Valencia County
Hazard Mitigation Plan

Prepared by:

Valencia County Hazard Mitigation Planning Team

With Professional Planning Assistance from

AECOM

FINAL

2022

TABLE OF CONTENTS

This page intentionally left blank.

SECTION 1: INTRODUCTION

This section provides a general introduction to the Valencia County Hazard Mitigation Plan. It consists of the following five subsections:

- 1.1 Background
- 1.2 Purpose
- 1.3 Scope
- 1.4 Authority
- 1.5 Summary of Plan Contents

1.1 Background

This section provides a general introduction to the Valencia County Hazard Mitigation Plan Update. The Valencia County Hazard Mitigation Plan was originally adopted in 2006, updated in 2015, and again updated in 2022. This document contains the 2022 Valencia County Hazard Mitigation Plan update incorporating a number of revisions and refinements to the 2015 plan content. This Plan analyzes the eight natural hazards presenting the greatest threat to the planning area. Five additional hazards identified in the state plan were reviewed but were excluded from additional consideration as they present little to no risk to the planning area. Each of the seven participating jurisdictions reviewed the hazards, independently ranking their relevance to the participating municipality and district. The Plan update includes a detailed characterization of relevant natural hazards in Valencia County; a risk assessment that describes potential losses to physical assets, people and operations; a set of goals, objectives, and actions that will guide the county and participation jurisdiction's mitigation program in coming years; and a detailed strategy for implementation and monitoring results.

Valencia County has been evolving as a historically rural and agricultural county with a rich natural and cultural heritage. This heritage, along with beautiful landscapes, and the proximity to Albuquerque has made the County a desirable place to live for centuries. The various types of land uses (commercial, residential, industrial, agricultural, etc.) make up the character of Valencia County. However, despite its proximity to the metro Albuquerque area, the County has expressed a strong desire to preserve and protect its unique heritage, cultural resources, and lands. This goal was considered throughout the planning process.

This Hazard Mitigation Plan update focuses on the hazards with the highest potential for causing damage to buildings and other physical assets, injuries, and fatalities to the residents of Valencia County and disruption of government and business operations in the area. These hazards include severe storms (including hail, high wind and lightning), flood, wildfire, drought, winter storm, extreme heat, tornado, and dam failure. Additional hazards identified in the State of New Mexico Hazard Mitigation Plan are also discussed.

FEMA Definition of Hazard Mitigation:

"Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards."

1.1.1 The Disaster Mitigation Act and the Flood Insurance Reform Act

In an effort to reduce the Nation's mounting natural disaster losses, the U.S. Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) in order to amend the Robert T. Stafford Disaster Relief and

Emergency Assistance Act. Section 322 of DMA 2000 emphasizes the need for state, local and tribal government entities to closely coordinate on mitigation planning activities and makes the development of a hazard mitigation plan a specific eligibility requirement for any local or tribal government applying for federal mitigation grant funds. These funds include the Hazard Mitigation Grant Program (HMGP) and the Building Resilient Infrastructure and Communities (BRIC) program, both of which are administered by the Federal Emergency Management Agency (FEMA) under the Department of Homeland Security. Communities with an adopted and federally approved hazard mitigation plan thereby become pre-positioned and more apt to receive available mitigation funds before and after the next disaster strikes.

Additionally, the Flood Insurance Reform Act of 2004 (P.L. 108-264) created two new grant programs, Severe Repetitive Loss (SRL) and Repetitive Flood Claim (RFC), and modified the existing Flood Mitigation Assistance (FMA) program. One of the requirements of this Act is that a FEMA-approved Hazard Mitigation Plan is now required if communities wish to be eligible for these FEMA mitigation programs. However, as of early 2014, these programs have been folded into a single FMA program.

This change was brought on by new, major federal flood insurance legislation that was passed in 2012 under the Biggert-Waters Flood Insurance Reform Act (P.L. 112-141). This act made several changes to the way the National Flood Insurance Program is to be run, including raises in rates to reflect true flood risk and changes in how Flood Insurance Rate Map (FIRM) updates impact policyholders. The Biggert-Waters Act further emphasizes Congress' focus on mitigating vulnerable structures.

The Valencia County Hazard Mitigation Plan has been prepared in coordination with FEMA Region VI and the New Mexico Department of Homeland Security and Emergency Management (NMDHSEM) to ensure that the Plan meets all applicable FEMA and state requirements for hazard mitigation plans. A *Local Mitigation Plan Review Tool*, found in Appendix B, provides a summary of federal and state minimum standards and notes the location where each requirement is met within the Plan.

1.2 Purpose

The primary purpose of hazard mitigation planning is to organize people and resources to produce long-term and recurring benefits that help break the repetitive cycle of disaster loss. A core assumption of hazard mitigation is that the investments made before a hazard event will significantly reduce the demand for post-event assistance by lessening the need for emergency response, repair, recovery, and reconstruction.

Both the localized events that temporarily disrupt normal functioning as well as the larger events that receive Presidential disaster declarations will be addressed. Adopting mitigation practices will enable Valencia County to re-establish itself in the wake of a larger disaster event, becoming more resilient with less disruption to services and businesses.

An emphasis was placed on severe storms (including hail, high wind and lightning), flood, drought, and tornado, as these are considered to pose the greatest threat to the planning area. Four other natural hazards that are part of the 2018 State of New Mexico Hazard Mitigation Plan were considered to pose a lower risk to the planning area are also profiled in this update.

The benefits of mitigation planning go beyond solely reducing hazard vulnerability. Related measures emanating from the mitigation plan such as preserving open space, protecting vital infrastructure, designing sustainable buildings, maintaining environmental health, and protecting critical facilities meet other important community objectives including public safety, natural resource protection, and business development. It is important that any mitigation planning process be integrated with other local planning efforts, like the comprehensive plans of the County and its municipalities, and any proposed

mitigation strategies must take into account other existing goals or initiatives that will help complement or hinder their future implementation. All information in this Hazard Mitigation Plan is for planning and risk management information purposes only.

In summary, the purpose of the Valencia County Hazard Mitigation Plan is to:

- Break the cycle of repetitive natural hazards
- Protect life, safety, and property by reducing the potential for future damages and economic losses that result from hazards
- Make the county a safer place to work, visit, and live
- Restore and preserve Valencia County's natural and recreational resources
- Help the county thrive economically
- Support preservation of hazard prone natural areas
- Reduce future vulnerability by guiding development and redevelopment
- Avoid interruptions caused by hazards
- Qualify for mitigation grant funding in both the pre-disaster and post-disaster environment
- Document coordination efforts with other stakeholders in the hazard mitigation effort
- Speed recovery following disaster events
- Develop broad based community support for hazard mitigation
- Record successful hazard mitigation projects and programs
- Demonstrate a firm commitment to hazard mitigation principles
- Comply with state and federal legislative requirements for hazard mitigation plans

The Valencia County Hazard Mitigation Plan is a living document, and as such will be reviewed and updated as necessary in order to evaluate the progress made on the risk reduction actions identified through the planning process. The Plan will also be reviewed when new hazards are identified or when large hazard events occur that may require new mitigation priorities in the planning area.

1.3 Scope

The focus of the Valencia County Hazard Mitigation Plan is on those hazards determined to be "high" or "moderate" risks to the Valencia County region, as determined through a detailed hazard risk assessment. Other hazards that pose a "low" or "negligible" risk will continue to be evaluated during future updates to the Plan, but they may not be fully addressed until they are determined to be of high or moderate risk. This enables the participating municipalities and district to prioritize mitigation actions based on those hazards which are understood to present the greatest risk to lives and property.

The geographic scope (i.e., the planning area) for the Plan includes Valencia County as well as the incorporated jurisdictions. **Table 1-1** indicates the participating jurisdictions.

Table 1-1: Participating Jurisdictions in the Valencia County Hazard Mitigation Plan

Valencia County	
City of Belen	Village of Bosque Farms
City of Rio Communities	Village of Los Lunas
Town of Peralta	Middle Rio Grande Conservancy District

1.4 Authority

The Valencia County Hazard Mitigation Plan has been developed in accordance with current state and federal rules and regulations governing local mitigation plans and has been adopted by the county and local jurisdiction in accordance with standard local procedures. Copies of the adoption resolutions for each participating jurisdiction are provided in Appendix A. The Plan shall be routinely monitored and revised to maintain compliance with the following provisions, rules, and legislation:

- Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390)
- FEMA's Final Rule published in the Federal Register, at 44 CFR Part 201 (201.6 for local mitigation planning requirements
- Flood Insurance Reform Act of 2004 (P.L. 108-264) and Biggert-Waters Flood Insurance Reform Act of 2012 (P.L. 112-141)

1.5 Summary of Plan Contents

The contents of this Plan are designed and organized to be as reader-friendly and functional as possible. While significant background information is included on the processes used and studies completed (i.e., risk assessment, capability assessment), this information is separated from the more meaningful planning outcomes or actions (i.e., mitigation strategy, mitigation action plan).

Section 2, ***Planning Process***, provides a complete narrative description of the process used to prepare the Plan. This includes the identification of participants on the planning team and describes how the public and other stakeholders were involved. It also includes a detailed summary for each of the key meetings held, along with any associated outcomes.

The ***Community Profile***, located in Section 3, provides a general overview of the Valencia County region, including prevalent geographic, demographic, and economic characteristics. In addition, building characteristics and land use patterns are discussed. This baseline information provides a snapshot of the planning area and helps local officials recognize those social, environmental, and economic factors that ultimately play a role in determining the region's vulnerability to hazards.

The Risk Assessment is presented in two sections: Section 4, ***Hazard Identification***; Section 5, ***Hazard Profiles***. Together, these sections serve to identify, analyze, and assess hazards that pose a threat to the Valencia County region. The risk assessment also attempts to define any hazard risks that may uniquely or exclusively affect specific areas of the Valencia County region.

The Risk Assessment begins by identifying hazards that threaten the region. Next, detailed profiles are established for each hazard, building on available historical data from past hazard occurrences, spatial extent, and probability of future occurrence. This section culminates in a hazard risk ranking based on conclusions regarding the frequency of occurrence, spatial extent, and potential impact highlighted in each of the hazard profiles. In essence, the information generated through the risk assessment serves a

critical function as the participating jurisdictions in the Valencia County region seek to determine the most appropriate mitigation actions to pursue and implement—enabling them to prioritize and focus their efforts on those hazards of greatest concern and those structures or planning areas facing the greatest risk(s).

The ***Capability Assessment***, found in Section 6, provides a comprehensive examination of the Valencia County region's capacity to implement meaningful mitigation strategies and identifies opportunities to increase and enhance that capacity. Specific capabilities addressed in this section include planning and regulatory capability, staff and organizational (administrative) capability, technical capability, fiscal capability, and political capability. Information was obtained through the use of a detailed survey questionnaire and an inventory and analysis of existing plans, ordinances, and relevant documents. The purpose of this assessment is to identify any existing gaps, weaknesses, or conflicts in programs or activities that may hinder mitigation efforts and to identify those activities that should be built upon in establishing a successful and sustainable local hazard mitigation program.

The ***Community Profile***, ***Risk Assessment***, and ***Capability Assessment*** collectively serve as a basis for determining the goals for the Valencia County Hazard Mitigation Plan, each contributing to the development, adoption, and implementation of a meaningful and manageable ***Mitigation Strategy*** that is based on accurate background information.

The ***Mitigation Strategy***, found in Section 7, consists of broad goal statements as well as an analysis of hazard mitigation techniques for the jurisdictions participating in the Valencia County Hazard Mitigation Plan to consider in reducing hazard vulnerabilities. The strategy provides the foundation for a detailed ***Mitigation Action Plan***, found in Section 8, which links specific mitigation actions for each county and municipal department or agency to locally assigned implementation mechanisms and target completion dates. Together, these sections are designed to make the Plan both strategic, through the identification of long-term goals, and functional, through the identification of immediate and short-term actions that will guide day-to-day decision-making and project implementation.

In addition to the identification and prioritization of possible mitigation projects, emphasis is placed on the use of program and policy alternatives to help make the Valencia County region less vulnerable to the damaging forces of hazards while improving the economic, social, and environmental health of the community. The concept of multi-objective planning was emphasized throughout the planning process, particularly in identifying ways to link, where possible, hazard mitigation policies and programs with complimentary community goals related to disaster recovery, housing, economic development, recreational opportunities, transportation improvements, environmental quality, land development, and public health and safety.

Plan Maintenance, found in Section 9, includes the measures that the jurisdictions participating in the Valencia County plan will take to ensure the Plan's continuous long-term implementation. The procedures also include the manner in which the Plan will be regularly evaluated and updated to remain a current and meaningful planning document.

SECTION 2: PLANNING PROCESS

This section of the Plan describes the mitigation planning process undertaken by the County in preparing the Hazard Mitigation Plan. It consists of the following seven subsections:

- 2.1 Overview of Hazard Mitigation Planning
- 2.2 Preparing the Plan
- 2.3 The Valencia County Hazard Mitigation Planning Team
- 2.4 Community Meetings and Workshops
- 2.5 Involving the Public
- 2.6 Involving the Stakeholders
- 2.7 Documentation of Plan Progress

44 CFR Requirement
44 CFR Part 201.6(c)(1): The plan shall include documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process and how the public was involved.

2.1 Overview of Hazard Mitigation Planning

Local hazard mitigation planning is the process of organizing community resources, identifying and assessing hazard risks, and determining how to best minimize or manage those risks. This process results in a hazard mitigation plan that identifies specific mitigation actions, each designed to achieve short-term planning objectives as well as a long-term community vision. To ensure the functionality of each mitigation action, responsibility is assigned to a specific individual, department, or agency along with a schedule for its implementation. Plan maintenance procedures are established for the routine monitoring of implementation progress, as well as the evaluation and enhancement of the mitigation plan itself. These plan maintenance procedures ensure that the Plan remains a current, dynamic, and effective planning document over time.

Mitigation planning offers many benefits, including:

- Saving lives and property
- Saving money
- Speeding recovery following disasters
- Reducing future vulnerability through wise development and post-disaster recovery and reconstruction
- Expediting the receipt of pre-disaster and post-disaster grant funding
- Demonstrating a firm commitment to improving community health and safety

Typically, mitigation planning is described as having the potential to produce long-term and recurring benefits by breaking the repetitive cycle of disaster loss. A core assumption of hazard mitigation is that pre-disaster investments will significantly reduce the demand for post-disaster assistance by lessening the need for emergency response, repair, recovery, and reconstruction. Furthermore, mitigation

practices will enable residents, businesses, and industries to re-establish themselves in the wake of a disaster, getting the community economy back on track more quickly and with less interruption.

The benefits of mitigation planning go beyond solely reducing hazard vulnerability. Measures such as the acquisition or regulation of land in known hazard areas can help achieve multiple community goals, such as preserving open space, maintaining environmental health, and enhancing recreational opportunities. Thus, it is vitally important that any local mitigation planning process be integrated with other concurrent local planning efforts, and any proposed mitigation strategies must consider other existing community goals or initiatives that will help complement or hinder their future implementation.

2.2 Preparing the Plan

Hazard mitigation plans are required by FEMA to be updated every five years for the jurisdictions covered under them to remain eligible for federal mitigation and public assistance funding. To help prepare the Valencia County Hazard Mitigation Plan, AECOM Technical Services, Inc. (AECOM) was hired as a consultant to provide professional mitigation planning services. Per the contractual scope of work, the consultant team followed the mitigation planning process recommended by FEMA. The Local Hazard Mitigation Plan Update Checklist, found in Appendix B, provides a detailed summary of FEMA's current minimum standards of acceptability for compliance with DMA 2000 and notes the location where each requirement is met within this Plan. These standards are based upon FEMA's Interim Final Rule as published in the Federal Register on February 26, 2002 in Part 201 of the Code of Federal Regulations (CFR). The planning team used FEMA's Local Mitigation Planning Handbook (released 2016) for reference as they completed the Plan.

The process used to prepare this Plan included six major steps that were completed over the course of eighteen months beginning in October 2020. The kick-off meeting was held virtually on 10/13/2020. The second planning meeting was held virtually on 2/10/2021. The third planning meeting was held in-person on 7/27/2021. The fourth planning meeting was held in-person on 8/3/2021. The first public meeting was held in-person and virtually on 12/1/2021. The second public meeting will occur at the plan adoption meeting along with a final planning meeting. Each of these planning steps (illustrated in Figure 2.1) resulted in critical work products and outcomes that collectively make up the Plan.

Figure 2-1: Mitigation Planning Process for Valencia County

2.3 The Valencia County Hazard Mitigation Planning Team

To guide the development of this Plan, Valencia County created the Valencia County Hazard Mitigation Planning Team. This team represented a community-based planning group made up of representatives from various county departments, municipalities, districts, and other key stakeholders identified to serve as critical partners in the planning process.

Beginning in October 2020, the planning team members engaged in regular discussions as well as local meetings and planning workshops to discuss and complete tasks associated with preparing the Plan. This working group coordinated on all aspects of plan preparation and provided valuable input to the process. In addition to regular meetings, team members routinely communicated and were kept informed through an email distribution list.

Specifically, the tasks assigned to the Valencia County Hazard Mitigation Planning Team included:

- Participate in hazard mitigation planning team meetings and workshops.
- Provide best available data as required for the Risk Assessment portion of the Plan.
- Complete the Local Capability Assessment Survey and provide copies of any mitigation or hazard-related documents for review and incorporation into the Plan.
- Support the development of the Mitigation Strategy portion of the Plan, including the design and adoption of a countywide vision statement, countywide mitigation goal statements, and countywide mitigation actions.
- Review the existing mitigation actions from the previous plan, provide an update on those previously adopted mitigation actions, and propose new mitigation actions for their department/agency for incorporation into the updated Plan.
- Review and provide timely comments on all study findings and draft plan deliverables.
- Support the adoption of the Valencia County Hazard Mitigation Plan.

Table 2.1 lists the members of the Valencia County Hazard Mitigation Planning Team who were responsible for participating in the development of the Plan. Stakeholders representing local and regional agencies involved in hazard mitigation activities and agencies that have the authority to regulate development are identified with an asterisk (*). Team members are listed by jurisdiction in **Table 2.1** for ease of organizing and presenting the information, but it should be noted that the team worked extremely well as one regional unit thinking beyond traditional jurisdictional boundaries to focus on the mitigation planning issues and tasks at hand.

Table 2.1: Members of the Valencia County Hazard Mitigation Planning Team

Jurisdiction or Agency	Representative	Department, Title, or Role
Valencia County		
Valencia County	Sarah Gillen*	Valencia County Emergency Manager
	Nicholas Moya	Assistant Fire Chief
	Jaime Gonzales	Assistant Fire Chief
	Casey Davis	Interim Fire Chief
	Angie Womack	County Manager/Administrative Assistant
	Lina Benavidiz	Public Works Director
	Gabe Luna*	Land Use Planner
	Danny Monette	County Manager
	Jess Weston	Animal Control
	Nancy Jo Gonzales*	Community Development Director/Planning and Zoning Director
	Denise Vigil	Sheriff
Belen	Andrew Salas	City Manager
	Steven Gonzales*	Emergency Manager/HR Director
	Steven Tomita*	Development Services Director
	Charles Eaton	Public Works Director
	James Harris	Police Chief
	Nathan Godfrey	Fire Chief

Jurisdiction or Agency	Representative	Department, Title, or Role
Rio Communities	Peggy Gutjahr *	Mayor Pro Tem
	Martin Moore*	City Manager
	Andrew Tabet	Fire Chief
	L.E. Rubin	Fire Department
Peralta	Kori Taylor*	Town Clerk
	Steve Robbins*	Treasurer/Deputy Clerk
Bosque Farms	Michael Montoya*	Planning and Zoning Officer
	Gayle Jones	Clerk/Administrator
Los Lunas	Jason Gonzales*	Fire Marshal/Emergency Manager
	John Gabaldon	Fire Chief
	Tommy Madrid	Assistant Fire Chief
	Luis Chavez	Fire Captain
	Pat Jaramillo	Parks and Recreation
	Jason Duran	Parks and Recreation
	Gregory Martin*	Village Administration
	Steven Walker	Streets Supervisor
MRGCD	Yasmeen Najmi	Planner
Other Stakeholders		
State	Sara Gerlitz	NMDHSEM Mitigation Specialist
	Loretta Hatch	NMDHSEM State Floodplain Coordinator
	Scott Overpeck	NWS Warning Coordination Meteorologist
FEMA	Lisa Hecker	FEMA Emergency Management Specialist
University of New Mexico/EDAC	Shawn Penman*	UNM, EDAC, NM CTP Coordinator
Project Consultants		
AECOM	David Turk	Project Director
	Eric Nemeth	Project Manager
	Brent Edwards	Mitigation Planner

* "local and regional agencies involved in hazard mitigation activities" and "agencies that have the authority to regulate development" who were involved or given an opportunity to participate

Multi-jurisdictional Participation

The Valencia County Hazard Mitigation Plan includes Valencia County and five incorporated municipalities (City of Belen, City of Rio Communities, Town of Peralta, Village of Bosque Farms, Village of Los Lunas) and the Middle Rio Grande Conservancy District. To satisfy multi-jurisdictional participation requirements, each participating jurisdiction was required to perform the following tasks:

- Participate in mitigation planning meetings and workshops.
- Complete the Local Capability Assessment Survey.
- Provide an update on previously adopted mitigation actions.
- Review drafts of the Valencia County Hazard Mitigation Plan; and
- Adopt their updated local Mitigation Action Plan.

The jurisdictions of the City of Rio Communities, Town of Peralta, Village of Bosque Farms, and MRGCD were involved in the planning process through verbal and electronic email communications when unable to participate in-person due to a world-wide pandemic. Each jurisdiction participated in the planning process and each jurisdiction has developed and adopted a local Mitigation Action Plan unique to that jurisdiction which will be updated over time per the Plan Maintenance Procedures described in Section 9.

2.4 Community Meetings and Workshops

The preparation of this Plan required a series of meetings and workshops for facilitating discussion, gaining consensus, and initiating data collection efforts with local government staff, community officials, and other identified stakeholders. More importantly, the meetings and workshops prompted continuous input and feedback from relevant participants throughout the drafting stages of the Plan.

In many cases, routine discussions and additional meetings were held by local staff to accomplish planning tasks specific to their department or agency. For example, completing the Local Capability Assessment Survey or seeking approval of specific mitigation actions for their department or agency to undertake and include in their Mitigation Action Plan.

All meeting notes, agendas, sign-in sheets, and presentation slides can be found in Appendix F.

2.5 Involving the Public

44 CFR Requirement
44 CFR Part 201.6(b)(1): The planning process shall include an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

A key component of any mitigation planning process is public participation. Individual citizen and community-based input provides the entire planning team with a greater understanding of local concerns and increases the likelihood of successfully implementing mitigation actions by developing community "buy-in" from those directly affected by the decisions of public officials. As citizens become more involved in decisions that affect their safety, they are more likely to gain a greater appreciation of the hazards present in their community and take the steps necessary to reduce their impact. Public awareness is a key component of any community's overall mitigation strategy aimed at making a home, neighborhood, school, business, or entire planning area safer from the potential effects of hazards.

Public involvement in the update of the Valencia County Hazard Mitigation Plan was sought using various methods including open public meetings, a public participation survey, and by making copies of draft Plan documents available for public review on county websites. The public meeting will be held at a distinct period during the planning process: upon completion of a final draft Plan, but prior to official plan approval and adoption. This public meeting was held at a central location to the planning area to ensure that citizens from each participating jurisdiction had reasonable access to the opportunity to participate in-person in the planning process. The public participation survey was made available online via Valencia County's website, through web links forwarded via email and Facebook and in hardcopy form at the first public meeting.

Public Meeting

The first public meeting was held in-person and virtually on December 1, 2021. The second public meeting will be held after the draft plan completion. When the plan is approved by FEMA, Valencia County will open the floor to any comments or concerns at the County Commission meeting for adoption. This allows the public to provide any input on the plan before the plan is formally adopted by Valencia County. Along with the County, the public will be allowed to make any comments at the participating jurisdictions city and town council meetings when they formally adopt the plan as well.

2.5.1 Public Participation Survey

The Valencia County Hazard Mitigation Public Participation Survey was made available in October 2020 and remained available until August 2021. During this time, 274 surveys were completed. The complete results of the survey can be found in a summary report including charts and figures in Appendix E.

The following list is a high-level summary of the dominant responses obtained from the survey.

- 56% of residents have experienced or been impacted by a disaster.
    - Severe Storms was the most common at 59% with Dam Failure as the least common at 7%.

- 56% of the residents stated they were genuinely concerned about their community being impacted by Drought and 74% stated they were not concerned about Dam Failure.

- When asked which assets are most important, 87% said Fire, Police and EMS stations, and Hospitals and Medical Facilities.

- 91% stated that protecting critical facilities (hospitals, police stations, fire stations, etc.) is most important for planning against natural hazards.

- 68% of the residents stated that the internet (social media) is the best way for them to receive information about natural hazards. 47-56% also stated internet (web pages), mobile messages/alerts, mail and newspaper were the best ways.

- 58% of the residents have lived in the Valencia County area for 20 years or more.

The results of the survey were presented to the planning team at the Draft Hazard Mitigation Plan Meeting so that public opinion could be factored into final changes and additions to each jurisdiction's Mitigation Action Plan.

2.6 Involving the Stakeholders

44 CFR Requirement
44 CFR Part 201.6(b)(2): The planning process shall include an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other non-profit interests to be involved in the planning process.

The Valencia County Hazard Mitigation Planning Team included a variety of stakeholders beyond the representatives from each participating jurisdiction who were invited via social media advertisements, word of mouth at county meetings, and emails. These included representatives from the New Mexico Department of Homeland Security & Emergency Management (NMDHSEM) and FEMA. Input from additional stakeholders, including neighboring communities, was welcomed through the open public meetings and online survey. If any additional stakeholders representing other agencies and organizations participated in the Public Participation Survey, that information is unknown due to the anonymous nature of the survey.

2.7 Documentation of Plan Progress

Progress in hazard mitigation planning for the participating jurisdictions in Valencia County is documented in this plan update. In addition, community capability continues to improve with the implementation of new plans, policies, and programs that help to promote hazard mitigation at the local level. The current state of local capabilities for the participating jurisdictions is captured in Section 6: Capability Assessment. The participating jurisdictions continue to demonstrate their commitment to hazard mitigation and hazard mitigation planning and have proven this by reconvening the Valencia County Hazard Mitigation Planning Team to update the plan and by continuing to involve the public in the hazard mitigation planning process.

SECTION 3: PLANNING AREA PROFILE

This section of the Plan provides a general overview of the County. It consists of the following two subsections:

- 3.1 Geography and the Environment
- 3.2 Population and Demographics
- 3.3 Housing, Infrastructure, and Land Use

3.1 Geography and the Environment

3.1.1 Valencia County

Valencia County covers a land area of 1,458 square miles in central New Mexico. The County is bordered by Bernalillo County to the north, Torrance County to the east, Cibola County to the west, and Socorro County to the south. Natural features of the County include the massive Manzano Mountains to the east; the fertile Rio Grande and its lush Bosque which bisects the County, and the Rio Puerco valley to the west.

The County has five municipalities (Belen, Rio Communities, Peralta, Bosque Farms, and Los Lunas) and a number of unincorporated communities and census designated places including Adelino, Bosque, Casa Colorada, Chical, El Cerro, Highland Meadows, Jarales, Las Maravillas, Los Chavez, Madrone, Meadow Lake, Monterey Park, Pueblitos, Sausal, Tomé, Tome-Adelino, and Valencia.

Valencia County is also considered part of the Rio Abajo. Based on historical geography, the area below La Bajada near Santa Fe is called the Rio Abajo (lower river) valley, while the Espanola Valley is called the Rio Arriba (upper river).

Valencia County has been evolving as a historically rural and agricultural county with a rich natural and cultural heritage. This precious heritage, along with beautiful landscapes, and the proximity to Albuquerque has made the County a desirable place to live for centuries. From 1990 to 2020, the County increased its population by 68%. Most of this growth can be seen in increased housing (residential) and businesses (commercial), and the reduction in farmland. The various types of land uses (commercial, residential, industrial, agricultural, etc.) make up the character of Valencia County. However, despite the rapid growth, the County has expressed a strong desire to preserve and protect its unique heritage and lands.

Named after Juan de Valencia and created in 1844 by the Republic of Mexico, Valencia County was a large, agrarian, and heavily settled partido (local administrative unit) in what was then known as the lower Rio Grande, or Rio Abajo, valley. While not officially recognized as a county until the nineteenth century, the Rio Abajo was actually one of the oldest settled areas in what would become the United States.

Settlements occurred primarily along the fertile river flood plain where it was most suitable for raising livestock and agriculture. In addition, the proximity to the Camino Real route traveling to and from Mexico (New Spain), subsequent stage lines, and eventually the railroad made settlement in Valencia

County a logical occurrence. Valencia County originally extended as far west as the Arizona state boundary in present day Cibola County, and including numerous settlements westward.

In 1981, Cibola County was created by the New Mexico Legislature out of the western portion of Valencia County. Although Valencia County was significantly reduced in size, it became more manageable for the County government; and the Rio Grande valley provided a common geography for ongoing County development. Five municipalities have been incorporated to date: the City of Belen (1918), the Village of Los Lunas (1928), the Village of Bosque Farms (1974), the Town of Peralta (2007), and the City of Rio Communities (2013). Combined, these municipalities include nearly half of the total population of the County (around 46%). Although the municipalities are the major commercial centers in the County, dispersed commercial and industrial development is occurring throughout the unincorporated areas.

Valencia County has an abundance of cultural resources that should be protected and preserved. The County is intersected by three designated Scenic Byways. El Camino Real (meaning Royal Road or King's Highway) served as the main road for the Spanish caravans for over three hundred years and originally extended 1,150 miles from Mexico City to Santa Fe. Historic Route 66 was, at one time, located along present-day NM Highway 6. The Abo Pass Trail connects the Salt Missions Trail of Torrance County and El Camino Real in the southeast portion of Valencia County. Valencia County also has a number of properties on the state and/or national historic registers.

The 2020 U.S. Census recorded Valencia County's population as 76,688, which was a slight increase from the 2010 census total of 76,571. There are reported to be 31,208 total housing units in the county, up from 30,192 in 2010.

3.1.2 City of Belen

The City of Belen is called the "Hub City" for its central location in New Mexico. Belen is located in south central Valencia County, bordering the west bank of the Rio Grande. Belen is approximately 34 miles south of Albuquerque, and 10 miles south of Los Lunas. The surrounding unincorporated communities nearby include Los Chavez, Jarales, and Los Trujillos-Gabaldon.

Belen became the primary community and trading center in Valencia County after the King of Spain issued the Nuestra Señora de Belen grant to Captain Deige de Torres and some settlers. The railroad became a major activity center in the City in the 1880s and continues today as a major shipping point for freight traveling across the United States. The city form is strongly influenced by the railroad with evenly spaced and gridded streets fanning out from the railroad terminal.

Belen was incorporated in 1918 and is governed by a Mayor and four Councilors. The year 2010 census population is reported to be 7,269 while the most recent 2020 census population is reported to be 7,403. Typical urban services and facilities are provided to most of the incorporated area. Centralized water and wastewater systems are well established and serve most of the incorporated area. The City has many events that take place throughout the year. These events include the following: Independence Day Celebration, Oldies Night on Main Street, Our Lady of Belen Fiestas, Rio Abajo Days, Sheriff's Posse Rodeo, Annual Christmas Festival, Belen Electric Light Parade, and La Gran Pastorela de Belen. Historic sites in

and around Belen include the Belen Harvey House, Belen Hotel, Felipe Chaves House, and the Old Jarales Schoolhouse.

3.1.3 City of Rio Communities

The City of Rio Communities was incorporated in 2013. It is a city of nearly 5,000 people located along the east side of the Rio Grande River in southeastern Valencia County. Rio Communities is about 45 minutes from the Albuquerque International Airport and downtown Albuquerque. Rio Communities is close enough for easy access to Albuquerque but far enough away to provide a more competitive cost of living and cost of doing business. The median age of the City's demographics is 46.2 years with 2,071 total number of households. The residents of Rio Communities have diverse backgrounds and histories from all over the United States and the world. This diverse makeup and independent spirit makes Rio Communities a unique community on the Rio Grande and sets it apart from its neighbors.

Rio Communities offers a competitive tax profile and cost of doing business. The current Gross Receipts Tax is 7.9375% - lower than any surrounding municipality. The population is nearly 5,000 within the city limits, and there are nearly 45,000 New Mexicans within a 15-mile radius. The NMDOT reports that over 20,000 vehicles pass through the heart of Rio Communities daily.

3.1.4 Town of Peralta

Peralta is located directly south of Bosque Farms in northern Valencia County. The community is also bordered by Isleta Pueblo to the north and east, by the Rio Grande to the west, and by El Cerro to the south. The community of Valencia was established by Captain Francisco Valencia during the mid-17th century. The area was abandoned during the Pueblo revolt of 1860, and then resettled by Christian Indians called genizaros in 1740.

Three properties on the State and National Historic Registers are located in Peralta/Valencia. Those properties are: Our Lady of Guadalupe Catholic Church, Old Peralta School, and Valencia Pueblo. Our Lady of Guadalupe Church was built in 1879. The church had a flat roof until 1912 when it was replaced by the pitched roof that remains today.

The Sangre de Cristo (Blood of Christ) Church is not on the State or National Historic Register but has a colorful and violent past. Several tombstones are located in front of the church, one of which belongs to Francisco X. Vigil. On May 25, 1898, Vigil was gunned down in the line of duty while trying to arrest the infamous Bronco Bill and Kid Johnson during the Great Belen Train Robbery.

Entering into the 20th century Peralta joined Los Lunas and Belen as one of the three economic centers of the county. However, unlike the other two communities and being by-passed by the railroad, Peralta settled into being a small farming community for nearly the next 100 years. With the pressures of growth and facing inevitable change the residents of the community overwhelmingly voted to incorporate Peralta as a municipality in 2007. On July 1, 2007, the Town of Peralta became New Mexico's 103rd municipality. Peralta shares common borders with the Village of Bosque Farms, the Village of Los Lunas, and Isleta Pueblo. It is located in the North East Rio Grande Valley of Valencia

County and encompasses the entire width of the valley from the river on the west to the escarpment, sand hills (La Ladera) on the east.

Peralta is bisected by NM Highway 47, the primary thoroughfare in east Valencia County, which defines the commercial district that the Town Council is eager to promote for development. Working with the NM Department of Transportation it is anticipated that a new "community friendly" redesign of the highway will soon be realized that will include a turning lane, adequate drainage, lighting, and improved intersections. The Town of Peralta has a population of 3,576, according to the 2020 Census, and 1,490 housing units. There are approximately 2,858.7 acres (4.466 Sq. Miles) within the town that includes the commercial district and the outlying agricultural residential areas. The Peralta Town Council consists of a Mayor and four Councilors along with a Municipal Judge. Police protection is provided by the Bosque Farms Police Department through an annual contract agreement.

3.1.5 Village of Bosque Farms

Village of Bosque Farms is located on the east bank of the Rio Grande, approximately 18 miles south of Albuquerque. The Village is bordered by the lands of Isleta Pueblo on its north, east, and west sides. Directly south of the Village is the Peralta/Valencia Community. The current boundary of Bosque Farms generally follows the delineation of Tract No. 1 of the Gutierrez and Sedillo Land Grant, which was authorized by the King of Spain. With the completion of the drainage ditches and irrigation system by the Middle Rio Grande Conservancy District in the 1930s, Bosque Farms evolved into a well-known dairy and farming community. In the early 1960s land was subdivided into small tracts of one acre or less. Bosque Farms became incorporated in 1974, and the population doubled in the 1970s (from 1,600 in 1970 to 3,353 in 1980). However, population grew very slowly from 1980 to 2000, with the year 2000 population at 3,931. The population then decreased slightly and was 3,904 at the 2010 census. The most recent 2020 census data of 3,876 for the Bosque Farms population indicates a decrease in population since the 2010 census.

The governing body in Bosque Farms is made up of a Mayor and four Councilors. The Village maintains a centralized water system and wastewater collection and treatment. The form of development in the Village is oriented along an intense commercial strip along N.M. Highway 47 flanked by low density residential neighborhoods and some outlying agricultural croplands. The big event in the Village every year is the Bosque Farms Community Fair, which takes place in August. It is the oldest ongoing community fair in Valencia County. Bosque Farms has two designated historic sites: the Bosque Cooperative Building and the Dust Bowl Home.

3.1.6 Village of Los Lunas

The Village of Los Lunas is the Valencia County Seat, as well as the largest (in population) and fastest growing municipality in the County. The population jumped from 6,013 in 1990 to 10,034 in 2000 and then 14,835 persons in 2010. The 2020 U.S. Census recorded the Village population as 15,589. The majority of the Village lies near the west bank of the Rio Grande; however, annexations have added land on the east side of the river and to the west of the I-25 freeway. The Village was incorporated in 1928.

Traditionally, Los Lunas was a farming community, but recent growth has made the Village a significant business center and residential cluster in Valencia County. Development over the last twenty years has made the Village one of the fastest growing municipalities in New Mexico. From 1990 to 2010 Los Lunas experienced a significant growth spurt that resulted in the designation of a new urbanized area, the Los Lunas Urbanized Area, by the United States Census. Much of the new growth has occurred on the west side of the Village with new commercial developments along Main Street and a large master planned community west of Interstate Highway 25 that includes an industrial commercial park and a residential area with planned walking trails that connect throughout.

A Mayor and four Councilors govern the municipality. The Village offers typical urban services and has a well-developed infrastructure with centralized water supply and wastewater disposal. Most of the commercial development in Los Lunas is located along N.M. Highway 6 and N.M. Highway 314. A major I-25 interchange provides access into the community. As the County Seat, Los Lunas is also the government center of the County. A number of events take place in Los Lunas every year. These events include the King of the Hill Marathon, the annual Easter egg hunt, the Independence Day Celebration, and the Christmas Light Parade. Los Lunas has 10 properties on the State and National Historic Registers.

3.1.7 Middle Rio Grande Conservancy District (MRGCD)

The Middle Rio Grande Conservancy District (MRGCD) was created in 1925 to provide drainage of highwater tables and irrigation water returns in the Middle Rio Grande valley, flood protection from the Rio Grande, and to deliver irrigation water to farms and other properties in the MRGCD. Valencia County falls within the MRGCD's Belen Division, which maintains over 450 miles of water facilities. The MRGCD also owns and manages 8,200 acres of riparian forest or "bosque" within the Belen Division. MRGCD taxes property that is within the administrative boundaries of the District.

