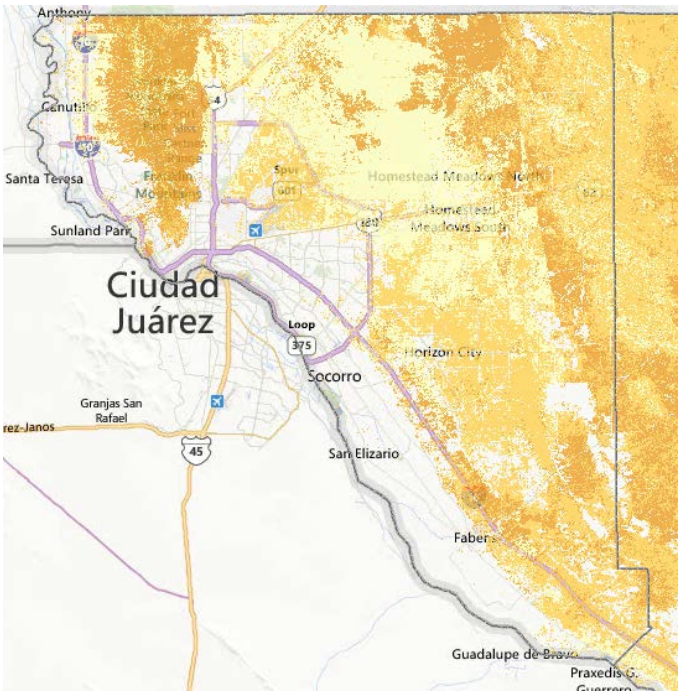
Figures below show that wildfire risk in El Paso County exists in the Franklin Mountains State Park, which is only sparsely developed and Hueco Tanks State Park, which is undeveloped.





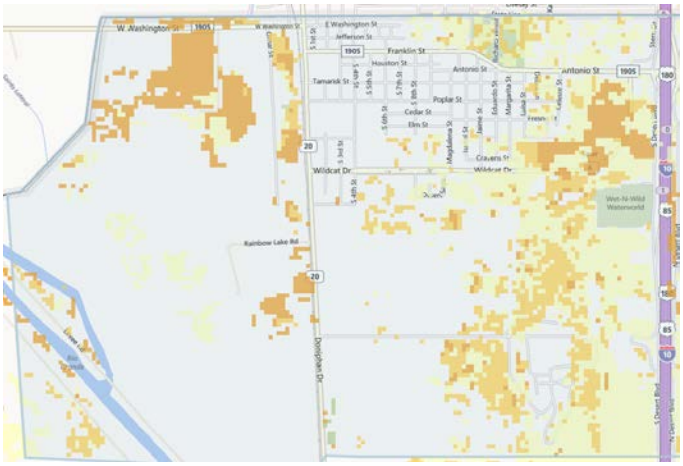
Source http://www.tpwd.state.tx.us/state-parks/hueco-tanks/map/, accessed Marcy 31, 2014

Figure below shows the Texas Wildfire Risk Assessment 2010

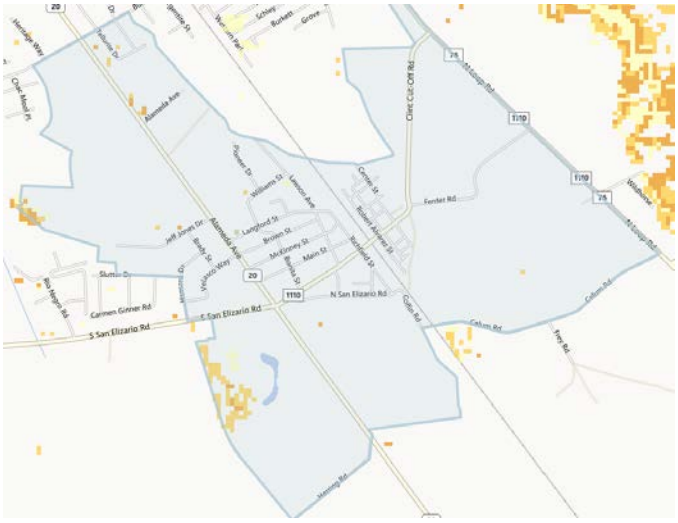


Characteristic Fire Intensity Scale for El Paso County from Texas Wildfire Risk Assessment 2010, retrieved march 31, 2014 from www.texaswildfirerisk.com.

Legend for Fire Intensity Scale Map (areas in white have no risk of wildfire)



Texas Wildfire Risk Assessment 2010 for Town of Anthony showing no risk of wildfire



Texas Wildfire Risk Assessment 2010 for Town of Clint showing no risk of wildfire

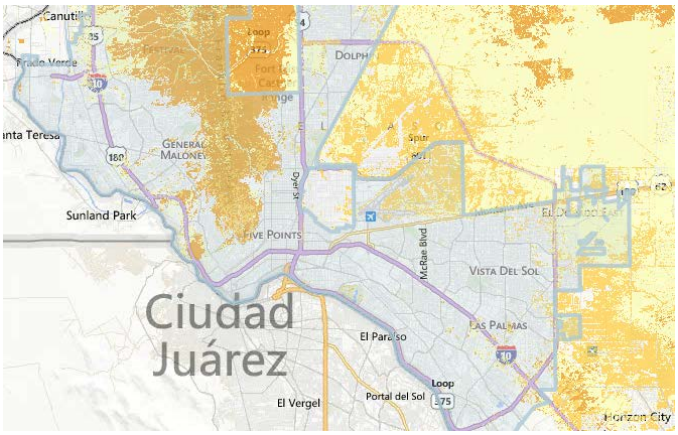
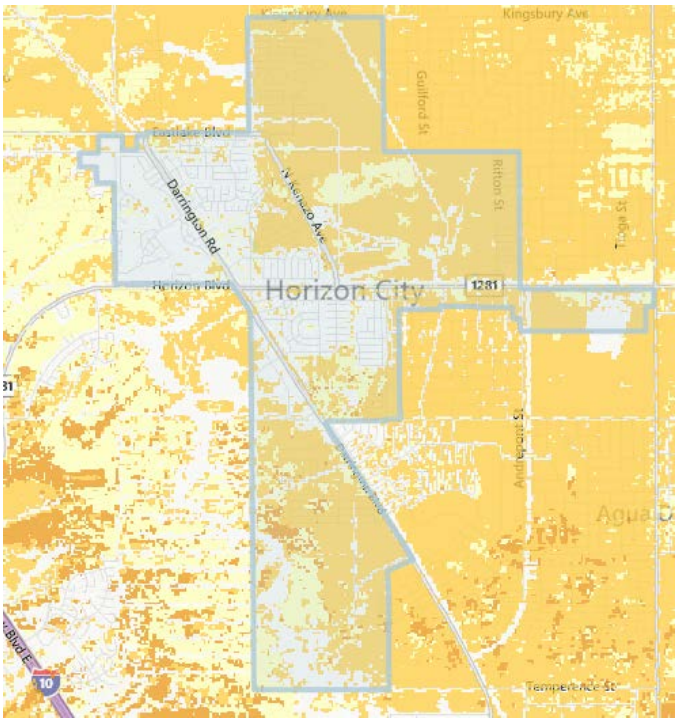
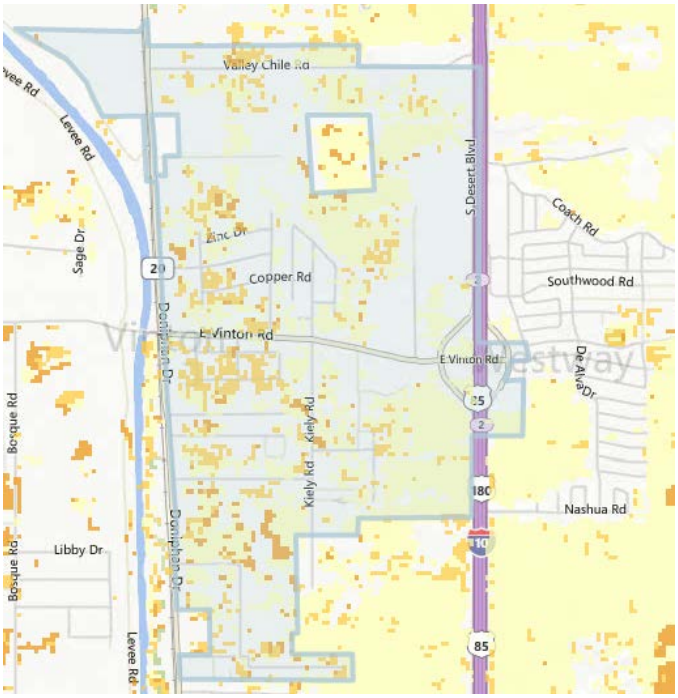