The District is governed by a Board of Directors with seven positions. There are twelve departments within the District:

- Accounting
- Assessments
- Biology & Planning
- Engineering
- Equipment Repair & Transportation
- General Office
- Human Resources
- Hydrology
- Information Systems
- Mapping/GIS
- Purchasing
- Records

3.2 Population and Demographics

As seen in **Figure 3-1**, the U.S. Census Bureau estimates as of 2020 that Valencia County has a total of 76,688 people residing within its boundaries. Of the participating jurisdictions, the City of Rio Communities, Town of Peralta, and Village of Bosque Farms and have seen declining growth. Although Valencia County has seen growth, it is not of a significant value. The table below details the participating jurisdictions' demographic information. Population counts from the U.S. Census Bureau for 2010 and 2020 for each of the participating jurisdiction are presented in **Table 3-1**.

Table 3-1: Population Counts for Participating Jurisdictions

Jurisdiction	2010 Census Population	2020 Census Population	% Change 2010-2020
Valencia County	76,571	76,688	0.15%
City of Belen	7,269	7,403	1.84%
City of Rio Communities	4,723	4,568	-3.28%
Town of Peralta	3,660	3,576	-2.30%
Village of Bosque Farms	3,904	3,876	-0.72%
Village of Los Lunas	14,835	15,589	5.08%

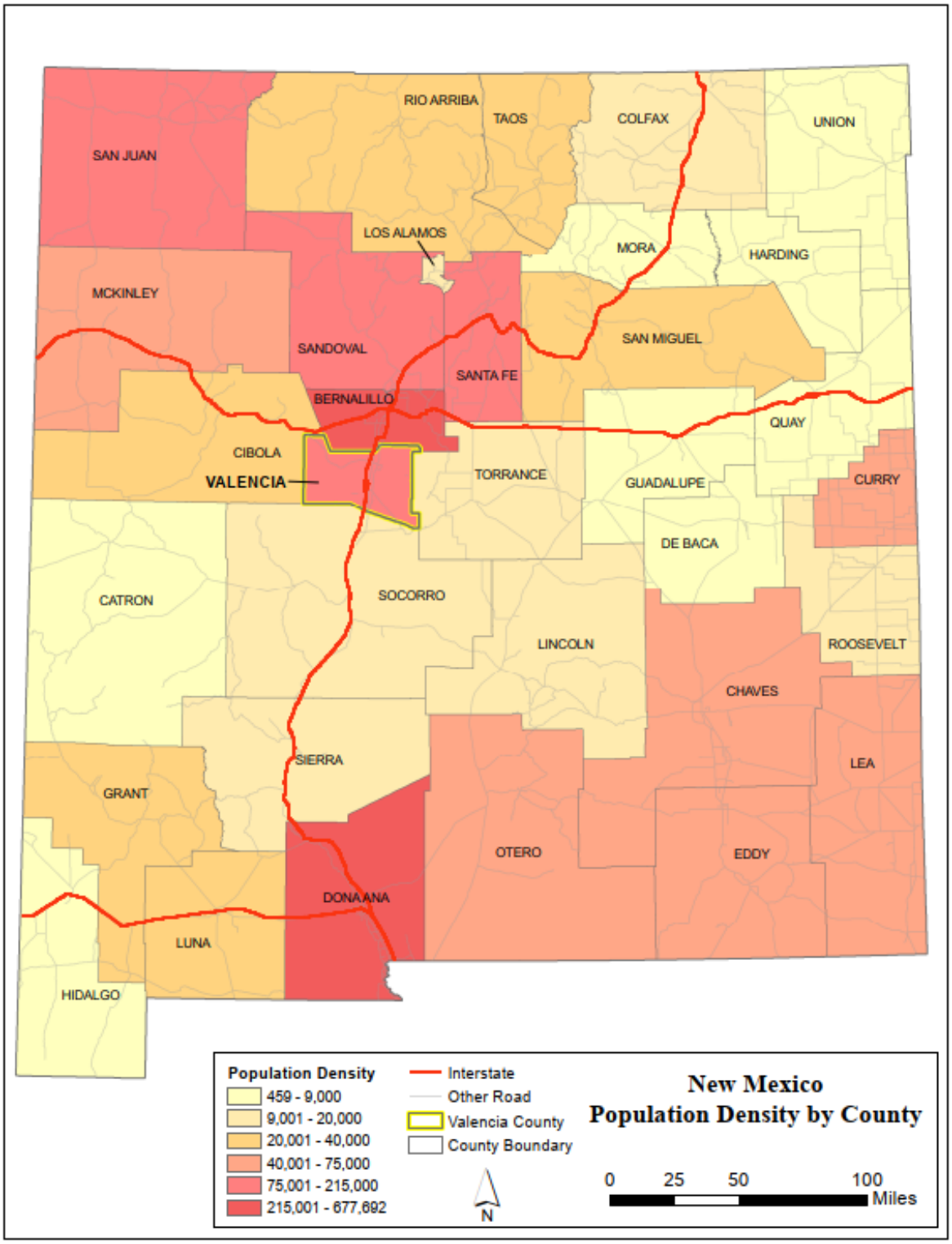


Figure 3-1: New Mexico Population Density by County

Based on the 2019 Census estimates, the median age of residents in the county is 33.6 years. The racial characteristics of the county are presented in **Table 3-2**. Generally, whites make up the majority of the population in the region accounting for over two-thirds of the population.

Table 3-2: Demographics of Participating Jurisdictions

Jurisdiction	White, Percent (2020)	Black or African American, Percent (2020)	American Indian or Alaska Native, Percent (2020)	Asian, Percent (2020)	Native Hawaiian or Other Pacific Islander, Percent (2020)	Two or More Races, percent (2020)	Persons of Hispanic Origin, Percent (2020)*
Valencia County	85.1%	4.3%	2.6%	0.8%	0.0%	4.3%	61.1%
City of Belen	79.4%	0.5%	12.0%	0.8%	0.0%	1.9%	56.7%
City of Rio Communities	80.1%	2.2%	2.6%	0.6%	0.0%	0.0%	46.6%
Town of Peralta	82.7%	0.0%	0.6%	3.2%	0.0%	1.7%	56.8%
Village of Bosque Farms	85.4%	0.2%	7.9%	2.0%	0.0%	3.8%	41.3%
Village of Los Lunas	83.3%	2.9%	1.9%	0.9%	0.0%	4.7%	58.4%

*Hispanics may be of any race, so also are included in applicable race categories
Source: United States Census Bureau

3.3 Housing, Infrastructure, and Land Use

3.3.1 Housing

According to the 2020 U.S. Census, there are 44,078 housing units in the County, the majority of which are single family homes or mobile homes. Housing information for Valencia County and the four participating jurisdictions is presented in **Table 3-3**. As shown in the table, the Village of Los Lunas has a slightly higher percentage of seasonal housing units compared to the other communities.

Table 3-3: Housing Characteristics of Participating Jurisdictions

Jurisdiction	Housing Units	Median Home Value
Valencia County	31,208	$142,600
City of Belen	3,349	N/A
City of Rio Communities	2,071	N/A
Town of Peralta	1,490	N/A
Village of Bosque Farms	1,595	N/A
Village of Los Lunas	6,436	N/A

3.3.2 Infrastructure

Utilities

Valencia County utilities are business enterprises that provide essential public services including electricity, natural gas, water, and sewer services in Valencia County, New Mexico. Because of the infrastructure required to deliver services, a monopoly is often the most economical way for a utility service to operate. Valencia County public utility companies serve all of the customers for a particular service in Valencia County.

Water and sewer service are provided by many of the municipalities in the region. Although some areas do require the use of wells and septic systems, much of the region is covered under either municipal or county providers.

Rio Communities water and sewer services are provided by New Mexico Water Service, a private company.

Community Facilities

There are a number of public buildings and community facilities located throughout the region. According to the data collected for the vulnerability assessment, there are 8 fire stations, 9 police stations, and 28 schools located within the study area. There are 3 medical care facilities located in the region. There are also numerous parks and recreational areas in the region.

Land Use

There are five incorporated municipalities located throughout the study area (county) which make up most of the area's population. The incorporated areas are also where many businesses, commercial uses, and institutional uses are located. Land uses in the study area generally consist of residential and commercial development in the municipal areas with agricultural and recreational uses in the more rural unincorporated areas. Agriculture remains one of the largest land uses in the region and comprises a mix of cropland and pastureland dispersed across the region.

SECTION 4: HAZARD IDENTIFICATION

This section describes how the planning team identified the hazards to be included this plan. It consists of the following four subsections:

- 4.1 Overview
- 4.2 Description of Full Range of Hazards
- 4.3 Disaster Declarations
- 4.4 Hazard Evaluation

44 CFR Requirement
44 CFR Part 201.6(c)(2)(i): The risk assessment shall include a description of the type, location and extent of all-natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

4.1 Overview

Valencia County is vulnerable to a wide range of natural and human-caused hazards that threaten life and property. Current FEMA regulations and guidance under the Disaster Mitigation Act of 2000 (DMA 2000) require, at a minimum, an evaluation of a full range of natural hazards. An evaluation of human-caused hazards (i.e., technological hazards, terrorism, etc.) is encouraged, though not required, for plan approval. The County has included a comprehensive assessment of both types of hazards.

Upon a review of the full range of natural hazards suggested under FEMA planning guidance, the participating counties in the Valencia County have identified a number of hazards that are to be addressed in its Hazard Mitigation Plan. These hazards were identified through an extensive process that utilized input from the Valencia County Hazard Mitigation Planning Committee members, research of past disaster declarations in the participating counties, and review of the New Mexico State Hazard Mitigation Plan. Readily available information from reputable sources (such as federal and state agencies) was also evaluated to supplement information from these key sources.

Table 4-1 lists the full range of natural hazards initially identified for inclusion in the Plan and provides a brief description for each. This table includes 24 individual hazards. Some of these hazards are interrelated or cascading, but for preliminary hazard identification purposes these individual hazards are broken out separately.

Next, **Table 4-2** lists the presidential disaster declarations in Valencia County.

Next, **Table 4-3** lists the state disaster declarations in Valencia County.

Next, **Table 4-4** documents the evaluation process used for determining which of the initially identified hazards are considered significant enough to warrant further evaluation in the risk assessment. For each hazard considered, the table indicates whether the hazard was identified as a significant hazard to be further assessed, how this determination was made, and why this determination was made. The table works to summarize not only those hazards that *were* identified (and why) but also those that *were not* identified (and why not). Hazard events not identified for inclusion at this time may be addressed during future evaluations and updates of the risk assessment if deemed necessary by the Valencia County Hazard Mitigation Planning Committee during the plan update process.

Lastly, **Table 4-5** provides a summary of the hazard identification and evaluation process noting that 8 of the 24 initially identified hazards are considered significant enough for further evaluation through this Plan's risk assessment.

4.2 Description of Full Range of Hazards

Table 4-1: Descriptions of the Full Range of Initially Identified Hazards

Hazard	Description
ATMOSPHERIC HAZARDS	
Avalanche	A rapid fall or slide of a large mass of snow down a mountainside.
Drought	A prolonged period of less than normal precipitation such that the lack of water causes a serious hydrologic imbalance. Common effects of drought include crop failure, water supply shortages, and fish and wildlife mortality. High temperatures, high winds, and low humidity can worsen drought conditions and make areas more susceptible to wildfire. Human demands and actions could hasten or mitigate drought-related impacts on local communities.
Hailstorm	Any storm that produces hailstones that fall to the ground; usually used when the amount or size of the hail is considered significant. Hail is formed when updrafts in thunderstorms carry raindrops into parts of the atmosphere where the temperatures are below freezing.
Extreme Heat	A heat wave may occur when temperatures hover 10 degrees or more above the average high temperature for the region and last for several weeks. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground. Excessively dry and hot conditions can provoke dust storms and low visibility. A heat wave combined with a drought can be very dangerous and have severe economic consequences on a community.
Hurricane and Tropical Storm	Hurricanes and tropical storms are classified as cyclones and defined as any closed circulation developing around a low-pressure center in which the winds rotate counterclockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere) and with a diameter averaging 10 to 30 miles across. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane. The primary damaging forces associated with these storms are high-level sustained winds, heavy precipitation and tornadoes. Coastal areas are also vulnerable to the additional forces of storm surge, wind-driven waves and tidal flooding which can be more destructive than cyclone wind. Most hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea and Gulf of Mexico during the official Atlantic hurricane season, which extends from June through November.
Lightning	Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes, but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder. On average, 73 people are killed each year by lightning strikes in the United States.

Hazard	Description
Nor'easter	Similar to hurricanes, nor'easters are ocean storms capable of causing substantial damage to coastal areas in the Eastern United States due to their associated strong winds and heavy surf. Nor'easters are named for the winds that blow in from the northeast and drive the storm up the East Coast along the Gulf Stream, a band of warm water that lies off the Atlantic coast. They are caused by the interaction of the jet stream with horizontal temperature gradients and generally occur during the fall and winter months when moisture and cold air are plentiful. Nor'easters are known for dumping heavy amounts of rain and snow, producing hurricane-force winds, and creating high surf that causes severe beach erosion and coastal flooding.
Tornado	A tornado is a violently rotating column of air that has contact with the ground and is often visible as a funnel cloud. Its vortex rotates cyclonically with wind speeds ranging from as low as 40 mph to as high as 300 mph. Tornadoes are most often generated by thunderstorm activity when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The destruction caused by tornadoes ranges from light to catastrophic depending on the intensity, size and duration of the storm.
Severe Thunderstorm	Thunderstorms are caused by air masses of varying temperatures meeting in the atmosphere. Rapidly rising warm moist air fuels, the formation of thunderstorms. Thunderstorms may occur singularly, in lines, or in clusters. They can move through an area very quickly or linger for several hours. Thunderstorms may result in hail, tornadoes, or straight-line winds. Windstorms pose a threat to lives, property, and vital utilities primarily due to the effects of flying debris and can down trees and power lines.
Winter Storm	Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Blizzards, the most dangerous of all winter storms, combine low temperatures, heavy snowfall, and winds of at least 35 miles per hour, reducing visibility to only a few yards. Ice storms occur when moisture falls and freezes immediately upon impact on trees, power lines, communication towers, structures, roads and other hard surfaces. Winter storms and ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.
GEOLOGIC HAZARDS	
Earthquake	A sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the surface. This movement forces the gradual building and accumulation of energy. Eventually, strain becomes so great that the energy is abruptly released, causing the shaking at the earth's surface which we know as an earthquake. Roughly 90 percent of all earthquakes occur at the boundaries where plates meet, although it is possible for earthquakes to occur entirely within plates. Earthquakes can affect hundreds of thousands of square miles; cause damage to property measured in the tens of billions of dollars; result in loss of life and injury to hundreds of thousands of persons; and disrupt the social and economic functioning of the affected area.
Expansive Soils	Soils that will exhibit some degree of volume change with variations in moisture conditions. The most important properties affecting degree of volume change in a soil are clay mineralogy and the aqueous environment. Expansive soils will exhibit expansion caused by the intake of water and, conversely, will exhibit contraction when moisture is removed by drying. Generally speaking, they often appear sticky when wet, and are characterized by surface cracks when dry. Expansive soils become a problem when structures are built upon them without taking proper design precautions into account with regard to soil type. Cracking in walls and floors can be minor or can be severe enough for the home to be structurally unsafe.

Hazard	Description
Landslide	The movements of a mass of rock, debris, or earth down a slope when the force of gravity pulling down the slope exceeds the strength of the earth materials that comprise to hold it in place. Slopes greater than 10 degrees are more likely to slide, as are slopes where the height from the top of the slope to its toe is greater than 40 feet. Slopes are also more likely to fail if vegetative cover is low and/or soil water content is high.
Land Subsidence	The gradual settling or sudden sinking of the Earth's surface due to the subsurface movement of earth materials. Causes of land subsidence include groundwater pumpage, aquifer system compaction, drainage of organic soils, underground mining, hydro compaction, natural compaction, sinkholes, and thawing permafrost.
Tsunami	A series of waves generated by an undersea disturbance such as an earthquake. The speed of a tsunami traveling away from its source can range from up to 500 miles per hour in deep water to approximately 20 to 30 miles per hour in shallower areas near coastlines. Tsunamis differ from regular ocean waves in that their currents travel from the water surface all the way down to the sea floor. Wave amplitudes in deep water are typically less than one meter; they are often barely detectable to the human eye. However, as they approach shore, they slow in shallower water, basically causing the waves from behind to effectively "pile up", and wave heights to increase dramatically. As opposed to typical waves which crash at the shoreline, tsunamis bring with them a continuously flowing 'wall of water' with the potential to cause devastating damage in coastal areas located immediately along the shore.
Volcano	A mountain that opens downward to a reservoir of molten rock below the surface of the earth. While most mountains are created by forces pushing up the earth from below, volcanoes are different in that they are built up over time by an accumulation of their own eruptive products: lava, ash flows, and airborne ash and dust. Volcanoes erupt when pressure from gases and the molten rock beneath becomes strong enough to cause an explosion.
HYDROLOGIC HAZARDS	
Dam and Levee Failure	Dam failure is the collapse, breach, or other failure of a dam structure resulting in downstream flooding. In the event of a dam failure, the energy of the water stored behind even a small dam is capable of causing loss of life and severe property damage if development exists downstream of the dam. Dam failure can result from natural events, human-induced events, or a combination of the two. The most common cause of dam failure is prolonged rainfall that produces flooding. Failures due to other natural events such as hurricanes, earthquakes or landslides are significant because there is generally little or no advance warning.
Erosion	Erosion is the gradual breakdown and movement of land due to both physical and chemical processes of water, wind, and general meteorological conditions. Natural, or geologic, erosion has occurred since the Earth's formation and continues at a very slow and uniform rate each year.
Flood	The accumulation of water within a water body which results in the overflow of excess water onto adjacent lands, usually floodplains. The floodplain is the land adjoining the channel of a river, stream ocean, lake or other watercourse or water body that is susceptible to flooding. Most floods fall into the following three categories: riverine flooding, coastal flooding, or shallow flooding (where shallow flooding refers to sheet flow, ponding and urban drainage).

Hazard	Description
Storm Surge	A storm surge is a large dome of water often 50 to 100 miles wide and rising anywhere from four to five feet in a Category 1 hurricane up to more than 30 feet in a Category 5 storm. Storm surge heights and associated waves are also dependent upon the shape of the offshore continental shelf (narrow or wide) and the depth of the ocean bottom (bathymetry). A narrow shelf, or one that drops steeply from the shoreline and subsequently produces deep water close to the shoreline, tends to produce a lower surge but higher and more powerful storm waves. Storm surge arrives ahead of a storm's actual landfall and the more intense the hurricane is, the sooner the surge arrives. Storm surge can be devastating to coastal regions, causing severe beach erosion and property damage along the immediate coast. Further, water rise caused by storm surge can be very rapid, posing a serious threat to those who have not yet evacuated flood-prone areas.
OTHER HAZARDS	
Hazardous Materials Incident	Hazardous material (HAZMAT) incidents can apply to fixed facilities as well as mobile, transportation-related accidents in the air, by rail, on the nation's highways and on the water. HAZMAT incidents consist of solid, liquid and/or gaseous contaminants that are released from fixed or mobile containers, whether by accident or by design as with an intentional terrorist attack. A HAZMAT incident can last hours to days, while some chemicals can be corrosive or otherwise damaging over longer periods of time. In addition to the primary release, explosions and/or fires can result from a release, and contaminants can be extended beyond the initial area by persons, vehicles, water, wind and possibly wildlife as well.
Terror Threat	Terrorism is defined by FEMA as, "the use of force or violence against persons or property in violation of the criminal laws of the United States for purposes of intimidation, coercion, or ransom." Terrorist acts may include assassinations, kidnappings, hijackings, bomb scares and bombings, cyberattacks (computer- based), and the use of chemical, biological, nuclear and radiological weapons.
Wildfire	An uncontrolled fire burning in an area of vegetative fuels such as grasslands, brush, or woodlands. Heavier fuels with high continuity, steep slopes, high temperatures, low humidity, low rainfall, and high winds all work to increase risk for people and property located within wildfire hazard areas or along the urban/wildland interface. Wildfires are part of the natural management of forest ecosystems, but most are caused by human factors. Over 80 percent of forest fires are started by negligent human behavior such as smoking in wooded areas or improperly extinguishing campfires. The second most common cause for wildfire is lightning.
Nuclear Accident	The International Atomic Energy Agency (IAEA) classifies a nuclear incident or accident as an event that leads to significant consequences for people, the environment, or the facility. Typically, the effects of an incident are the release of radioactive substances that can cause damaging impacts. The IAEA uses a scale known as the International Nuclear and Radiological Event Scale (INES) to classify the level of impact that an event has on people and the environment.

4.3 Disaster Declarations

Disaster declarations provide initial insight into the hazards that may impact the Valencia County planning area. Since 1973, three presidential disaster declarations have been reported in the County.

Table 4-2: Valencia County Presidential Disaster Declarations

Year	Disaster Number	Description
1973	380	Severe Storms, Snowmelt, and Flooding
2006	1659	Flooding, Severe Storms
2020	4529	COVID-19 Pandemic

Table 4-3: Valencia County State Disaster Declarations

Year	Description
2018	Flooding
2019	Ironworks Fire
2021	Flooding
2021	Cemetery Fire

4.4 Hazard Evaluation

The table at the bottom of this page lists the hazards profiled in the State of New Mexico Hazard Mitigation Plan. Based on the research described above, eight of these hazards pose a risk to at least one jurisdiction in Valencia County. These are: dam failure, drought, extreme heat, flood, severe storms, tornado, wildfire, and winter storm. Hail, high winds, and lightning are included under the severe storms profile.

Details for each hazard and their potential impact on Valencia County are located in Section 5. The following tables compare the identified and profiled hazards as they relate to their previous plan and to the state's plan. Any hazards which affect the State of New Mexico or were profiled in the previous plan, but do not affect any of Valencia County's jurisdictions are listed as 'excluded.'

Table 4-4: State of New Mexico Hazards

State of New Mexico Hazards		
Hazard	**Identification Process**	**Risk Identified**
Dam Failure	Local input, dam location, and topography	Potential risk of dam failure
Drought	Local input, past hazard events	Reoccurring droughts
Earthquake	Local input, past hazard events	Low risk of seismic activity
Expansive Soils	Excluded	Limited risk
Extreme Heat	Local input, past hazard events	History of fatalities
Flood	Local input, past hazard events, FEMA NFHL	Extensive 100- and 500-year floodplains throughout the county
Hail	Local input, past hazard events	History of county wide hail damage
High Wind	Local input, past hazard events	History of region wide storm damage

State of New Mexico Hazards		
Hazard	**Identification Process**	**Risk Identified**
Lightning	Local input, past hazard events	Limited historical incidents
Land Subsidence	Excluded	No risk to Valencia County
Landslides	Excluded	No risk to Valencia County
Severe Storms	Local input, past hazard events	History of region wide storm damage
Tornado	Local input, past hazard events	Limited past tornado activity
Volcano	Excluded	No reasonable or predicted risk
Wildfire	Local input, Wildland Urban Interface (WUI) analysis, New Mexico State Forestry Division	Extensive vegetation and historical wildfire activity
Winter Storm	Local input, past hazard events	The region is not prepared for long term exposure. Causes service infrastructure damage

Table 4-5: Valencia County Hazards

Valencia County Hazards		
Hazard	**Identification Process**	**Risk Identified**
Dam Failure	Local input, dam location, and topography	Potential risk of dam failure
Drought	Local input, past hazard events	Reoccurring droughts
Earthquake	Local input, past hazard events	Low risk of seismic activity
Extreme Heat	Local input, past hazard events	History of fatalities
Flood	Local input, past hazard events, FEMA NFHL	Extensive 100- and 500-year floodplains throughout the county
Severe Storms (including Hail, High Winds and Lightning)	Local input, past hazard events	History of region wide storm damage
Tornado	Local input, past hazard events	Limited past tornado activity
Wildfire	Local input, WUI analysis, New Mexico State Forestry Division	Extensive vegetation and historical wildfire activity
Winter Storm	Local input, past hazard events	The region is not prepared for long term exposure. Causes service infrastructure damage

SECTION 5: HAZARD PROFILES

This section includes detailed hazard profiles for each of the hazards identified in the previous section (*Hazard Identification*) as significant enough for further evaluation in the Valencia County Hazard Mitigation Plan. It contains the following subsections:

44 CFR Requirement
44 CFR Part 201.6(c)(2)(i): The risk assessment shall include a description of the type, location and extent of all-natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events

5.1 Overview

This section includes detailed hazard profiles for each of the hazards identified in the previous section (*Hazard Identification*) as significant enough for further evaluation in Valencia County hazard risk assessment by creating a hazard profile. Each hazard profile includes a general description of the hazard, its location and extent, notable historical occurrences, and the probability of future occurrences. Each profile also includes specific items noted by members of the Valencia County Hazard Mitigation Planning Team (Planning Team) as it relates to unique historical or anecdotal hazard information for Valencia County, or a participating municipality within them.

The following hazards were identified:

- **Atmospheric**
  - Drought
  - Extreme Heat
  - Severe Storms
  - Tornado
  - Winter Storm
- **Geologic**
  - Earthquake
- **Hydrologic**
  - Dam Failure
  - Flood
- **Other**
  - Wildfire

5.2 Study Area

Table 5-1 provides a summary table of the participating jurisdictions within the county.

Table 5-1: Participating Jurisdictions in the Valencia County Hazard Mitigation Plan

Valencia County	
City of Belen	Village of Bosque Farms
City of Rio Communities	Village of Los Lunas
Town of Peralta	Middle Rio Grande Conservancy District

ATMOSPHERIC HAZARDS

5.3 Drought

5.3.1 Background

Drought is a normal part of virtually all climatic regions, including areas with high and low average rainfall. Drought is the consequence of a natural reduction in the amount of precipitation expected over an extended period of time, usually a season or more in length. High temperatures, high winds, and low humidity can exacerbate drought conditions. In addition, human actions and demands for water resources can hasten drought-related impacts. Drought may also lead to more severe wildfires.

Droughts are typically classified into one of four types: 1) meteorological, 2) hydrologic, 3) agricultural, or 4) socioeconomic. **Table 5-2** presents definitions for these types of droughts.

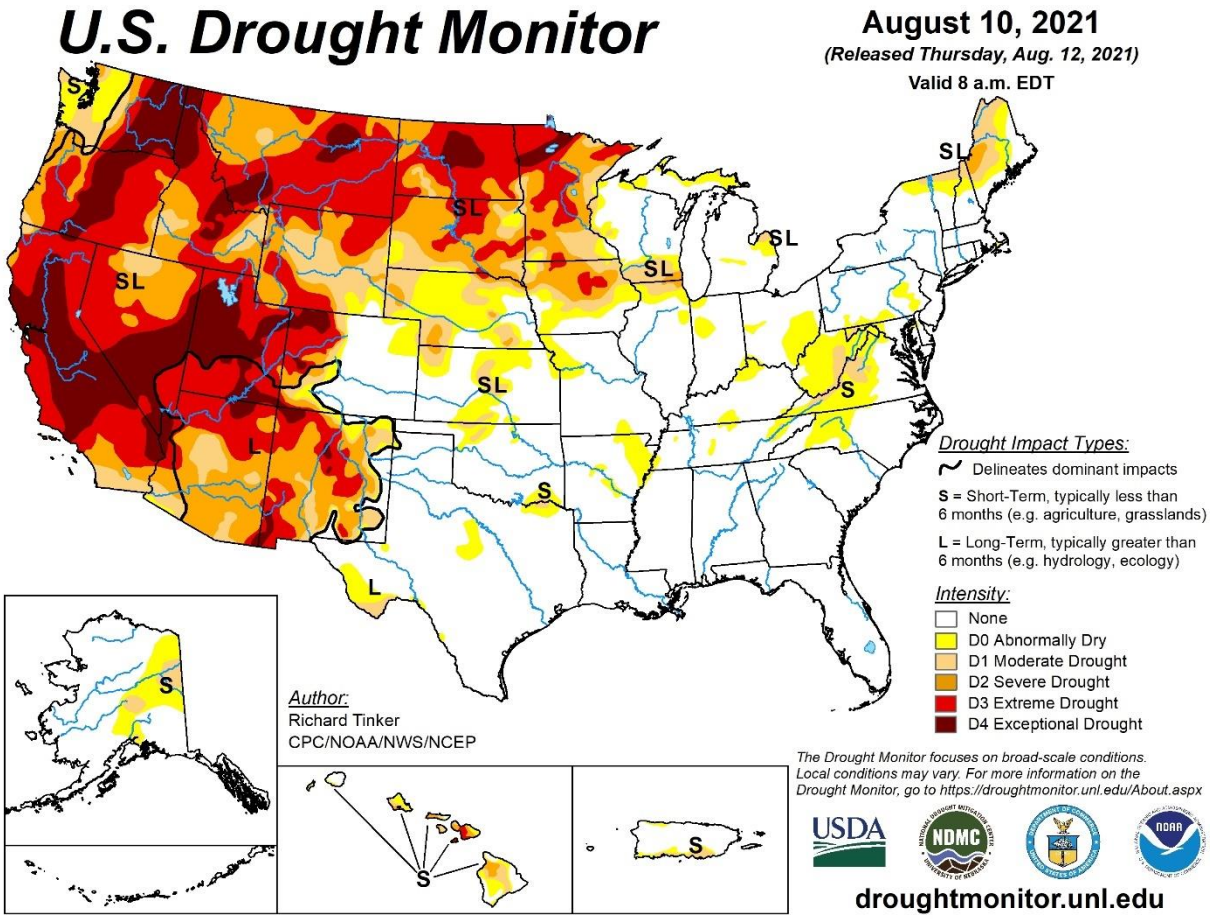
Table 5-2: Drought Classification Definitions

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

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

Droughts are slow-onset hazards, but, over time, can have very damaging effects to crops, municipal water supplies, recreational uses, and wildlife. If drought conditions extend over several years, the direct and indirect economic impact can be significant.

The Palmer Drought Severity Index (PDSI) is based on observed drought conditions and ranges from -0.5 (incipient dry spell) to -4.0 (extreme drought). Evident in **Figure 5-1 and 5-2**, the Palmer Drought Severity Index Summary Map for the United Stated, drought affects most areas of the United States, but is more severe in the Western United States.



Source: National Drought Mitigation Center

Figure 5-1: Palmer Drought Severity Index Summary Map for the United States

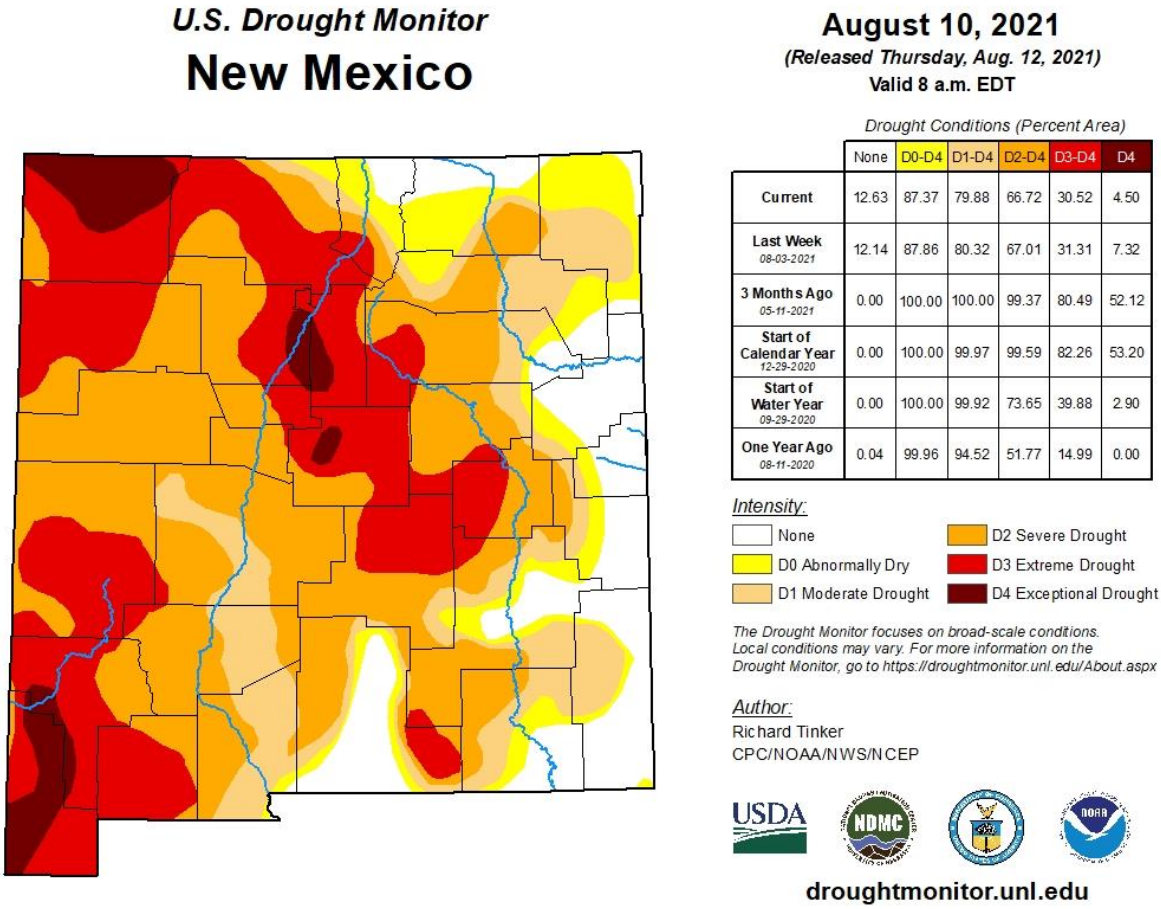


Figure 5-2: Palmer Drought Severity Index Summary Map for New Mexico

5.3.2 Location and Spatial Extent

Drought typically covers a large area and cannot be confined to any geographic or political boundaries. According to the Palmer Drought Severity Index (**Figure 5-2**), Central to Southwestern New Mexico has a high risk for drought hazard. However, local areas may experience much more severe and/or frequent drought events than what is represented on the Palmer Drought Severity Index map. Furthermore, it is assumed that Valencia County would be uniformly exposed to drought, making the spatial extent potentially widespread. It is also notable that drought conditions typically do not cause significant damage to the built environment.

The United States Drought Monitor reports data on drought conditions from 2000 to 2021. It classifies drought by County on a scale of D0 to D4 where:

D0: Abnormally Dry;
D1: Moderate Drought;
D2: Severe Drought;

D3: Extreme Drought; and

D4: Exceptional Drought.

Category	Impact
D0	Pastures are dry; mild crop stress is noted; irrigation increases
	Lawns are brown
D1	Crop stress increases
	Hay production is reduced, producers feed hay to cattle early
	Wildfire danger is higher than the seasonal normal
	Increased signs of wildlife; trees and landscape are drought stressed
	Streamflow is reduced; lake and reservoirs levels decline
	Voluntary water conservation begins
D2	Dryland crop yields are low
	Wildfires are difficult to extinguish
	Swimming areas and boat ramps begin to close
	Voluntary and mandatory water use restrictions are implemented, people are asked to refrain from nonessential water use
D3	Hay is scarce, producers are purchasing outside of state; nitrate levels in forage are high
	Outdoor burn bans are implemented; wildfires are widespread
	Landscaping and greenhouse businesses lose revenue
	Aquatic wildlife is dying; fewer trout are stocked
	Hydropower generation decreases
	Voluntary conservation is requested even in sufficient water level areas; mandatory restrictions become more severe, and fines are given to violators; stream levels are extremely low

D4	Producers sell cattle; hay shortages and crop loss occur; farmers are stressed
	Daily life is affected for all citizens; people pray for rain; drought education seminars increase
	Epizootic hemorrhagic disease is widespread in deer
	Reservoirs are low; officials are counting the days of remaining water supply; well water is low; residents are hauling water

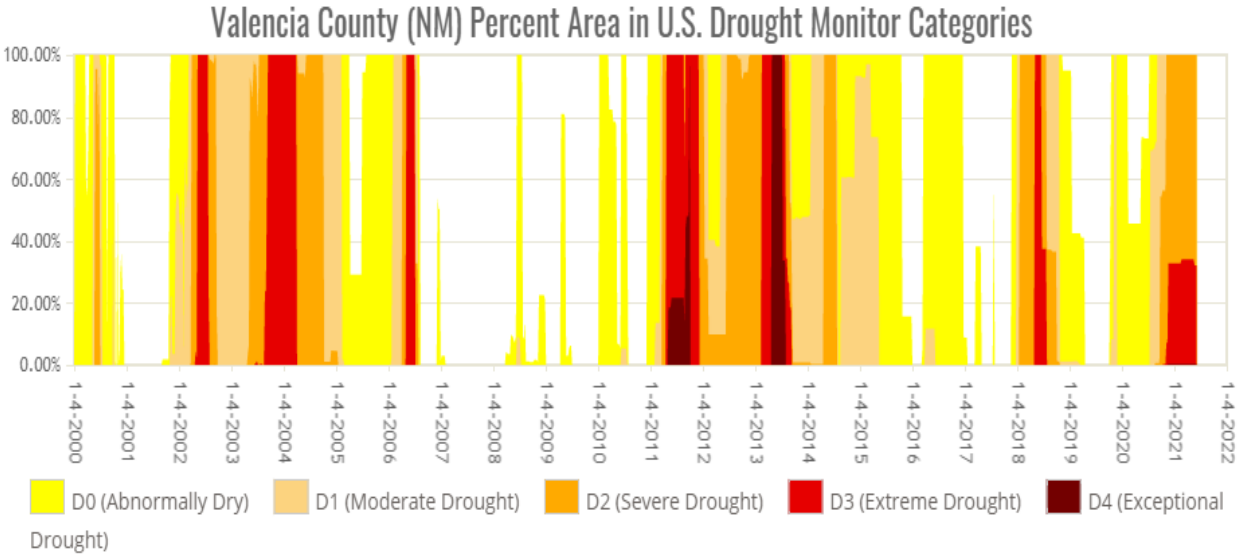
5.3.3 Extent

According to Drought Monitor, all of Valencia County experienced 21 years' worth of drought occurrences (including exceptional drought) during the last 21 years (2000-2021).

Table 5-3: Drought Extent

Location	Number Years with Drought Occurrences	Number Years with Exceptional Drought Occurrences
Valencia County	21	2

It should be noted that the Drought Monitor also estimates what percentage of the county is in each classification of drought severity. For example, the most severe classification reported may be exceptional, but most of the county may be in a less severe condition. The values in the following chart are for places represented as areas. Data breaking down drought at the jurisdictional level is not reasonably accessible. The participating jurisdictions do not anticipate future conditions that would fall outside these presently established extents and anticipate seeing the entire range of the Palmer drought scale county wide.



5.3.4 Historical Occurrences

Data from Drought Management Advisory Council and National Climatic Data Center (NCDC) were used to ascertain historical drought events in the County.

According to NCDC, there has been 60 days (about 2 months) with a drought event since 2011. It should be noted that there have been more events that are not represented through NCDC. **Table 5-4** gives a summary of drought experiences in the County.

Table 5-4: Summary of Drought Occurrences

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
South Central Highlands ...	03/22/2011	Drought		0	0	0.00K	0.00K
West Central Highlands (...	03/29/2011	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/29/2011	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/29/2011	Drought		0	0	0.00K	0.00K
West Central Highlands (...	04/01/2011	Drought		0	0	0.00K	0.00K
South Central Highlands ...	04/01/2011	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/01/2011	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/01/2011	Drought		0	0	0.00K	0.00K
West Central Highlands (...	05/01/2011	Drought		0	0	0.00K	0.00K
South Central Highlands ...	05/01/2011	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	05/01/2011	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	05/01/2011	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	06/01/2011	Drought		0	0	0.00K	0.00K
West Central Highlands (...	06/01/2011	Drought		0	0	0.00K	0.00K
South Central Highlands ...	06/01/2011	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	06/01/2011	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	07/01/2011	Drought		0	0	0.00K	0.00K
South Central Highlands ...	07/01/2011	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	07/01/2011	Drought		0	0	0.00K	0.00K
West Central Highlands (...	07/01/2011	Drought		0	0	0.00K	0.00K
South Central Highlands ...	08/01/2011	Drought		0	0	0.00K	0.00K
West Central Highlands (...	08/01/2011	Drought		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Sandia/Manzano Mountains...	08/01/2011	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	08/01/2011	Drought		0	0	0.00K	0.00K
West Central Highlands (...	09/01/2011	Drought		0	0	0.00K	0.00K
South Central Highlands ...	09/01/2011	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	09/01/2011	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	09/01/2011	Drought		0	0	0.00K	0.00K
West Central Highlands (...	10/01/2011	Drought		0	0	0.00K	0.00K
South Central Highlands ...	10/01/2011	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	10/01/2011	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	10/01/2011	Drought		0	0	0.00K	0.00K
West Central Highlands (...	11/01/2011	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	11/01/2011	Drought		0	0	0.00K	0.00K
South Central Highlands ...	11/01/2011	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	11/01/2011	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/01/2011	Drought		0	0	0.00K	0.00K
South Central Highlands ...	12/01/2011	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/01/2011	Drought		0	0	0.00K	0.00K
West Central Highlands (...	12/01/2011	Drought		0	0	0.00K	0.00K
South Central Highlands ...	01/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	01/01/2012	Drought		0	0	0.00K	0.00K
West Central Highlands (...	01/01/2012	Drought		0	0	0.00K	0.00K
South Central Highlands ...	02/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/01/2012	Drought		0	0	0.00K	0.00K
South Central Highlands ...	03/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/01/2012	Drought		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Albuquerque Metro Area (...	04/01/2012	Drought		0	0	0.00K	0.00K
South Central Highlands ...	04/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	05/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	05/01/2012	Drought		0	0	0.00K	0.00K
South Central Highlands ...	05/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	06/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	06/01/2012	Drought		0	0	0.00K	0.00K
South Central Highlands ...	06/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	07/01/2012	Drought		0	0	0.00K	0.00K
South Central Highlands ...	07/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	07/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	08/01/2012	Drought		0	0	0.00K	0.00K
South Central Highlands ...	08/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	08/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	09/01/2012	Drought		0	0	0.00K	0.00K
South Central Highlands ...	09/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	09/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	10/01/2012	Drought		0	0	0.00K	0.00K
South Central Highlands ...	10/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	10/01/2012	Drought		0	0	0.00K	0.00K
South Central Highlands ...	11/01/2012	Drought		0	0	0.00K	0.00K
West Central Highlands (...	11/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	11/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	11/01/2012	Drought		0	0	0.00K	0.00K
West Central Highlands (...	12/01/2012	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/01/2012	Drought		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
South Central Highlands ...	12/01/2012	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	01/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	01/01/2013	Drought		0	0	0.00K	0.00K
West Central Highlands (...	01/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	02/01/2013	Drought		0	0	0.00K	0.00K
West Central Highlands (...	02/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	03/01/2013	Drought		0	0	0.00K	0.00K
West Central Highlands (...	03/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	04/01/2013	Drought		0	0	0.00K	0.00K
West Central Highlands (...	04/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	05/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	05/01/2013	Drought		0	0	0.00K	0.00K
West Central Highlands (...	05/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	05/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	06/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	06/01/2013	Drought		0	0	0.00K	0.00K
West Central Highlands (...	06/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	06/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	07/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	07/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	07/01/2013	Drought		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
West Central Highlands (...	07/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	08/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	08/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	08/01/2013	Drought		0	0	0.00K	0.00K
West Central Highlands (...	08/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	09/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	09/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	09/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	10/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	10/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	10/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	11/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	11/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	11/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/01/2013	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/01/2013	Drought		0	0	0.00K	0.00K
South Central Highlands ...	12/01/2013	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	01/01/2014	Drought		0	0	0.00K	0.00K
South Central Highlands ...	01/01/2014	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/01/2014	Drought		0	0	0.00K	0.00K
South Central Highlands ...	02/01/2014	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/01/2014	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/01/2014	Drought		0	0	0.00K	0.00K
South Central Highlands ...	03/01/2014	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/01/2014	Drought		0	0	0.00K	0.00K
South Central Highlands ...	04/01/2014	Drought		0	0	0.00K	0.00K
West Central Highlands (...	04/01/2014	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/01/2014	Drought		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
South Central Highlands ...	05/01/2014	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	05/01/2014	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	05/01/2014	Drought		0	0	0.00K	0.00K
West Central Highlands (...	05/01/2014	Drought		0	0	0.00K	0.00K
West Central Highlands (...	06/01/2014	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	06/01/2014	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	06/01/2014	Drought		0	0	0.00K	0.00K
South Central Highlands ...	06/01/2014	Drought		0	0	0.00K	0.00K
South Central Highlands ...	07/01/2014	Drought		0	0	0.00K	0.00K
West Central Highlands (...	10/01/2014	Drought		0	0	0.00K	0.00K
West Central Highlands (...	11/01/2014	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	01/01/2018	Drought		0	0	0.00K	0.00K
South Central Highlands ...	01/01/2018	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	01/01/2018	Drought		0	0	0.00K	0.00K
South Central Highlands ...	02/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	02/01/2018	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/01/2018	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	03/01/2018	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/01/2018	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/01/2018	Drought		0	0	0.00K	0.00K
South Central Highlands ...	03/01/2018	Drought		0	0	0.00K	0.00K
South Central Highlands ...	04/01/2018	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/01/2018	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	04/01/2018	Drought		0	0	0.00K	0.00K
South Central Highlands ...	05/01/2018	Drought		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Albuquerque Metro Area (...	05/01/2018	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	05/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	05/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	06/01/2018	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	06/01/2018	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	06/01/2018	Drought		0	0	0.00K	0.00K
South Central Highlands ...	06/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	07/01/2018	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	07/01/2018	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	07/01/2018	Drought		0	0	0.00K	0.00K
South Central Highlands ...	07/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	08/01/2018	Drought		0	0	0.00K	0.00K
South Central Highlands ...	08/01/2018	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	08/01/2018	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	08/01/2018	Drought		0	0	0.00K	0.00K
South Central Highlands ...	09/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	09/01/2018	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	09/01/2018	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	09/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	10/01/2018	Drought		0	0	0.00K	0.00K
Albuquerque Metro Area (...	10/01/2018	Drought		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	10/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	11/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	12/01/2018	Drought		0	0	0.00K	0.00K
West Central Highlands (...	01/01/2019	Drought		0	0	0.00K	0.00K
West Central Highlands (...	02/01/2019	Drought		0	0	0.00K	0.00K
West Central Highlands (...	03/01/2019	Drought		0	0	0.00K	0.00K
West Central Highlands (...	04/01/2019	Drought		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Totals:				0	0	0.00K	0.00K

5.3.5 Probability of Future Occurrences

The probability of future Drought is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability
- Possible: Between 1% and 10% annual probability
- Likely: Between 10% and 99% annual probability
- Highly Likely: 100% probability

Jurisdiction	Self-Assessment
Valencia County (Unincorporated Area)	Highly Likely
City of Belen	Highly Likely
City of Rio Communities	Highly Likely
Town of Peralta	Highly Likely
Village of Bosque Farms	Highly Likely
Village of Los Lunas	Highly Likely
Middle Rio Grande Conservancy District	Highly Likely

5.3.6 Vulnerability and Impact

People

Drought can affect people's health and safety. Examples of drought impacts on society include anxiety or depression about economic losses, conflicts when there is not enough water, reduced incomes, fewer recreational activities, higher incidents of heat stroke, and even loss of human life. All the jurisdictions are vulnerable in this respect.

First Responders

The overall effect on first responders would be limited when compared to other hazards. Exceptional drought conditions may impact the amount of water immediately available to respond to wildfires.

Continuity of Operations

Drought would have minimal impacts on continuity of operations due to the long warning time that would allow for plans to be made to maintain continuity of operations.

Built Environment

Drought has the potential to affect water supply for residential, commercial, institutional, industrial, and government-owned areas. Drought can reduce water supply in wells and reservoirs. When drought conditions persist with no relief, local or State governments must often institute water restrictions.

Economy

Examples of economic impacts include farmers who lose money because drought destroyed their crops or who may have to spend more money to feed and water their animals. Businesses that depend on farming, like companies that make tractors and food, may lose business when drought damages crops or livestock. Extreme drought also has the potential to impact local businesses such as landscaping, recreation and tourism, and public utilities. Businesses that sell boats and fishing equipment may not be able to sell some of their goods because drought has dried up lakes and other water sources.

Natural Environment

Plants and animals depend on water, just as people do. Drought can shrink their food supplies and damage their habitats. Sometimes this damage is only temporary, and other times it is irreversible.

Drought conditions can also provide a substantial increase in wildfire risk. As plants and trees wither and die from a lack of precipitation, increased insect infestations, and diseases—all of which are associated with drought—they become fuel for wildfires. Extended periods of drought can equate to more wildfires and more intense wildfires, which affect the economy, the environment, and society in many ways such as by destroying neighborhoods, crops, and habitats.

Infrastructure & Critical Facilities

Drought does not pose significant risk to the County or its participating jurisdictions' infrastructure and critical facilities; this has not changed since the previous plan. During times of drought, water and wastewater services may experience disruptions that would necessitate pump stations be operated by generator especially if some of the original power was supplied by hydropower that has been affected by the drought.

Land Use & Development Trends

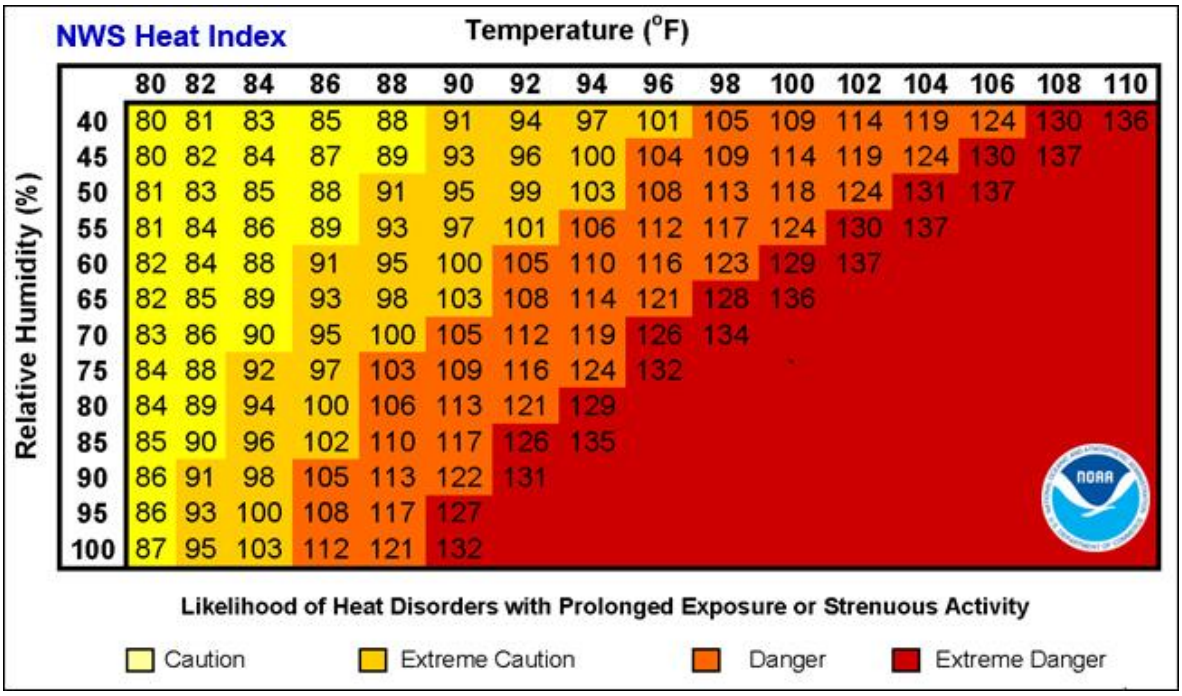
The County and its participating jurisdictions' predominant growth area is residential housing. There is no change in vulnerability from the previously approved plan.

5.4 Extreme Heat

5.4.1 Background

Extreme heat, like drought, poses minor risk to property. However, extreme heat can have devastating effects on health. Extreme heat is often referred to as a "heat wave." According to the National Weather Service, there is no universal definition for a heat wave, but the standard U.S. definition is any event lasting at least three days where temperatures reach ninety degrees Fahrenheit or higher. However, it may also be defined as an event at least three days long where temperatures are ten degrees greater than the normal temperature for the affected area. Heat waves are typically accompanied by humidity but may also be very dry. These conditions can pose serious health threats causing an average of over 600 deaths each summer in the United States.

According to the National Oceanic and Atmospheric Administration, heat is the number one weather-related killer among natural hazards, followed by frigid winter temperatures. The National Weather Service devised the Heat Index as a mechanism to better inform the public of heat dangers. The Heat Index Chart, shown in **Figure 5-3**, uses air temperature and humidity to determine the heat index or apparent temperature. **Table 5-5** shows the dangers associated with different heat index temperatures. Some populations, such as the elderly and young, are more susceptible to heat danger than other segments of the population.



Source: National Oceanic and Atmospheric Administration

Figure 5-3: Heat Index Chart

Table 5-5: Heat Disorders Associated with Heat Index Temperature

Heat Index Temperature (Fahrenheit)	Description of Risks
80°- 90°	Fatigue possible with prolonged exposure and/or physical activity
90°- 105°	Sunstroke, heat cramps, and heat exhaustion possible with prolonged exposure and/or physical activity
105°- 130°	Sunstroke, heat cramps, and heat exhaustion likely, and heatstroke possible with prolonged exposure and/or physical activity
130° or higher	Heatstroke or sunstroke is highly likely with continued exposure

Source: National Weather Service; National Oceanic and Atmospheric Administration

In addition, NOAA has seventeen metropolitan areas participating in the Heat HealthWatch/Warning System to better inform and warn the public of heat dangers. A Heat HealthWatch is issued when conditions are favorable for an excessive heat event in the next 12 to 48 hours (about 2 days). A Heat Warning is issued when an excessive heat event is expected in the next 36 hours (about 1 and a half days). Furthermore, a warning is issued when the conditions are occurring, imminent, or have a high likelihood of occurrence. Urban areas participate in the Heat Health Watch/Warning System because urban areas are at greater risk to heat affects. Stagnant atmospheric conditions trap pollutants, thus adding unhealthy air to excessively hot temperatures. In addition, the "urban heat island effect" can produce significantly higher nighttime temperatures because asphalt and concrete (which store heat longer) gradually release heat at night.

5.4.2 Location and Spatial Extent

Excessive heat typically impacts a large area and cannot be confined to any geographic or political boundaries. The entire County is susceptible to extreme heat conditions.

5.4.3 Extent

The extent of extreme heat can be defined by the maximum temperature reached. The highest temperature recorded in the County is 108 in Los Lunas on June 28, 2013, degrees Fahrenheit.

Valencia County contains the following zones: West Central Highlands, Middle Rio Grande Valley/Albuquerque Metro Area, Sandia/Manzano Mountains, South Central Highlands. The only event narrative captured in the NCDC database is from June 2017.

A strong dome of high pressure centered over the southwestern United States along with exceptionally dry air set the stage for a brutal heatwave over New Mexico for several days. The excessive heat started building over central and western New Mexico on June 20 then spread eastward on June 21 before peaking on June 22. A back door cold front pushed into eastern New Mexico on the June 23 bringing relief to the hot temperatures for parts of the area. However, central, and western New Mexico continued to bake in the heat through June 23. Elevated temperatures ranged from 100 to 110 degrees over the entire state while relative humidity values fell to as low as one percent in some areas. Dozens of record high maximum and record high minimum temperatures were set across the region. Only locations with records that extend back several decades were included in the heatwave summary. A wildfire that broke out in Quay County burned over two volunteer firefighters while they were refilling a water tanker. Unfortunately, one of the firefighters was killed and another was injured.

Extreme heat across the South-Central Highlands ranged from 95 to 100 degrees on four consecutive days. Record hot temperatures were set at Mountainair. Data breaking down temperatures for extreme heat at the jurisdictional level is not reasonably accessible. The participating jurisdictions do not anticipate future conditions that would fall outside these presently established extents and temperature exceeding the maximum temperature recorded countywide.

The number of days each month where the maximum temperature was 100 degrees or higher can be found in **Table 5-6**.

Table 5-6: Monthly Number of Days Max Temperature >= 100 for the County

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual # of Days
1950	M	M	M	M	M	M	M	M	M	M	M	M	M
1951	M	M	M	M	M	M	M	M	M	M	M	M	M
1952	M	M	M	M	M	M	M	M	M	M	M	M	M
1953	M	M	M	M	M	M	M	M	M	M	M	M	M
1954	M	M	M	M	M	M	M	M	M	M	M	M	M
1955	M	M	M	M	M	M	M	M	M	M	M	M	M
1956	M	M	M	M	M	M	M	M	M	M	M	M	M
1957	M	M	M	M	M	M	M	0	0	0	0	0	M

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual # of Days
1958	0	0	0	0	0	3	M	1	0	0	0	M	M
1959	0	0	0	0	0	0	0	0	0	0	0	0	M
1960	0	0	0	0	0	0	1	0	0	0	0	0	M
1961	0	0	0	0	0	0	0	0	0	0	0	M	M
1962	0	0	0	0	0	0	0	2	0	0	0	0	M
1963	0	0	0	0	0	0	2	0	0	0	0	0	M
1964	0	0	0	0	0	0	1	0	0	0	0	0	M
1965	0	0	0	0	0	0	0	0	0	0	0	0	M
1966	0	0	0	0	0	M	0	0	0	0	0	0	M
1967	0	0	0	0	0	0	0	0	0	0	0	M	M
1968	0	0	0	0	0	1	0	0	0	0	0	0	M
1969	0	0	0	0	0	0	0	0	0	0	0	0	M
1970	0	0	0	0	0	2	2	0	0	0	0	0	M
1971	0	0	0	0	0	0	3	0	0	0	0	0	M
1972	0	0	0	0	0	0	1	0	0	0	0	0	M
1973	0	0	0	0	0	1	1	0	0	0	0	0	M
1974	0	0	0	0	0	0	0	0	0	0	0	0	M
1975	0	0	0	0	0	0	0	0	M	0	0	0	M
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0	M
1978	0	0	0	0	0	2	0	0	0	0	0	0	M
1979	0	0	0	0	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	1	5	0	0	0	0	0	6
1981	0	0	0	0	0	5	2	0	0	0	0	0	7
1982	M	M	M	M	0	M	0	0	M	M	M	0	M
1983	M	M	M	M	M	0	0	0	M	M	M	0	M
1984	0	0	0	0	0	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	2	3	0	0	0	0	0	5
1986	0	0	0	0	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	1	0	0	0	0	0	1
1989	0	0	0	0	0	2	5	0	0	0	0	0	7

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual # of Days
1990	0	0	0	0	0	8	0	0	0	0	0	0	8
1991	0	0	0	0	0	1	0	0	0	0	0	0	1
1992	0	0	0	0	0	0	2	0	0	0	0	0	2
1993	0	0	0	0	0	3	4	1	0	0	0	0	8
1994	0	0	0	0	0	6	4	2	0	0	0	0	12
1995	0	0	0	0	0	0	4	2	0	0	0	0	6
1996	0	0	0	0	0	7	6	3	0	0	0	0	16
1997	0	0	0	0	0	0	3	0	0	0	0	0	3
1998	0	0	0	0	0	5	M	0	0	0	0	0	M
1999	0	0	0	0	0	2	3	0	0	0	0	0	5
2000	0	0	0	0	3	2	3	1	0	0	0	0	9
2001	0	0	0	0	0	4	4	0	0	0	0	0	8
2002	0	0	0	0	1	9	5	3	0	0	0	0	18
2003	0	0	0	0	0	0	23	6	0	0	0	0	29
2004	0	0	0	0	0	0	1	0	0	0	0	0	1
2005	0	0	0	0	3	2	15	0	1	0	0	0	21
2006	0	0	0	0	0	7	12	0	0	0	0	0	19
2007	0	0	0	0	0	7	10	8	0	0	0	0	25
2008	0	0	0	0	0	10	4	3	0	0	0	0	17
2009	0	0	0	0	0	0	13	5	0	0	0	0	18
2010	0	0	0	0	0	7	7	3	0	0	0	0	M
2011	0	0	0	0	0	6	8	9	0	0	0	0	M
2012	0	0	0	0	0	7	3	5	0	0	0	0	15
2013	0	0	0	0	0	10	4	0	1	0	0	0	15
2014	0	0	0	0	0	6	3	0	0	0	0	0	9
2015	0	0	0	0	0	6	1	6	0	0	0	0	13
2016	0	0	0	0	0	8	21	0	0	0	0	0	29
2017	0	0	0	0	0	9	3	0	0	0	0	0	12
2018	0	0	0	0	0	3	3	1	0	0	0	0	7
2019	0	0	0	0	0	0	5	2	0	0	0	0	7
2020	0	0	0	0	0	0	8	3	0	0	0	0	11
2021	0	0	0	0	0	5	1	0	0	0	0	0	6

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual # of Days
Mean	0	0	0	0	0	3	3	1	0	0	0	0	10
Max (Year)	0 (2021)	0 (2021)	0 (2021)	0 (2021)	3 (2005)	10 (2013)	23 (2003)	9 (2011)	1 (2013)	0 (2021)	0 (2021)	0 (2021)	29 (2016)

M= Missing Data (According to National Weather Service)

5.4.4 Historical Occurrences

Data from the National Weather Service was used to determine historical extreme heat and heat wave events in the County. Temperature information has been reported since 1940. The recorded maximum and average temperatures for each month can be found below in **Table 5-7**.

Table 5-7: Highest Recorded Temperature in the County

Temperature	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Record High	88	88	98	101	103	108	105	102	100	99	94	84
Average High	52	58	66	74	83	92	94	91	85	74	62	51

Source: NWS

5.4.5 Probability of Future Occurrences

The probability of future Extreme Heat is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability
- Possible: Between 1% and 10% annual probability
- Likely: Between 10% and 99% annual probability
- Highly Likely: 100% probability

Jurisdiction	Self-Assessment
Valencia County (Unincorporated Area)	Likely
City of Belen	Likely
City of Rio Communities	Likely
Town of Peralta	Likely
Village of Bosque Farms	Likely
Village of Los Lunas	Likely
Middle Rio Grande Conservancy District	Likely

5.4.6 Vulnerability and Impact

People

Extreme heat can affect people's health and leads to higher incidents of heat stroke, and even loss of human life. Staying hydrated and avoiding strenuous exercise outdoors during extreme heat patterns can prevent adverse health risks. Individuals with underlying health issues or those located in rural areas may be vulnerable due to medical access issues.

Built Environment

Updating building codes and landscape best management practices can increase energy efficiency during extreme heat phases. Local governments could provide public drinking fountains, cooling shelters, and swimming pools to keep individuals cooled off.

Economy

All jurisdictions in the County are vulnerable to extreme heat whereas employees are less likely to be productive during extreme heat events. Lower productivity levels are associated with heat exhaustion.

Agriculture

Livestock are susceptible to heat-related illnesses during bouts of extreme heat. In addition, crop yields may be negatively impacted if extreme heat occurs during key development stages.

Natural Environment

When trees are replaced with impervious surfaces and materials in urban areas it contributes to the heat island effect. Urban forests (street trees and wooded areas) can mitigate heat islands, reducing local air temperatures by up to 9°Farenheit.[1]

Infrastructure & Critical Facilities

Extreme heat does not pose a significant risk to the County or its participating jurisdictions' facilities; this has not changed since the previous plan. Extreme heat hazard could be mitigated by providing generators to minimize disruption to critical facility cooling centers as well as providing back up power to various other critical facilities that may experience brown and black outs due to unprecedented energy consumption during extreme heat events.

Land Use & Development Trends

The County and its participating jurisdictions' predominant growth area is residential housing. There is no change in vulnerability from the previously approved plan.

5.5 Severe Storms

5.5.1 Background

Severe Storms can produce a variety of accompanying hazards including wind, hail, and lightning. Although severe weather affects a small area, it is dangerous and may cause substantial property damage.

Three conditions need to occur for a thunderstorm to form. First, it needs moisture to form clouds and rain. Second, it needs unstable air, such as warm air that can rise rapidly (this often referred to as the

[1] U.S. Department of Health and Human Services Centers for Disease Control and Prevention. Extreme Heat Can Impact Our Health in Many Ways. Retrieved from: https://www.cdc.gov/climateandhealth/pubs/EXTREME-HEAT-Final_508.pdf

"engine" of the storm). Third, thunderstorms need a lift, which comes in the form of cold or warm fronts, sea breezes, mountains, or the sun's heat. When these conditions occur simultaneously, air masses of varying temperatures meet, and a thunderstorm is formed. These storm events can occur singularly, in lines, or in clusters. Furthermore, they can move through an area very quickly or linger for several hours.

According to the National Weather Service, more than 100,000 thunderstorms occur each year, though only about 10 percent of these storms are classified as "severe." A severe thunderstorm occurs when the storm produces at least one of these three elements: 1) hail at least one inch in diameter, 2) a tornado, or 3) winds of at least 58 miles per hour.

Thunderstorm events have the capability of producing straight-line winds that can cause severe destruction to communities and threaten the safety of a population. Such wind events, sometimes separate from a thunderstorm event, are common throughout the County. Therefore, high winds are also reported in this section.

Downbursts are also possible with thunderstorm events. Such events are an excessive burst of wind more than 125 miles per hour. They are often confused with tornadoes. Downbursts are caused by down drafts from the base of a convective thunderstorm cloud. It occurs when rain-cooled air within the cloud becomes heavier than its surroundings. Thus, air rushes towards the ground in a destructive yet isolated manner. There are two types of downbursts. Downbursts less than 2.5 miles wide, duration less than 5 minutes, and winds up to 168 miles per hour are called "microbursts." Larger events greater than 2.5 miles at the surface and longer than 5 minutes with winds up to 130 miles per hour are referred to as "macrobursts."

Hailstorms are a potentially damaging outgrowth of severe weather. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to the rapid rising of warm air into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until they develop to a sufficient weight and fall as precipitation. Hail typically takes the form of spheres or irregularly shaped masses greater than 0.75 inches in diameter. The size of hailstones is a direct function of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a function of the intensity of heating at the Earth's surface. Higher temperature gradients relative to elevation above the surface result in increased suspension time and hailstone size. **Table 5-8** shows the TORRO Hailstorm Intensity Scale which is a way of measuring hail severity.

Table 5-8: TORRO Hailstorm Intensity Scale

	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy, J-m^2	mm to inch conversion (inches)	Typical Damage Impacts
H0	Hard Hail	5	0-20	0 - 0.2	No damage
H1	Potentially Damaging	5-15	>20	0.2 - 0.6	Slight general damage to plants, crops
H2	Significant	10-20	>100	0.4 - 0.8	Significant damage to fruit, crops, vegetation

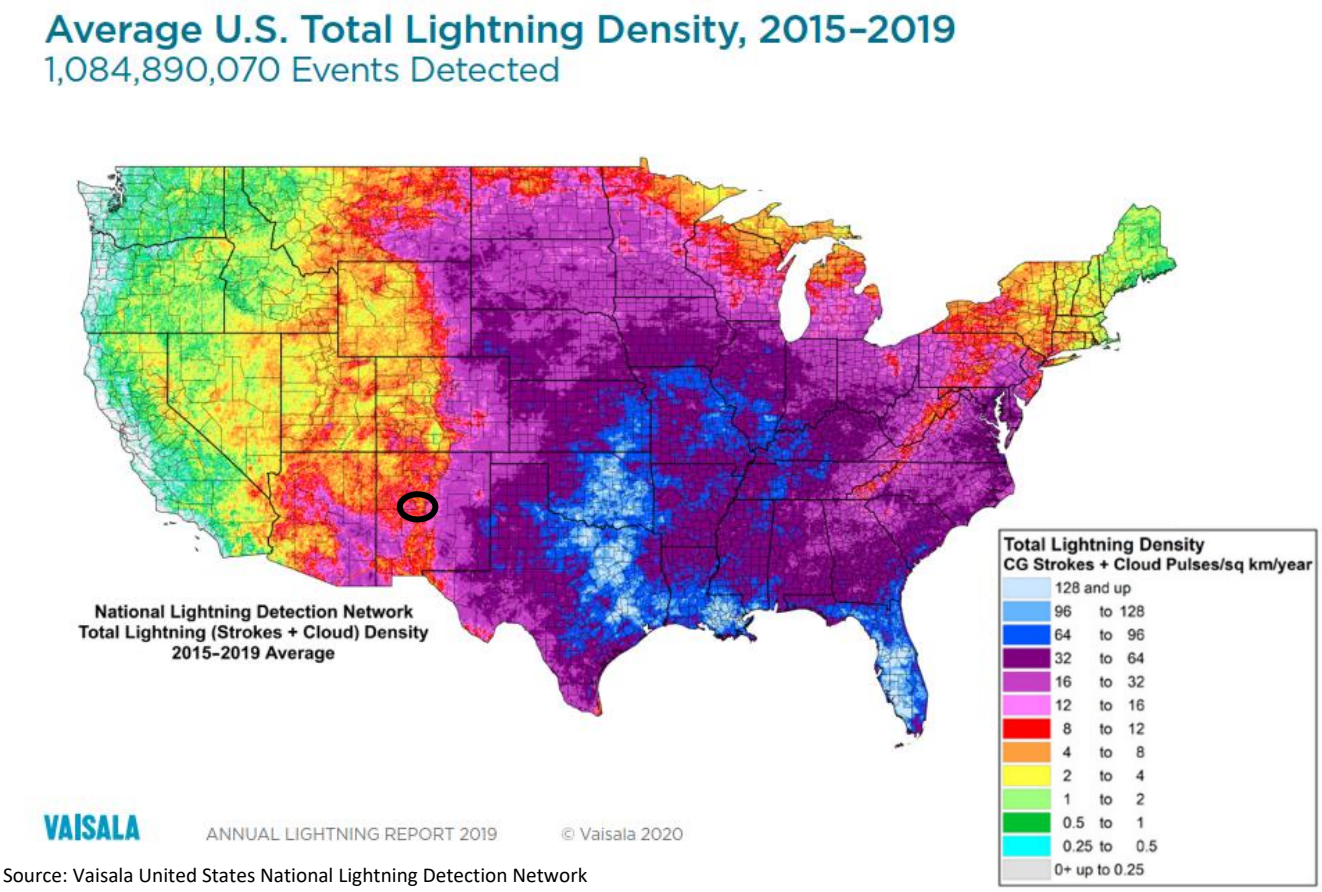
	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy, J-m^2	mm to inch conversion (inches)	Typical Damage Impacts
H3	Severe	20-30	>300	0.8 - 1.2	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	>500	1.0 - 1.6	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	>800	1.2 - 2.0	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60		1.6 - 2.4	Bodywork of grounded aircraft dented; brick walls pitted
H7	Destructive	50-75		2.0 - 3.0	Severe roof damage, risk of serious injuries
H8	Destructive	60-90		1.6 - 3.5	Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100		3.0 - 3.9	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100		>3.9	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

*Approximate range, since other factors (e.g. number and density of hailstones, hail fall speed and surface wind speeds) affect severity. (Source: https://www.torro.org.uk/research/hail/hscale)

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

Lightning strikes occur in small, localized areas. For example, they may strike a building, electrical transformer, or even a person. According to the National Center for Biotechnology Information, lightning injures an average of 400 people and kills 40 people each year in the United States. Direct lightning strikes also can cause severe damage to buildings, critical facilities, and infrastructure by igniting a fire. Lightning is also responsible for igniting wildfires that can result in widespread damage to property.

Figure 5-4 shows a lightning flash density map for the years 2015-2019 based upon data provided by Vaisala's U.S. National Lightning Detection Network (NLDN®).



Source: Vaisala United States National Lightning Detection Network

Figure 5-4: Lightning Flash Density in the United States

5.5.2 Location and Spatial Extent

All areas of Valencia County are susceptible to severe storms (including wind, hail, and lightning), although local topography, such as elevation and land contours, plays a significant role in how weather affects a particular area. Severe storms can be either localized or widespread so their impact can vary depending on the size, strength, and speed of the storm. At the time of storm occurrence, one neighborhood may experience severe damage while another, located nearby, escapes with minimal impact. Large-scale thunderstorms with multiple lightning strikes, hail and high wind would create the most impact over a wide area.

The Vaisala map above shows a flash density of 2-16 flashes/square mile/year for the entire planning area. Specific records are not kept at the local level. Officials of each participating jurisdiction consider all thunderstorm events which contain lightning to be severe events and warrant evasive actions. Currently a map depicting lightning strike locations at the jurisdictional level is not reasonably available.

The complex terrain of New Mexico, ranging from the eastern plains to the high mountains across the northern and western regions, to the Rio Grande Valley, creates weather regimes that change quickly over relatively short distances. Thunderstorms (including lightning and hail) in Valencia County may directly only affect a small portion of it. The spatial extent of thunderstorms (including lightning and hail) is small.

High winds are a hazard that has a large geographic impact being caused by larger scale storms, like thunderstorms and winter storms. Valencia County's location in wind speed zone II (**Figure 5-5**) means a low possibility of extreme wind speeds up to 160 mph. While the entire planning area is susceptible to high wind, areas along the Rio Grande valley where the incorporated jurisdictions are found are at higher risk. Wind gusts on Interstate 25, which runs parallel to the Rio Grande through most of the county, can make travel more difficult. **Figure 5-6** shows annual average wind speed for New Mexico.