Figure 6 Texas Wildfire Risk Assessment 2010 map zoomed in on City of El Paso showing that areas in darker color with higher risk of wildfire are the Franklin Mountains State Park



Texas Wildfire Risk Assessment 2010 for Horizon City showing no or low risk of wildfire in developed areas

Texas Wildfire Risk Assessment 2010 for City of Socorro showing no risk of wildfire in developed areas



Texas Wildfire Risk Assessment 2010 for Town of Vinton showing no or low risk of wildfire

The State of Texas Wildfire Risk Assessment user manual (Texas A7M Forest Service, October 2012, pages 60 and 61, accessed January 26, 2014 at http://www.texaswildfirerisk.com/help/txwrap_user_manual.pdf) defines five classes of wildfire risk:

1. **Class 1, Very Low:** Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment.

2. **Class2, Low:** Small flames, usually less than two feet long; small amount of very short range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools.

3. **Class 3, Moderate:** Flames up to 8 feet in length; short-range spotting is possible. Trained firefighters will find these fires difficult to suppress without support from aircraft or engines, but dozer and plows are generally effective. Increasing potential for harm or damage to life and property

4. **Class 4, High:** Large Flames, up to 30 feet in length; short-range spotting common; medium range spotting possible. Direct attack by trained firefighters, engines, and dozers is generally ineffective, indirect attack may be effective. Significant potential for harm or damage to life and property

5. **Class 5, Very High:** Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire; great potential for harm or damage to life and property

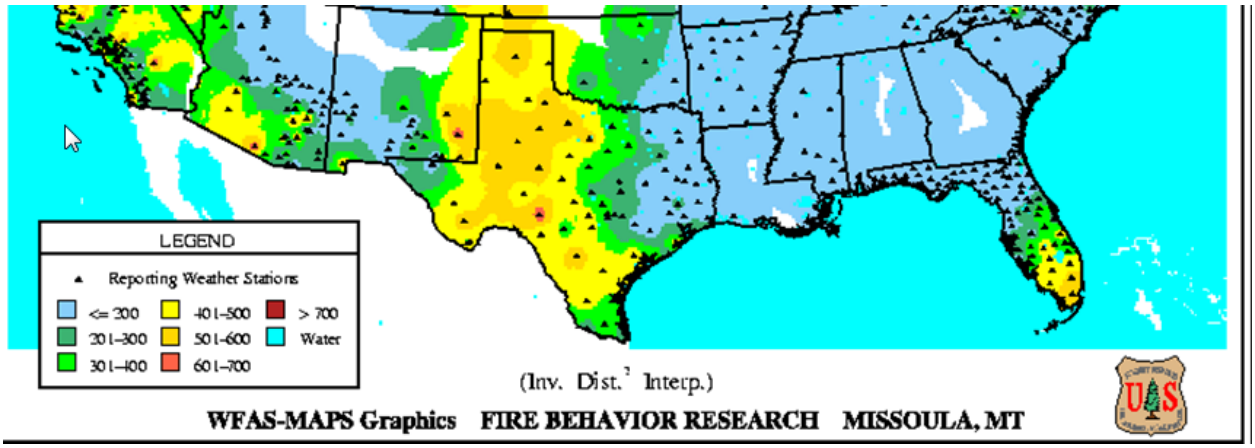
Drought

The Keetch-Byram Index is another way of identifying current drought conditions in a location.

The Keetch-Byram scale is:

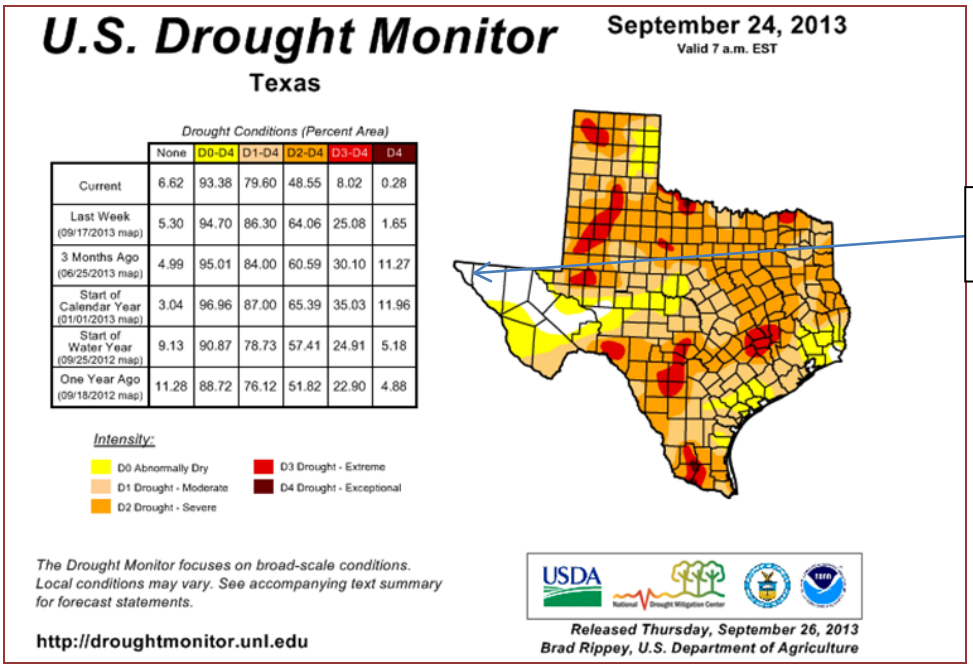
- KBDI = 0 - 200: Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity. Typical of spring dormant season following winter precipitation.
- KBDI = 200 - 400: Typical of late spring, early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.
- KBDI = 400 - 600: Typical of late summer, early fall. Lower litter and duff layers actively contribute to fire intensity and will burn actively.
- KBDI = 600 - 800: Often associated with more severe drought with increased wildfire occurrence. Intense, deep burning fires with significant downwind spotting can be expected. Live fuels can also be expected to burn actively at these levels.

The Keetch-Byram index shown in figure below for March 31, 2014 shows that El Paso County and participating jurisdictions as blue and dark green with normal amounts of moisture, typical of spring.



From http://www.wfas.net/index.php/keetch-byram-index-moisture--drought-49, January 25, 2014

Figure 2 below shows El Paso County to be normal relative to drought conditions on September 24, 2013. The graphic will change on the Internet as conditions change. (Source is: http://droughtmonitor.unl.edu/DM_state.htm?TX,S)



Drought Monitor

The magnitude or severity of drought can be measured objectively using the Palmer Drought Severity Index, which was developed in 1965 to measure duration and intensity of long-term drought conditions.