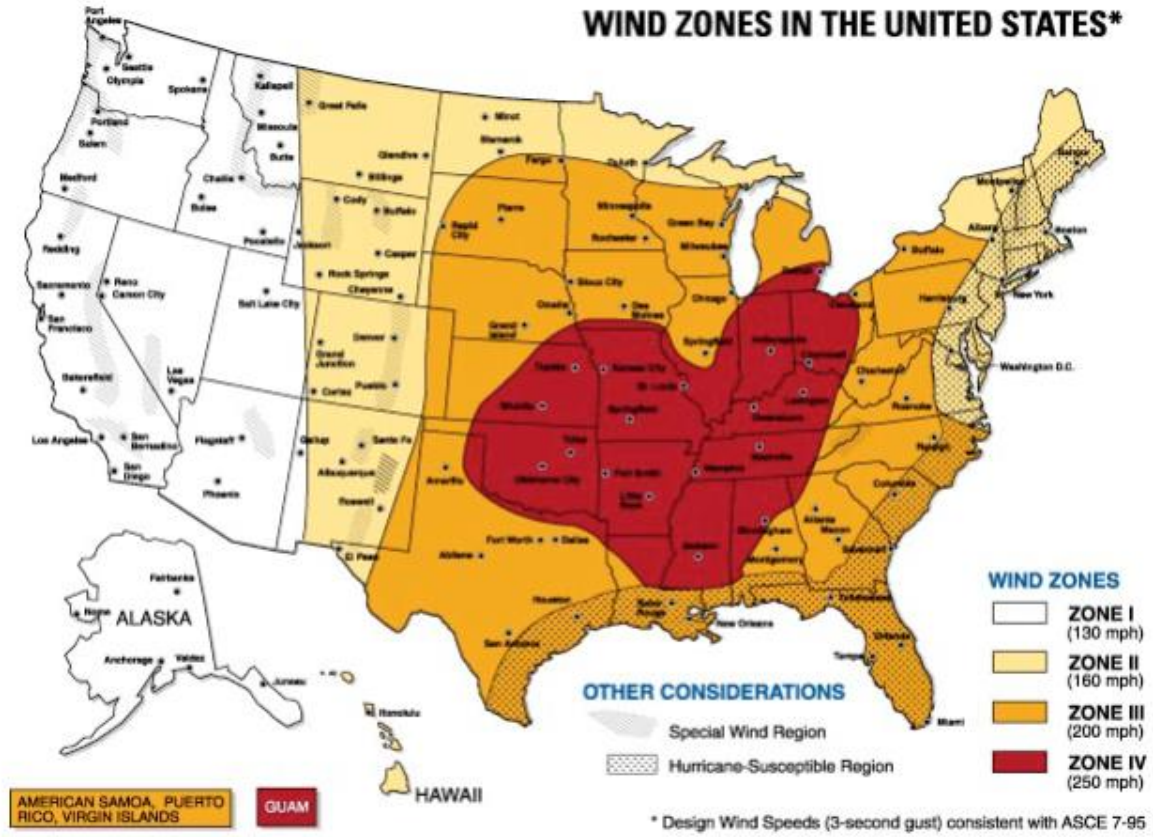


Figure 5-5: Wind Zones in the United States

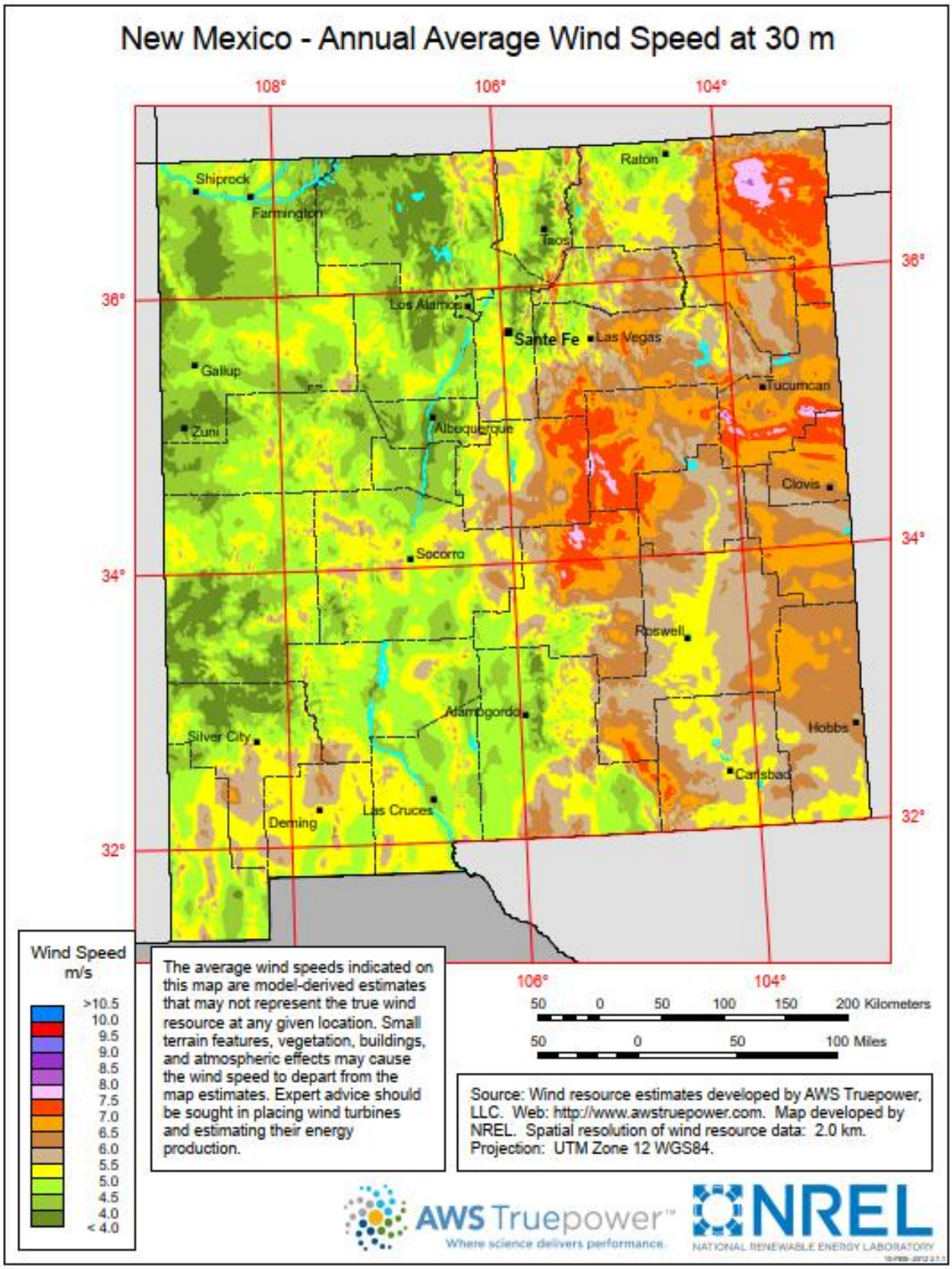


Figure 5-6: Average Wind Speed in New Mexico

5.5.3 Extent

Thunderstorm extent is defined by the number of thunder events and wind speeds reported. According to a 69-year history from the National Climatic Data Center, the strongest recorded wind event in the County was reported on April 29, 2010, at 86 knots (approximately 99 mph), as shown in **Table 5-9**. It should be noted that future events may exceed these historical occurrences.

Table 5-9: Maximum Recorded Thunderstorm Wind

Location	Date	Type	Mag
Valencia County	4/29/2010	Thunderstorm Wind	86 kts. EG
City of Belen	9/30/1998	Thunderstorm Wind	61 kts. EG
City of Rio Communities	9/30/2017	Thunderstorm Wind	61 kts. EG
Town of Peralta	6/3/2018	Thunderstorm Wind	65 kts. EG
Village of Bosque Farms	8/15/2008	Thunderstorm Wind	56 kts. EG
Village of Los Lunas	9/30/1998	Thunderstorm Wind	61 kts. EG

Hail can vary in size from less than 1 inch to several inches in diameter and can cause considerable damage to crop and property. Damage depends on the size, duration, and intensity of hail precipitation. Individuals who do not seek shelter could face severe injury. Automobiles and aircraft are particularly susceptible to damage. Effects of other hazards associated with thunderstorms (high winds, intense precipitation, and lightning) often occur concurrently because hail precipitation usually occurs during severe storms.

Valencia County has experienced hail ranging in size from 0.75 to 4.50 inches in diameter. No deaths and injuries due to hail have been recorded in the County. The County's worst hailstorm occurred on September 30, 1998: For the second day in a row, an intense thunderstorm formed over northwest Socorro County near the Alamo Navajo Reservation and moved northeast into southwest Valencia County. This storm developed a strong mesocyclone and turned eastward, moving over Los Lunas with high winds and extreme hail. A small section of the city was pounded by softball size hail. Wind gusts of 60-70 mph caused roof damage in Los Lunas and destroyed several hangers and light planes at the local airport. Winds overturned several new manufactured homes awaiting shipment at a plant just northwest of Belen. The storm continued eastward yielding large hail across southeast Bernalillo and northwest Torrance Counties. The storm finally dissipated over open rangeland south of Clines Corners. Based on reports from the National Climatic Data Center (NCDC) and residents, the worst-case scenario for a hailstorm in the County would be a storm that dropped softball-sized hail (the largest observed in the County) near Los Lunas.

This hail would cause widespread damage to property and crops. Hail can be produced during many distinct types of storms. Typically, hail occurs with severe storms. The size of hail is estimated by comparing it with a known object. During most hailstorms, hail is produced in a variety of sizes, and only the very largest hail stones pose serious risk to people who are exposed. The maximum recorded hail size in each jurisdiction is shown in **Table 5-10**. No hail events have been reported for Peralta or Bosque Farms.

Table 5-10: Maximum Recorded Hail Size

Location	Date	Type	Mag
Valencia County	8/31/1992	Hail	1.75 in.
City of Belen	10/4/2004	Hail	1.75 in.
City of Rio Communities	9/30/2017	Hail	1.50 in.
Town of Peralta		Hail	
Village of Bosque Farms		Hail	
Village of Los Lunas	9/30/1998	Hail	4.50 in.

Valencia County's worst and only lightning event lightning event occurred on July 24, 2013, when a monsoon burst pattern developed across central and southern New Mexico as deep moisture combined with a weak upper-level disturbance over the area. Slow-moving thunderstorms produced torrential rainfall across many areas of Catron, Socorro, Lincoln, and Torrance counties. Several reports of flooded roadways were received across these areas. Frequent lightning strikes and strong gusty winds were also reported with some of these storms. A large tree was destroyed by a lightning strike along highway 47. The worst-case scenario for lightning strikes would be a strike of a large group of people, such as at an outdoor sporting event or concert. Numerous injuries or deaths could occur.

The lightning event for Los Lunas is noted in **Table 5-11**. No lightning events have been reported for Belen, Rio Communities, Peralta, Bosque Farms, District MRGCD or other areas in Valencia County.

Table 5-11: Lightning Events in Valencia County

Location	Date	Type	Mag
Valencia County	-	Lightning	-
City of Belen	-	Lightning	-
City of Rio Communities	-	Lightning	-
Town of Peralta	-	Lightning	-
Village of Bosque Farms	-	Lightning	-
Village of Los Lunas	7/24/2013	Lightning	$50,000 Crop Damage

5.5.4 Historical Occurrences

According to NCDC, there have been 145 reported thunderstorm wind and high wind events, 24 hail events and one lightning event since 1957 in Valencia County. These events caused over $8.8 million in property damage and approximately $52k in crop damage.

There were also reports of 2 injuries. The following historical occurrences have been identified based on the NCDC Storm Events database **Table 5-12** from 1959-2020. It should be noted that only those historical occurrences listed in the NCDC database are shown here and that other, unrecorded, unreported events may have occurred within the planning area during this timeframe.

Table 5-12: Historical Occurrences of Thunderstorm, Lightning and Hail (1959-2020)

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Valencia Co.	08/06/1959	Hail	1.00 in.	0	0	0.00K	0.00K
Valencia Co.	08/03/1965	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Valencia Co.	06/05/1969	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Valencia Co.	06/15/1969	Hail	1.75 in.	0	0	0.00K	0.00K
Valencia Co.	06/27/1973	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Valencia Co.	07/10/1978	Thunderstorm Wind	57 kts.	0	0	0.00K	0.00K
Valencia Co.	11/01/1987	Thunderstorm Wind	61 kts.	0	0	0.00K	0.00K
Valencia Co.	07/15/1991	Thunderstorm Wind	0 kts.	0	0	0.00K	0.00K
Valencia Co.	08/11/1992	Hail	1.75 in.	0	0	0.00K	0.00K
Valencia Co.	08/11/1992	Thunderstorm Wind	65 kts.	0	0	0.00K	0.00K
Valencia Co.	08/31/1992	Hail	1.75 in.	0	0	0.00K	0.00K
Valencia Co.	08/31/1992	Hail	1.75 in.	0	0	0.00K	0.00K
Los Lunas	09/23/1993	Hail	1.75 in.	0	0	5.00K	50.00K
Belen	06/05/1996	Thunderstorm Wind		0	0	30.00K	0.00K
Tome	07/30/1997	Thunderstorm Wind		0	0	5.00K	0.00K
Los Lunas	09/30/1998	Hail	4.50 in.	0	0	150.00K	0.00K
Los Lunas	09/30/1998	Thunderstorm Wind	61 kts.	0	0	100.00K	0.00K
Belen	09/30/1998	Thunderstorm Wind	61 kts.	0	0	100.00K	0.00K
Belen	05/24/1999	Thunderstorm Wind	52 kts.	0	0	0.00K	0.00K
Los Lunas	05/24/1999	Hail	1.00 in.	0	0	0.00K	0.00K
Los Chavez	05/24/1999	Thunderstorm Wind	70 kts.	0	2	1.200M	0.00K
Los Lunas	05/24/1999	Hail	1.00 in.	0	0	0.00K	0.00K
Los Lunas	07/02/2001	Thunderstorm Wind		0	0	20.00K	0.00K
El Cerro	07/19/2002	Thunderstorm Wind		0	0	3.00K	0.00K
Belen	10/05/2004	Hail	1.75 in.	0	0	300.00K	0.00K
Belen	10/05/2004	Hail	1.75 in.	0	0	200.00K	0.00K
Los Lunas	07/06/2005	Thunderstorm Wind	55 kts. EG	0	0	20.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Los Lunas	07/03/2008	Hail	1.00 in.	0	0	0.00K	0.00K
Bacaville	07/22/2008	Thunderstorm Wind	52 kts. EG	0	0	20.00K	0.00K
Bosque Farms	08/15/2008	Thunderstorm Wind	56 kts. EG	0	0	3.00K	0.00K
Los Lunas	08/17/2008	Hail	0.88 in.	0	0	0.00K	0.00K
Belen	08/17/2008	Hail	1.75 in.	0	0	1.000M	0.00K
Belen	08/17/2008	Thunderstorm Wind	52 kts. EG	0	0	5.00K	0.00K
Turn	08/17/2008	Hail	1.00 in.	0	0	2.00K	0.00K
South Central Highlands ...	12/08/2009	High Wind	53 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/08/2009	High Wind	56 kts. EG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/26/2010	High Wind	51 kts. MG	0	0	0.20K	0.00K
South Central Highlands ...	04/01/2010	High Wind	52 kts. EG	0	0	0.00K	0.00K
South Central Highlands ...	04/06/2010	High Wind	35 kts. ES	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/29/2010	High Wind	86 kts. MG	0	0	5.00K	0.00K
South Central Highlands ...	05/10/2010	High Wind	56 kts. EG	0	0	20.00K	0.00K
Sandia/Manzano Mountains...	05/10/2010	High Wind	56 kts. MG	0	0	0.50K	0.00K
Albuquerque Metro Area (...	06/19/2010	High Wind	51 kts. MG	0	0	400.00K	0.00K
Albuquerque Metro Area (...	06/23/2010	High Wind	61 kts. EG	0	0	10.00K	0.00K
Albuquerque Metro Area (...	09/03/2010	High Wind	56 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	10/25/2010	High Wind	65 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	10/25/2010	High Wind	35 kts. MS	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/15/2010	High Wind	52 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/19/2011	High Wind	67 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/07/2011	High Wind	51 kts. MG	0	0	10.00K	0.00K
Albuquerque Metro Area (...	04/03/2011	High Wind	57 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/19/2011	High Wind	63 kts. MG	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Sandia/Manzano Mountains...	04/26/2011	High Wind	51 kts. MG	0	0	0.00K	0.00K
West Central Highlands (...	04/26/2011	High Wind	52 kts. EG	0	0	15.00K	0.00K
Sandia/Manzano Mountains...	04/29/2011	High Wind	35 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	05/01/2011	High Wind	54 kts. EG	0	0	0.00K	0.00K
West Central Highlands (...	05/08/2011	High Wind	50 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	06/19/2011	High Wind	55 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	06/26/2011	High Wind	68 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	11/05/2011	High Wind	54 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/01/2011	High Wind	76 kts. MG	0	0	4.500M	0.00K
West Central Highlands (...	12/01/2011	High Wind	65 kts. EG	0	0	400.00K	0.00K
Albuquerque Metro Area (...	12/22/2011	High Wind	65 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/23/2012	High Wind	52 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	02/23/2012	High Wind	52 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/28/2012	High Wind	52 kts. EG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/08/2012	High Wind	59 kts. MG	0	0	0.50K	0.00K
Sandia/Manzano Mountains...	03/08/2012	High Wind	76 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/18/2012	High Wind	57 kts. MG	0	0	40.00K	2.00K
South Central Highlands ...	03/18/2012	High Wind	52 kts. EG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/14/2012	High Wind	52 kts. MG	0	0	0.50K	0.00K
Sandia/Manzano Mountains...	04/14/2012	High Wind	57 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/26/2012	High Wind	65 kts. MG	0	0	60.00K	0.00K
West Central Highlands (...	04/26/2012	High Wind	52 kts. EG	0	0	0.00K	0.00K
South Central Highlands ...	04/26/2012	High Wind	52 kts. EG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/26/2012	High Wind	39 kts. ES	0	0	10.00K	0.00K
Belen	05/13/2012	Hail	0.75 in.	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Albuquerque Metro Area (...	05/18/2012	High Wind	50 kts. MG	0	0	0.00K	0.00K
West Central Highlands (...	05/23/2012	High Wind	53 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	08/11/2012	High Wind	52 kts. EG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	09/17/2012	High Wind	37 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	09/17/2012	High Wind	61 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	11/10/2012	High Wind	52 kts. EG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	11/10/2012	High Wind	38 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/19/2012	High Wind	36 kts. MS	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/19/2012	High Wind	74 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/19/2012	High Wind	37 kts. MS	0	0	0.00K	0.00K
South Central Highlands ...	12/19/2012	High Wind	37 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/19/2012	High Wind	50 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/11/2013	High Wind	35 kts. ES	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/23/2013	High Wind	62 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	03/23/2013	High Wind	38 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/23/2013	High Wind	51 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	03/23/2013	High Wind	60 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/23/2013	High Wind	50 kts. EG	0	0	2.00K	0.00K
Albuquerque Metro Area (...	04/17/2013	High Wind	38 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/17/2013	High Wind	40 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	05/17/2013	High Wind	51 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	06/18/2013	High Wind	52 kts. EG	0	0	0.50K	0.00K
Albuquerque Metro Area (...	06/20/2013	High Wind	56 kts. EG	0	0	10.00K	0.00K
Albuquerque Metro Area (...	06/30/2013	High Wind	50 kts. MG	0	0	0.00K	0.00K
Los Lunas	07/24/2013	Lightning		0	0	0.00K	0.50K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Belen	09/22/2013	Thunderstorm Wind	54 kts. MG	0	0	0.00K	0.00K
Los Lunas	09/22/2013	Thunderstorm Wind	55 kts. EG	0	0	5.00K	0.00K
Los Lunas	09/22/2013	Thunderstorm Wind	55 kts. EG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	10/10/2013	High Wind	63 kts. MG	0	0	0.00K	0.00K
West Central Highlands (...	10/10/2013	High Wind	61 kts. EG	0	0	48.00K	0.00K
Albuquerque Metro Area (...	10/10/2013	High Wind	52 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	10/10/2013	High Wind	52 kts. EG	0	0	0.00K	0.00K
South Central Highlands ...	10/30/2013	High Wind	54 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/03/2013	High Wind	55 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	12/04/2013	High Wind	51 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	12/04/2013	High Wind	61 kts. EG	0	0	0.00K	0.00K
South Central Highlands ...	12/04/2013	High Wind	63 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/04/2013	High Wind	52 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	01/30/2014	High Wind	50 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/19/2014	High Wind	72 kts. MG	0	0	3.00K	0.00K
Albuquerque Metro Area (...	02/27/2014	High Wind	55 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/17/2014	High Wind	65 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/26/2014	High Wind	55 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	03/26/2014	High Wind	56 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/26/2014	High Wind	53 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/26/2014	High Wind	37 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/26/2014	High Wind	52 kts. EG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/26/2014	High Wind	50 kts. EG	0	0	7.00K	0.00K
Albuquerque Metro Area (...	04/26/2014	High Wind	56 kts. EG	0	0	1.00K	0.00K
Sandia/Manzano Mountains...	04/28/2014	High Wind	50 kts. MG	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Sandia/Manzano Mountains...	05/11/2014	High Wind	53 kts. MG	0	0	0.00K	0.00K
Los Lunas	06/11/2014	Thunderstorm Wind	56 kts. EG	0	0	8.00K	0.00K
South Central Highlands ...	11/02/2014	High Wind	56 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	11/08/2014	High Wind	54 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/22/2014	High Wind	54 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/22/2014	High Wind	50 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	02/11/2015	High Wind	53 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	03/02/2015	High Wind	60 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	03/25/2015	High Wind	57 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	04/08/2015	High Wind	53 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	04/16/2015	High Wind	56 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	04/24/2015	High Wind	53 kts. MG	0	0	0.00K	0.00K
Rio Puerco	07/11/2015	Hail	1.00 in.	0	0	0.00K	0.00K
Albuquerque Metro Area (...	10/15/2015	High Wind	57 kts. MG	0	0	50.00K	0.00K
Belen	10/19/2015	Hail	0.88 in.	0	0	0.00K	0.00K
South Central Highlands ...	02/01/2016	High Wind	62 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/22/2016	High Wind	53 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/29/2016	High Wind	52 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	03/29/2016	High Wind	55 kts. MG	0	0	0.00K	0.00K
Belen	04/22/2016	Thunderstorm Wind	51 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	05/01/2016	High Wind	58 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	05/01/2016	High Wind	35 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	05/06/2016	High Wind	50 kts. EG	0	0	5.00K	0.00K
Albuquerque Metro Area (...	09/10/2016	High Wind	52 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	11/17/2016	High Wind	82 kts. MG	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
South Central Highlands ...	11/17/2016	High Wind	53 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/16/2016	High Wind	56 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	12/17/2016	High Wind	54 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/08/2017	High Wind	60 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/21/2017	High Wind	57 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	01/21/2017	High Wind	53 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/07/2017	High Wind	62 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/12/2017	High Wind	36 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/12/2017	High Wind	56 kts. EG	0	0	0.00K	0.00K
South Central Highlands ...	02/23/2017	High Wind	36 kts. MS	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/23/2017	High Wind	56 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/28/2017	High Wind	61 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	02/28/2017	High Wind	51 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/28/2017	High Wind	38 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/28/2017	High Wind	50 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/28/2017	High Wind	53 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/06/2017	High Wind	53 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/23/2017	High Wind	58 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/23/2017	High Wind	57 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	03/31/2017	High Wind	50 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/27/2017	High Wind	57 kts. MG	0	0	0.00K	0.00K
Adelino	05/09/2017	Thunderstorm Wind	54 kts. MG	0	0	0.00K	0.00K
Tome	09/30/2017	Hail	1.00 in.	0	0	0.00K	0.00K
Rio Communities	09/30/2017	Thunderstorm Wind	61 kts. EG	0	0	0.00K	0.00K
Rio Communities	09/30/2017	Hail	1.50 in.	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Tome	10/04/2017	Thunderstorm Wind	54 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	10/09/2017	High Wind	52 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	02/19/2018	High Wind	42 kts. MS	0	0	0.00K	0.00K
South Central Highlands ...	02/19/2018	High Wind	55 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/19/2018	High Wind	52 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/15/2018	High Wind	50 kts. MG	0	0	1.00K	0.00K
Albuquerque Metro Area (...	03/18/2018	High Wind	38 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/18/2018	High Wind	52 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/18/2018	High Wind	56 kts. EG	0	0	10.00K	0.00K
Sandia/Manzano Mountains...	03/18/2018	High Wind	52 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	03/18/2018	High Wind	55 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/12/2018	High Wind	52 kts. EG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/12/2018	High Wind	56 kts. EG	0	0	0.00K	0.00K
West Central Highlands (...	04/12/2018	High Wind	56 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	04/12/2018	High Wind	50 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/12/2018	High Wind	56 kts. EG	0	0	0.00K	0.00K
South Central Highlands ...	04/13/2018	High Wind	36 kts. MS	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/17/2018	High Wind	35 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/17/2018	High Wind	35 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/17/2018	High Wind	50 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	04/17/2018	High Wind	50 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/17/2018	High Wind	52 kts. EG	0	0	0.00K	0.00K
West Central Highlands (...	04/17/2018	High Wind	50 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/19/2018	High Wind	38 kts. MS	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/19/2018	High Wind	58 kts. MG	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Albuquerque Metro Area (...	04/19/2018	High Wind	56 kts. EG	0	0	10.00K	0.00K
Albuquerque Metro Area (...	06/03/2018	High Wind	52 kts. EG	0	0	0.00K	0.00K
Jarales	06/03/2018	Hail	1.50 in.	0	0	5.00K	0.00K
Meadow Lake	06/03/2018	Hail	1.00 in.	0	0	0.00K	0.00K
Jarales	06/03/2018	Hail	1.00 in.	0	0	0.00K	0.00K
Becker	06/03/2018	Hail	1.00 in.	0	0	0.00K	0.00K
Belen	07/05/2018	Thunderstorm Wind	52 kts. EG	0	0	0.50K	0.00K
Belen	08/01/2018	Hail	1.00 in.	0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/12/2018	High Wind	50 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	12/13/2018	High Wind	54 kts. MG	0	0	0.00K	0.00K
West Central Highlands (...	12/13/2018	High Wind	50 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	01/18/2019	High Wind	64 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	02/06/2019	High Wind	52 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	02/11/2019	High Wind	53 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	02/23/2019	High Wind	52 kts. EG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/23/2019	High Wind	52 kts. EG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/08/2019	High Wind	36 kts. MS	0	0	0.00K	0.00K
South Central Highlands ...	03/08/2019	High Wind	57 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/08/2019	High Wind	60 kts. MG	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/13/2019	High Wind	56 kts. MG	0	0	5.00K	0.00K
West Central Highlands (...	03/13/2019	High Wind	45 kts. MS	0	0	0.00K	0.00K
South Central Highlands ...	03/13/2019	High Wind	71 kts. MG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	03/13/2019	High Wind	35 kts. MS	0	0	0.00K	0.00K
South Central Highlands ...	03/13/2019	High Wind	41 kts. MS	0	0	0.00K	0.00K
West Central Highlands (...	03/13/2019	High Wind	56 kts. MG	0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
West Central Highlands (...	04/10/2019	High Wind	43 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/10/2019	High Wind	42 kts. MS	0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/10/2019	High Wind	43 kts. MS	0	0	0.00K	0.00K
Albuquerque Metro Area (...	04/10/2019	High Wind	53 kts. MG	0	0	0.00K	0.00K
South Central Highlands ...	04/10/2019	High Wind	62 kts. MG	0	0	0.00K	0.00K
West Central Highlands (...	04/10/2019	High Wind	56 kts. MG	0	0	0.00K	0.00K
Belen	05/07/2019	Thunderstorm Wind	56 kts. EG	0	0	0.00K	0.00K
Albuquerque Metro Area (...	05/19/2019	High Wind	56 kts. MG	0	0	0.00K	0.00K
Los Lunas	05/26/2019	Thunderstorm Wind	52 kts. EG	0	0	0.00K	0.00K
Valencia	06/02/2019	Hail	0.75 in.	0	0	0.00K	0.00K
Valencia	06/02/2019	Hail	1.50 in.	0	0	0.00K	0.00K
Los Lunas	06/03/2019	Thunderstorm Wind	59 kts. MG	0	0	0.00K	0.00K
Belen	06/05/2020	Thunderstorm Wind	57 kts. MG	0	0	0.00K	0.00K
El Cerro	07/31/2020	Thunderstorm Wind	51 kts. MG	0	0	0.00K	0.00K
Los Lunas Arpt	09/01/2020	Hail	1.00 in.	0	0	0.00K	0.00K
Los Lunas	04/23/2021	Thunderstorm Wind	50 kts. EG	0	0	5.00K	0.00K
Totals:				0	2	8.811M	52.50K

5.5.5 Probability of Future Occurrences

The probability of future Severe Storms is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability
- Possible: Between 1% and 10% annual probability
- Likely: Between 10% and 99% annual probability
- Highly Likely: 100% probability

Jurisdiction	Probability
Valencia County (Unincorporated Area)	Highly Likely
City of Belen	Likely

Jurisdiction	Probability
City of Rio Communities	Likely
Town of Peralta	Likely
Village of Bosque Farms	Likely
Village of Los Lunas	Likely
Middle Rio Grande Conservancy District	Likely

5.5.6 Vulnerability and Impact

People

Severe storms are associated with hazards such as high wind, lightning, and hail. High wind can cause trees to fall and potentially result in injuries or death and lightning can lead to house fires and severe injury. Hail can cause injury as well as severe property damage to homes and automobiles. All jurisdictions in the County are vulnerable to this impact.

First Responders

First responders can be impacted in the same way as the public. Downed trees, power lines and flood waters may prevent access to areas in need which prolongs response time.

Continuity of Operations

Severe storm events can result in a loss of power which may impact operations. Downed trees, power lines and flash flooding may prevent access to critical facilities and/or emergency equipment.

Built Environment

Severe storms can cause damage to commercial buildings and homes due to high winds, lightning strikes and hail. Heavy rains associated with severe storm events may also lead to flash flooding which can damage roads and bridges.

Economy

Economic damage includes property damage from wind, lightning, and hail, and includes intangibles such as business interruption and additional living expenses.

Natural Environment

Severe storms have an enormous impact on the environment. One of the most dangerous outcomes for the environment is when lightning causes sparks to flare up in surrounding forests or immense shrubs. This is often the cause of bush fires, which then spread quickly due to the fast winds that accompany the storm. High winds can also damage crops and trees. Flooding can kill animals and cause soil erosion.

Infrastructure & Critical Facilities

All infrastructure and critical facilities are equally at risk since severe storms indiscriminately affect the entire planning area; this has not changed since the previous plan.

Land Use & Development Trends

Increased residential growth will not increase the County or its participating jurisdictions' vulnerability and risk to severe storms if the residential structures continue to be built under currently adopted international and state building codes. Any buildings or infrastructure built in the future will have the

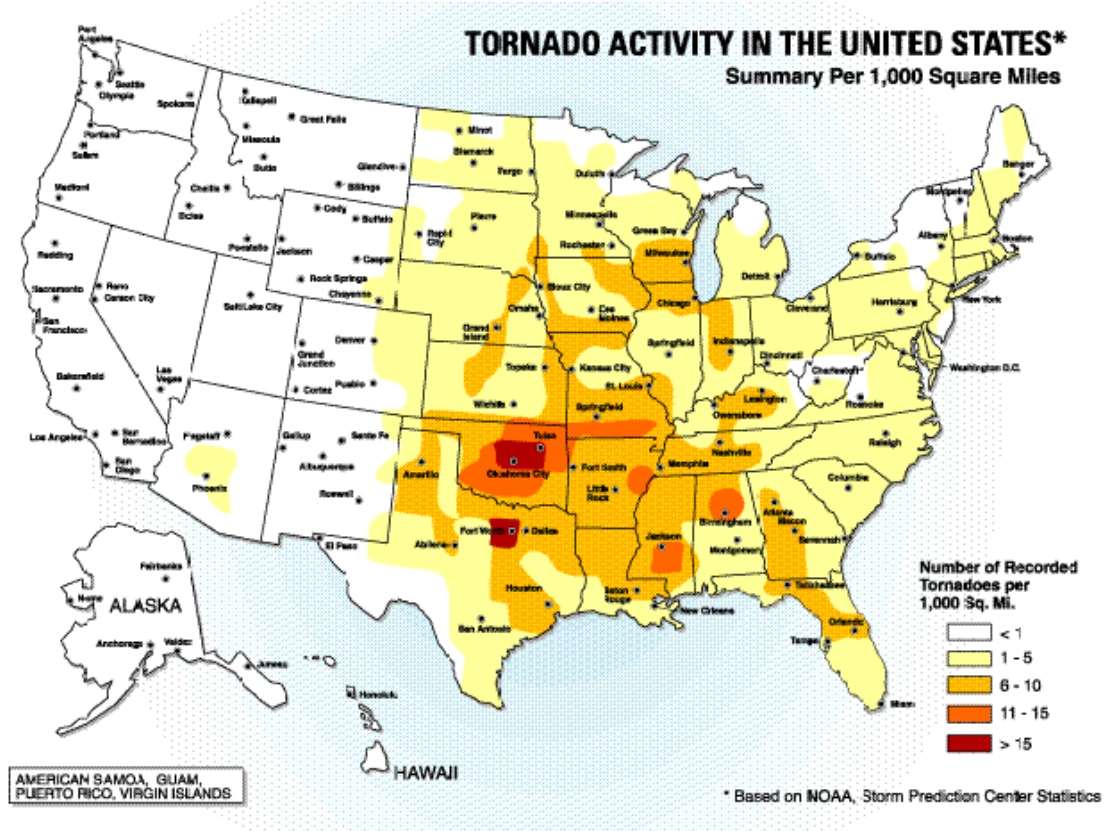
same risk as other buildings or infrastructure built within the planning area. There is no change in vulnerability from the previously approved plan.

5.6 Tornado

5.6.1 Background

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. Tornadoes are most often generated by thunderstorm activity (but sometimes result from hurricanes and other tropical storms) when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The damage caused by a tornado is a result of the high wind velocity and wind-blown debris, also accompanied by lightning or large hail. According to the National Weather Service, tornado wind speeds normally range from 40 miles per hour to more than 300 miles per hour. The most violent tornadoes have rotating winds of 250 miles per hour or more and can cause extreme destruction and turn normally harmless objects into deadly missiles.

Each year, an average of over 1200 tornadoes are reported nationwide, resulting in an average of 80 deaths and 1,500 injuries. According to the NOAA Storm Prediction Center (SPC), the highest concentration of tornadoes in the United States has been in Oklahoma, Texas, Kansas, and Florida respectively. **Figure 5-7** shows tornado activity in the United States based on the number of recorded tornadoes per 1,000 square miles.



Source: Federal Emergency Management Agency

Figure 5-7: Tornado Activity in the United States

Tornadoes are more likely to occur during the months of March through May and are most likely to form in the late afternoon and early evening. Most tornadoes are a few dozen yards wide and touch down briefly, but even small short-lived tornadoes can inflict tremendous damage. Highly destructive tornadoes may carve out a path over a mile wide and several miles long.

The destruction caused by tornadoes ranges from light to inconceivable depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction, including residential dwellings (particularly mobile homes). Tornadic magnitude is reported according to the Fujita and Enhanced Fujita Scales. Tornado magnitudes prior to 2005 were determined using the traditional version of the Fujita Scale (**Table 5-13**). Tornado magnitudes that were determined in 2005 and later were determined using the Enhanced Fujita Scale (**Table 5-14**).

Table 5-13: The Fujita Scale (Effective Prior to 2005)

F-SCALE NUMBER	INTENSITY	WIND SPEED	TYPE OF DAMAGE DONE
F0	GALE TORNADO	40–72 MPH	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.
F1	MODERATE TORNADO	73–112 MPH	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
F2	SIGNIFICANT TORNADO	113–157 MPH	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
F3	SEVERE TORNADO	158–206 MPH	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
F4	DEVASTATING TORNADO	207–260 MPH	Well-constructed houses levelled; structures with weak foundations blown off some distance; cars thrown, and large missiles generated.
F5	INCREDIBLE TORNADO	261–318 MPH	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.
F6	INCONCEIVABLE TORNADO	319–379 MPH	These winds are very unlikely. The small area of damage they might produce would probably not be recognizable along with the mess produced by F4 and F5 wind that would surround the F6 winds. Missiles, such as cars and refrigerators would do serious secondary damage that could not be directly identified as F6 damage. If this level is ever achieved, evidence for it might only be found in some manner of ground swirl pattern, for it may never be identifiable through engineering studies.

Source: National Weather Service

Table 5-14: The Enhanced Fujita Scale (Effective 2005 and Later)

EF-SCALE NUMBER	INTENSITY PHRASE	3 SECOND GUST (MPH)	TYPE OF DAMAGE DONE
EF0	GALE	65–85	Some damage to chimneys; break branches off trees; pushes over shallow-rooted trees; damages to sign boards.
EF1	MODERATE	86–110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
EF2	SIGNIFICANT	111–135	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
EF3	SEVERE	136–165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
EF4	DEVASTATING	166–200	Well-constructed houses levelled; structures with weak foundations blown off some distance; cars thrown, and large missiles generated.
EF5	INCREDIBLE	Over 200	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.

Source: National Weather Service

5.6.2 Location and Spatial Extent

Tornadoes occur throughout the state of New Mexico, and thus in Valencia County. Tornadoes typically impact a small area, but damage may be extensive. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time. Event locations are completely random, and it is not possible to predict specific areas that are more susceptible to tornado strikes over time, though due to population density, (especially in Valencia County) tornadoes may be reported more frequently in higher populated areas than more rural locations due to lack of observance of the event and/or reported damages. Therefore, it is assumed that the County is uniformly exposed to this hazard.

5.6.3 Extent

The extent of tornadoes can be defined by the maximum tornado magnitude. **Table 5-15** notes the maximum tornado magnitude recorded in each jurisdiction.

Table 5-15: Maximum Recorded Tornado Magnitude

Location	Date	Magnitude
Valencia County (Unincorporated area)	10/10/1974	F2
City of Belen	8/30/2004	F0
City of Rio Communities	No Data Available	No Data Available
Town of Peralta	No Data Available	No Data Available

Location	Date	Magnitude
Village of Bosque Farms	7/31/1954	F0
Village of Los Lunas	8/30/1963	F0
Middle Rio Grande Conservancy District	No Data Available	No Data Available

Source: National Weather Service Storm Prediction Center

5.6.4 Historical Occurrences

The following historical occurrences ranging from 1950 to 2021 have been identified based on the NCDC Storm Events database **Table 5-16**. It should be noted that only those historical occurrences listed in the NCDC database are shown here and that other, unrecorded, or unreported events may have occurred within the planning area during this timeframe.

Table 5-16: Historical Occurrences of Tornado (1950 to 2021)

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Valencia Co.	07/31/1954	Tornado	F0	0	0	0.25K	0.00K
Valencia Co.	08/30/1963	Tornado	F0	0	2	0.00K	0.00K
Valencia Co.	07/05/1966	Tornado	F1	0	0	0.25K	0.00K
Valencia Co.	10/10/1974	Tornado	F2	1	8	250.00K	0.00K
Valencia Co.	05/27/1975	Tornado	F2	0	0	25.00K	0.00K
Belen	08/30/2004	Tornado	F0	0	0	0.00K	0.00K
Valencia	05/17/2021	Tornado	EF0	0	0	0.00K	0.00K
Totals:				1	8	275.50K	0.00K

5.6.5 Probability of Future Occurrences

The probability of future tornadoes is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability of EF2 event
- Possible: Between 1% and 10% annual probability of EF2 event
- Likely: Between 10% and 99% annual probability of EF2 event
- Highly Likely: 100% probability of EF2 event

Jurisdiction	Probability
Valencia County (Unincorporated area)	Likely
City of Belen	Unlikely

Jurisdiction	Probability
City of Rio Communities	Unlikely
Town of Peralta	Unlikely
Village of Bosque Farms	Unlikely
Village of Los Lunas	Unlikely
Middle Rio Grande Conservancy District	Unlikely

5.6.6 Vulnerability and Impact

People

The rate of onset of tornado events is rapid, giving those in danger minimal time to seek shelter. The current average lead time according to NOAA is 13 minutes. Injury may result from the direct impact of a tornado, or it may occur afterward when people walk among debris and enter damaged buildings. A study of injuries after a tornado in Marion, Illinois, showed that 50 percent of the tornado-related injuries were suffered during rescue attempts, cleanup, and other post-tornado activities. Common causes of injury included falling objects and heavy, rolling objects. Because tornadoes often damage power lines, gas lines, or electrical systems, there is a risk of fire, electrocution, or an explosion.

First Responders

Due to the rapid onset of tornado events, first responders could be critically affected by tornado events through direct impact of the tornado itself or injury received during response efforts. Response may be hindered as responders may be unable to access those that have been affected if storm conditions persist or if they are unable to safely enter affected areas. As mentioned above, a significant percentage of tornado-related injuries are suffered during rescue attempts, cleanup, and other post-tornado activities due to walking among debris and entering damaged buildings.

Continuity of Operations

Continuity of operations could be impacted by a tornado. Personnel or families of personnel may be harmed which would limit their response capability. Critical facilities and resources could also be damaged or destroyed during a tornado.

Built Environment

The weakest tornadoes, EF0, can cause minor roof damage and strong tornadoes can destroy frame buildings and even severely damage steel reinforced concrete structures. Most building codes in the United States do not include provisions that provide protection against tornadic winds. Given the strength of the wind impact and construction techniques, buildings are vulnerable to direct impact, including potential destruction, from tornadoes and from wind borne debris that tornadoes turn into missiles. All jurisdictions in the County are vulnerable to building damages. Mobile homes are particularly susceptible to damage and fatalities during tornadoes.

Economy

The largest impact of tornadoes is the economic damage caused by widespread destruction along their paths. More directly, there are many people killed by these storms, and to a lesser extent pets and farm animals. The major damage is the complete destruction of homes, buildings, and farms, the wrecking of cars and trucks, and the loss of power distribution systems. Winds as high as 300 mph blow down walls,

tear up trees, and throw debris in every direction at high speeds. Indirect losses include workers who cannot report to jobs and commercial entities that most close to repair damage.

Natural Environment

There is no defense for plants and animals from a direct impact from a tornado. Plants and animals in the path of the tornado will receive considerable damage or be killed. Strong tornados can shred trees and lift grass from the ground.

Infrastructure & Critical Facilities

All infrastructure and critical facilities are equally at risk since tornadoes indiscriminately affect the entire planning area; this has not changed since the previous plan.

Land Use & Development Trends

The County and its participating jurisdictions' predominant growth area is residential housing. Increased residential growth will increase the County and its participating jurisdictions' vulnerability and risk to tornadoes. Since tornadoes typically land, move on a path, and then dissipate, there is a high chance in a largely rural area that a tornado's path may not hit any structures or population. However, as the communities grow, total area remains the same, and tornado activity remains constant, there is a greater chance structures and population will be exposed to a tornado. As the County and its participating jurisdictions grow, it will need to initiate more programs building tornado safe rooms and encouraging the construction of private safe rooms. Additionally, community and school safe rooms will need to be built based on projections of future population and not the current number. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within the planning area. There is no change in vulnerability from the previously approved plan.

5.7 Winter Storm

5.7.1 Background

A winter storm can range from moderate snow over a period of a few hours to blizzard conditions with blinding wind-driven snow that lasts for several days. Events may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Some winter storms might be large enough to affect several states, while others might affect only localized areas. Occasionally, heavy snow might also cause significant property damage, such as roof collapses on older buildings.

All winter storm events have the potential to present dangerous conditions to the affected area. Larger snowfalls pose a greater risk, reducing visibility due to blowing snow and making driving conditions treacherous. A heavy snow event is defined by the National Weather Service as an accumulation of 4 of more inches in 12 hours or less. A blizzard is the most severe form of winter storm. It combines low temperatures, heavy snow, and winds of 35 miles per hour or more, which reduces visibility to a quarter mile or less for at least 3 hours. Winter storms are often accompanied by sleet, freezing rain, or an ice storm. Such freezing events are particularly hazardous as they create treacherous surfaces.

Ice storms are defined as storms with significant amounts of freezing rain and are a result of frigid air damming (CAD). CAD is a shallow, surface-based layer of cold, stably stratified air entrenched against the southern slopes of the Rocky Mountains. With warmer air above, falling precipitation in the form of snow melts, then becomes either super-cooled (liquid below the melting point of water) or re-freezes. In the former case, super-cooled droplets can freeze on impact (freezing rain), while in the latter case, the re-frozen water particles are ice pellets (or sleet). Sleet is defined as partially frozen raindrops or

refrozen snowflakes that form into small ice pellets before reaching the ground. They typically bounce when they hit the ground and do not stick to the surface. However, it does accumulate like snow, posing similar problems and has the potential to accumulate into a layer of ice on surfaces. Freezing rain, conversely, usually sticks to the ground, creating a sheet of ice on the roadways and other surfaces. All the winter storm elements – snow, low temperatures, sleet, ice, etcetera – have the potential to cause significant hazard to a community. Even small accumulations can down power lines and tree limbs and create hazardous driving conditions. Furthermore, communication and power may be disrupted for days.

5.7.2 Location and Spatial Extent

The complex terrain of New Mexico, ranging from the eastern plains to the high mountains across the northern and western regions, to the Rio Grande Valley, creates weather systems that change quickly over relatively short distances. The weather may be mild and sunny along the Rio Grande Valley with near blizzard conditions found across the high plains east of the central mountain chain.

Severe winter storms are large enough to affect the entire planning area. The most severe conditions would typically include little snowfall (1-2 inches) but would result in extreme wind chills.

Wind chills play the most significant role in Valencia County's severe winter weather since the welfare of residents is related to wind chill. Local officials encourage citizens to heed the warning and take extra precautions. Wind chill is the combination of wind and temperature that serves as an estimate of how cold it feels to expose human skin. Local officials throughout the planning area consider wind chill values below -10 degrees to be extremely dangerous to the population although hypothermia can occur at higher temperatures and cause death. **Figure 5-8** gives a range of physical intensities from winter storms along with the potential effect:

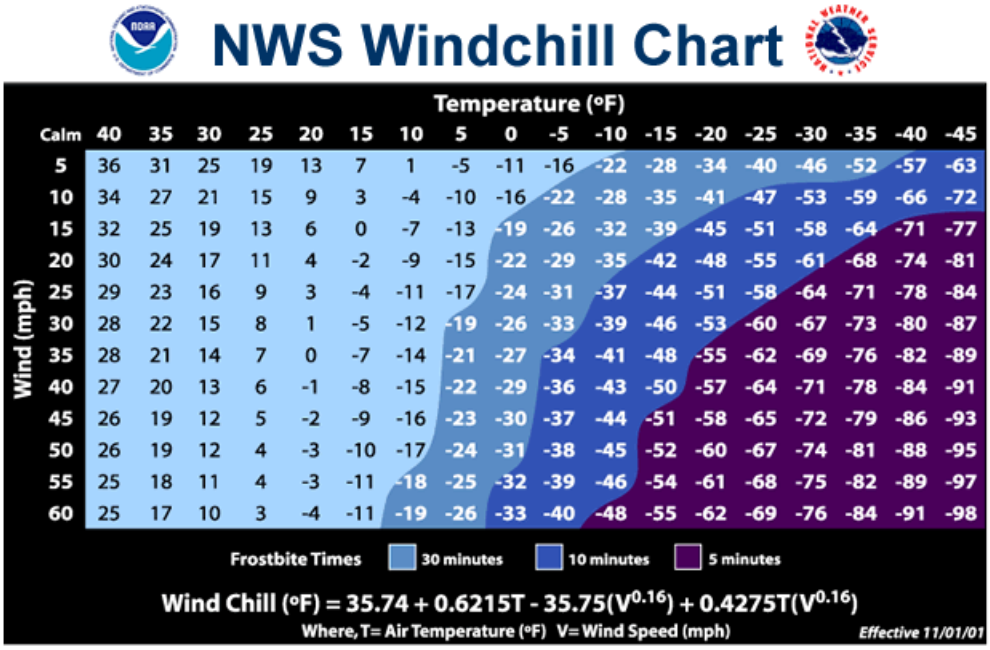


Figure 5-8: National Weather Service Windchill Chart with Impacts

5.7.3 Extent

It is likely for the County to experience multiple days below freezing and wind chills dropping the temperature close to 0. It is also likely for the County to experience greater than 10 inches of one day snowfall in the future.

Snowfall amounts ranged from two to seven inches around the Albuquerque Metro Area. Difficult travel conditions due to snow, blowing snow, low visibility, and frigid temperatures were reported. Very cold temperatures resulted in frozen and burst water pipes at 40 public schools of which 25 were severely damaged. APS estimated damage amounts around $230,000. APD reported 157 accidents across the metro area with 66 involving injuries. NCDC has no reported snow events specifically for the participating jurisdictions though anecdotal estimates were provided by first responders and emergency managers. Verifiable data breaking down specific inches of snow at the jurisdictional level is not reasonably accessible. The participating jurisdictions do not anticipate future conditions that would fall outside these presently established extents. The maximum is 7 inches and the participating jurisdictions do not anticipate exceeding that amount. The maximum reported snowfall amounts are shown in **Table 5-17**.

Table 5-17: Maximum Reported Snowfall Amounts

Location	Date	Type	Magnitude
Valencia County (Unincorporated area)	1/1/2019	Winter Storm	2-7 in. of snow
City of Belen	2019	Winter Storm	2-7 in. of snow*
City of Rio Communities	2019	Winter Storm	2-7 in. of snow*
Town of Peralta	2019	Winter Storm	2-7 in. of snow*
Village of Bosque Farms	2019	Winter Storm	2-7 in. of snow*
Village of Los Lunas	2019	Winter Storm	2-7 in. of snow*
Middle Rio Grande Conservancy District	No Data Available	Winter Storm	No Data Available

*anecdotal estimates

5.7.4 Historical Occurrences

According to the National Climatic Data Center, there have been a total of 102 recorded winter storm events in the County since 2009 (**Table 5-18**). These events resulted in approximately $755.00K in damages. It should be noted that there may have been more events to occur before 2009 that were not reported on NCDC.

Table 5-18: Historical Occurrences of Winter Weather (2009 to 2021)

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Sandia/Manzano Mountains...	10/21/2009	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/07/2009	Blizzard		0	0	0.00K	0.00K
West Central Highlands (...	12/30/2009	Winter Weather		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/30/2009	Heavy Snow		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
South Central Highlands ...	12/30/2009	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/22/2010	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	01/22/2010	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/28/2010	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	01/28/2010	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/03/2010	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/22/2010	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	02/22/2010	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	02/22/2010	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	03/10/2010	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/10/2010	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/14/2010	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	03/14/2010	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/19/2010	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/16/2010	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/16/2010	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	12/16/2010	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	12/16/2010	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	01/31/2011	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	01/31/2011	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/31/2011	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	01/31/2011	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	02/01/2011	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	02/01/2011	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/01/2011	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/01/2011	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	10/27/2011	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	12/02/2011	Heavy Snow		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Sandia/Manzano Mountains...	12/02/2011	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	12/04/2011	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/04/2011	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	12/04/2011	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/04/2011	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/12/2011	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	12/12/2011	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	12/18/2011	Heavy Snow		0	0	50.00K	0.00K
Sandia/Manzano Mountains...	12/18/2011	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/19/2011	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	12/19/2011	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/22/2011	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	12/22/2011	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	12/22/2011	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/22/2011	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/14/2012	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/14/2012	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	03/08/2012	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/02/2012	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	02/24/2013	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	11/23/2013	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	11/23/2013	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	11/23/2013	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	11/23/2013	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/04/2013	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/05/2013	Heavy Snow		1	0	0.00K	0.00K
South Central Highlands ...	02/01/2014	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/03/2014	Heavy Snow		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Sandia/Manzano Mountains...	12/25/2014	Winter Storm		0	0	0.00K	0.00K
South Central Highlands ...	01/02/2015	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	01/02/2015	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/02/2015	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	01/12/2015	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	01/12/2015	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/21/2015	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	01/21/2015	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	01/21/2015	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/30/2015	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/22/2015	Winter Weather		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	02/26/2015	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	02/26/2015	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/26/2015	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	02/27/2015	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	11/16/2015	Heavy Snow		0	0	0.00K	0.00K
South Central Highlands ...	11/27/2015	Ice Storm		0	0	100.00K	0.00K
Albuquerque Metro Area (...	12/12/2015	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	12/26/2015	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/26/2015	Blizzard		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/26/2015	Heavy Snow		0	0	5.00K	0.00K
South Central Highlands ...	12/26/2015	Blizzard		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/22/2016	Winter Weather		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	01/05/2017	Winter Storm		0	0	0.00K	0.00K
Albuquerque Metro Area (...	01/06/2017	Winter Weather		0	0	100.00K	0.00K
Sandia/Manzano Mountains...	01/15/2017	Winter Storm		0	0	0.00K	0.00K
Albuquerque Metro Area (...	01/15/2017	Winter Storm		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	04/28/2017	Heavy Snow		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Sandia/Manzano Mountains...	11/11/2018	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/13/2018	Winter Weather		0	0	0.00K	0.00K
West Central Highlands (...	12/27/2018	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/27/2018	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/27/2018	Blizzard		0	0	0.00K	0.00K
South Central Highlands ...	12/27/2018	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	12/31/2018	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	12/31/2018	Heavy Snow		0	0	0.00K	0.00K
Sandia/Manzano Mountains...	12/31/2018	Heavy Snow		0	0	0.00K	0.00K
West Central Highlands (...	01/01/2019	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	01/01/2019	Heavy Snow		0	0	500.00K	0.00K
Sandia/Manzano Mountains...	01/01/2019	Heavy Snow		0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/19/2019	Winter Storm		0	0	0.00K	0.00K
Albuquerque Metro Area (...	02/22/2019	Heavy Snow		0	0	0.00K	0.00K
Totals:				1	0	755.00K	0.00K

5.7.5 Probability of Future Occurrences

The probability of future Winter Storms is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability
- Possible: Between 1% and 10% annual probability
- Likely: Between 10% and 99% annual probability
- Highly Likely: 100% probability

Jurisdiction	Probability
Valencia County (Unincorporated area)	Highly Likely
City of Belen	Likely
City of Rio Communities	Likely
Town of Peralta	Likely
Village of Bosque Farms	Likely
Village of Los Lunas	Likely

Jurisdiction	Probability
Middle Rio Grande Conservancy District	Likely

5.7.6 Vulnerability and Impact

People

Winter storms are deceptive killers because most deaths are indirectly related to the storm event. The leading cause of death during winter storms is from automobile or other transportation accidents. Exhaustion and heart attacks caused by overexertion are the two causes of winter storm-related deaths.

Power outages during very frigid winter storm conditions can result in a potentially dangerous situation. Elderly people account for the largest percentage of hypothermia victims. In addition, if the power is out for an extended period, residents are forced to find alternative means to heat their homes. The danger arises from carbon monoxide released from improperly ventilated heating sources such as space or kerosene heaters, furnaces, and blocked chimneys. House fires also occur more frequently in the winter due to lack of proper safety precautions when using an alternative heating source.

First Responders

Adverse impact expected to be severe for unprotected personnel and moderate to light for trained, equipped, and protected personnel.

Fire suppression during winter storms may present a great danger because water supplies may freeze, and it may be difficult for firefighting equipment to get to the fire.

Clearing ice- or snow-covered roads is also a problem; with limited equipment priority is given to main thoroughfares and secondary roads are untouched during the initial hours after a storm has passed.

Continuity of Operations

Winter storm events can result in a loss of power which may impact operations. All jurisdictions are equally vulnerable to loss of power in a winter event. Downed trees, power lines and icy road conditions may prevent access to critical facilities and/or emergency equipment.

Built Environment

Localized impact to facilities and infrastructure in the areas of the incident. Power lines and roads are most adversely affected.

Economy

Local economy and finances may be adversely affected, depending on damage. Utility companies will strive to restore power as quickly as possible; however, businesses without power may be forced to close for an extended period, resulting in financial losses for the local economy.

Natural Environment

Winter storm events may include ice or snow accumulation on trees which can cause large limbs, or even whole trees, to snap and potentially fall on residential homes, cars, or power lines. This potential for winter debris creates a dangerous environment to be outside in; significant injury may occur if a large limb snaps while a local resident is out driving or walking underneath it.

Infrastructure & Critical Facilities

All infrastructure and critical facilities are equally at risk since winter storms indiscriminately affect the entire planning area; this has not changed since the previous plan.

Land Use & Development Trends

The County and its participating jurisdictions' predominant growth area is residential housing. Increased residential growth will not increase the County or its participating jurisdictions' vulnerability and risk to winter storms as long as the residential structures continue to be built under currently adopted international and state building codes, contemporary heating standards, and an appropriately accommodating power grid. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within the planning area. There is no change in vulnerability from the previously approved plan.

5.8 Earthquake

5.8.1 Background

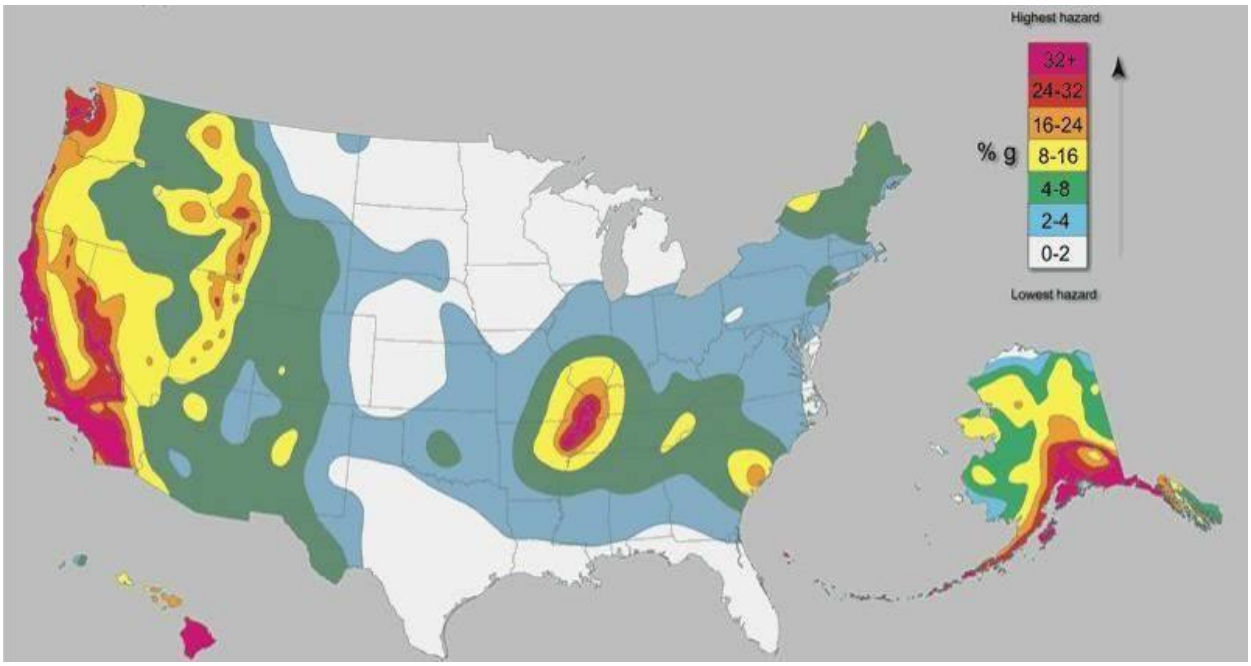
An earthquake is movement or trembling of the ground produced by sudden displacement of rock in the Earth's crust. Earthquakes result from crustal strain, volcanism, landslides, or the collapse of caverns. Earthquakes can affect hundreds of thousands of square miles, cause damage to property measured in the tens of billions of dollars, result in loss of life and injury to hundreds of thousands of persons, and they disrupt the social and economic functioning of the affected area.

Most property damage and earthquake-related deaths are caused by the failure and collapse of structures due to ground shaking. The level of damage depends upon the amplitude and duration of the shaking, which are related to the earthquake size, distance from the fault, site, and regional geology. Other damaging earthquake effects include landslides, the down-slope movement of soil and rock (mountain regions and along hillsides), and liquefaction, in which ground soil loses the ability to resist shear and flows much like quicksand. In the case of liquefaction, anything relying on the substrata for support can shift, tilt, rupture, or collapse.

Most earthquakes are caused by the release of stresses accumulated because of the rupture of rocks along opposing fault planes in the Earth's outer crust. These fault planes are typically found along the borders of the Earth's 10 tectonic plates. The areas of greatest tectonic instability occur at the perimeters of the slowly moving plates, as these locations are subjected to the greatest strains from plates traveling in opposite directions and at different speeds. Deformation along plate boundaries causes strain in the rock and the consequent buildup of stored energy. When the built-up stress exceeds the rocks' strength a rupture occurs. The rock on both sides of the fracture is snapped, releasing the stored energy, and producing seismic waves, generating an earthquake.

The greatest earthquake threat in the United States is along tectonic plate boundaries and seismic fault lines located in the central and western states; however, the Eastern United State does face moderate risk to less frequent, less intense earthquake events. **Figure 5-9** shows relative seismic risk for the United States.

Figure 5-9. United States Earthquake Hazard Map



Source: United States Geological Survey

Earthquakes are measured in terms of their magnitude and intensity. Magnitude is measured using the Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake through a measure of shock wave amplitude (**Table 5-19**). Each unit increase in magnitude on the Richter Scale corresponds to a 10-fold increase in wave amplitude, or a 32-fold increase in energy. Intensity is most measured using the Modified Mercalli Intensity (MMI) Scale based on direct and indirect measurements of seismic effects. The scale levels are typically described using roman numerals, ranging from "I" corresponding to imperceptible (instrumental) events to "XII" for catastrophic (total destruction). A detailed description of the Modified Mercalli Intensity Scale of earthquake intensity and its correspondence to the Richter Scale is given in **Table 5-20**.

Table 5-19: Richter Scale

RICHTER MAGNITUDES	EARTHQUAKE EFFECTS
< 3.5	Generally, not felt, but recorded.
3.5 - 5.4	Often felt, but rarely causes damage.
5.4 - 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1 - 6.9	Can be destructive in areas up to about 100 kilometers across where people live.
7.0 - 7.9	Major earthquake. Can cause serious damage over larger areas.
8 or >	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Source: Federal Emergency Management Agency

Table 5-20: Modified Mercalli Intensity Scale for Earthquakes

SCALE	INTENSITY	DESCRIPTION OF EFFECTS	CORRESPONDING RICHTER SCALE MAGNITUDE
I	INSTRUMENTAL	Detected only on seismographs.	
II	FEEBLE	Some people feel it.	< 4.2
III	SLIGHT	Felt by people resting; like a truck rumbling by.	
IV	MODERATE	Felt by people walking.	
V	SLIGHTLY STRONG	Sleepers awake; church bells ring.	< 4.8
VI	STRONG	Trees sway; suspended objects swing, objects fall off shelves.	< 5.4
VII	VERY STRONG	Mild alarm; walls crack; plaster falls.	< 6.1
VIII	DESTRUCTIVE	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged.	
IX	RUINOUS	Some houses collapse; ground cracks; pipes break open.	< 6.9
X	DISASTROUS	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread.	< 7.3
XI	VERY DISASTROUS	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards.	< 8.1
XII	CATASTROPHIC	Total destruction; trees fall; ground rises and falls in waves.	> 8.1

Source: Federal Emergency Management Agency

5.8.2 Location and Spatial Extent

The Rio Grande rift is a major tectonic feature of western North America created by crustal stretching over the past 28 million years. It is expressed on the surface of the earth as a series of elongated, north-south trending basins that run from central Colorado, through the central parts of New Mexico, into northern Mexico where it merges with the greater Basin and Range Province. Because the rift guides the path of the Rio Grande in New Mexico, it is the most highly populous sector of the State. Much of New Mexico's historical seismicity has been concentrated in the Rio Grande Valley between Socorro and Albuquerque, with about half of the earthquakes of intensity VI or greater (MMI) that occurred in the State between 1868 and 1973 being centered in this region.

Several major fault lines in the Rio Grande rift occur within 10 miles of several New Mexico cities, and studying their past activity is critical to understand their potential for future earthquakes and ground rupture. Paleo seismic studies constrain the age and number of prehistoric earthquakes that rupture the Earth's surface. Such studies incorporate observations and geologic data from outcrops of fault lines or trenches dug across fault lines. Based on these studies, several fault lines have been interpreted to have ruptured in the last 20,000 years and commonly have rupture recurrence intervals of about 10,000 to

40,000 years. These fault lines include the Sangre de Cristo fault near Taos, the Pajarito fault system near Los Alamos, several faults in the Albuquerque area, the Hubbell Spring fault east of Los Lunas and Belen, the Socorro Canyon and La Jencia faults near Socorro and Magdalena, the Alamogordo fault along the foot of the Sacramento Mountains, and the Organ fault near the White Sands Missile Range headquarters 18 miles east of Las Cruces. These faults can be capable of producing powerful earthquakes in the future.

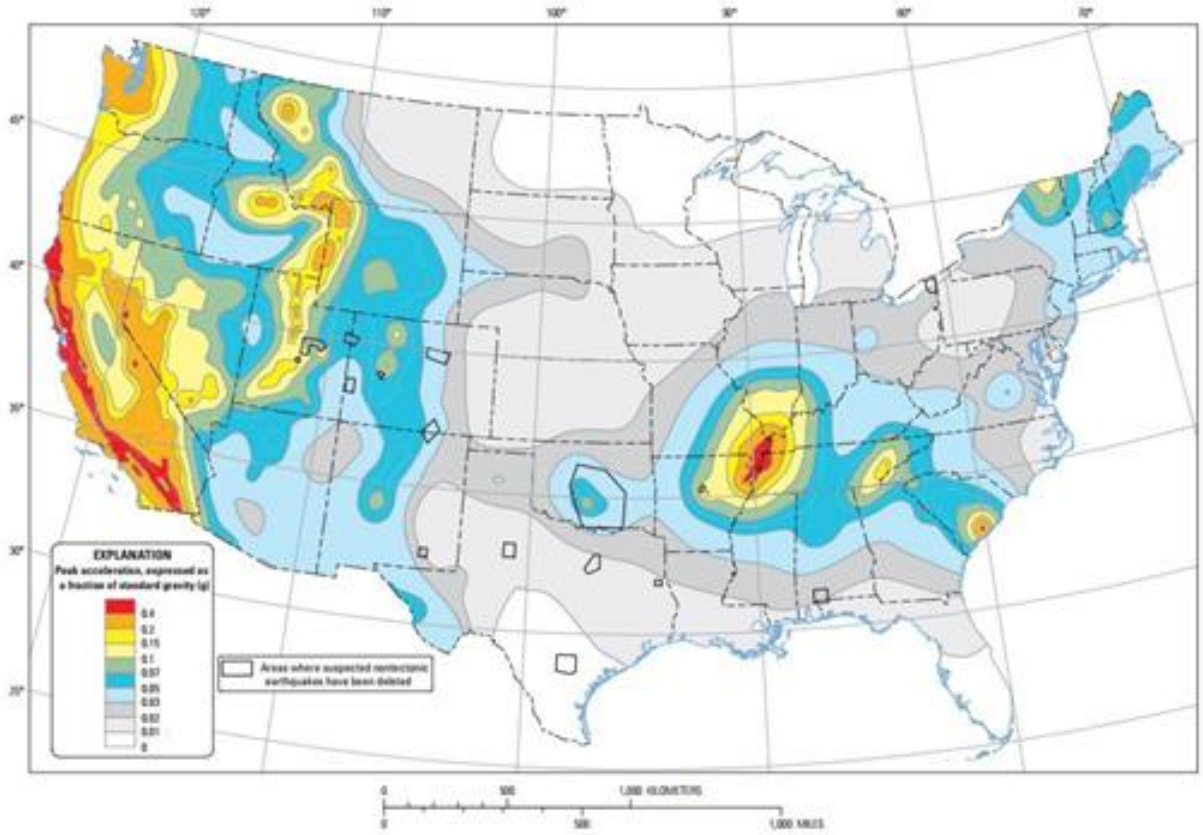
Historic earthquakes in the southwestern U.S. and northern Mexico region include a magnitude ~7.5 earthquake in northern Mexico in 1887 (the Sonoran Earthquake), numerous magnitude four to six earthquakes in the Socorro areas throughout the 20th century (most notably two earthquakes near magnitude six in 1906), and magnitude four to 5+ events in Cerrillos and Dulce in 1918 and 1966, respectively. The net earthquake threat to the State is considered moderate from a national perspective. However, the Sonoran Earthquake (magnitude of ~7.5) illustrates the damage incurred from an earthquake involving faults which last ruptured >100,000 years ago. This earthquake serves as a worst-case analogue for the hazards posed by Rio Grande rift faults, which also have high rupture recurrence intervals (10,000 to 40,000 years) and similar lengths as the faults involved in the Sonoran Earthquake.

Thousands of recorded earthquakes have been measured in New Mexico and analyzed in recent decades by the New Mexico Institute of Mining and Technology and/or the U.S. Geological Survey. Figure 4-50 depicts the approximate epicenters for past earthquakes in New Mexico and surrounding areas between 1962 and 2012. The Socorro area has been the most active earthquake region of the State during at least the past 150 years. During the past 45 years, approximately 50% of the seismic energy generated by earthquakes in New Mexico has been released in a region centered near Socorro, encompassing only about 2% of the State's total land area. This high rate of earthquake activity in the Socorro region is due to a slowly inflating (~2 mm/year) sill of molten rock (magma) that is approximately 1,300 square miles in area and lies approximately 12 miles beneath the surface of the fault-bounded Rio Grande rift.

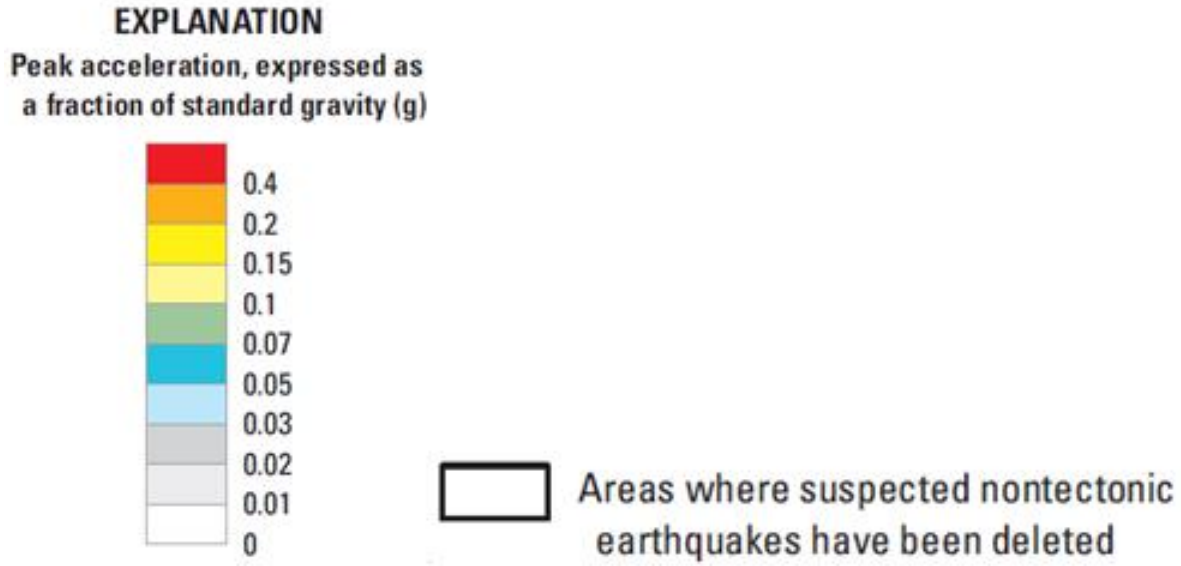
Some small earthquakes in New Mexico have also been triggered by human activity. Earthquake-like ground shaking is created by atomic bomb testing, including the explosion of the first atomic bomb at the Trinity Site in 1945 and subsequent underground explosions near Carlsbad in 1961 and east of Farmington in 1967. Many earthquakes in southeastern New Mexico may be related to oil and gas production and fluid reinjection. Earthquakes near Raton, NM and Trinidad, CO, show correlations with water injection associated with natural gas production, and a series of earthquakes recorded near the Heron and El Vado reservoirs in northern New Mexico may have been caused by the weight of the water in the reservoirs.

Figure 5-10 shows the intensity level associated with Valencia County based on the national USGS map of peak acceleration with 10 percent probability of exceedance in 50 years. It is probable that ground motion will reach a certain level during an earthquake. The data show peak horizontal ground acceleration (the fastest measured change in speed for a particle at ground level that is moving horizontally due to an earthquake) with a 10 percent probability of exceedance in 50 years. The map was compiled by the U.S. Geological Survey (USGS) Geologic Hazards Team, which conducts global investigations of earthquake, geomagnetic, and landslide hazards. According to this map, Valencia County lies within an approximate zone of level “5” to “7” ground acceleration. This indicates that the County exists within an area of low to moderate seismic risk.

Figure 5-10. Peak Acceleration with 10 Percent Probability of Exceedance in 50 Years



Ten-percent probability of exceedance in 50 years map of peak ground acceleration



Source: United States Geological Survey, 2014

5.8.3 Extent

According to Arup Maji (Professor Civil and Structural Engineering, University of New Mexico) the likely consequence of earthquakes in New Mexico is partial collapse of unreinforced masonry and old adobe buildings. Roads and bridges are unlikely to suffer damage that would render them unusable.

According to Rick Aster (former Chair of the Department of Earth and Environmental Science, New Mexico Institute of Mining and Technology; current Chair of the Department of Geosciences, Colorado State University), if a major Basin and Range earthquake like the 1887 Sonoran Earthquake were to occur in New Mexico, the State would suffer elevated levels of damage, with general losses ranging from 10s to 100s of millions of dollars depending on the location of the event. Furthermore, the area most subject to seismic activity, based on historic occurrence, is the Socorro-to- Albuquerque segment of the Rio Grande valley. This area is densely populated and rapidly developing. Present building codes require construction of certain occupancies (schools, hospitals, public buildings) to high earthquake resistance standards, although seismic mitigating construction is not required for residential buildings.

5.8.4 Historical Occurrences

Table 5-21 lists the locations and dates of the 31 strongest earthquakes that have occurred in New Mexico since 1869. There have been no earthquakes reported in the State larger than 4.5 since 2014.

Table 5-21: Strongest Earthquakes 4.5 and Greater in New Mexico

Date	Time			Approx. Location		MMI	Moment Magnitude	Nearby City
	Hr.	Min	Sec	Lat.	Long.			
1869	-	-	-	34.1	106.9	VII	5.2	Socorro
7-Sept-1893	-	-	-	34.7	106.6	VII	5.2	Belen
31-Oct-1895	12	-	-	34.1	106.9	VI	4.5	Socorro
1897	-	-	-	34.1	106.9	VI	4.5	Socorro
10-Sep-1904	-	-	-	34.1	106.9	VI	4.5	Socorro
2-Jul-1906	10	15	-	34.1	106.9	VI	4.5	Socorro
12-Jul-1906	12	15	-	34.1	106.9	VII	5.5	Socorro
16-Jul-1906	19	-	-	34.1	106.9	VII	5.8	Socorro
15-Nov-1906	2	15	-	34.1	106.9	VII	5.8	Socorro
19-Dec-1906	12	-	-	34.1	106.9	VI	4.5	Socorro
28-May-1918	11	30	-	35.5	106.1	VII	5.5	Cerrillos
5-Feb-1931	4	48	-	35	106.5	VI	4.5	Albuquerque
21-Feb-1935	1	45	-	34.5	106.8	VI	4.5	Bernardo
22-Dec-1935	1	56	-	34.7	106.8	VI	4.5	Belen
17-Sep-1938	17	20	-	33.3	108.5	VI	4.5	Glenwood
20-Sep-1938	5	39	-	33.3	108.5	VI	4.5	Glenwood
29-Sep-1938	23	35	-	33.3	108.5	VI	4.5	Glenwood
2-Nov-1938	16	0	-	33.3	108.5	VI	4.5	Glenwood
20-Jan-1939	12	17	-	33.3	108.5	VI	4.5	Glenwood
4-Jun-1939	1	19	-	33.3	108.5	VI	4.5	Glenwood
6-Nov-1947	16	50	-	35	106.4	VI	4.5	Albuquerque
23-May-1949	7	22	-	34.6	105.2	VI	4.5	Vaughn
3-Aug-1955	6	39	42	37	107.3	VI	4.5	Dulce
23-Jul-1960	14	16	-	34.4	106.9	VI	4.5	Bernardo
3-Jul-1961	7	6	-	34.2	106.9	VI	4.5	Socorro

Date	Time			Approx. Location		MMI	Moment Magnitude	Nearby City
	Hr.	Min	Sec	Lat.	Long.			
23-Jan-1966	1	56	39	37.02	107	VI	4.8	Dulce
5-Jan-1976	6	23	29	35.9	108.5	VI	4.7	Gallup
29-Nov-1989	6	54	39	34.5	106.9	VI	4.7	Bernardo
29-Jan-1990	13	16	11	34.5	106.9	VI	4.6	Bernardo
2-Jan-1992	11	45	35	32.3	103.2	VI	5	Eunice
10-Aug-2005	4	8	17	36.96	104.8	IV	5	Raton
29-June-2014	4	59	35	32.58	109.2	VI	5.2	Lordsburg

Source: NM State HMP

5.8.5 Probability of Future Occurrences

Based on the analyses performed in IRISK, the probability of future Earthquake is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less Than 4% Annual Probability of 500-Year Earthquake
- Possible: Between 4% And 20% Annual Probability of 500-Year Earthquake
- Likely: Between 20% and 90% Annual Probability of 500-Year Earthquake
- Highly Likely: More Than 90% Annual Probability of 500-Year Earthquake

Jurisdiction	Probability
Valencia County (Unincorporated area)	Unlikely
City of Belen	Unlikely
City of Rio Communities	Unlikely
Town of Peralta	Unlikely
Village of Bosque Farms	Unlikely
Village of Los Lunas	Unlikely
Middle Rio Grande Conservancy District	Unlikely

5.8.6 Vulnerability and Impact Analysis

People

Earthquakes in the region are not high impact events that cause injury or death. The public may typically experience some shaking in these events and the greatest threat to health and well-being is often from objects falling from shelves.

First Responders

A moderate earthquake is unlikely to damage infrastructure such as roads, bridges, or gas/power/water lines. Therefore, there would be minor impact to first responders in the event of a moderate earthquake in the County.

Continuity of Operations

There would likely be little disruption to services or operations due to a moderate earthquake.