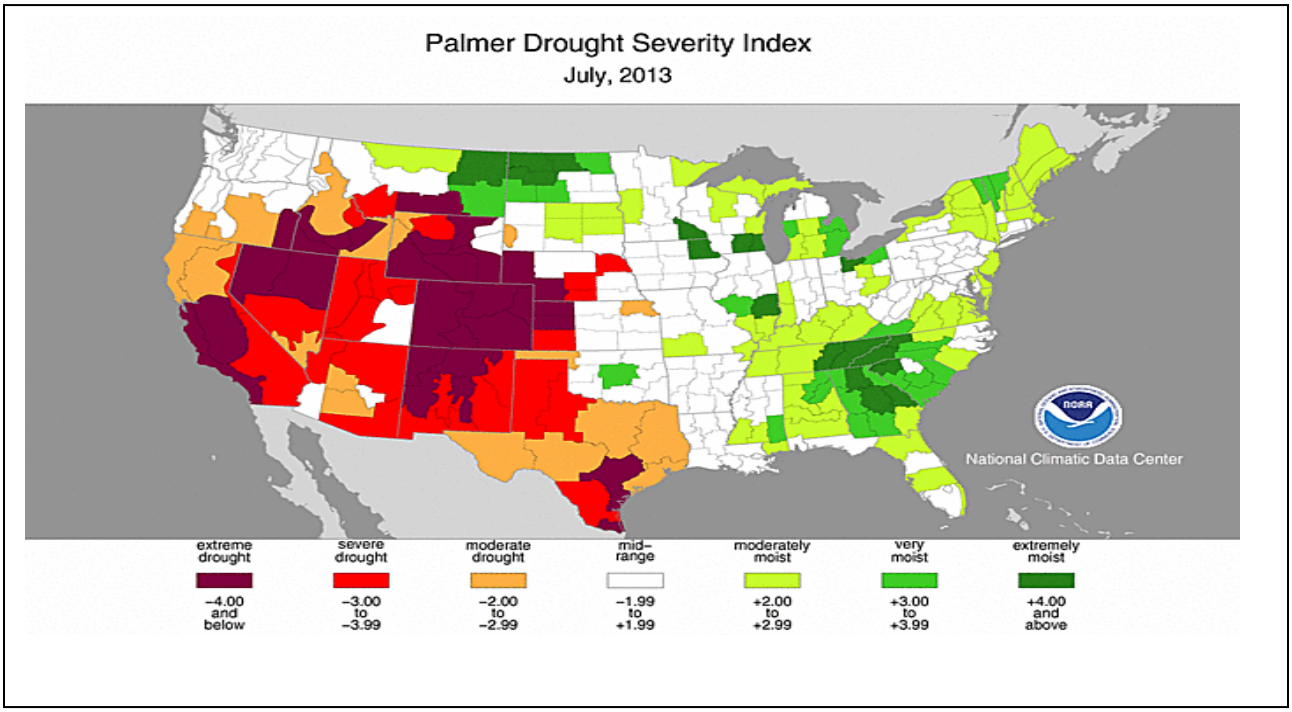


Figure 2a: Palmer Drought Severity Index

Extreme Temperatures

Extreme Heat

The figure below shows that combinations of high heat an dhumidity contribute to the likelihood of a heat disorder (Source: http://www.nws.noaa.gov/os/heat/index.shtml#heatindex, retrieved September 26, 2013)

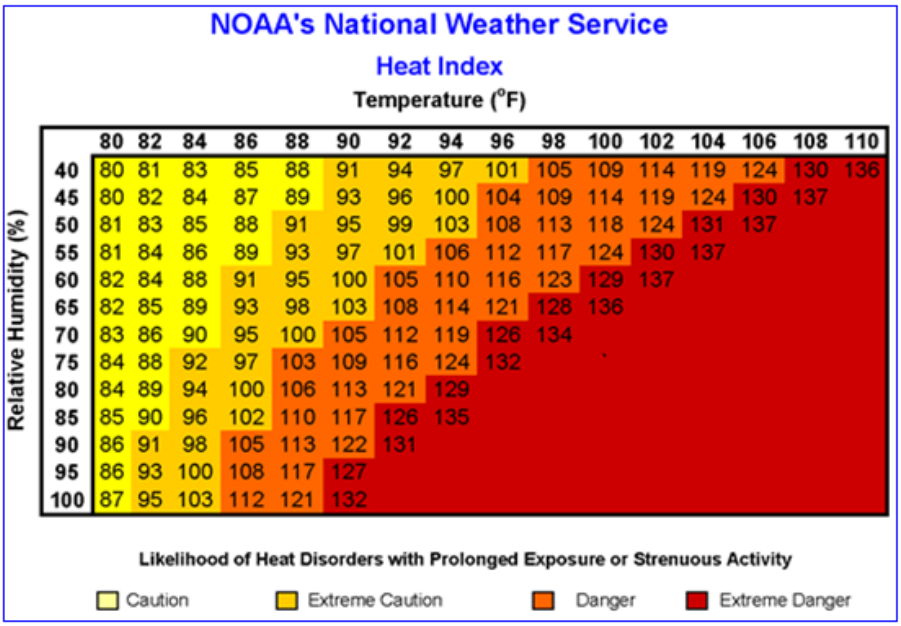


Figure 3: Heat Index

Figure 3 shows that combinations of heat and humidity lead to the likelihood of a heat disorder (Source: http://www.nws.noaa.gov/os/heat/index.shtml#heatindex, retrieved Sept 26 2013)

Extreme Cold

The figure below shows that cold temperatures in combination with wind can lead to frostbite for various periods of exposure (Source: http://www.nws.noaa.gov/om/windchill/index.shtml, retrieved September 26, 2013)

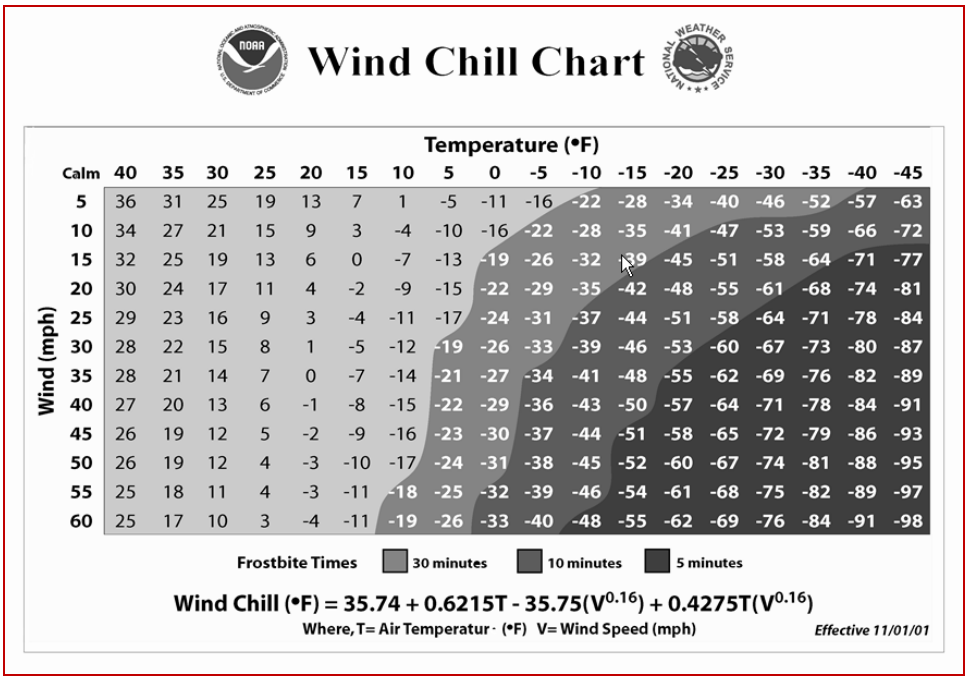


Figure 4: Wind Chill Chart

Snow

Figure below, the Regional Snowfall Index (RSI) shows that snow fall of under 3 inches is notable, but not damaging (Source: http://www.ncdc.noaa.gov/snow-and-ice/rsi\?nesis, retrieved September 2, 2013)

Category	RSI Value	Description
1	1–3	Notable
2	3–6	Significant
3	6–10	Major
4	10–18	Crippling
5	18.0+	Extreme

Figure 5: Regional Snowfall Index

The figure below shows that the impact of snow varies depending on the amount of wind that occurs as the snow falls. It shows that with snow measuring less than 11 inches and wind below 25 miles per hour, impacts are minimal (Source: Texas Department of Emergency Management, September 2013)

WINTER STORM CATEGORY

MARTIN WINTER STORM CATEGORY SCALE ...

CATEGORY	SNOW	WIND	IMPACT
ONE	6-11"	15-24	MINIMAL
TWO	12-17"	25-38	MODERATE
THREE	18-23"	39-57	MAJOR
FOUR	24-29"	58-73	EXTENSIVE
FIVE	30"+	74+	CATASTROPHIC

Winter Storm Category Table

Wind

The table below provides the data that were available through NCDC on location of wind events in the County and participating jurisdictions.

BGN_DATE	STATE	COUNTYNAME	EVTYPE	BGN_LOCATI	END_LOCATI
20-JUN-07	TX	EL PASO	THUNDERSTORM WIND	(ELP)EL PASO INTL AR	
13-JUL-07	TX	EL PASO	THUNDERSTORM WIND	(ELP)EL PASO INTL AR	
13-JUL-07	TX	EL PASO	THUNDERSTORM WIND	BIGGS AFB	
20-JUL-07	TX	EL PASO	THUNDERSTORM WIND	(ELP)EL PASO INTL AR	
20-JUL-07	TX	EL PASO	THUNDERSTORM WIND	(ELP)EL PASO INTL AR	
06-AUG-07	TX	EL PASO	THUNDERSTORM WIND	FABENS	
31-AUG-07	TX	EL PASO	THUNDERSTORM WIND	EL PASO	
28-SEP-07	TX	EL PASO	THUNDERSTORM WIND	(ELP)EL PASO INTL AR	
28-SEP-07	TX	EL PASO	THUNDERSTORM WIND	(ELP)EL PASO INTL AR	
12-AUG-08	TX	EL PASO	THUNDERSTORM WIND	EL PASO INTL ARPT	
20-AUG-08	TX	EL PASO	THUNDERSTORM WIND	SOCORRO	
22-JUL-09	TX	EL PASO	THUNDERSTORM WIND	SOCORRO	
19-SEP-09	TX	EL PASO	THUNDERSTORM WIND	TOBIN	
06-JUN-10	TX	EL PASO	THUNDERSTORM WIND	TOBIN	
28-JUN-10	TX	EL PASO	THUNDERSTORM WIND	TOBIN	
16-JUL-10	TX	EL PASO	THUNDERSTORM WIND	EL PASO	
13-AUG-10	TX	EL PASO	THUNDERSTORM WIND	FABENS ARPT	
01-JUN-11	TX	EL PASO	THUNDERSTORM WIND	MONTOYA	
01-JUN-11	TX	EL PASO	THUNDERSTORM WIND	TOBIN	
26-JUL-11	TX	EL PASO	THUNDERSTORM WIND	(ELP)EL PASO INTL AR	
28-JUL-11	TX	EL PASO	THUNDERSTORM WIND	(ELP)EL PASO INTL AR	
17-AUG-11	TX	EL PASO	THUNDERSTORM	(ELP)EL PASO	

			WIND	INTL AR	
15-SEP-11	TX	EL PASO	THUNDERSTORM WIND	BIGGS AFB	
15-SEP-11	TX	EL PASO	THUNDERSTORM WIND	CANUTILLO	
15-JUN-12	TX	EL PASO	THUNDERSTORM WIND	SMELTERTOWN	
15-JUN-12	TX	EL PASO	THUNDERSTORM WIND	TOBIN	
03-AUG-93	TX	EL PASO	THUNDERSTORM WINDS	El Paso	Horizon City
01-JUN-94	TX	EL PASO	THUNDERSTORM WINDS	El Paso	
08-AUG-95	TX	EL PASO	THUNDERSTORMW	El Paso	
23-JUL-57	TX	EL PASO	TSTM WIND		
08-SEP-61	TX	EL PASO	TSTM WIND		
26-JUL-66	TX	EL PASO	TSTM WIND		
27-JUL-66	TX	EL PASO	TSTM WIND		
18-JUL-68	TX	EL PASO	TSTM WIND		
05-SEP-70	TX	EL PASO	TSTM WIND		
12-JUL-72	TX	EL PASO	TSTM WIND		54545.45455
18-AUG-72	TX	EL PASO	TSTM WIND		
30-JUN-74	TX	EL PASO	TSTM WIND		
22-JUN-76	TX	EL PASO	TSTM WIND		
26-SEP-76	TX	EL PASO	TSTM WIND		
29-JUN-77	TX	EL PASO	TSTM WIND		
08-JUL-77	TX	EL PASO	TSTM WIND		
14-AUG-77	TX	EL PASO	TSTM WIND		
24-AUG-77	TX	EL PASO	TSTM WIND		
21-OCT-78	TX	EL PASO	TSTM WIND		
31-JUL-79	TX	EL PASO	TSTM WIND		
27-JUL-81	TX	EL PASO	TSTM WIND		
22-JUN-86	TX	EL PASO	TSTM WIND		
19-JUL-86	TX	EL PASO	TSTM WIND		
13-AUG-86	TX	EL PASO	TSTM WIND		
13-SEP-87	TX	EL PASO	TSTM WIND		
22-AUG-88	TX	EL PASO	TSTM WIND		
20-SEP-88	TX	EL PASO	TSTM WIND		
21-JUN-89	TX	EL PASO	TSTM WIND		
12-SEP-89	TX	EL PASO	TSTM WIND		
27-JUL-90	TX	EL PASO	TSTM WIND		
14-JUL-97	TX	EL PASO	TSTM WIND	EL PASO	EL PASO
06-AUG-97	TX	EL PASO	TSTM WIND	EL PASO	EL PASO
27-OCT-98	TX	EL PASO	TSTM WIND	EL PASO INTL ARPT	EL PASO INTL ARPT
26-AUG-99	TX	EL PASO	TSTM WIND	EL PASO	EL PASO
12-JUN-00	TX	EL PASO	TSTM WIND	EL PASO	EL PASO
30-AUG-00	TX	EL PASO	TSTM WIND	CANUTILLO	CANUTILLO
30-JUL-01	TX	EL PASO	TSTM WIND	EL PASO	EL PASO
14-JUN-02	TX	EL PASO	TSTM WIND	FABENS	FABENS
01-JUL-02	TX	EL PASO	TSTM WIND	EL PASO INTL	EL PASO INTL

				ARPT	ARPT
02-JUL-02	TX	EL PASO	TSTM WIND	EL PASO INTL ARPT	EL PASO INTL ARPT
02-AUG-02	TX	EL PASO	TSTM WIND	EL PASO INTL ARPT	EL PASO INTL ARPT
02-AUG-02	TX	EL PASO	TSTM WIND	EL PASO INTL ARPT	EL PASO INTL ARPT
03-OCT-03	TX	EL PASO	TSTM WIND	EL PASO INTL ARPT	EL PASO INTL ARPT
13-AUG-04	TX	EL PASO	TSTM WIND	EL PASO INTL ARPT	EL PASO INTL ARPT
29-SEP-04	TX	EL PASO	TSTM WIND	EL PASO INTL ARPT	EL PASO INTL ARPT
11-JUL-05	TX	EL PASO	TSTM WIND	EL PASO INTL ARPT	EL PASO INTL ARPT
26-AUG-05	TX	EL PASO	TSTM WIND	EL PASO	EL PASO
28-AUG-05	TX	EL PASO	TSTM WIND	EL PASO	EL PASO
20-JUN-06	TX	EL PASO	TSTM WIND	EL PASO INTL ARPT	EL PASO INTL ARPT
27-AUG-06	TX	EL PASO	TSTM WIND	FABENS	FABENS
12-DEC-93	TX	EL PASO	WINDS	El Paso	

Ice

Figure below shows that the effect of ice accumulation is exacerbated by wind speed, but that ice accumulation of under one eighth of an inch, which is typical in El Paso County, can, at the worst, result in power outages (Source: http://www.spia-index.com/, retrieved Sept 26 2013)

The Sperry-Piltz Ice Accumulation Index, or "SPIA Index" – Copyright, February, 2009

ICE DAMAGE INDEX	* AVERAGE NWS ICE AMOUNT (in inches) *Revised-October, 2011	WIND (mph)	DAMAGE AND IMPACT DESCRIPTIONS
0	< 0.25	< 15	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	0.10 – 0.25	15 - 25	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
	0.25 – 0.50	> 15	
2	0.10 – 0.25	25 - 35	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
	0.25 – 0.50	15 - 25	
	0.50 – 0.75	< 15	
3	0.10 – 0.25	> = 35	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
	0.25 – 0.50	25 - 35	
	0.50 – 0.75	15 - 25	
	0.75 – 1.00	< 15	
4	0.25 – 0.50	> = 35	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
	0.50 – 0.75	25 - 35	
	0.75 – 1.00	15 - 25	
	1.00 – 1.50	< 15	
5	0.50 – 0.75	> = 35	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.
	0.75 – 1.00	> = 25	
	1.00 – 1.50	> = 15	
	> 1.50	Any	

(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

Figure 7: Sperry-Piltz Ice Accumulation Index

Hail

The table below shows the locations of hail events in the County and participating jurisdictions available through the NCDC.