Built Environment

Buildings can be damaged by the shaking itself or by the ground beneath them settling to a different level than it was before the earthquake (subsidence). Buildings can even sink into the ground if soil liquefaction occurs. If a structure (a building, road, etc.) is built across a fault, the ground displacement during an earthquake could seriously damage that structure. An earthquake can also break dams or levees along a river. The water from the river or the reservoir would then flood the area, damaging buildings and drowning people. Finally, fires can be started by broken gas lines and power lines. Fires can be a severe problem, especially if the water lines that feed the fire hydrants have been damaged as well. Historically, the County has not been impacted by an earthquake with more than a moderate intensity so damage to the built environment is unlikely.

Economy

Economic losses associated with an earthquake include property damage, business interruption costs, and costs to repair damaged utilities and infrastructure. Historically, there have been no economic losses associated with earthquakes in the County.

Natural Environment

A moderate earthquake is unlikely to cause substantial impacts to the natural environment in the County. Impacts on the built environment (e.g., ruptured gas line) could damage the surrounding environment. However, this type of damage is unlikely based on historical occurrences.

Infrastructure & Critical Facilities

There are not any infrastructure or critical facilities rated at a 'very high' level of risk. Jurisdictions have infrastructure and critical facilities located in moderate zones that has not changed since the previous plan. See **Table 5-22** for those details. The Planning Team would need to study the structures in the planning area—their age, condition, and construction type—to rate their relative vulnerability with more specificity. Unreinforced masonry and adobe structures built before current building codes are more susceptible to damage than other types of structures built to seismic-resistant codes. Future updates should consider more study of the earthquake risk.

Table 5-22: Infrastructure and Critical Facilities in Linear Extensibility Potential Zones

Jurisdiction	Moderate (3.0-6.0%)	High (6.0-9.0%)	Very High (>9.0%)
Valencia County (Unincorporated Area)	Communication Tower (4), Education Facility (29), Fire Station (24), Mine (3)	-	-
City of Belen	Communication Tower (1), Education Facility (2), Fire Station (4), Hospital (3), Mine, Police Station (1)	-	-
City of Rio Communities	Education Facility (2), Fire Station (2)	-	-

Jurisdiction	Moderate (3.0-6.0%)	High (6.0-9.0%)	Very High (>9.0%)
Town of Peralta	Education Facility (2), Fire Station (1)	-	-
Village of Bosque Farms	Education Facility (4), Fire Station (1), Police Station (1)	-	-
Village of Los Lunas	Education Facility, Fire Station (2), Police Station (1)	-	-
Middle Rio Grande Conservancy District	-	-	-

Land Use & Development Trends

Areas targeted for future growth and development have been identified across the County in the County Comprehensive Plan. Any new development in terms of structures and infrastructure (i.e., highways and streets) on known earthquake faults could be potentially impacted. Proper grading and building regulations/code including proper slab design and emplacement procedures can mitigate structural damage to new development in areas where earthquakes could occur. The County and its participating jurisdictions' predominant growth area is residential housing. Increased residential growth can increase or not increase a jurisdiction's risk to earthquakes. It depends completely on the building procedures. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within the identified hazard areas. There is no change in vulnerability from the previously approved plan.

HYDROLOGIC HAZARDS

5.9 Dam Failure

5.9.1 Background

Worldwide interest in dam and levee safety has risen significantly in recent years. Aging infrastructure, new hydrologic information, and population growth in floodplain areas downstream from dams and near levees have resulted in an increased emphasis on safety, operation, and maintenance.

There are approximately 84,000 dams in the United States today, the majority of which are privately owned. Other owners include state and local authorities, public utilities, and federal agencies. The benefits of dams are numerous: they provide water for drinking, navigation, and agricultural irrigation. Dams also provide hydroelectric power, create lakes for fishing and recreation, and save lives by preventing or reducing floods.

Though dams have many benefits, they also can pose a risk to communities if not designed, operated, and maintained properly. In the event of a dam failure, the energy of the water stored behind even a small dam can cause loss of life and great property damage if development exists downstream. If a levee breaks, scores of properties may become submerged in floodwaters and residents may become trapped by rapidly rising water. The failure of dams and levees has the potential to place large numbers of people and vast amounts of property in harm's way.

Table 5-23: Dam Hazard Classifications

Hazard Classification	Description	Quantitative Guidelines
Low	Interruption of road service, low volume roads	Less than 25 vehicles per day
	Economic damage	Less than $30,000
Intermediate	Damage to highways, Interruption of service	25 to less than 250 vehicles per day
	Economic damage	$30,000 to less than $200,000
High	Loss of human life*	Probable loss of 1 or more human lives
	Economic damage	More than $200,000
	*Probable loss of human life due to breached roadway or bridge on or below the dam.	250 or more vehicles per day

5.9.2 Location and Extent

The USACE National Inventory of Dams (NID) lists only one dam in Valencia County. The Houston Arroyo Dam, located north of Belen, is not rated as a high hazard dam. While this dam is considered a low-risk dam, the spatial extent of a dam failure at this location would be significant. Houston Arroyo Dam is an earth dam built on the Houston Arroyo River and is in Unincorporated, New Mexico. It was built in 1968 for the purpose of flood control. Additional dams identified by the Valencia County Hazard Mitigation Planning Team that were analyzed include the Isleta Diversion Dam, the Angostura Diversion Dam, and the Cochiti Dam.

The Isleta Diversion Dam is in Bernalillo County, just north of the Valencia County line near Isleta. The dam is not listed on the NID and is considered a low-risk dam. The spatial extent of a dam failure at this location would also be significant. The Angostura and Cochiti dams are both located in Sandoval County. While some residual flooding could occur in Valencia County, both dams are located more than 30 miles north of the Valencia County line, well outside of the dam failure hazard area.

5.9.3 Historical Occurrences

There are more than 80,000 dams in the United States, according to the 2007 update to the National Inventory of Dams. Approximately one third of these pose a 'high' hazard to life and property if failure occurs.

Presently there are no known dam incidents and/or failures involving notable property damage that have occurred in Valencia County. The 2018 New Mexico State Hazard Mitigation Plan reports that no dam incident notifications were reported in Valencia County since 1890.

5.9.4 Probability of Future Occurrence

The probability of future Dam Failure is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability
- Possible: Between 1% and 10% annual probability
- Likely: Between 10% and 99% annual probability
- Highly Likely: 100% probability

Jurisdiction	Probability
Valencia County (Unincorporated area)	Unlikely
City of Belen	Unlikely
City of Rio Communities	Unlikely
Town of Peralta	Unlikely
Village of Bosque Farms	Unlikely
Village of Los Lunas	Unlikely
Middle Rio Grande Conservancy District	Unlikely

5.9.5 Vulnerability and Impact

People

A person's immediate vulnerability to a dam failure is directly associated with the person's distance downstream of the dam as well as proximity to the stream carrying the floodwater from the failure. For dams that have an Emergency Action Plan (EAP), the vulnerability off loss of life for persons in their homes or on their property may be mitigated by following the EAP evacuation procedures; however, the displaced persons may still incur sheltering costs. For people located on the river (e.g., for recreation) the vulnerability of loss of life is significant.

The dams in the County do not provide a drinking water supply. As a result, the County is not at risk of major public health threats posed by the disruption of drinking water supply from dam failure. However, the population is vulnerable to minor impacts including the loss of the aesthetic or recreational use of the lakes upstream of dams following failure.

First Responders

For dams that fail slowly, first responders will be impacted similarly to other events that have advanced warning. For dams that fail without warning, the impact is rapid and severe, requiring rapid response to the impacts. Although the response is restricted to the stream below the dam, the location of impact moves rapidly downstream requiring multiple response locations.

Continuity of Operations

Unless critical infrastructure or facilities essential to the operation of government are in the impact area of the inundation area downstream of the dam, continuity of operations will not be disrupted. Emergency response, emergency management and law enforcement officials may have resources stretched or overwhelmed in the failure of a large dam.

Built Environment

Vulnerability to the built environment includes damage to the dam itself and any man-made feature located within the inundation area caused by the dam failure. Downstream of the dam, vulnerability includes potential damage to homes, personal property, commercial buildings and property, and government owned buildings and property; destruction of bridge or culvert crossings; weakening of bridge supports through scour; and damage or destruction of public or private infrastructure that cross the stream such as water and sewer lines, gas lines and power lines. Water dependent structures on the

lake upstream of the dam, such as docks/piers, floating structures, or water intake structures, may be damaged by the rapid reduction in water level during the failure.

Economy

Economic impact from small dams is small and impact is often limited to dam owner and the cost of first responder activities. Large failures can disrupt the economy through displacement of workers, damage to commercial employment centers or destruction of infrastructure that impacts commercial activities or access to other economic drivers.

Natural Environment

Aquatic species within the lake will either be displaced or destroyed. The velocity of the flood wave will destroy riparian and instream vegetation and destroy wetland function. The flood wave will be expected cause erosion within and adjacent to the stream. Deposition of eroded deposits may choke instream habitat or disrupt riparian areas. Sediments within the lake bottom and any low oxygen water from within the lake will be dispersed, potentially causing fish kills, or releasing heavy metals found in the lake sediment layers.

Infrastructure & Critical Facilities

Since the true extent of the Houston Arroyo Dam failure inundation area is significant, all critical facilities in Valencia, those lower in elevation and direction in the county, are included in the table below and has not changed since the previous plan.

Table 5-24: Infrastructure and Critical Facilities with Potential Impact from Houston Arroyo Dam Failure

Jurisdiction	Houston Arroyo Dam Inundation (Potential)
Valencia County (Unincorporated Area)	Communication Tower (4), Education Facility (29), Fire Station (24), Mine (3)
City of Belen	Communication Tower (1), Education Facility (2), Fire Station (4), Hospital (3), Mine, Police Station (1)
City of Rio Communities	Education Facility (2), Fire Station (2)
Village of Bosque Farms	Education Facility (4), Fire Station (1), Police Station (1)
Village of Los Lunas	Education Facility (2), Fire Station (2)
Middle Rio Grande Conservancy District	-

Land Use & Development Trends

The County and its participating jurisdictions' predominant growth area is residential housing. Increased development near dams increases a community's risk. For a jurisdiction to engage in development, free of dam failure risk, the USACE would need to map each dam's inundation zones. If a jurisdiction has mapped these zones, it could steer development into safer areas. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within or outside of unknown inundation area. There is no change in vulnerability from the previously approved plan.

5.10 Flood

5.10.1 Background

According to the Natural Resources Defense Council (NRDC), floods are the most common (and often most deadly) natural disasters in the United States. Floods result from excessive precipitation and can be classified under two categories: general floods, precipitation over a given river basin for a lengthy period along with storm-induced wave action, and flash floods, the product of heavy localized precipitation in a brief time over a given location. The severity of a flooding event is typically determined by a combination of several major factors, including stream and river basin topography and physiography, precipitation and weather patterns, recent soil moisture conditions, and the degree of vegetative clearing and impervious surface.

General floods are usually long-term events that may last for several days. The primary types of general flooding include riverine, coastal, and urban flooding. Riverine flooding is a function of excessive precipitation levels and water runoff volumes within the watershed of a stream or river. Coastal flooding is typically a result of storm surge, wind-driven waves, and heavy rainfall produced by hurricanes, tropical storms, and other large coastal storms. Urban flooding occurs where man-made development has obstructed the natural flow of water and decreased the ability of natural groundcover to absorb and retain surface water runoff.

Most flash flooding is caused by slow-moving thunderstorms in a local area or by heavy rains associated with hurricanes and tropical storms. However, flash flooding events may also occur from a dam or levee failure within minutes or hours of heavy amounts of rainfall or from a sudden release of water held by a retention basin or other stormwater control facility. Although flash flooding occurs most often along mountain streams, it is also common in urbanized areas where much of the ground is covered by impervious surfaces.

The periodic flooding of lands adjacent to rivers, streams, and shorelines (land known as a floodplain) is a natural and inevitable occurrence that can be expected to take place based upon established recurrence intervals. The recurrence interval of a flood is defined as the average time interval, in years, expected between a flood event of a particular magnitude and an equal or larger flood. Flood magnitude increases with an increasing recurrence interval.

Floodplains are designated by the frequency of the flood that is large enough to cover them. For example, the 10-year floodplain will be covered by the 10-year flood and the 100-year floodplain by the 100-year flood. Flood frequencies, such as the 100-year flood, are determined by plotting a graph of the size of all known floods for an area and determining how often floods of a particular size occur. Another way of expressing the flood frequency is the chance of occurrence each year, which is the percentage of the probability of flooding each year. For example, the 100-year flood has a 1 percent chance of occurring in any given year and the 500-year flood has a 0.2 percent chance of occurring in any given year.

5.10.2 Location and Extent

A variety of factors affect the type and severity of flooding within Valencia County and its participating jurisdictions including topography, urban development and infrastructure, and geology. Serious flooding in the mountainous or elevated areas is unusual because streams tend to be faster flowing and flood waters drain quickly.

Intense flooding will create havoc in any jurisdiction affected. The predicative magnitude of these floods is indeterminate and can vary. However, based on the variation of impacts, floods can cause minimal

damage in the form of just inches of water to houses and critical facilities being completely submerged in over 12 feet of water. The magnitude of these floods is indeterminate and varies; however, some areas have established a base flood elevation (BFE) to use as a determinate for construction and mitigation activities. Intense and widespread flooding can trap people and entire communities without basic goods or services. Any amount of damage can render a structure unusable for as long as recovery operation would take depending on the level of damage.

There are areas in the county that are susceptible to flood events. Special flood hazard areas in the county were mapped using FEMA Digital Flood Insurance Rate Maps (DFIRM). This includes Zone A (1-percent annual chance floodplain without an elevation), Zone AE (1-percent annual chance floodplain with elevations), and Shaded Zone X (0.2-percent annual chance floodplain). The figures below reflect the mapped flood zones for the Region. No maps exist for the MRGCD.

Table 5-25: Flood Zone Classifications

Zone Class	Description
A	An area inundated by 1% annual chance flooding, for which no BFEs have been determined. (100-Year Floodplain)
AE	An area inundated by 1% annual chance flooding, for which BFEs have been determined. (100-Year Floodplain)
X (Shaded)	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood. An area inundated by 0.2% annual chance flooding.

A sizable portion of the City of Belen is in the 100-year floodplain. The 100-year floodplain covers the area from Reinken to Vivian and from 1st Street to Main Street. This area has received significant flooding in the past and is prone to future flooding as are Sausal Drain and Lower Belen Riverside Drain on the east side of the city. The west mesa has several natural arroyos where natural drainage could cause flooding.

Arid conditions are normal in Belen. The average annual precipitation for Belen is only 11.08 inches. However, about half occurs during the summer monsoons, between July and September. These monsoon rains are often brief but intense storms, which can lead to flooding.

Watershed/flash flooding in the City of Belen would create problems with an access road known as Camino del Llano which leads to the west mesa. Previous flooding has exposed water, sewer, and gas lines that run parallel to this road. This water will also flow towards the lower spots of the city which poses a threat to drainage backup and road access. Mostly business will be affected with this watershed/flash flooding. With recent residential/commercial development along the west mesa of Belen, this has heightened the potential of flash flooding.

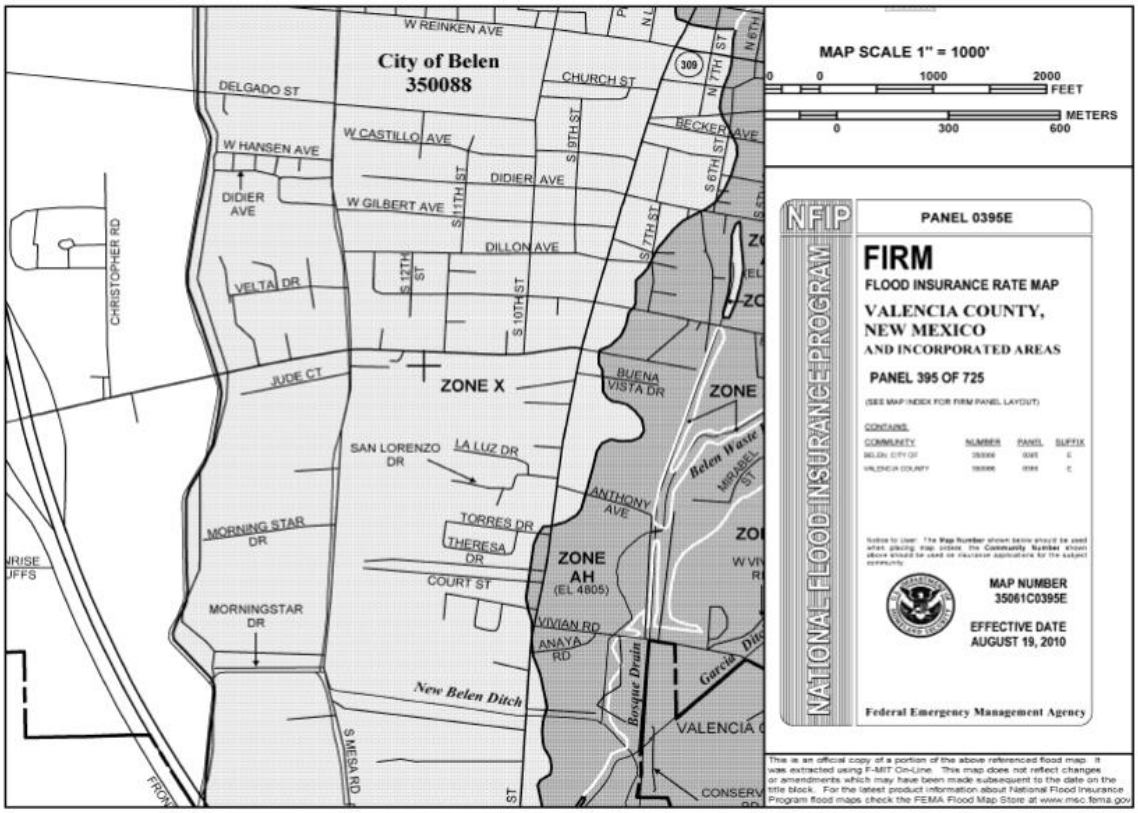


Figure 5-11: Belen Flood Hazard Area, Camino del Llano Access to West Mesa

The City of Rio Communities is primarily outside of the FEMA flood hazard area. However, the area of concern for Rio Communities is along the west bank of the Rio Grande. Also, River Road is the main access road running west and east between Rio Communities and Belen. If a levee failure were to occur on the west side, this road would be in the path of the water which would make unpassable conditions. A few homes and businesses would also be threatened.

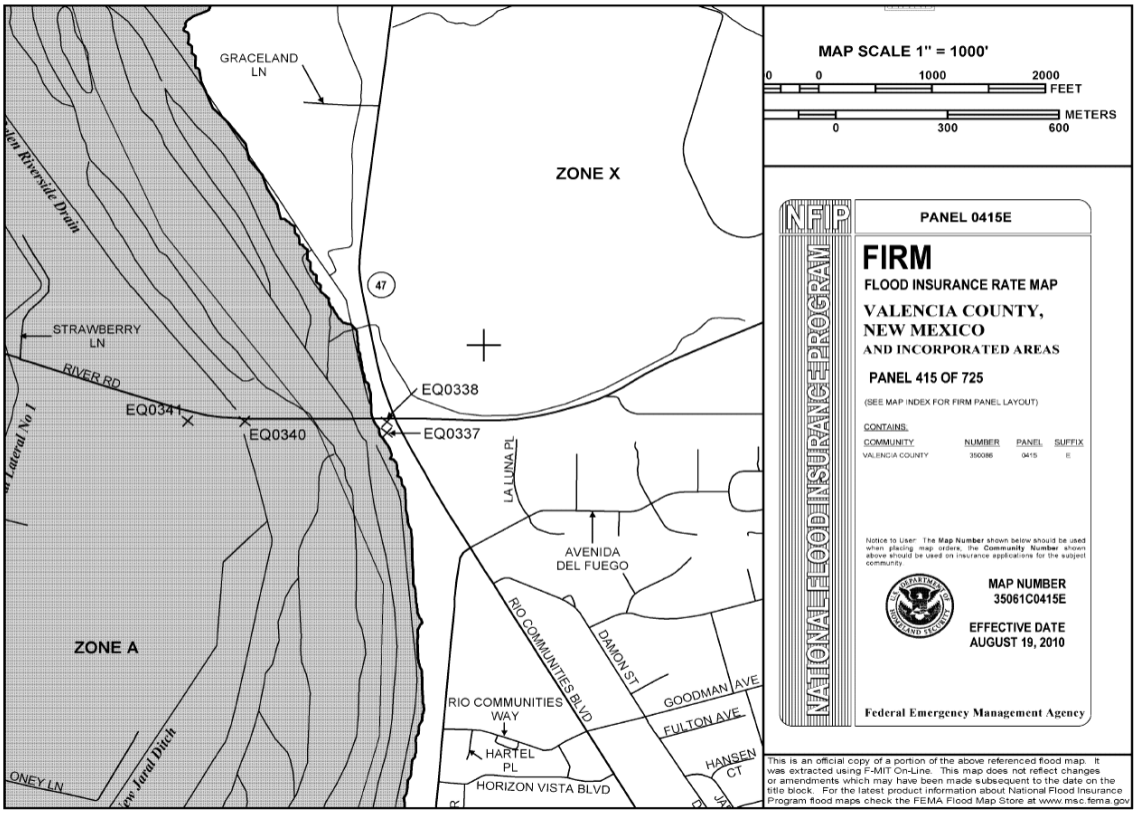


Figure 5-12: Rio Communities Flood Hazard Area, River Road at Rio Grande Crossing

Areas in the Town of Peralta have a risk of flooding from levee failure on the east side of the Rio Grande. Highway 47 is a human-made barrier that runs north and south through this town. Highway 47 would pose a stopping point from water extending beyond this roadway because it is higher in elevation than the river and portions of the town. Less than 250 homes would be at risk of this levee failure.

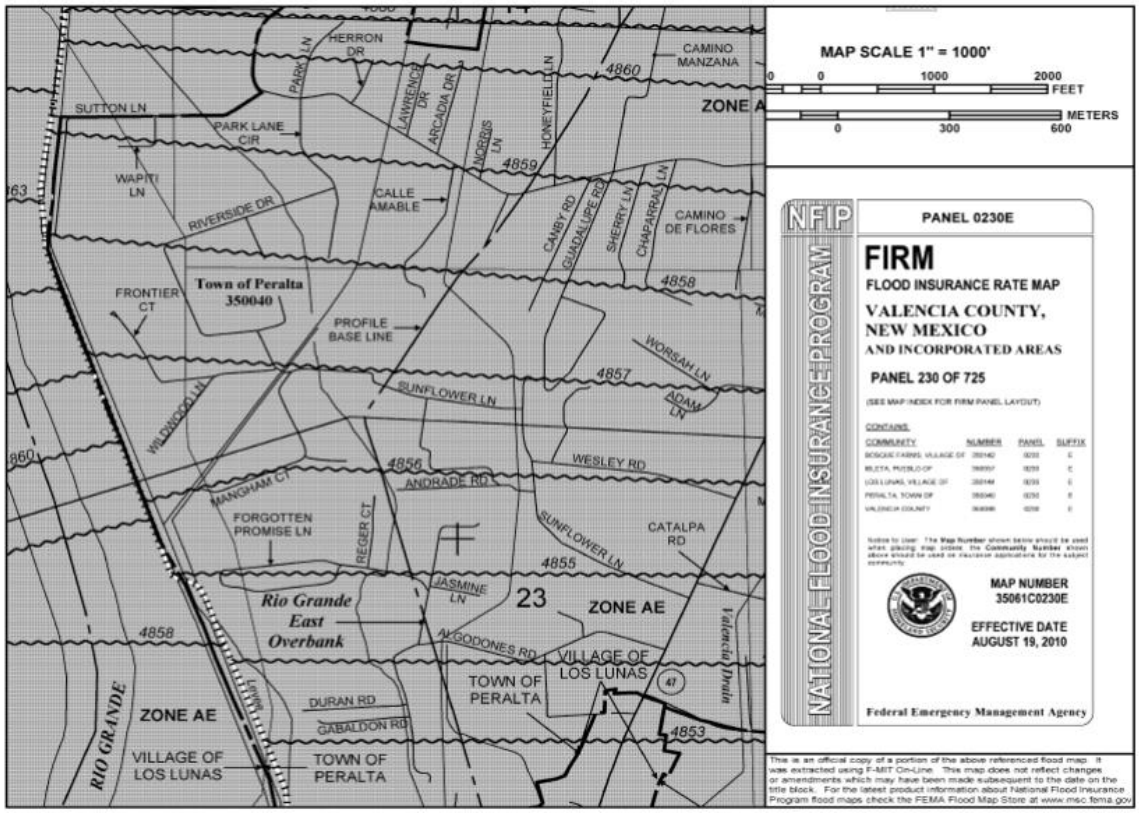


Figure 5-13: Peralta Flood Hazard Area, East of the Rio Grande

The Village of Bosque Farms sits east of the river. Levee failure on the east side of the river would endanger most of the homes in the floodplain and a waste-water treatment plant.

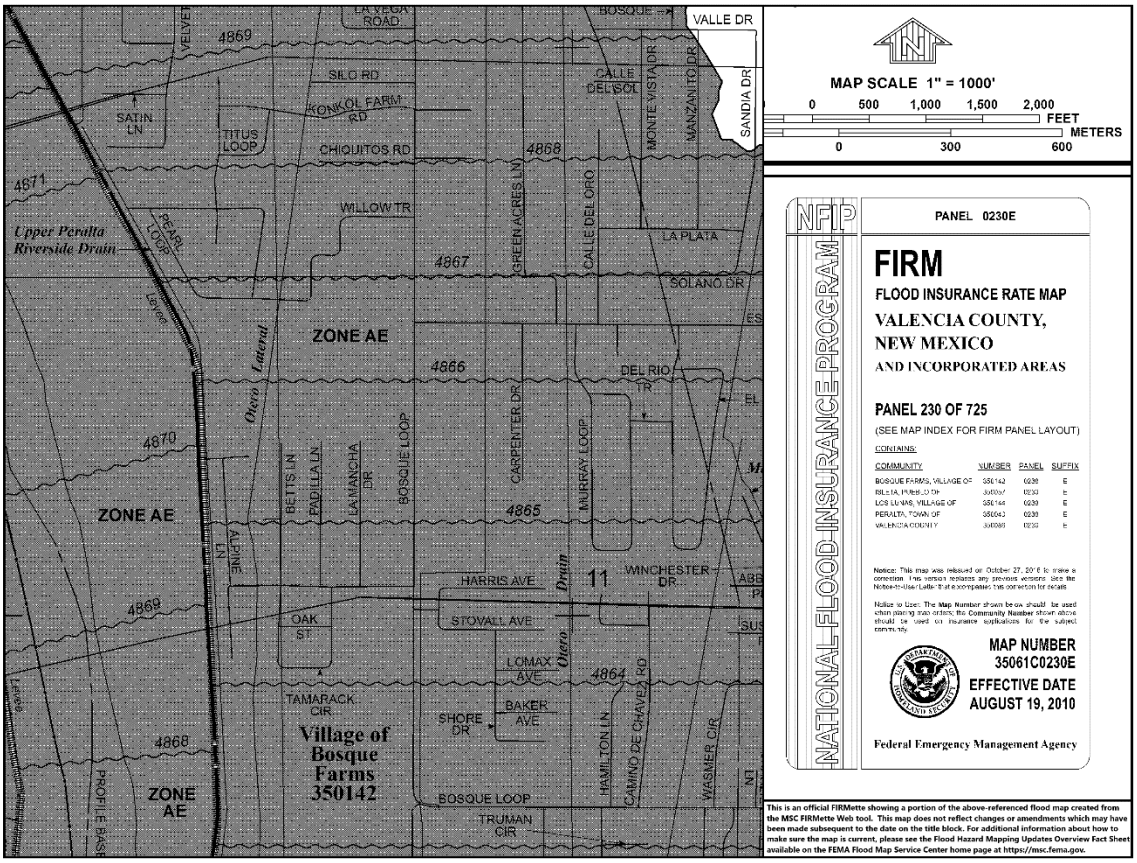


Figure 5-14: Bosque Farms Flood Hazard Area, East of the Rio Grande

The Village of Los Lunas sits west and east of the Rio Grande. Levee failure on either side of the river would endanger most of the homes and businesses in the floodplain.

The Carson Park subdivision in the Village of Los Lunas borders the west Rio Grande Ditch bank. This subdivision has approximately 300 homes. There are also commercial buildings and an access road that crosses the river that are at risk.

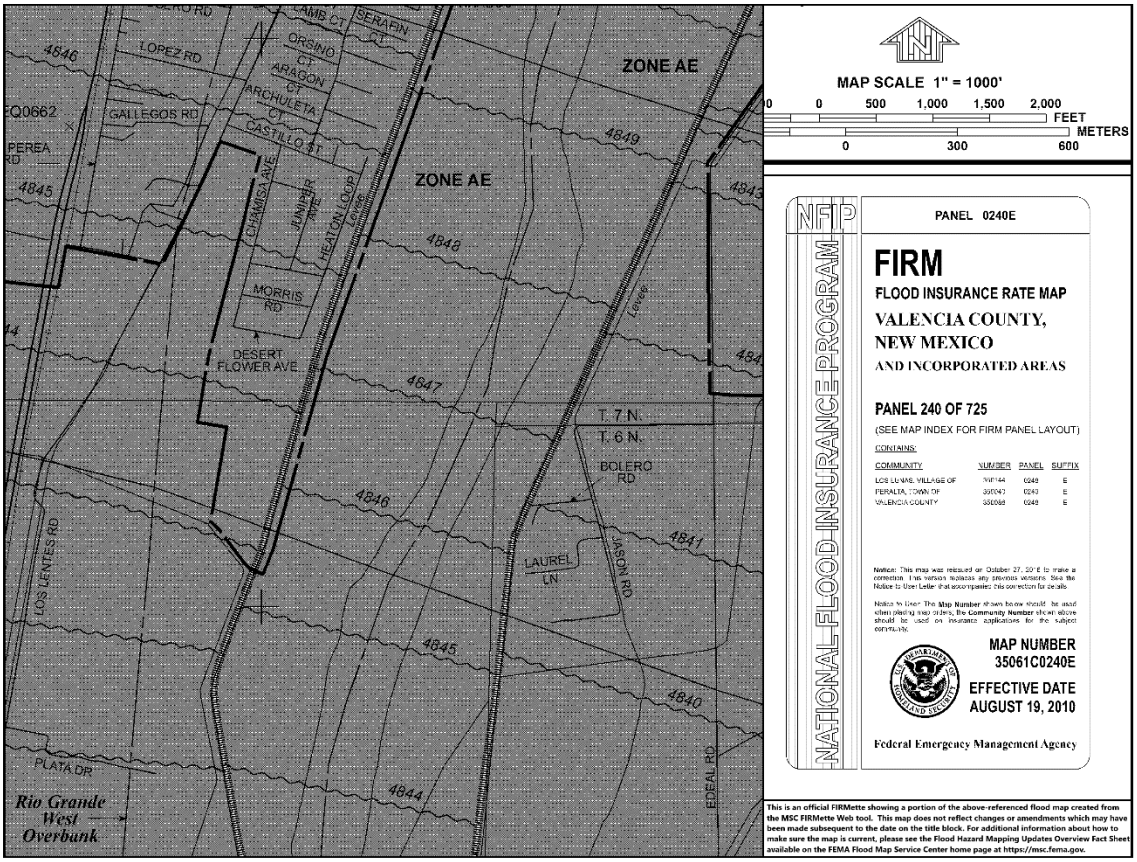


Figure 5-15: Los Lunas Flood Hazard Area, West and East of the Rio Grande

Valencia County has unincorporated towns of Meadowlake, El Cerro Mission, Hells Canyon (parts of Tome), Sausalito Estates, and Salomon Estates that have problems with watershed/flash flooding. Access roads would become washed away or covered with water, making them unpassable. These flooded roads would restrict emergency response vehicles having access to and evacuation from residences in these developments. Some homes in Sausalito and Salomon Estates may be washed away from these waters due to the development in arroyos at these subdivisions. These unincorporated have one ingress/egress roads that would be at risk of flooding. The estimated number of homes in these towns at risk is 5,000. Of these estimated number of homes, less than half have the greatest risk of damage during flash flooding.

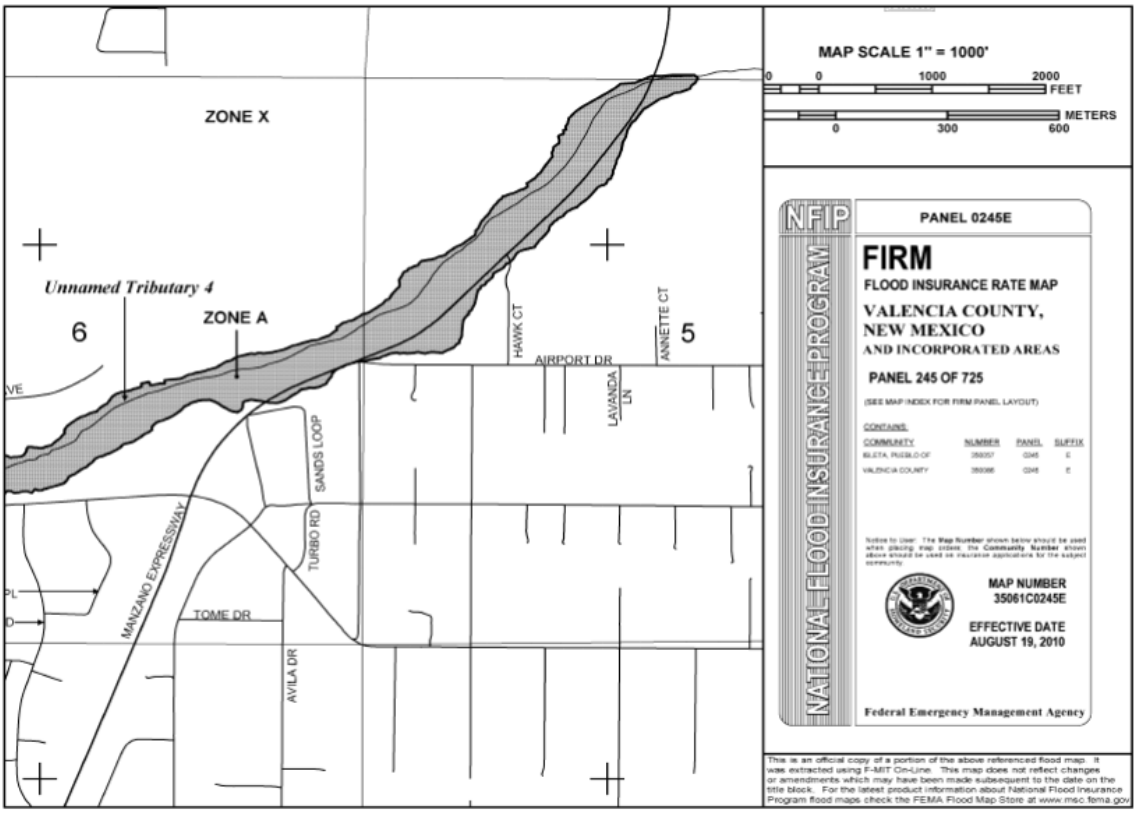


Figure 5-16: Valencia County, El Cerro Mission Development

5.10.3 Historical Occurrences

The following historical occurrences ranging from 1996 to 2021 have been identified based on the National Climatic Data Center (NCDC) Storm Events database **Table 5-26**. It should be noted that only those historical occurrences listed in the NCDC database are shown here and that other, unrecorded, unreported events may have occurred within the planning area during this timeframe.

Table 5-26: Historical Occurrences of Flooding (1996 to 2021)

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Belen	07/24/1998	Flash Flood		0	0	3.00K	0.00K
Los Lunas	07/19/2002	Heavy Rain		0	0	0.00K	0.00K
Los Lunas	07/08/2006	Flash Flood		0	0	50.00K	0.00K
Belen	07/31/2006	Flash Flood		0	0	500.00K	0.00K
Los Lunas	08/07/2006	Flood		0	0	0.00K	0.00K
Jarales	07/22/2008	Flash Flood		0	0	100.00K	0.00K
Belen	08/17/2008	Flash Flood		0	0	0.00K	0.00K
Los Lunas	07/31/2010	Flash Flood		0	0	0.00K	0.00K
Los Lunas	07/31/2010	Flash Flood		0	0	5.00K	0.00K
El Cerro	07/03/2013	Flood		0	0	0.00K	0.00K
Peralta	07/26/2013	Flash Flood		0	0	50.00K	0.00K
Los Lunas	07/26/2013	Flash Flood		0	0	20.00K	0.00K
Rio Communities	07/26/2013	Flash Flood		0	0	20.00K	0.00K
Peralta	09/10/2013	Flood		0	0	25.00K	0.00K
Rio Puerco	09/13/2013	Flood		0	0	200.00K	0.00K
Belen	09/29/2017	Flash Flood		0	0	7.500M	0.00K
Jarales	09/29/2017	Flash Flood		0	0	0.00K	0.00K
Rio Communities	09/30/2017	Flash Flood		0	0	0.00K	0.00K
Belen	10/05/2017	Flash Flood		0	0	0.00K	0.00K
Belen	07/05/2018	Flash Flood		0	0	200.00K	0.00K
Belen*	07/06/2021	Flood		0	0	0.00K	0.00K
Rio Communities*	07/06/2021	Flood		0	0	0.00K	0.00K

Location	Date	Type	Mag	Death	Injuries	Property Damage	Crop Damage
Valencia County*	07/06/2021	Flood		0	0	0.00K	0.00K
Belen*	07/07/2021	Flood		0	0	0.00K	0.00K
Rio Communities*	07/07/2021	Flood		0	0	0.00K	0.00K
Valencia County*	07/07/2021	Flood		0	0	0.00K	0.00K
Totals:				0	0	8.673M	0.00K

*Preliminary Data

5.10.4 Repetitive Loss Properties

The State of New Mexico's Floodplain Coordinator has confirmed that there are three repetitive loss structures in Valencia County, one repetitive loss property in Belen, and no repetitive loss properties Rio Communities, Peralta, Bosque Farms, or Los Lunas. The four identified properties are residential, and no identified properties were commercial.

5.10.5 Probability of Future Occurrences

The probability of future Flooding is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability
- Possible: Between 1% and 10% annual probability
- Likely: Between 10% and 99% annual probability
- Highly Likely: 100% probability

Jurisdiction	Probability
Valencia County (Unincorporated area)	Likely
City of Belen	Likely
City of Rio Communities	Likely
Town of Peralta	Unlikely
Village of Bosque Farms	Likely
Village of Los Lunas	Unlikely
Middle Rio Grande Conservancy District	Likely

5.10.6 Vulnerability and Impact

People

Certain health hazards are common to flood events. While such problems are often not reported, three general types of health hazards accompany floods. The first comes from the water itself. Floodwaters carry anything that was on the ground that the upstream runoff picked up, including dirt, oil, animal

waste, and lawn, farm, and industrial chemicals. Pastures and areas where farm animals are kept, or their wastes are stored, can contribute polluted waters to the receiving streams.

Floodwater also saturates the ground, which leads to infiltration into sanitary sewer lines. When wastewater treatment plants are flooded, there is nowhere for the sewage to flow. Infiltration and lack of treatment can lead to overloaded sewer lines that can back up into low-lying areas and homes. Even when it is diluted by flood waters, raw sewage can be a breeding ground for bacteria such as E. coli and other disease-causing agents. All jurisdictions in the County are susceptible to this type of impact.

The second type of health problem arises after most of the water has gone. Stagnant pools can become breeding grounds for mosquitoes, and wet areas of a building that have not been thoroughly cleaned breed mold and mildew. A building that is not thoroughly cleaned becomes a health hazard, especially for small children and the elderly.

Another health hazard occurs when heating ducts in a forced air system are not thoroughly cleaned after inundation. When the furnace or air conditioner is turned on, the sediments left in the ducts are circulated throughout the building and breathed in by the occupants. If the City water system loses pressure, a boil order may be issued to protect people and animals from contaminated water.

The third problem is the long-term psychological impact of having been through a flood and seeing one's home damaged and personal belongings destroyed. The cost and labor needed to repair a flood-damaged home puts a severe strain on people, especially the unprepared and uninsured. There is also a long-term problem for those who know that their homes could be flooded again. The resulting stress on floodplain residents takes its toll in the form of aggravated physical and mental health problems.

First Responders

First responders are at risk when attempting to rescue people from their homes. They are subject to the same health hazards as the public mentioned above. Flood waters may prevent access to areas in need of response or the flood may prevent access to the critical facilities themselves which may prolong response time.

Continuity of Operations

Floods can severely disrupt normal operations, especially when there is a loss of power.

Built Environment

Residential, commercial, and public buildings, as well as critical infrastructure such as transportation, water, energy, and communication systems may be damaged or destroyed by flood waters.

Economy

During floods (especially flash floods), roads, bridges, farms, houses, and automobiles are destroyed. Additionally, the local government must deploy firefighters, police and other emergency response personnel and equipment to help the affected area. It may take years for the affected communities to be re-built and business to return to normal.

Natural Environment

During a flood event, chemicals and other hazardous substances may end up contaminating local water bodies. Flooding kills animals and in general disrupts the ecosystem. Snakes and insects may also make their way to the flooded areas.

Infrastructure & Critical Facilities

Infrastructure and critical facilities potentially impacted by flood are noted in **Table 5-27** and has not changed since the previous plan.

Table 5-27: Infrastructure and Critical Facilities with Potential Impact from Flood

Jurisdiction	100-year flood	500-year flood
Valencia County (Unincorporated Area)	Communication Tower (1)	EOC (1), Fire Station (1), Police Station (2), Communication Tower (1), Educational Facility (2)
City of Belen	Hospital (1)	Police Station (1)
City of Rio Communities	Communication Tower (1)	-
Village of Bosque Farms	-	Fire Station (1)
Village of Los Lunas	-	Police Station (1)
Middle Rio Grande Conservancy District	-	-

Land Use & Development Trends

The County and its participating jurisdictions' predominant growth area is residential housing. Increased residential growth can increase or not increase a jurisdiction's risk to flooding. With the proper flood control policies, codes, zoning, and laws in place there is no reason why new residential construction should occur within designated floodplains. If a community does undergo growth in a floodplain the local government will need to ensure the structures are properly protected through insurance or other structural mitigation measures. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within or outside of the designated floodplains. There is no change in vulnerability from the previously approved plan.

OTHER HAZARDS

5.11 Wildfire

5.11.1 Background

A wildfire is any outdoor fire (i.e., grassland, forest, brush land) that is not under control, supervised, or prescribed.[2] Wildfires are part of the natural management of forest ecosystems but may also be caused by human factors.

Nationally, over 80 percent of forest fires are started by negligent human behavior such as smoking in wooded areas or improperly extinguishing campfires. The second most common cause of wildfire is lightning.

There are three classes of wildland fires: surface fire, ground fire, and crown fire. A surface fire is the most common of these three classes and burns along the floor of a forest, moving slowly and killing or

[2] Prescription burning, or "controlled burn," undertaken by land management agencies is the process of igniting fires under selected conditions, in accordance with strict parameters.

damaging trees. A ground fire (muck fire) is usually started by lightning or human carelessness and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees. Wildfires are usually signaled by dense smoke that fills the area for miles around.

Wildfire probability depends on local weather conditions, outdoor activities such as camping, debris burning, and construction, and the degree of public cooperation with fire prevention measures. Drought conditions and other natural hazards (such as tornadoes, hurricanes, etc.) increase the probability of wildfires by producing fuel in both urban and rural settings.

Many individual homes and cabins, subdivisions, resorts, recreational areas, organizational camps, businesses, and industries are located within high wildfire hazard areas. Furthermore, the increasing demand for outdoor recreation places more people in wildlands during holidays, weekends, and vacation periods. Unfortunately, wildland residents and visitors are rarely educated or prepared for wildfire events that can sweep through the brush and timber and destroy property within minutes.

Wildfires can result in severe economic losses as well. Businesses that depend on timber, such as paper mills and lumber companies, experience losses that are often passed along to consumers through higher prices and sometimes jobs are lost. The excessive cost of responding to and recovering from wildfires can deplete state resources and increase insurance rates. The economic impact of wildfires can also be felt in the tourism industry if roads and tourist attractions are closed due to health and safety concerns.

State and local governments can impose fire safety regulations on home sites and developments to help curb wildfire. Land treatment measures such as fire access roads, water storage, helipads, safety zones, buffers, firebreaks, fuel breaks, and fuel management can be designed as part of an overall fire defense system to aid in fire control. Fuel management, prescribed burning, and cooperative land management planning can also be encouraged to reduce fire hazards.

5.11.2 Location and Spatial Extent

The expansion of the Wildland Urban Interface (WUI) in recent decades has significant implications for wildfire management and its impact. The WUI creates an environment in which fire can move readily between structural and vegetation fuels. Two types of WUI are mapped: intermixed and interface. Intermix WUI are areas where housing and vegetation intermingle; interface WUI are areas with housing in the vicinity of dense, contiguous wildland vegetation.

The duration of a wildfire depends on the weather conditions, how dry it is, the availability of fuel to spread, and the ability of responders to contain and extinguish the fire. Historically, some wildfires have lasted only hours, while other fires have continued to spread and grow for an entire season. They spread quickly and often go unnoticed until they have grown large enough to signal by dense smoke. If fuel is available, and the high wind speeds hit, a wildfire can spread over a large area in a short amount of time. These factors make the difference between small upstart fires easily controlled by local fire services to fires destroying thousands of acres requiring multiple state and federal assets for containment and suppression.

Given the WUI and Intermix depictions in **Figure 5-17**, every jurisdiction is exposed to wildfire.

Table 5-28 details the range of wildfire damages. The severity of the wildfire depends on several quickly changing environmental factors. It is impossible to strategically estimate the severity of a wildfire as the quickly changing factors, drought conditions and wind speed, have such a profound influence the wildfire conditions. If exposed to the WUI or Intermix, Valencia County or its participating jurisdictions could experience wildfire ranging from 0 to 4 on the Burn Severity Index.

Table 5-28: Burn Severity Index

Ranking	Burn Severity	Description	Characteristics
0	Unburned	Fire extinguished before reaching microsite.	• Leaf litter from previous years intact and uncharred. • No evidence of char around base of trees and shrubs. • Pre-burn seedlings and herbaceous vegetation present.
1	Low Severity Burn	Surface fire which consumes litter yet has little effect on trees and understory vegetation.	• Burned with partially consumed litter present. • Evidence of low flame heights around base of trees and shrubs (<0.5 m). • No significant decreases in overstory & understory basal area, diversity or species richness from pre-burn assessments. • Usually burning below 80°C.
2	Medium-Low Severity Burn	No significant differences in overstory density and basal area, and no significant differences in species richness. However, understory density, basal area, and species richness declined.	• No litter present and 100% of the area covered by duff. • Flame lengths <2m. • Understory mortality present, little or no overstory mortality.
3	Medium-High Severity Burn	Flames that were slightly taller than those of medium-low intensity fires, but these fires had occasional hot spots that killed large trees, With significant reduction in the understory.	• Soil exposure on 0-50% of the area. • Flame lengths <6m. • High understory mortality with some overstory trees affected.
4	High Severity Burn	Crown fires, usually a stand replacing burn with relatively high overstory mortality.	• Soil exposure >50%. • Flame lengths >6m. • Higher overstory mortality >20%. • Usually burning above 800°C.

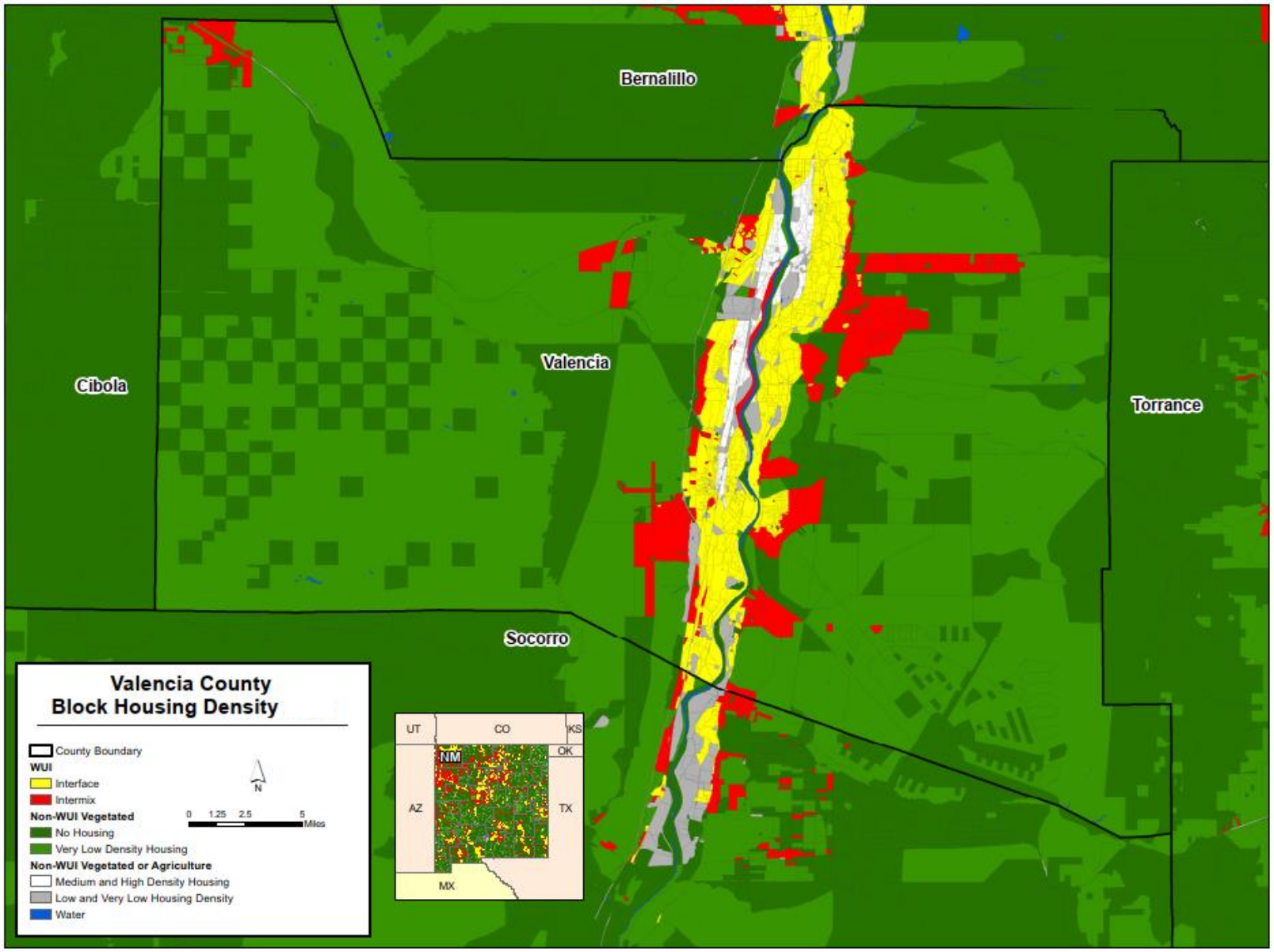


Figure 5-17: Wildland Urban Interface – Valencia County

5.11.3 Extent

The Keetch-Bryam Drought Index (KBDI) was developed specifically for fire potential assessment. It is a number representing the net effect of evapotranspiration and precipitation in producing cumulative moisture deficiency in deep duff and upper soil layers. It is a continuous index, relating to the flammability of organic material in the ground.

The KBDI attempts to measure the amount of precipitation necessary to return the soil to full field capacity. It is a closed system ranging from 0 to 800 units and represents a moisture regime from 0 to 8 inches of water through the soil layer. At 8 inches of water, the KBDI assumes saturation. Zero is the point of no moisture deficiency and 800 is the maximum drought that is possible. At any point along the scale, the index number indicates the amount of net rainfall that is required to reduce the index to zero, or saturation.

The inputs for KBDI are weather station latitude, mean annual precipitation, maximum dry bulb temperature, and the last 24 hours of rainfall. KDBI levels and their relationship to expected fire potential are reflected in the following table:

Table 5-29: Keetch-Byram Drought Index

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

Typical conditions in the planning area from September through December usually centers on the 200-400 rating while January through August are usually drier months and, depending on fuel and moisture, usually will rate in the 400-600 range. During extreme dry and drought times, typically in the months of May, June, and July the county may be rated at 600-800.

Community members in Valencia County are familiar with large fires, as several have occurred in recent years, including:

- Rio Grande Complex (2000)
- Belen Fire (2007)
- Trigo fire (2008)
- Ironworks fire (2019)
- Cemetery fire (2021)

A significant amount of fuels reduction has been employed throughout Valencia County, particularly in the Rio Grande bosque. Wildland fire is historically an intermediate disturbance in riparian forests of the southwestern United States and not part of a semi-annual disturbance regime, like flooding. More

recently, wildfires have become a key component of the bosque ecosystem, as the natural hydrologic regime has been altered and invasive species have become more common throughout the area. Treatments to fuels in these bosque areas contribute to decreasing the likelihood of wildfire's negative impacts on communities in Valencia County WUI. Continued preventive activities are needed however to further reduce the negative impacts that wildland fire can have on communities and community members living in the WUI.

Grassland fuels are the most common fuel type in the County, while timber fuels make up the majority of the Rio Grande Corridor. Grassland communities are sparse and often discontinuous across the landscape; they usually occur on flat to rolling topography in lower elevations as pure stands or as sagebrush/juniper savanna. In the years following extensive late summer monsoons, the spring fire season is often more intense due to heavier grass fuel loads. Grassland fires often move quickly under windy and steep conditions and can easily spread into property where the fuels have not been treated.

5.11.4 Historical Occurrences

Valencia County and its participating jurisdictions regularly experience wildfire events. The New Mexico Forestry Division reports Valencia County and its participating jurisdictions have recorded 253 fires burning 16,008.7 acres between 2015 and 2021. The New Mexico Forestry Division does not have any recorded deaths or injuries from wildfire in Valencia County or its participating jurisdictions.

Table 5-30: **Summary Table of Annual Wildfire Occurrences (2015-2021)**

Event Year	Acres Burned	Event Count
2015	2,020.05	78
2016	9,134.85	64
2017	2,286.1	40
2018	813.7	21
2019	984.2	33
2020	412.8	17
2021 (as of 7/31/2021)	357	Unknown
Total	**16,008.7**	**253**

5.11.5 Probability of Future Occurrences

The probability of future Wildfire is shown in the table below, by jurisdiction.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability
- Possible: Between 1% and 10% annual probability
- Likely: Between 10% and 99% annual probability
- Highly Likely: 100% probability

Jurisdiction	Probability
Valencia County (Unincorporated area)	Highly Likely
City of Belen	Likely
City of Rio Communities	Likely
Town of Peralta	Likely
Village of Bosque Farms	Highly Likely
Village of Los Lunas	Likely
Middle Rio Grande Conservancy District	Highly Likely

5.11.6 Vulnerability and Impact

People

The potential health risk from wildfire events and the resulting diminished air quality is a concern. Exposure to wildfire smoke can cause serious health problems within a community, including asthma attacks and pneumonia, and can worsen chronic heart and lung diseases. Vulnerable populations include people with respiratory problems or with heart disease. Even healthy citizens may experience minor symptoms, such as sore throats and itchy eyes.

First Responders

Public and firefighter safety is the priority in all wildland fire management activities. Wildfires are a real threat to the health and safety of the emergency services. Most fire-fighters in rural areas are 'retained'. This means that they are part-time and can be called away from their normal work to attend to fires.

Continuity of Operations

Wildfire events can result in a loss of power which may impact operations. Downed trees, power lines and damaged road conditions may prevent access to critical facilities and/or emergency equipment.

Built Environment

Wildfires frequently damage community infrastructure, including roadways, communication networks and facilities, power lines, and water distribution systems. Restoring basic services is critical and a top priority. Efforts to restore roadways include the costs of maintenance and damage assessment teams, field data collection, and replacement or repair costs. Direct impacts to municipal water supply may occur through contamination of ash and debris during the fire, destruction of aboveground distribution lines, and soil erosion or debris deposits into waterways after the fire. Utilities and communications repairs are also necessary for equipment damaged by a fire. This includes power lines, transformers, cell phone towers, and phone lines.

Economy

Wildfires can have significant short-term and long-term effects on the local economy. Wildfires, and extreme fire danger, may reduce recreation and tourism in and near the fires. If aesthetics are impaired, local property values can decline. Extensive fire damage to trees can significantly alter the timber supply, both through a short-term surplus from timber salvage and a longer-term decline while the trees regrow. Water supplies can be degraded by post-fire erosion and stream sedimentation.

Wildfires can also have positive effects on local economies. Positive effects come from economic activity generated in the community during fire suppression and post-fire rebuilding. These may include forestry support work, such as building fire lines and performing other defenses, or providing firefighting teams with food, ice, and amenities such as temporary shelters and washing machines.

Natural Environment

Wildfires cause damage to the natural environment, killing vegetation and occasionally animals. The risk of floods and debris flows increases due to the exposure of bare ground and the loss of vegetation. In addition, the secondary effects of wildfires, including erosion, landslides, introduction of invasive species, and changes in water quality, are often more disastrous than the fire itself.

The Rio Grande bosque is a critical habitat for three endangered species and over half of the wildlife depend on riverine habitat for their life cycles.

Infrastructure & Critical Facilities

Infrastructure and critical facilities that have potential to be impacted by wildfire are listed below.

Table 5-31: Infrastructure and Critical Facilities with Potential Impact from Wildfire

Jurisdiction	Low Density WUI	Medium Density WUI	High Density WUI
Valencia County (Unincorporated Area)	Every facility in Valencia County is in the WUI or a vegetated area.	Every facility in Valencia County is in the WUI or a vegetated area.	Every facility in Valencia County is in the WUI or a vegetated area.
City of Belen	Education Facility (2), Fire Station (1), Police Station (1)	Communication Tower (1), Education Facility (2), Fire Station (1), Hospital (2), Police Station (2)	Education Facility (1)
City of Rio Communities		Education Facility (1), Fire Station (2)	
Village of Bosque Farms		Fire Station (2), Police Station (1)	
Village of Los Lunas		Education Facility (1), Fire Station (1)	

Land Use & Development Trends

The County and its participating jurisdictions' predominant growth area is residential housing. Increased residential growth can significantly increase a jurisdiction's risk to wildfires. If the growth occurs in the WUI or Intermix the total risk increases. The County and its participating jurisdictions can mitigate the risk of this growth by introducing structural standards which help prevent the spread of wildfire, creating defensible spaces and buffer zones, or not allowing growth in WUI and Intermix area. Any buildings or infrastructure built in the future will have the same risk as other buildings or infrastructure built within the identified hazard areas. There is no change in vulnerability from the previously approved plan.

5.12 Conclusions on Hazard Risk

The hazard profiles presented in this section were developed using best available data and result in what may be considered principally a qualitative assessment as recommended by FEMA in its "How-to" guidance document titled *Understanding Your Risks: Identifying Hazards and Estimating Losses* (FEMA Publication 386-2). It relies heavily on historical and anecdotal data, stakeholder input, and professional and experienced judgment regarding observed and/or anticipated hazard impacts. It also carefully considers the findings in other relevant plans, studies, and technical reports.

5.12.1 Priority Risk Index

To draw some meaningful planning conclusions on hazard risk for Valencia County, the results of the hazard profiling process were used to generate countywide hazard classifications according to a "Priority Risk Index" (PRI). The purpose of the PRI is to categorize and prioritize all potential hazards for the County as high, moderate, or low risk. Combined with the asset inventory and quantitative vulnerability assessment provided in the next section, the summary hazard classifications generated using the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for the jurisdictions to consider as part of their proposed mitigation strategy.

The prioritization and categorization of identified hazards for the County is based principally on the PRI, a tool used to measure the degree of risk for identified hazards in a particular planning area. The PRI is used to assist the Valencia County Hazard Mitigation Planning Team in gaining consensus on the determination of those hazards that pose the most significant threat to the County based on a variety of factors. The PRI is not scientifically based but is meant to be utilized as an objective planning tool for classifying and prioritizing hazard risks in the County based on standardized criteria.

The application of the PRI results in numerical values that allow identified hazards to be ranked against one another (the higher the PRI value, the greater the hazard risk). PRI values are obtained by assigning varying degrees of risk to five categories for each hazard (probability, impact, spatial extent, warning time, and duration). Each degree of risk has been assigned a value (1 to 4) and an agreed upon weighting factor[3], as summarized in **Table 5-32**. To calculate the PRI value for a given hazard, the assigned risk value for each category is multiplied by the weighting factor. The sum of all five categories equals the final PRI value, as demonstrated in the example equation below:

PRI VALUE = [(PROBABILITY x .30) + (IMPACT x .30) + (SPATIAL EXTENT x .20) + (WARNING TIME x .10) + (DURATION x .10)]

Table 5-32: Priority Risk Index for Valencia County

PRI Category	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
Probability	Unlikely	Less than 1% annual probability	1	30%
	Possible	Between 1 and 10% annual probability	2	
	Likely	Between 10 and 100% annual probability	3	
	Highly Likely	100% annual probability	4	

[3] The Planning Team, based upon any unique concerns or factors for the planning area, may adjust the PRI weighting scheme during future plan updates.

PRI Category	Degree of Risk			Assigned Weighting Factor
	Level	Criteria	Index Value	
Impact	Minor	Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities.	1	30%
	Limited	Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day.	2	
	Critical	Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one week.	3	
	Catastrophic	High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.	4	
Spatial Extent	Negligible	Less than 1% of area affected	1	20%
	Small	Between 1 and 10% of area affected	2	
	Moderate	Between 10 and 50% of area affected	3	
	Large	Between 50 and 100% of area affected	4	
Warning Time	More than 24 hours	Self-explanatory	1	10%
	12 to 24 hours	Self-explanatory	2	
	6 to 12 hours	Self-explanatory	3	
	Less than 6 hours	Self-explanatory	4	
Duration	Less than 6 hours	Self-explanatory	1	10%
	Less than 24 hours	Self-explanatory	2	
	Less than one week	Self-explanatory	3	
	More than one week	Self-explanatory	4	

5.12.2 Priority Risk Index Results

Table 5-33 – Table 5-39 summarizes the degree of risk assigned to each category for all initially identified hazards based on the application of the PRI. Assigned risk levels were based on the detailed hazard profiles developed for this section, as well as input from the Planning Team. The results were then used in calculating PRI values and making final determinations for the risk assessment.

Table 5-33: Summary of PRI Results for Valencia County

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Atmospheric Hazards						
Drought	Highly Likely	Minor	Large	More than 24 hours	More than 1 week	2.8
Extreme Heat	Likely	Minor	Large	More than 24 hours	Less than 1 week	2.4
Severe Storms	Highly Likely	Critical	Large	6 to 12 hours	Less than 6 hours	3.3
Tornado	Unlikely	Critical	Small	Less than 6 hours	Less than 6 hours	2.7
Winter Storm	Likely	Limited	Moderate	More than 24 hours	Less than 1 week	2.5
Geologic Hazards						
Earthquake	Unlikely	Critical	Large	Less than 6 hours	Less than 24 hours	2.6
Hydrologic Hazards						
Dam Failure	Unlikely	Critical	Small	Less than 6 hours	Less than 6 hours	2.1
Flood	Likely	Critical	Moderate	6 to 12 hours	Less than 1 week	3.0
Other Hazards						
Wildfire	Highly Likely	Limited	Small	Less than 6 hours	Less than 1 week	3.0

Table 5-34: Summary of PRI Results for Belen

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Atmospheric Hazards						
Drought	Likely	Minor	Large	More than 24 hours	More than 1 week	2.5
Extreme Heat	Possible	Minor	Large	More than 24 hours	Less than 1 week	2.4
Severe Storms	Likely	Critical	Large	6 to 12 hours	Less than 6 hours	3.3
Tornado	Possible	Critical	Small	Less than 6 hours	Less than 6 hours	2.7
Winter Storm	Possible	Limited	Moderate	More than 24 hours	Less than 1 week	2.5
Geologic Hazards						
Earthquake	Unlikely	Critical	Large	Less than 6 hours	Less than 1 week	2.6
Hydrologic Hazards						
Dam Failure	Unlikely	Critical	Small	Less than 6 hours	Less than 6 hours	2.1
Flood	Likely	Critical	Moderate	6 to 12 hours	Less than 1 week	3.0
Other Hazards						
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	3.3

Table 5-35: Summary of PRI Results for Rio Communities

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Atmospheric Hazards						
Drought	Likely	Minor	Large	More than 24 hours	More than 1 week	2.5
Extreme Heat	Possible	Minor	Large	More than 24 hours	Less than 1 week	2.4
Severe Storms	Likely	Critical	Large	6 to 12 hours	Less than 6 hours	3.3
Tornado	Possible	Critical	Small	Less than 6 hours	Less than 6 hours	2.7
Winter Storm	Possible	Limited	Moderate	More than 24 hours	Less than 1 week	2.5
Geologic Hazards						
Earthquake	Unlikely	Critical	Large	Less than 6 hours	Less than 1 week	2.6
Hydrologic Hazards						
Dam Failure	Unlikely	Critical	Small	Less than 6 hours	Less than 6 hours	2.1
Flood	Likely	Critical	Moderate	6 to 12 hours	Less than 1 week	3.0
Other Hazards						
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	3.3

Table 5-36: Summary of PRI Results for Peralta

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Atmospheric Hazards						
Drought	Likely	Minor	Large	More than 24 hours	More than 1 week	2.5
Extreme Heat	Possible	Minor	Large	More than 24 hours	Less than 1 week	2.4
Severe Storms	Likely	Critical	Large	6 to 12 hours	Less than 6 hours	3.3
Tornado	Possible	Critical	Small	Less than 6 hours	Less than 6 hours	2.7
Winter Storm	Possible	Limited	Moderate	More than 24 hours	Less than 1 week	2.5
Geologic Hazards						
Earthquake	Unlikely	Critical	Large	Less than 6 hours	Less than 1 week	2.6
Hydrologic Hazards						
Dam Failure	Unlikely	Critical	Small	Less than 6 hours	Less than 6 hours	2.1
Flood	Unlikely	Critical	Moderate	6 to 12 hours	Less than 1 week	2.4
Other Hazards						
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	3.3

Table 5-37: Summary of PRI Results for Bosque Farms

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Atmospheric Hazards						
Drought	Likely	Minor	Large	More than 24 hours	More than 1 week	2.5
Extreme Heat	Possible	Minor	Large	More than 24 hours	Less than 1 week	2.4
Severe Storms	Likely	Critical	Large	6 to 12 hours	Less than 6 hours	3.3
Tornado	Possible	Critical	Small	Less than 6 hours	Less than 6 hours	2.7
Winter Storm	Possible	Limited	Moderate	More than 24 hours	Less than 1 week	2.5
Geologic Hazards						
Earthquake	Unlikely	Critical	Large	Less than 6 hours	Less than 1 week	2.6
Hydrologic Hazards						
Dam Failure	Unlikely	Critical	Small	Less than 6 hours	Less than 6 hours	2.1
Flood	Likely	Critical	Moderate	6 to 12 hours	Less than 1 week	3.0
Other Hazards						
Wildfire	Highly Likely	Minor	Small	Less than 6 hours	Less than 1 week	3.6

Table 5-38: Summary of PRI Results for Los Lunas

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Atmospheric Hazards						
Drought	Likely	Minor	Large	More than 24 hours	More than 1 week	2.5
Extreme Heat	Possible	Minor	Large	More than 24 hours	Less than 1 week	2.4
Severe Storms	Likely	Critical	Large	6 to 12 hours	Less than 6 hours	3.3
Tornado	Possible	Critical	Small	Less than 6 hours	Less than 6 hours	2.7
Winter Storm	Possible	Limited	Moderate	More than 24 hours	Less than 1 week	2.5
Geologic Hazards						
Earthquake	Unlikely	Critical	Large	Less than 6 hours	Less than 1 week	2.6
Hydrologic Hazards						
Dam Failure	Unlikely	Critical	Small	Less than 6 hours	Less than 6 hours	2.1
Flood	Unlikely	Critical	Moderate	6 to 12 hours	Less than 1 week	2.4
Other Hazards						
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	3.3

Table 5-39: Summary of PRI Results for Middle Rio Grande Conservancy District

Hazard	Category/Degree of Risk					
	Probability	Impact	Spatial Extent	Warning Time	Duration	PRI Score
Atmospheric Hazards						
Drought	Likely	Minor	Large	More than 24 hours	More than 1 week	2.5
Extreme Heat	Possible	Minor	Large	More than 24 hours	Less than 1 week	2.4
Severe Storms	Likely	Critical	Large	6 to 12 hours	Less than 6 hours	3.3
Tornado	Possible	Critical	Small	Less than 6 hours	Less than 6 hours	2.7
Winter Storm	Possible	Limited	Moderate	More than 24 hours	Less than 1 week	2.5
Geologic Hazards						
Earthquake	Unlikely	Critical	Large	Less than 6 hours	Less than 1 week	2.6
Hydrologic Hazards						
Dam Failure	Unlikely	Critical	Small	Less than 6 hours	Less than 6 hours	2.1
Flood	Unlikely	Critical	Moderate	6 to 12 hours	Less than 1 week	2.4
Other Hazards						
Wildfire	Likely	Minor	Small	Less than 6 hours	Less than 1 week	3.3

5.13 Final Determinations

The conclusions drawn from the hazard profiling process for the County, including the PRI results and input from the Hazard Mitigation Planning Team, resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk (**Table 5-40**). For purposes of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout all the County. It should be noted that although some hazards are classified below as posing low risk, their occurrence of varying or unprecedented magnitudes is still possible in some cases and their assigned classification will continue to be evaluated during future updates

Table 5-40: Conclusions on Hazard Risk for Valencia County

HIGH RISK	Severe Storms, Flood, Drought, Wildfire
MODERATE RISK	Winter Storm, Extreme Heat, Tornado, Dam Failure
LOW RISK	Earthquake

SECTION 6: CAPABILITY ASSESSMENT

This section of the Plan discusses the capability of the communities in the County to implement hazard mitigation activities. It consists of the following four subsections:

- 6.1 What is a Capability Assessment?
- 6.2 Conducting the Capability Assessment
- 6.3 Capability Assessment Findings
- 6.4 Conclusions on Local Capability

6.1 What is a Capability Assessment?

The purpose of conducting a capability assessment is to determine the ability of a local jurisdiction to implement a comprehensive mitigation strategy and to identify potential opportunities for establishing or enhancing specific mitigation policies, programs, or projects[1]. As in any planning process, it is important to try to establish which goals, objectives, and/or actions are feasible based on an understanding of the organizational capacity of those agencies or departments tasked with their implementation. A capability assessment helps to determine which mitigation actions are practical, and likely to be implemented over time, given a local government's planning and regulatory framework, level of administrative and technical support, number of fiscal resources, and current political climate.

A capability assessment has two primary components: 1) an inventory of a local jurisdiction's relevant plans, ordinances, or programs already in place and 2) an analysis of its capacity to carry them out. Careful examination of local capabilities will detect any existing gaps, shortfalls, or weaknesses with ongoing government activities that could hinder proposed mitigation activities and exacerbate community hazard vulnerability. A capability assessment also highlights the positive mitigation measures already in place or being implemented at the local government level, which should continue to be supported and enhanced through future mitigation efforts.

The capability assessment completed for the County serves as a critical planning step and an integral part of the foundation for designing an effective hazard mitigation strategy. Coupled with the Risk Assessment, the Capability Assessment helps identify and target meaningful mitigation actions for incorporation in the Mitigation Strategy portion of the Plan. It not only helps establish the goals and objectives for the region to pursue under this Plan, but it also ensures that those goals and objectives are realistically achievable under given local conditions such as land use and development trends. Changes in development did not affect any of the participating jurisdiction's overall vulnerability to any hazards identified.

6.2 Conducting the Capability Assessment

To facilitate the inventory and analysis of local government capabilities within the county, a detailed Capability Assessment Survey was completed for each of the participating jurisdictions based on the information found in existing hazard mitigation plans and local government websites. The survey questionnaire compiled information on a variety of "capability indicators" such as existing local plans, policies, programs, or ordinances that contribute to and/or hinder the region's ability to implement

[1] While the Final Rule for implementing the Disaster Mitigation Act of 2000 does not require a local capability assessment to be completed for local hazard mitigation plans, it is a critical step in developing a mitigation strategy that meets the needs of the region while considering their own unique abilities. The Rule does state that a community's mitigation strategy should be "based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools" (44 CFR, Part 201.6(c)(3)).

hazard mitigation actions. Other indicators included information related to the communities' fiscal, administrative, and technical capabilities, such as access to local budgetary and personnel resources for mitigation purposes. The current political climate, an important consideration for any local planning or decision-making process, was also evaluated with respect to hazard mitigation.

At a minimum, survey results provide an extensive inventory of existing local plans, ordinances, programs, and resources that are in place or under development in addition to their overall effect on hazard loss reduction. However, the survey instrument can also serve to identify gaps, weaknesses, or conflicts those counties and local jurisdictions can recast as opportunities for specific actions to be proposed as part of the hazard mitigation strategy.

The information collected in the survey questionnaire was incorporated into a database for further analysis. A general scoring methodology was then applied to quantify each jurisdiction's overall capability.[2] According to the scoring system, each capability indicator was assigned a point value based on its relevance to hazard mitigation.

Using this scoring methodology, a total score, and an overall capability rating of "high," "moderate," or "limited" could be determined according to the total number of points received. These classifications are designed to provide nothing more than a general assessment of local government capability. The results of this capability assessment provide critical information for developing an effective and meaningful mitigation strategy.

6.3 Capability Assessment Findings

The findings of the capability assessment are summarized in this Plan to provide insight into the relevant capacity of the jurisdictions in the County to implement hazard mitigation activities. All information is based upon the review of existing hazard mitigation plans and local government websites through the Capability Assessment Survey and input provided by local government officials during meetings of the Valencia County Hazard Mitigation Planning Team.

6.3.1 Planning and Regulatory Capability

Planning and regulatory capability is based on the implementation of plans, ordinances, and programs that demonstrate a local jurisdiction's commitment to guiding and managing growth, development, and redevelopment in a responsible manner while maintaining the general welfare of the community. It includes emergency response and mitigation planning, comprehensive land use planning, and transportation planning; the enforcement of zoning or subdivision ordinances and building codes that regulate how land is developed and structures are built; as well as protecting environmental, historic, and cultural resources in the community. Although some conflicts can arise, these planning initiatives present significant opportunities to integrate hazard mitigation principles and practices into the local decision-making process.

This assessment is designed to provide a general overview of the key planning and regulatory tools and programs that are in place or under development for the jurisdictions in the County along with their potential effect on loss reduction. This information will help identify opportunities to address existing gaps, weaknesses, or conflicts with other initiatives in addition to integrating the implementation of this Plan with existing planning mechanisms where appropriate.

Table 6-1 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for the jurisdictions in the County. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being

[2] The scoring methodology used to quantify and rank the region's capability can be found at the end of this section.

developed for future implementation. A plus sign (+) next to an item indicates that it was reviewed, and relevant information was incorporated into the plan. Each of these local plans, ordinances, and programs should be considered available mechanisms for review and incorporating the existing plans, studies, reports, and technical information into the Hazard Mitigation Plan to identify existing data and capabilities that will help implement the mitigation strategy.

Table 6-1: Relevant Plans, Ordinances, and Programs

Planning / Regulatory Tool	Valencia County	Belen	Rio Communities	Peralta	Bosque Farms	Los Lunas	MRGCD
Hazard Mitigation Plan +	✓	✓	✓	✓	✓	✓	✓
Comprehensive Land Use Plan +	✓	✓	✓	✓	✓	✓	
Floodplain Management Plan	✓	✓	✓	✓	✓	✓	✓
Open Space Management Plan (Parks & Rec/Greenway Plan)			✓			✓	✓
Stormwater Management Plan/Ordinance		✓	✓			✓	
Emergency Operations Plan	✓	✓	✓	✓	✓	✓	✓
SARA Title III Plan				✓			
Continuity of Operations Plan	✓	✓	✓	✓	✓	✓	
Evacuation Plan	✓	✓	✓	✓	✓		
Disaster Recovery Plan	✓	✓	✓	✓	✓		
Capital Improvements Plan	✓	✓	✓	✓	✓	✓	✓
Economic Development Plan	✓	✓			*		
Historic Preservation Plan	*	✓					
Transportation Plan	*	✓	✓				
Flood Damage Prevention Ordinance	✓	✓	✓	✓	✓	✓	
Zoning Ordinance	✓	✓	✓	✓	✓	✓	
Subdivision Ordinance	✓		✓	✓	✓		
Site Plan Review Requirements	✓		✓	✓	✓	✓	✓
Unified Development Ordinance						✓	
Building Code	✓	✓	✓	✓	✓		

Planning / Regulatory Tool	Valencia County	Belen	Rio Communities	Peralta	Bosque Farms	Los Lunas	MRGCD
Fire Code	✓	✓	✓	✓	✓	✓	
Community Wildfire Protection Plan	✓	✓	✓	✓	✓	✓	✓
National Flood Insurance Program (NFIP) +	✓	✓	✓	✓	✓	✓	
NFIP Community Rating System							

A more detailed discussion on the region's planning and regulatory capability follows.