Date	State	County	Description	Starting Location	Ending Location
15-MAY-58	TX	EL PASO	HAIL		
23-MAY-63	TX	EL PASO	HAIL		
09-JUN-69	TX	EL PASO	HAIL		
09-JUN-69	TX	EL PASO	HAIL		
04-OCT-70	TX	EL PASO	HAIL		
25-AUG-71	TX	EL PASO	HAIL		
23-SEP-71	TX	EL PASO	HAIL		
30-APR-74	TX	EL PASO	HAIL		
30-APR-74	TX	EL PASO	HAIL		
22-OCT-74	TX	EL PASO	HAIL		
23-OCT-74	TX	EL PASO	HAIL		
10-MAY-75	TX	EL PASO	HAIL		
20-APR-77	TX	EL PASO	HAIL		
31-JUL-79	TX	EL PASO	HAIL		
31-MAY-86	TX	EL PASO	HAIL		
21-JUN-86	TX	EL PASO	HAIL		
22-JUN-86	TX	EL PASO	HAIL		
19-OCT-86	TX	EL PASO	HAIL		
19-OCT-86	TX	EL PASO	HAIL		
27-MAY-89	TX	EL PASO	HAIL		
21-APR-90	TX	EL PASO	HAIL		
21-MAY-91	TX	EL PASO	HAIL		
21-MAY-91	TX	EL PASO	HAIL		
21-MAY-91	TX	EL PASO	HAIL		
21-MAY-92	TX	EL PASO	HAIL		
22-MAY-92	TX	EL PASO	HAIL		
23-MAY-92	TX	EL PASO	HAIL		
21-MAY-94	TX	EL PASO	HAIL	El Paso	
21-MAY-94	TX	EL PASO	HAIL	El Paso	
30-JUN-95	TX	EL PASO	HAIL	ELP	
15-JUN-97	TX	EL PASO	HAIL	SOCORRO	SOCORRO
27-OCT-98	TX	EL PASO	HAIL	EL PASO	EL PASO
17-JUL-99	TX	EL PASO	HAIL	EL PASO	EL PASO
01-JUL-00	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
02-JUL-02	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
18-OCT-02	TX	EL PASO	HAIL	TORNILLO	TORNILLO
18-OCT-02	TX	EL PASO	HAIL	EL PASO	EL PASO
15-MAY-04	TX	EL PASO	HAIL	TORNILLO	TORNILLO
15-MAY-04	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
11-AUG-04	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
11-AUG-04	TX	EL PASO	HAIL	SOCORRO	SOCORRO
29-AUG-04	TX	EL PASO	HAIL	EL PASO	EL PASO
29-SEP-04	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT

29-SEP-04	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
26-JUL-05	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
26-AUG-05	TX	EL PASO	HAIL	EL PASO	EL PASO
28-AUG-05	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
09-OCT-05	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
14-MAY-06	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
14-MAY-06	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
31-MAY-06	TX	EL PASO	HAIL	CLINT	CLINT
15-JUL-06	TX	EL PASO	HAIL	FABENS	FABENS
11-SEP-06	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
11-SEP-06	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
11-SEP-06	TX	EL PASO	HAIL	EL PASO INTL ARPT	EL PASO INTL ARPT
09-OCT-06	TX	EL PASO	HAIL	TORNILLO	
15-OCT-06	TX	EL PASO	HAIL	EL PASO INTL ARPT	
15-OCT-06	TX	EL PASO	HAIL	EL PASO	
02-MAY-07	TX	EL PASO	HAIL	EL PASO INTL ARPT	
02-MAY-07	TX	EL PASO	HAIL	EL PASO INTL ARPT	
02-MAY-07	TX	EL PASO	HAIL	EL PASO INTL ARPT	
07-MAY-07	TX	EL PASO	HAIL	EL PASO INTL ARPT	
08-MAY-07	TX	EL PASO	HAIL	EL PASO INTL ARPT	
08-MAY-07	TX	EL PASO	HAIL	EL PASO INTL ARPT	
20-JUN-07	TX	EL PASO	HAIL	EL PASO	
20-JUN-07	TX	EL PASO	HAIL	WHITE	
20-JUN-07	TX	EL PASO	HAIL	WHITE	
28-SEP-07	TX	EL PASO	HAIL	(ELP)EL PASO INTL AR	
28-SEP-07	TX	EL PASO	HAIL	(ELP)EL PASO INTL AR	
28-SEP-07	TX	EL PASO	HAIL	(ELP)EL PASO INTL AR	
17-JUL-08	TX	EL PASO	HAIL	TOBIN	
20-AUG-08	TX	EL PASO	HAIL	(ELP)EL PASO INTL AR	
11-SEP-09	TX	EL PASO	HAIL	WHITE	
11-SEP-09	TX	EL PASO	HAIL	WHITE	
16-SEP-09	TX	EL PASO	HAIL	NEWMAN	
16-SEP-09	TX	EL PASO	HAIL	BIGGS AFB	
16-SEP-09	TX	EL PASO	HAIL	NEWMAN	
16-SEP-09	TX	EL PASO	HAIL	(ELP)EL PASO INTL AR	
16-SEP-09	TX	EL PASO	HAIL	SOCORRO	
16-SEP-09	TX	EL PASO	HAIL	(ELP)EL PASO INTL AR	
16-SEP-09	TX	EL PASO	HAIL	SOCORRO	FABENS ARPT
16-SEP-09	TX	EL PASO	HAIL	EL PASO	
16-SEP-09	TX	EL PASO	HAIL	SOCORRO	
12-APR-10	TX	EL PASO	HAIL	SOCORRO	
14-APR-10	TX	EL PASO	HAIL	TORNILLO	
23-AUG-10	TX	EL PASO	HAIL	MONTOYA	
15-SEP-10	TX	EL PASO	HAIL	SOCORRO	
20-OCT-10	TX	EL PASO	HAIL	(ELP)EL PASO INTL AR	
20-OCT-10	TX	EL PASO	HAIL	SOCORRO	
20-OCT-10	TX	EL PASO	HAIL	(ELP)EL PASO INTL AR	
15-SEP-11	TX	EL PASO	HAIL	(ELP)EL PASO INTL AR	
08-APR-12	TX	EL PASO	HAIL	VINTON	

Lightning

Figure below illustrates the various intensities of lightning storms. (Source http://www.nws.noaa.gov/forecasts/wfo/definitions/defineLAL.html, retrieved September 25, 2013)

Lightning Activity Level (LAL)	
Is a scale which describes lightning activity. Values are labeled 1-6:	
LAL 1	No thunderstorms
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five minute period.
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5 minute period.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced Lightning is frequent, 11 to 15 cloud to ground strikes in a 5 minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater then 15 cloud to ground strikes in a 5 minute period.
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.

Lightning Activity Level

Critical Facility Name	Location	Facility Type	Structure Type	Value	Vulnerable to Identified Hazard	Potental Impacts of Identified Hazard & Jurisdiction
Bridge of the Americas (BOTA)	3600 E. Paisano Drive, El Paso, Texas	Transportation	Bridge	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
City of El Paso Emergency Operations Center and 911 Call Center	200 N. Kansas St., El Paso, Texas	Emergency Services	Metal Structure	$ 15,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Flooding on 1st Floor; potential for major damage/City of El Paso
Central Station	201 S Florence ST, El Paso, TX	Emergency Services	Metal Structure	$ 11,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #2	111 E Borderland RD, El Paso, TX	Emergency Services	Metal Structure	$ 1,695,650.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #3	721 E Rio Grande AVE, El Paso, TX	Emergency Services	Metal Structure	$ 1,938,750.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #4	1218 Randolph DR, El Paso, TX	Emergency Services	Metal Structure	$ 550,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #5	4240 Alameda AVE, El Paso, TX	Emergency Services	Metal Structure	$ 1,512,500.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #6	1850 Firehouse DR, El Paso, TX	Emergency Services	Metal Structure	$ 1,695,650.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #7	3200 Pershing AVE, El Paso, TX	Emergency Services	Metal Structure	$ 1,595,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #8	301 E Robinson AVE, El Paso, TX	Emergency Services	Metal Structure	$ 618,750.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #9	47 Dallas ST, El Paso, TX	Emergency Services	Metal Structure	$ 1,072,500.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #10	1801 Montana AVE, El Paso, TX	Emergency Services	Metal Structure	$ 1,072,500.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #11	314 S Leon ST, El Paso, TX	Emergency Services	Metal Structure	$ 3,754,025.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #12	3801 Fort BLVD, El Paso, TX	Emergency Services	Metal Structure	$ 561,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #13	5415 Trowbridge DR, El Paso, TX	Emergency Services	Metal Structure	$ 1,014,750.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #14	6300 Delta DR, El Paso, TX	Emergency Services	Metal Structure	$ 771,375.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000- $150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #15	115 Shorty LN, El Paso, TX	Emergency Services	Metal Structure	$ 1,093,125.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000- $150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #16	3828 Hercules AVE, El Paso, TX	Emergency Services	Metal Structure	$ 1,398,925.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage Slight damage in estimated range amount of $10,000- $150,000. City of El Paso

Fire Station #17	8803 TX 20, El Paso, TX	Emergency Services	Metal Structure	$ 1,342,550.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #18	7901 San Jose RD, El Paso, TX	Emergency Services	Metal Structure	$ 1,345,300.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #19	2405 McRae BLVD, El Paso, TX	Emergency Services	Metal Structure	$ 1,267,200.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #20	8301 Edgemere BLVD, El Paso, TX	Emergency Services	Metal Structure	$ 1,291,950.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #21	10000 Dyer ST, El Paso, TX	Emergency Services	Metal Structure	$ 1,595,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #22	6500 N Mesa ST, El Paso, TX	Emergency Services	Metal Structure	$ 2,447,500.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #23	5315 Threadgill AVE, El Paso, TX	Emergency Services	Metal Structure	$ 1,393,700.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #24	1498 Lomaland DR, El Paso, TX	Emergency Services	Metal Structure	$ 1,929,400.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #25	10834 Ivanhoe DR, El Paso, TX	Emergency Services	Metal Structure	$ 1,267,200.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #26	9418 North LOOP, El Paso, TX	Emergency Services	Metal Structure	$ 1,405,800.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #27	6767 Ojo De Agua, El Paso, TX	Emergency Services	Metal Structure	$ 2,137,850.00	Flooding	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #28	10800 McCombs ST, El Paso, TX	Emergency Services	Metal Structure	$ 1,925,000.00	Flooding	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #29	11977 Pelicano DR, El Paso, TX	Emergency Services	Metal Structure	$ 1,925,000.00	Flooding	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #30	4451 Loma Clara CT, El Paso, TX	Emergency Services	Metal Structure	$ 2,041,875.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #31		Emergency Services	Metal Structure	$ 2,447,500.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #32 (ARFF)		Emergency Services	Metal Structure	$ 4,675,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #33	3475 Nolan Richardson, El Paso, TX	Emergency Services	Metal Structure	$ 2,447,500.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #34	6565 Angora LOOP S, El Paso, TX	Emergency Services	Metal Structure	$ 2,137,850.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Fire Station #35	12230 Pine Springs DR, El Paso, TX	Emergency Services	Metal Structure	$ 2,137,850.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Fire Station #37		Emergency Services	Metal Structure	$ 2,337,500.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
City of El Paso Police Department Central Regional Command Center	200 S. Campbell St., El Paso, TX	Emergency Services	Metal Structure	$ 1,394,849.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

City of El Paso Police Department Headquarters	911 Reynor, El Paso, Texas	Emergency Services	Metal Structure	$ 2,874,507.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
City of El Paso Police Department Mission Valley Regional Command	9011 Escobar Dr., El Paso, TX	Emergency Services	Metal Structure	$ 2,111,422.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
City of El Paso Police Department Northeast Regional Command	9600 Dyer St., EL Paso, TX	Emergency Services	Metal Structure	$ 1,590,613.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

City of El Paso Police Department Pebble Hills Regional Command Center	10780 Pebble Hills, EL Paso, TX	Emergency Services	Metal Structure	$ 2,695,334.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
City of El Paso Police Department Westside Regional Command	4801 Osborne Dr., El Paso, Texas	Emergency Services	Metal Structure	$ 2,013,498.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
City of El Paso Robertson-Umbenhauer Water Treatment Plant	800 Canal Rd., El Paso, Texas	Water	Metal Structure	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. City of El Paso

El Paso County Coliseum	4100 E. Paisano Dr., El Paso, Texas	Commercial Facilities	Metal Structure	$ 17,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso County Courthouse	500 E San Antonio, El Paso, Texas	Government Facilities	Metal Structure	$ 63,813,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso County Detention Facility	601 E Overland Ave., El Paso, Texas	Government Facilities	Metal Structure	$ 48,071,127.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

El Paso County Jail Annex	12501 Montana Ave., El Paso, Texas	Government Facilities	Metal Structure	$ 37,278,524.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso County Sheriff's Office Headquarters	3850 Justice, El Paso, TX	Emergency Services	Metal Structure	$ 12,359,987.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Electric Co. Ascarate Substation	El Paso, Texas	Energy	Unknown	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

El Paso Electric Co. Caliente Substation	El Paso, Texas	Energy	Unknown	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Electric Co. Copper Substation	El Paso, Texas	Energy	Unknown	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Electric Co. Grid Control Center	El Paso, Texas	Energy	Unknown	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

El Paso Electric Co. Newman Power Station	El Paso, Texas	Energy	Unknown	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Electric Co. Newman Substation	El Paso, Texas	Energy	Unknown	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Electric Co. Scotsdale Substation	El Paso, Texas	Energy	Unknown	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000.The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

El Paso Electric Co. Shearman Substation	El Paso, Texas	Energy	Unknown	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso International Airport (ELP)	6701 Convair Rd., El Paso, Texas	Transportation	Metal Structure	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Natural Gas Co. El Paso Compressor Station	El Paso, Texas	Energy	Unknown	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

El Paso Public Health Laboratory	300 N. Campbell, El Paso, Texas	Healthcare and Public Health	Metal Structure	$ 7,500,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Water Utilities (EPWU) Field Office Annex		Commercial Facilities	Metal Structure	$ 1,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Water Utilities Fred Hervey Water Reclamation Plant		Water	Metal Structure	$ 68,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

El Paso Water Utilities Haskell R. Street Wastewater Treatment Plant		Water	Metal Structure	$ 75,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Water Utilities Jonathan W. Rogers Water Treatment Plant	10000 Southside Rd., El Paso, Texas	Water	Metal Structure	$ 90,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Water Utilities Northwest Wastewater Treatment Plant (WWTP)		Water	Metal Structure	$ 72,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

El Paso Water Utilities TecH2O Center		Commercial Facilities	Metal Structure	$ 7,400,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso Water Utilities Upper Valley Water Treatment Plant		Water	Metal Structure	$ 40,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso's Children's Hospital	4845 Alameda Ave., El Paso, Texas	Healthcare and Public Health	Metal Structure	$225,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

KLAQ Primary Entry Point (PEP) Station		Emergency Services	Metal Structure	$ 335,414.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Kay Bailey Hutchison Desalination Plant	10751 Montana Ave., El Paso, Texas	Water	Metal Structure	$ 49,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Lower Valley Water District	1557 FM 1110, Clint, Texas	Water	Metal Structure	$ 215,572.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

Paso del Norte Bridge	El Paso, Texas	Transportation	Bridge	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Roberto R. Bustamante Wastewater Treatment Plant		Water	Metal Structure	$ 82,000,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Sun Metro	10151 Montana, El Paso, Texas	Transportation	Metal Structure	$ 23,381,266.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

University Medical Center of El Paso	4815 Alameda Ave., El Paso, Texas	Healthcare and Public Health	Metal Structure	Less than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
Ysleta - Zaragoza Bridge	797 South Zaragoza, El Paso, Texas	Transportation	Bridge	Greater than $100,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)
El Paso County Medical Examiners		Medical Services	Metal Structure	$ 4,276,000.00	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. The impacts of these hazards have a cascading to the remaining jurisdictions within the planning (El Paso County, Town of Anthony, Village of Vinton, and City of El Paso, Town of Horizon City, City of Socorro, and Town of Clint)

		Town of Anthony City Hall & Police Deparment	Brick Structure	$1,200,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. Town of Anthony
		Anthony Chamber of Commerce	Brick Structure	$750	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. Town of Anthony
		Village of Vinton	Brick Structure	$1,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. Village of Vinton

		Village of Vinton Police Department	Mobile home	$250,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Slight damage in estimated range amount of $10,000-$150,000. Village of Vinton
		Town of Horizon City-City Hall	Brick Structure	$1,400,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Sever damge in estimated range amount $151,000-2,000,000. Town of Horizon
		Town of Horizon City-Police Department	Brick Structure	$800,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Sever damge in estimated range amount $151,000-2,000,000. Town of Horizon

		Great El Paso Chamber of Commrerce (Town of Horizon City)	Brick Structure	$1,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Sever damge in estimated range amount $151,000-2,000,000. Town of Horizon
		City of Socorro City Hall	Adobe Structure	$1,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Sever damge in estimated range amount $151,000-2,000,000. City of Socorro.
		City of Socorro Police Department	Brick Structure	1, 200,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Sever damge in estimated range amount $151,000-2,000,000. City of Socorro.

		Town of Clint City Hall	Brick Structure	$1,000,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Sever damge in estimated range amount $151,000-2,000,000. Town of Clint.
		Town of Clint Police Department	Brick Structure	$850,000	Flooding, Hail;. Hazardous Material, Ice, Lightning, Snow, Tornado, Wildfire, Wind	Sever damge in estimated range amount $151,000-2,000,000. Town of Clint.

Attachment III to El Paso County Hazard Mitigation Plan for City of Socorro

The purpose for Attachment II is to provide updated action items specifically for the City of Socorro to addresses flooding issues within the areas of Thunder Road Pond, Sparks Arroyo, and New Arroyo. In 2013, the City of Socorro experienced a tremendous flooding event that caused a total of $6,000,000 in private and governmental property damage. It is important for the County of El Paso and the City of Socorro to mitigate the flooding issues in order to prevent future loss to personal property, buildings, and infrastructure, road closures, disruption of services, and injuries to include fatalities.

Action Number (Prioritization)	Hazard	Action	Jurisdiction	Implementation Strategy
1	Flooding	Placement of concrete channel in the Sparks Arroyo. This will allow for the stormwater to be channeled into the retention pond, see figure 6.	City of Socorro	Responsibility: City of Socorro Timeframe: Jan.2014-On-going Method: Working in collaboration with El Paso County, RGCOG, EPWID, Lower Valley Water District Funding: CDBG, CDBG Disaster Relief, Hazard Mitigation Grant
3		Widen Thunder Rd Pond in order to increase stromwater capacity, see figure 7.	City of Socorro	Responsibility: City of Socorro Timeframe: Jan.2014-On-going Method: Working in collaboration with El Paso County, RGCOG, EPWID, Lower Valley Water District Funding: Hazard Mitigation Grant
4		Build dirt berms at Rio Vista & Thunder to direct the water from the ponding area to the empty lot.	City of Socorro	Responsibility: City of Socorro Timeframe: Jan.2014-On-going Method: Working in collaboration with El Paso County, RGCOG, EPWID, Lower Valley Water District Funding: CDBG Disaster Relief Funds

Action Number (Prioritization)	Hazard	Action	Jurisdiction	Implementation Strategy
2		Construct a ponding area on the onion field with overflow system to Mesa Spur Drain, see figure 8.	City of Socorro	Responsibility: City of Socorro Timeframe: Jan.2014-On-going Method: Working in collaboration with El Paso County, RGCOG, EPWID, Lower Valley Water District Funding: Hazard Mitigation Grant
5		Create partnerships with El Paso County Road and Bridge and EPWID to schedule the cleaning of Mesa Spur Drain prior to Monsoon season.	City of Socorro	Responsibility: City of Socorro and EPWID Timeframe: Jan.2014-On-going Method: Working in collaboration with EPWID Funding: El Paso County and City of Socorro
8		Purchase of three (3) Parcels, build bridge with concrete culverts (see figure 9) in order to address new arroyo forming from I-10 to Reid.	City of Socorro	Responsibility: City of Socorro Timeframe: Jan.2014-On-going Method: Acquiring/purchasing of three parcels of land Funding: Texas Hazard Mitigation Grant
7		Create and implement a Flood Management Plan	City of Socorro	Responsibility: City of Socorro and Flood Manager, City of Socorro Department Leaders and Command Staff Timeframe: Jan.2014-On-going Method: Working in collaboration with El Paso County, RGCOG, EPWID, Lower Valley Water District Funding: City of Socorro
6		Improvement of Sparks Arroyo culvert on Stockyard Rd. See figure 10.	City of Socorro	Responsibility: City of Socorro Timeframe: Jan.2014-On-Going Method: Working in collaboration with the United States Department of Agriculture Natural

Action Number (Prioritization)	Hazard	Action	Jurisdiction	Implementation Strategy
				Resource Conservation Services. Funding: USDA

Figure 6: Sparks Arroyo Concrete Lining

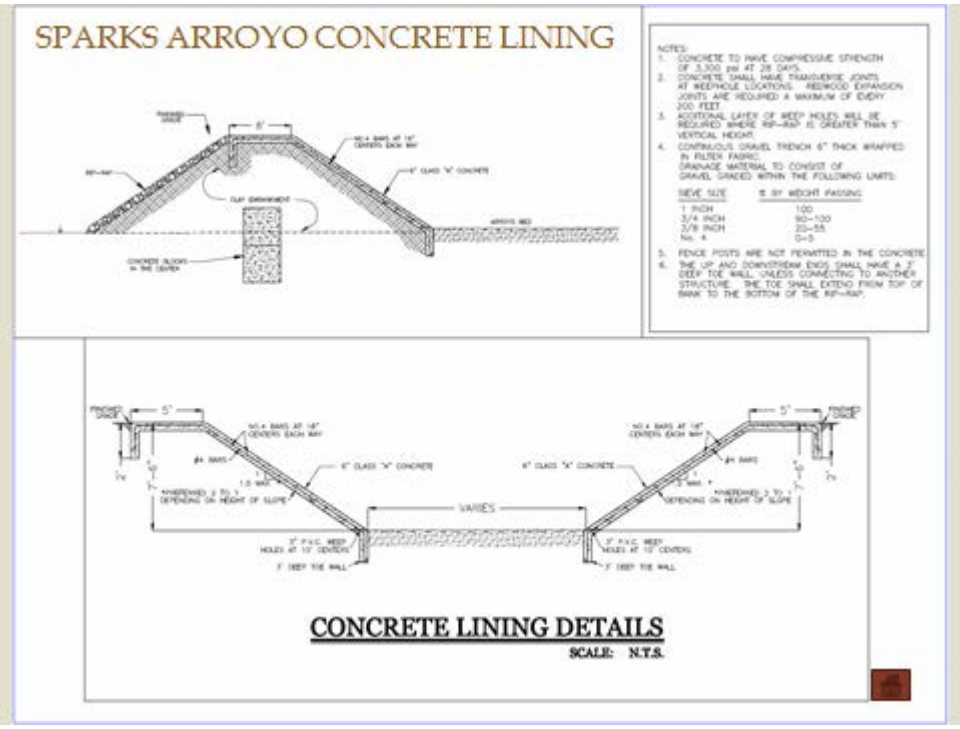


Figure 7: Widening of Thunder Rd. Pond

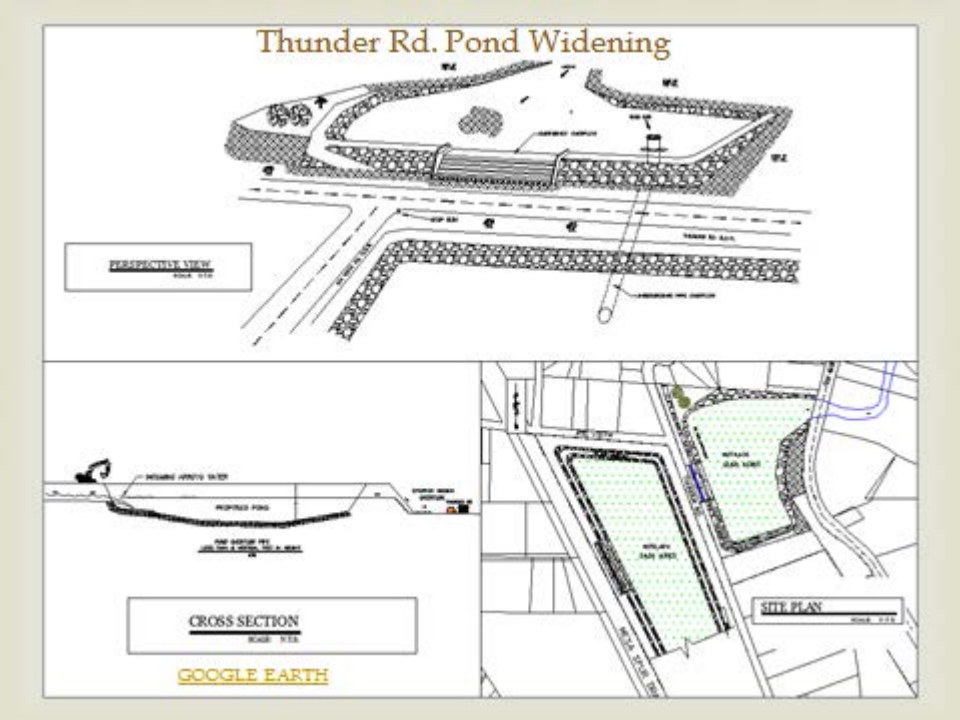


Figure 8: Thunder Rd. Pond

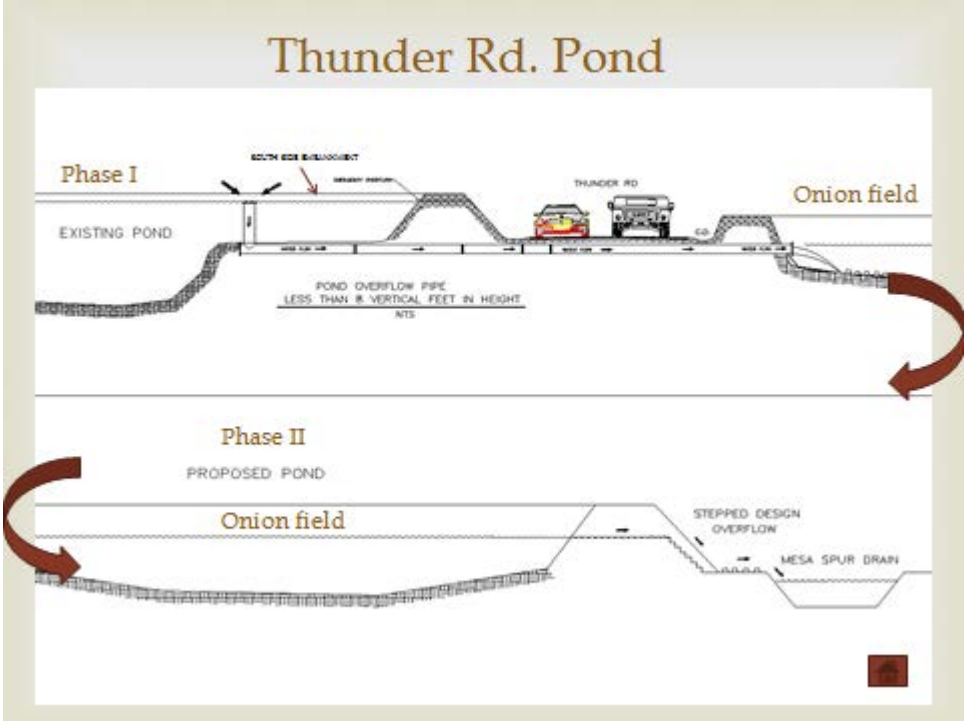


Figure 9: New Arroyo (I-10 & Reid)

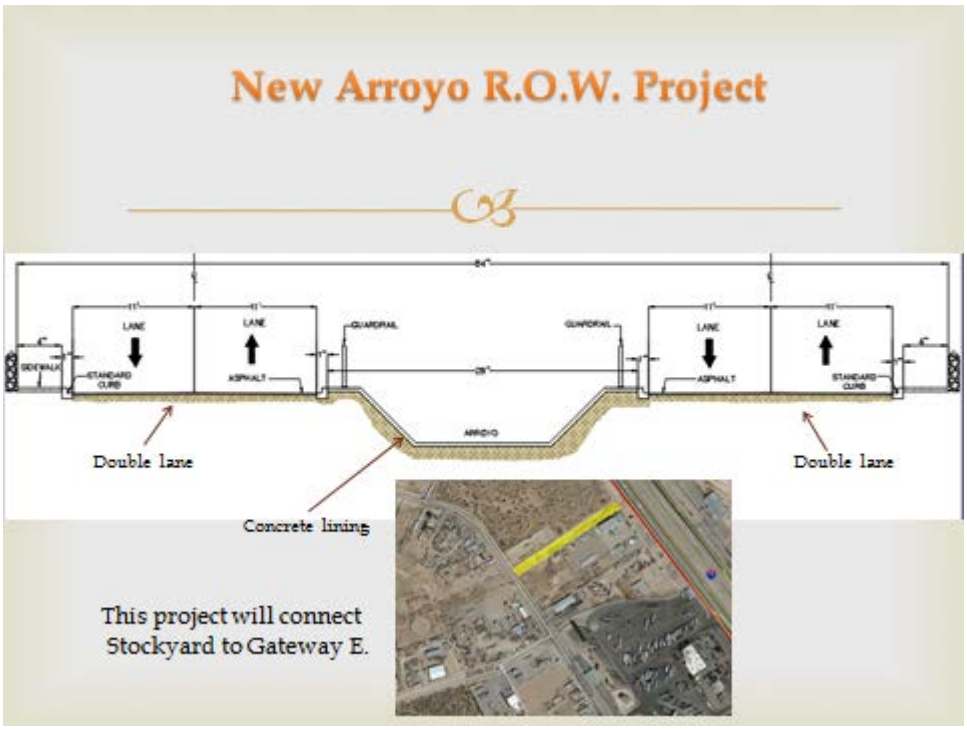

New Arroyo R.O.W. Project
LANE
LANE
GUARDRAIL
GUARDRAIL
LANE
LANE
SIDEWALK
STANDARD CURB
ASPHALT
ASPHALT
STANDARD CURB
ARROYO
Double lane
Double lane
Concrete lining
This project will connect Stockyard to Gateway E.

Figure 10: Sparks Arroyo and Stockyard Rd.

Attachment C

Socorro EWP Site on Stockyard Drive. N 31° 39' 50.6" W 106° 14" 56"

Culvert outlet and channel