6.3.2 Emergency Management

Hazard mitigation is widely recognized as one of the four primary phases of emergency management. The three other phases include preparedness, response, and recovery. Each phase is interconnected with hazard mitigation, as **Figure 6-1** suggests. Opportunities to reduce potential losses through mitigation practices are most often implemented before disaster strikes, such as the elevation of flood prone structures or the continuous enforcement of policies that prevent and regulate development that is vulnerable to hazards due to its location, design, or other characteristics. Mitigation opportunities will also be presented during immediate preparedness or response activities, such as installing storm shutters in advance of a hurricane, and certainly during the long-term recovery and redevelopment process following a hazard event.

Figure 6-1: The Four Phases of Emergency Management

Planning for each phase is a critical part of a comprehensive emergency management program and a key to the successful implementation of hazard mitigation actions. As a result, the Capability Assessment Survey asked several questions across a range of emergency management plans to assess the County's willingness to plan and their level of technical planning proficiency.

Comprehensive Plan

A Comprehensive Plan, in broad terms, is a policy statement to guide the future placement and development of community facilities. It is the basis for a community's zoning, subdivision and design regulations and a community's official maps and amendments to the zoning, subdivision, and design ordinances. The Comprehensive Plan identifies a future vision, values, principals, and goals for the community, determines the projected growth for the community and identifies policies to plan, direct and accommodate anticipated growth. The Code Enforcement Department in Valencia County is divided into four divisions: Planning and Zoning, Building Inspector, Fire Marshall's Office, and Animal Control. The Building Inspector's Division reviews proposed plans and issues building permits for County residential and commercial buildings and ensures that buildings meet all necessary codes. This division also issues flood plain certificates for buildings located in designated flood plain areas according to Federal Insurance Rate Maps published by the Federal Emergency Management Agency (FEMA). The Building Inspector's Division consists of a Chief Building Inspector, two inspectors, and one secretary. The Animal Control Division is responsible for capture and disposition of stray or lost domestic animals. The Rio Grande bisects the County from north to south, sustaining an often-dense woodland or "Bosque" of cottonwoods, elm, willow, salt cedar, and Russian olive trees. The river is confined to a narrow floodplain constrained by a levee system built to control over bank flooding. Consequently, the

Bosque is a highly valued natural feature of the County and should be protected and managed to ensure a healthy ecosystem and permanent natural asset to the County. In contrast to the obvious benefit as open space, the Bosque is also a sensitive area that is prone to wildfire, invasion, and overgrowth of non-native plant species (some of which are heavy water consumers), and environmental contamination from urban generated sources (including waste disposal)

Zoning Ordinance

Zoning typically consists of both a zoning map and a written ordinance that divides the jurisdiction into zoning districts, including various residential, commercial, mixed-use, and industrial districts. The zoning regulations describe what type of land use and specific activities are permitted in each district, and regulate how buildings, signs, parking, and other construction may be placed on a lot. The zoning regulations also provide procedures for rezoning and other planning applications. The Valencia County Planning and Zoning Commission is made up of five members, one from each Commission District. The Planning and Zoning Commission is appointed by the Board of County Commissioners. The purpose of the County Planning and Zoning Commission is to promote a comprehensive planning process that guides and coordinates harmonious development in the County. The Planning and Zoning Commission conducts public meetings and hearings and submits preliminary written reviews and recommendations to the Board of County Commissioners on zoning actions and proposed subdivision platting or re-platting. The Planning and Zoning Division staff administers and enforces the zoning ordinance, subdivision regulations, and promotes the implementation of the comprehensive plan.

Subdivision Ordinance

A subdivision ordinance is intended to regulate the development of residential, commercial, industrial, or other uses, including associated public infrastructure, as land is subdivided into lots for future development. Subdivision design that accounts for natural hazards can reduce the exposure of future development to hazards.

Flood Insurance Study/Floodplain Ordinance

A Flood Insurance Study (FIS) provides information on the existence and severity of flood hazards within a community based on the 100-year flood event. The FIS also includes revised digital Flood Insurance Rate Maps (FIRMs) which reflect updated Special Flood Hazard Areas (SFHAs) and flood zones for the community.

A floodplain ordinance is a community's most important flood mitigation tool. For a county or municipality to participate in the NFIP, they must adopt a local flood damage prevention ordinance that requires jurisdictions to follow established minimum building standards in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings will be protected from damage by a 100-year flood event and that new development in the floodplain will not exacerbate existing flood problems or increase damage to other properties.

Stormwater Management Program/Stormwater Ordinance

Stormwater runoff is increased when natural ground cover is replaced by urban development. Development in the watershed that drains to a river can aggravate downstream flooding, overload the community's drainage system, cause erosion, and impair water quality. A Stormwater Management Program can prevent flooding problems caused by stormwater runoff by 1) Regulating development in the floodplain to ensure that it will be protected from flooding and that it will not divert floodwaters onto other properties; 2) Regulating all development to ensure that the post-development peak runoff will not be greater than it was under pre-development conditions; and 3) Setting construction standards

so buildings are protected from shallow water. A stormwater ordinance provides the community with the regulatory authority to implement its stormwater management standards.

Erosion, Sedimentation, and Pollution Control Ordinance

Surface water runoff can erode soil from development sites, sending sediment into downstream waterways. This can clog storm drains, drain tiles, culverts, and ditches, and reduce the water transport and storage capacity of river and stream channels, lakes, and wetlands. The purpose of an erosion, sedimentation and pollution control ordinance is to minimize soil erosion and prevent off-site sedimentation by using soil erosion and sediment control practices designed in accordance with certain standards and specifications.

Site Plan Review

The purpose of the Site Plan Review Process is to review site plans for specific types of development to ensure compliance with all appropriate land development regulations and consistency with the Comprehensive Plan.

Building Code/Elevation Certificates

Building codes provide one of the best methods for addressing natural hazards. When meticulously designed and constructed according to code, the average building can withstand many of the impacts of natural hazards. Hazard protection standards for all new and improved or repaired buildings can be incorporated into the local building code. Building codes can ensure that the first floors of new buildings are constructed to be higher than the elevation of the 100-year flood (the flood that is expected to have a one percent chance of occurring in any given year).

Just as important as having code standards is the enforcement of the code. Adequate inspections are needed during construction to ensure that the builder understands the requirements and is following them. Making sure a structure is properly elevated and anchored requires site inspections at each step. An Elevation Certificates serves as the official record that shows new buildings and substantial improvements in all identified SFHAs are properly elevated. This elevation information is needed to show compliance with the floodplain ordinance.

Capital Improvement Program

A Capital Improvement Plan (CIP) is a planning document that typically provides a five-year outlook for anticipated capital projects designed to facilitate decision makers in the replacement of capital assets. The projects are primarily related to improvement in public service, parks and recreation, public utilities, and facilities. A community's mitigation strategy may include structural projects that could potentially be included in a CIP and funded through a Capital Improvement Program.

Emergency Operations Plan

An emergency operations plan outlines responsibility and how resources are deployed during and following an emergency or disaster.

6.3.3 Floodplain Management

Flooding represents the greatest natural hazard facing the nation. At the same time, the tools available to reduce the impacts associated with flooding are among the most developed when compared to other hazard-specific mitigation techniques. In addition to approaches that cut across hazards such as education, outreach, and the training of local officials, the *National Flood Insurance Program* (NFIP) contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Participation in the NFIP is voluntary for local governments;

however, program participation is strongly encouraged by FEMA as a first step for implementing and sustaining an effective hazard mitigation program. It is therefore used as part of this assessment as a key indicator for measuring local capability.

For a county or municipality to participate in the NFIP, they must adopt a local flood damage prevention ordinance that requires jurisdictions to follow established minimum building standards in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings will be protected from damage by a 100-year flood event and that new development in the floodplain will not exacerbate existing flood problems or increase damage to other properties. No changes in the NFIP program for all participating jurisdictions. Activities such as updated mapping, flood ordinance development and enforcement will be performed to maintain NFIP compliance.

Valencia County is operating under a Certified Floodplain Manager. The ordinance is reviewed annually. All permits and documentation go through the Community Development Department. Currently the Land Use Planner is the contact for Valencia County. They are responsible for the unincorporated areas of Valencia County. Belen, Rio Communities, Peralta, Bosque Farms are participants in the National Flood Insurance Program and comply with NFIP to include floodplain review through the Planning and Zoning Commission, an updated Stormwater drainage primary plan, and implementation of flood drainage improvement projects. The Village of Los Lunas floodplain program has a certified floodplain manager and is housed within the Community Development Department. The department processes certified permits and serves as a receptacle of floodplain information for the public. The approved ordinance complies with FEMA's minimum standards and is reviewed, as necessary
A key service provided by the NFIP is the mapping of identified flood hazard areas. Once completed, the Flood Insurance Rate Maps (FIRMs) are used to assess flood hazard risk, regulate construction practices, and set flood insurance rates. FIRMs are an important source of information to educate residents, government officials, and the private sector about the likelihood of flooding in their community.

Table 6-2 provides NFIP information for each participating jurisdiction in Valencia County.

Table 6-2: NFIP Information

Jurisdiction	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date
Valencia County	05/30/1978	07/02/1991	08/19/2010
City of Belen	06/07/1974	09/16/1982	08/19/2010
City of Rio Communities	08/19/2010	08/19/2010	08/19/2010
Town of Peralta	08/19/2010	08/19/2010	08/19/2010
Village of Bosque Farms	10/27/1983	02/15/1985	08/19/2010
Village of Los Lunas	04/06/2000	04/06/2000	08/19/2010

Source: FEMA NFIP.

Community Rating System: An additional indicator of floodplain management capability is the active participation of local jurisdictions in the Community Rating System (CRS). The CRS is an incentive-based program that encourages counties and municipalities to undertake defined flood mitigation activities that go beyond the minimum requirements of the NFIP by adding extra local measures to provide

protection from flooding. All the 18 creditable CRS mitigation activities are assigned a range of point values. As points are accumulated and reach identified thresholds, communities can apply for an improved CRS class rating. Class ratings, which range from 10 to 1, are tied to flood insurance premium reductions as shown in **Table 6-3**. As class rating improves (the lower the number the better), the percent reduction in flood insurance premiums for NFIP policyholders in that community increases.

Table 6-3: CRS Premium Discounts, By Class

CRS Class	Premium Reduction
1	45%
2	40%
3	35%
4	30%
5	25%
6	20%
7	15%
8	10%
9	5%
10	0

Source: *FEMA*

Community participation in the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply to FEMA for a CRS classification better than class 10. The CRS application process has been simplified over the past several years based on community comments. Changes were made with the intent to make the CRS more user-friendly and make extensive technical assistance available for communities who request it.

Flood Damage Prevention Ordinance: A flood damage prevention ordinance establishes minimum building standards in the floodplain with the intent to minimize public and private losses due to flood conditions.

Floodplain Management Plan: A floodplain management plan (or a flood mitigation plan) provides a framework for action regarding corrective and preventative measures to reduce flood-related impacts.

Open Space Management Plan*:* An open space management plan is designed to preserve, protect, and restore undeveloped lands in their natural state and to expand or connect areas in the public domain such as parks, greenways, and other outdoor recreation areas. In many instances, open space management practices are consistent with the goals of reducing hazard losses, such as the preservation of wetlands or other flood-prone areas in their natural state in perpetuity.

Stormwater Management Plan: A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan is typically focused on design and construction measures that are intended to reduce the impact of more frequently occurring minor urban flooding.

6.3.4 Administrative and Technical Capability

The ability of a local government to develop and implement mitigation projects, policies, and programs is directly tied to its ability to direct staff time and resources for that purpose. Administrative capability can be evaluated by determining how mitigation-related activities are assigned to local departments and if there are adequate personnel resources to complete these activities. The degree of intergovernmental coordination among departments will also affect administrative capability for the implementation and success of proposed mitigation activities.

Technical capability can be evaluated by assessing the level of knowledge and technical expertise of local government employees, such as personnel skilled in using Geographic Information Systems (GIS) to analyze and assess community hazard vulnerability. The Capability Assessment Survey was used to capture information on administrative and technical capability through the identification of available staff and personnel resources.

Table 6-4 provides a summary of the capability assessment results for the County regarding staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill. An asterisk (*) indicates the staff position or program is currently being developed for future implementation.

Credit for having a floodplain manager was given to those jurisdictions that have a flood damage prevention ordinance, and therefore an appointed floodplain administrator, regardless of whether the appointee was dedicated solely to floodplain management. Credit was given for having a scientist familiar with the hazards of the community if a jurisdiction has a Cooperative Extension Service or Soil and Water Conservation Department. Credit was also given for having staff with education or expertise to assess the community's vulnerability to hazards if a staff member from the jurisdiction was a participant on the existing hazard mitigation plan's planning team.

Table 6-4: Relevant Staff / Personnel Resources

Staff / Personnel Resource	Valencia County	Belen	Rio Communities	Peralta	Bosque Farms	Los Lunas	MRGCD
Planners with knowledge of land development / land management practices	✓	✓	✓	✓	✓	✓	✓
Engineers or professionals trained in construction practices related to buildings and/or infrastructure							✓
Planners or engineers with an understanding of natural and/or human-caused hazards	✓	✓	✓	✓	✓	✓	✓
Building Official						✓	
Emergency Manager	✓	✓	✓	✓	✓	✓	
Floodplain Manager	✓	✓	✓	✓	✓	✓	
Land Surveyors							
Scientists familiar with the hazards of the community							
Staff with education or expertise to assess the community's vulnerability to hazards	✓						✓
Personnel skilled in GIS and/or HAZUS	✓						✓

Staff / Personnel Resource	Valencia County	Belen	Rio Communities	Peralta	Bosque Farms	Los Lunas	MRGCD
Resource development staff or grant writers	✓					✓	✓
Maintenance Programs to Reduce Risk	✓	✓	*	✓	✓	✓	✓
Warning Systems/Services	✓	✓	✓	✓	✓	✓	✓
Mutual Aid Agreements	✓	✓	✓	✓	✓	✓	✓

6.3.5 Fiscal Capability

The ability of a local government to act is often strongly associated with the amount of money available to implement policies and projects. This may take the form of outside grant funding awards or locally based revenue and financing. The costs associated with mitigation policy and project implementation vary widely. In some cases, policies are tied primarily to staff time or administrative costs associated with the creation and monitoring of a given program. In other cases, direct expenses are linked to an actual project, such as the acquisition of flood-prone homes, which can require a substantial commitment from local, state, and federal funding sources.

The Capability Assessment Survey was used to capture information on the region's fiscal capability through the identification of locally available financial resources.

Table 6-5 provides a summary of the results for the County regarding fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds).

Table 6-5: Relevant Fiscal Resources

Fiscal Tool / Resource	Valencia County	Belen	Rio Communities	Peralta	Bosque Farms	Los Lunas	MRGCD
Capital Improvement Programming	✓	✓	✓	✓	✓		✓
Community Development Block Grants (CDBG)	✓	✓	✓	✓	✓		
Special Purpose Taxes (or taxing districts)	✓		✓	✓			
Gas / Electric Utility Fees							
Water / Sewer Fees		✓		✓	✓	✓	✓
Stormwater Utility Fees							
Development Impact Fees						✓	
General Obligation Bonds	✓		✓	✓		✓	✓
Revenue Bonds	✓	✓	✓	✓		✓	
Special Tax Bonds							

6.3.6 Political Capability

One of the most difficult capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects designed to reduce the impact of future hazard events. Hazard mitigation may not be a local priority or may conflict with or be an impediment to other goals of the community, such as growth and economic development. Therefore, the local political climate must be considered in designing mitigation strategies as it could be the most difficult hurdle to overcome in accomplishing their adoption and implementation.

The Capability Assessment Survey was used to capture information on political capability of the County. Previous hazard mitigation plans were reviewed for general examples of local political capability, such as guiding development away from identified hazard areas, restricting public investments or capital improvements within hazard areas, or enforcing local development standards that go beyond minimum state or federal requirements (i.e., building codes, floodplain management, etc.).

- No comments were made on political capability.

6.4 Conclusions on Local Capability

To form meaningful conclusions on the assessment of local capability, a quantitative scoring methodology was designed and applied to the results of the Capability Assessment Survey. This methodology attempts to assess the overall level of capability of the County to implement hazard mitigation actions.

The overall capability to implement hazard mitigation actions varies among the participating jurisdictions. For planning and regulatory capability, many of the jurisdictions are in the moderate to high range. There is also variation in the administrative and technical capability among the jurisdictions with larger jurisdictions having greater staff and technical resources. Most jurisdictions are in the moderate range for fiscal capability.

Table 6-6 shows the results of the capability assessment using the designed scoring methodology. The capability score is based solely on the information found in existing hazard mitigation plans and readily available on the jurisdictions' government websites. The scoring methods ranking is presented as follows:

- Limited: 0-29
- Moderate: 30-59
- High: 60-100

According to the assessment, the average local capability score for all jurisdictions is 56, which falls into the moderate capability ranking.

Table 6-6: Capability Assessment Results

Jurisdiction	Overall Capability Score	Overall Capability Rating
Valencia County	66	High
City of Belen	58	Moderate
City of Rio Communities	61	High
Town of Peralta	60	High
Village of Bosque Farms	53	Moderate
Village of Los Lunas	56	Moderate
Middle Rio Grande Conservancy District	38	Moderate

As previously discussed, one of the reasons for conducting a Capability Assessment is to examine local capabilities to detect any existing gaps or weaknesses within ongoing government activities that could hinder proposed mitigation activities and exacerbate community hazard vulnerability. These gaps or weaknesses have been identified for each jurisdiction in the tables found throughout this section. The participating jurisdictions used the Capability Assessment as part of the basis for the Mitigation Actions that are identified in Section 8; therefore, each jurisdiction addresses their ability to expand on and improve their existing capabilities through the identification of their Mitigation Actions.

6.4.1 Linking the Capability Assessment with the Risk Assessment and the Mitigation Strategy

The conclusions of the Risk Assessment and Capability Assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the Planning Team considered not only each jurisdiction's level of hazard risk, but also their existing capability to minimize or eliminate that risk. The county and all jurisdictions specifically identified types of personnel and staff that may be needed to expand on implementing mitigation activities more fully in their communities.; these include engineers, planners, GIS analysts, building officials, land surveyors, and scientists. They will consider employing more staff and/or providing additional training opportunities with these specific skillsets to further improve and expand capabilities throughout the County and participating jurisdictions.

SECTION 7: MITIGATION STRATEGY

This section of the Plan provides the blueprint for the participating jurisdictions in the County to follow in order to become less vulnerable to its identified hazards. It is based on consensus of the Valencia County Hazard Mitigation Planning Team and the findings and conclusions of the *Capability Assessment* and *Risk Assessment*. It consists of the following five subsections:

- 7.1 Introduction
- 7.2 Mitigation Goals
- 7.3 Identification and Analysis of Mitigation Techniques
- 7.4 Selection of Mitigation Techniques for Valencia County
- 7.5 Plan Update Requirement

7.1 Introduction

The intent of the Mitigation Strategy is to provide the communities with the goals that will serve as guiding principles for future mitigation policy and project administration, along with an analysis of mitigation techniques available to meet those goals and reduce the impact of identified hazards. It is designed to be comprehensive, strategic, and functional in nature:

- In being *comprehensive*, the development of the strategy includes a thorough review of all hazards and identifies extensive mitigation measures intended to not only reduce the future impacts of high-risk hazards, but also to help the region achieve compatible economic, environmental, and social goals.
- In being *strategic*, the development of the strategy ensures that all policies and projects proposed for implementation are consistent with pre-identified, long-term planning goals.
- In being *functional,* each proposed mitigation action is linked to established priorities and assigned to specific departments or individuals responsible for their implementation with target completion deadlines. When necessary, funding sources are identified that can be used to assist in project implementation.

The first step in designing the Mitigation Strategy includes the identification of mitigation goals. Mitigation goals represent broad statements that are achieved through the implementation of more specific mitigation actions. These actions include both hazard mitigation policies (such as the regulation of land in known hazard areas through a local ordinance) and hazard mitigation projects that seek to address specifically targeted hazard risks (such as the acquisition and relocation of a repetitive loss structure).

The second step involves the identification, consideration, and analysis of available mitigation measures to help achieve the identified mitigation goals. This is a long-term, continuous process sustained through the development and maintenance of this Plan. Alternative mitigation measures will continue to be considered as future mitigation opportunities are identified, as data and technology improve, as mitigation funding becomes available, and as this Plan is maintained over time.

The third and last step in designing the Mitigation Strategy is the selection and prioritization of specific mitigation actions for the County (provided separately in Section 8: *Mitigation Action Plan*). The county and each participating jurisdiction have its own Mitigation Action Plan (MAP) that reflects the needs and concerns of that jurisdiction. The MAP represents an unambiguous and functional plan for action and is the most essential outcome of the mitigation planning process.

The MAP includes a prioritized listing of proposed hazard mitigation actions (policies and projects) for the County to complete. Priorities have not changed since the plan was previously approved. Each action has accompanying information, such as those departments or individuals assigned responsibility for implementation, potential funding sources, and an estimated target date for completion. The MAP provides those departments or individuals responsible for implementing mitigation actions with a clear roadmap that also serves as an important tool for monitoring success or progress over time. The cohesive collection of actions listed in the MAP can also serve as an easily understood menu of mitigation policies and projects for those local decision makers who want to quickly review the recommendations and proposed actions of the Hazard Mitigation Plan.

In preparing each Mitigation Action Plan for the County, officials considered the overall hazard risk and capability to mitigate the effects of hazards as recorded through the risk and capability assessment process, in addition to meeting the adopted mitigation goals and unique needs of the community.

7.1.1 Mitigation Action Prioritization

The Hazard Mitigation Planning Team members were tasked with establishing a priority, implementation status, and completion timeline for each action. Prioritization of the proposed mitigation actions was based on the following six factors:

- Effect on overall risk to life and property
- Ease of implementation
- Political and community support
- A general economic cost/benefit review[1]
- Funding availability
- Continued compliance with the NFIP

The point of contact for the County helped coordinate the prioritization process by reviewing each action and working with the lead agency/department responsible to determine a priority for each action using the six factors listed above.

Using these criteria, actions were classified as high, medium, or low priority by the participating jurisdiction officials.

The actions were and will be identified, prioritized, implemented, and administered by each local jurisdiction. The prioritization includes emphasis on the extent to which benefits are maximized according to the cost benefit review of the proposed projects and their associated costs. The actions in the following table have been ranked based on a cost-benefit review conducted by the planning team through the planning process. Each action has been provided a priority of low, medium, or high based on this review. The following provides a breakdown of the factors utilized to conduct this general cost benefit review:

- High Priority: Highly cost-effective, administratively feasible and politically feasible strategies that could be implemented in 2 fiscal years and be continued.

[1] Only a general economic cost/benefit review was considered by the Valencia County Hazard Mitigation Planning Team through the process of selecting and prioritizing mitigation actions. Mitigation actions with “high” priority were determined to be the most cost effective and most compatible with the participating jurisdictions’ unique needs. Actions with a “moderate” priority were determined to be cost-effective and compatible with jurisdictional needs but may be more challenging to complete administratively or fiscally than “high” priority actions. Actions with a “low” priority were determined to be important community needs, but the community likely identified several potential challenges in terms of implementation (e.g. lack of funding, technical obstacles). A more detailed cost/benefit analysis will be applied to projects prior to the application for or obligation of funding, as appropriate.

- Medium Priority: Strategies that have at least two of the following characteristics (but not all three) and could be implemented in 3 fiscal years: Highly cost-effective; or administratively feasible, given current levels of staffing and resources; or are politically popular and supportable given the current environment.
- Low Priority: Strategies that have one of the following characteristics and could be implemented in the next five years): Highly cost-effective; or Administratively feasible, given current levels of staffing and resources; or Are politically popular and supportable given the current environment.

44 CFR Requirement
44 CFR Part 201.6(c)(3)(i): The mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

7.2 Mitigation Goals

The primary goal of all local governments is to promote the public health, safety, and welfare of its citizens. In keeping with this standard, Valencia County and the participating municipalities have developed seven goal statements for local hazard mitigation planning in the region. In developing these goals, the previous Plan's goals were reviewed to determine if they were still valid. The goals were presented, reviewed, voted on, and accepted by the Planning Team at their kickoff meeting. Each goal, purposefully broad in nature, serves to establish parameters that were used in developing more mitigation actions. The Valencia County Mitigation Goals are presented in **Table 7-1**. Consistent implementation of actions over time will ensure that community goals are achieved.

Table 7-1: Valencia County Mitigation Goals

	Goal
Goal #1	Make the county and its municipalities safer from natural hazards
Goal #2	Reduce property damages caused by natural hazards
Goal #3	Reduce the damage to cultural sites and natural resources from natural hazards
Goal #4	Make the county and its municipalities more resilient by shortening the recovery time after a natural hazard event
Goal #5	Increase the county and its municipalities' capability to mitigate natural hazards
Goal #6	Enhance the collaborative process with federal, state, and local agencies to mitigate natural hazards in the planning area
Goal #7	Increase awareness and understanding of risks and opportunities for mitigation among residents

7.3 Identification and Analysis of Mitigation Techniques

44 CFR Requirement
44 CFR Part 201.6(c)(3)(ii): The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effect of each hazard, with particular emphasis on new and existing buildings and infrastructure.

In formulating the Mitigation Strategy for the County, a wide range of activities were considered in order to help achieve the established mitigation goals, in addition to addressing any specific hazard concerns. These activities were discussed during the Planning Team meetings. In general, all activities considered by the Planning Team can be classified under one of the following six broad categories of mitigation techniques: Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, and Public Awareness and Education. These are discussed in detail below.

7.3.1 Prevention

Preventative activities are intended to keep hazard problems from getting worse and are typically administered through government programs or regulatory actions that influence the way land is developed and buildings are built. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred, or capital improvements have not been substantial. Examples of preventative activities include:

- Planning and zoning
- Building codes
- Open space preservation
- Floodplain regulations
- Stormwater management regulations
- Drainage system maintenance
- Capital improvements programming
- Riverine / fault zone setbacks

7.3.2 Property Protection

Property protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard, or removal of the structures from hazardous locations. Examples include:

- Acquisition
- Relocation
- Building elevation
- Critical facilities protection/generators
- Retrofitting (e.g., wind proofing, floodproofing, seismic design techniques, etc.)
- Safe rooms, shutters, shatter-resistant glass
- Insurance

7.3.3 Natural Resource Protection

Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their protective functions. Such areas include floodplains, wetlands, steep slopes, and sand dunes. Parks, recreation, or conservation agencies and organizations often implement these protective measures. Examples include:

- Floodplain protection
- Watershed management
- Riparian buffers
- Forest and vegetation management (e.g., fire resistant landscaping, fuel breaks, etc.)
- Erosion and sediment control
- Wetland preservation and restoration
- Habitat preservation
- Slope stabilization

7.3.4 Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event through construction. They are usually designed by engineers and managed or maintained by public works staff. Examples include:

- Reservoirs
- Dams / levees / dikes / floodwalls
- Diversions / detention / retention
- Channel modification
- Storm sewers

7.3.5 Emergency Services

Although not typically considered a "mitigation" technique, emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems
- Generators
- Evacuation planning and management
- Emergency response training and exercises
- Sandbagging for flood protection
- Installing temporary shutters for wind protection

7.3.6 Public Education and Awareness

Public education and awareness activities are used to advise residents, elected officials, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. Examples of measures to educate and inform the public include:

- Outreach projects
- Speaker series / demonstration events
- Hazard map information
- Real estate disclosure
- Library materials
- School children educational programs
- Hazard expositions

7.4 Selection of Mitigation Techniques for Valencia County

In order to determine the most appropriate mitigation techniques for the communities in the County, the Planning Team members thoroughly reviewed and considered the findings of the *Capability*

Assessment and *Risk Assessment* to determine the best activities for their respective communities. Other considerations included the effect of each mitigation action on overall risk to life and property, its ease of implementation, its degree of political and community support, its general cost-effectiveness, and funding availability (if necessary).

7.5 Plan Update Requirement

In keeping with FEMA requirements for plan updates, the Mitigation Actions identified in the previous plan were evaluated to determine their current implementation status. Updates on the implementation status of each action are provided. The mitigation actions provided in Section 8: *Mitigation Action Plan* include the mitigation actions from the previous plan as well as any new mitigation actions proposed through the current planning process.

SECTION 8: MITIGATION ACTION PLANS

This section includes the listing of the mitigation actions proposed by the participating jurisdictions in Valencia County. It consists of the following two subsections:

- 8.1 Overview
- 8.2 Mitigation Action Plans

44 CFR Requirement
44 CFR Part 201.6(c)(3)(iii): The mitigation strategy shall include an action plan describing how the actions identified in paragraph (c)(2)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction.

8.1 Overview

As described in the previous section, the Mitigation Action Plan, or MAP, provides a functional plan of action for each jurisdiction. It is designed to achieve the mitigation goals established in Section 7: *Mitigation Strategy* and will be maintained on a regular basis according to the plan maintenance procedures established in Section 9: *Plan Maintenance*.

Each proposed mitigation action has been identified as an effective measure (policy or project) to reduce hazard risk for Valencia County. Each action is listed in the MAP in conjunction with background information such as hazard(s) addressed, relative priority, and estimated cost. Each jurisdiction considered actions that reduced risk to existing buildings and infrastructure, as well as limiting the risk to new development and redevelopment. Other information provided in the MAP includes potential funding sources to implement the action should funding be required (not all proposed actions are contingent upon funding). Integrating the mitigation plan into the capital improvements plan through identification of mitigation actions that may require local funding were considered as well. Most importantly, implementation mechanisms are provided for each action, including the designation of a lead agency or department responsible for carrying the action out as well as a timeframe for its completion. These implementation mechanisms ensure that the Valencia County Hazard Mitigation Plan remains a functional document that can be monitored for progress over time. The proposed actions are not listed in priority order, though each has been assigned a priority level of “High,” “Medium,” or “Low” as described below:

The actions were and will be identified, prioritized, implemented, and administered by each local jurisdiction. The prioritization includes emphasis on the extent to which benefits are maximized according to the cost benefit review of the proposed projects and their associated costs. The actions in the following table have been ranked based on a cost-benefit review conducted by the planning team through the planning process. Each action has been provided a priority of low, medium, or high based on this review. The following provides a breakdown of the factors utilized to conduct this general cost benefit review:

- High Priority: Highly cost-effective, administratively feasible and politically feasible strategies that could be implemented in 2 fiscal years and be continued.
- Medium Priority: Strategies that have at least two of the following characteristics (but not all three) and could be implemented in 3 fiscal years: Highly cost-effective; or administratively feasible, given current levels of staffing and resources; or are politically popular and supportable given the current environment.

- Low Priority: Strategies that have one of the following characteristics and could be implemented in the next five years): Highly cost-effective; or administratively feasible, given current levels of staffing and resources; or are politically popular and supportable given the current environment.

The following are the key elements described in the Mitigation Action Plan:

- Project Description: Description of the mitigation action.
- Jurisdiction: Jurisdictions participating in the mitigation action.
- Hazard(s) Addressed: Hazard which the action addresses.
- Responsible Agency: Department responsible for undertaking the action.
- Funding Sources: potential Local, State, or Federal sources of funds are noted here, where applicable.
- Estimated Costs: High (greater than $50,000), Medium (between $20,000 to $50,000), or Low (less than $20,00).
- Funding Sources: Potential contribution sources.
- Timeline for Implementation: Date by which the action should be completed. More information is provided when possible.
- Cost Benefit Review: Considered benefits that would result from the mitigation action versus the cost of those actions.
- Priority: High, Medium, or Low priority as assigned by the jurisdiction.
- Implementation Status (2022)—Indication of completion, progress, deferment. If the action is new, that will be noted here.
    - In Progress- actions are in progress and have some percentage of completion.
    - To Be Continued- actions occur on a regular basis and will continue to do so on an annual frequency.
    - Deferred- actions were unable to be addressed to current capabilities.
    - Deleted- actions were considered not to be feasible or mitigation related.
    - New- actions that are new.
- Some jurisdictions have started some of the actions, however multiple (for example: items, buildings, projects) need to be implemented, therefore all the actions listed in following tables still have actions that are to be implemented.

8.2 Mitigation Action Plans

Action #1 Hazard Warning Alerts	
Project Description:	Install a fixed outdoor warning siren in various locations throughout Valencia County as well as a mass alert system to alert the public of impending hazards and weather-related events. This project would allow the county to alert the public to potential hazards and dangerous conditions. Identified project locations include Bosque Farms, Belen, Rio Communities, Los Lunas, Valencia, Peralta.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	All Hazards (Drought, Extreme Heat, Severe Storms, Tornado, Winter Storm, Earthquake, Dam Failure, Flood, Wildfire)
Responsible Agency:	Valencia County Emergency Management
Estimated Costs:	Medium
Funding Sources:	Local budgets, FEMA (Federal Emergency Management Agency)
Timeline for Implementation:	Within 2 to 3 years of Plan adoption
Cost-Benefit Review:	Due to low cost and life safety benefits, the overall benefits are anticipated to outweigh costs
Priority:	Medium
2022 Status:	In Progress: 50% complete. Working towards 75% county coverage in the next 3 years with assistance from the jurisdictions of Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD.

Action #2 Install Back-Up Power at Critical Facilities	
Project Description:	This project would allow for back-up power to be installed at critical facilities to ensure continuity of emergency services to the public during high hazard events.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	All Hazards (Drought, Extreme Heat, Severe Storms, Tornado, Winter Storm, Earthquake, Dam Failure, Flood, Wildfire)
Responsible Agency:	Local Emergency Management Divisions
Estimated Costs:	Medium
Funding Sources:	Local budgets, New Mexico Department of Transportation, FEMA
Timeline for Implementation:	Within 2 to 3 years of plan adoption
Cost-Benefit Review:	Life safety benefits expected to outweigh the low costs
Priority:	High
2022 Status:	In Progress: 10% complete. Multiple backup power installed at multiple locations. County is waiting for more funding (with assistance from the jurisdictions of Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD) to provide additional backup power at additional critical facilities.

Action #3 Multi-Hazard Public Education Program	
Project Description:	Educate residents on natural hazard threats, impacts, mitigation opportunities, and advanced preparations to make in advance of events. Print materials will be developed and distributed at local government buildings and public libraries, as well as providing electronic copies via websites and social media.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	All Hazards (Drought, Extreme Heat, Severe Storms, Tornado, Winter Storm, Earthquake, Dam Failure, Flood, Wildfire)
Responsible Agency:	Local Emergency Management Divisions
Estimated Costs:	Low
Funding Sources:	Local budgets, FEMA
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Life safety benefits expected to outweigh the low costs.
Priority:	High
2022 Status:	To Be Continued: The Public Education Program happens in regular annual intervals and is continually updated and distributed by the County with assistance from the jurisdictions of Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD.

Action #4 Belen Camino del Llano Project	
Project Description:	Install drainage system and retention pond. This would create proper drainage for the project area and reduce the exposure of underground water, sewer, electrical, and gas lines, that are currently subject to severe erosion during flood events in the immediate area.
Jurisdiction:	Belen
Hazard(s) Addressed:	Flood
Responsible Agency:	Belen Public Works
Estimated Costs:	High
Funding Sources:	USACE (US Army Corps of Engineers), General Funds, New Mexico State Legislature, New Mexico Department of Transportation, FEMA
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Life safety, environmental, and economic benefits expected to outweigh the costs.
Priority:	High
2022 Status:	Completed: Project completed in 2017-2018.

Action #5 Salomon Estates Drainage Project	
Project Description:	This subdivision sits on the east mesa of Valencia County. Water from a higher elevation point of this mesa sheds into this community flooding roads and endangering mobile homes. This project would improve the drainage for this community by protecting homes and ingress/egress routes of transportation and evacuation.
Jurisdiction:	Valencia County
Hazard(s) Addressed:	Flood
Responsible Agency:	Valencia County Public Works
Estimated Costs:	High
Funding Sources:	New Mexico State Legislature, New Mexico Department of Transportation, General, FEMA
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Life safety and economic benefits expected to outweigh the costs.
Priority:	High
2022 Status:	In Progress: 25% complete. County currently awaiting funding opportunities to complete in the upcoming year.

Action #6 Rio Grande Levee Upgrade	
Project Description:	The current natural levee system is not to current engineer's standards. This project would build upon the ongoing USACE study of the system with elements of implementation as recommended in the study.
Jurisdiction:	Valencia County, Los Lunas, Bosque Farms, Peralta, Rio Communities
Hazard(s) Addressed:	Flood
Responsible Agency:	USACE, Valencia County
Estimated Costs:	High
Funding Sources:	USACE, State of New Mexico, municipalities, MRGCD
Timeline for Implementation:	Within 5 to 10 years of plan adoption
Cost-Benefit Review:	Life safety and economic benefits expected to outweigh the costs
Priority:	Low
2022 Status:	In Progress: 10% complete. The USACE Chief's Report has been signed and the project authorized but funding has not been budgeted. The county, with assistance from the jurisdictions of Bosque Farms, Los Lunas, Peralta, Rio Communities, will work to be at 50% complete in the next 5 years.

Action #7 Valencia County Bosque Vegetation Removal Project	
Project Description:	Establish a program to remove the underbrush and non-native trees from the Rio Grande River Bosque to reduce fire fuel load and provide water conservation. Removing the underbrush and dead and down wood will reduce fire threats and spread in the river bosque which in turn will reduce the cost associated with emergency response and protecting homes. Removing the non-native trees will provide the added benefit of limiting unnecessary water consumption in the fragile bosque environment. For instance, Salt Cedar Trees consume approximately 300 gallons of water per day, per tree. This project will be countywide and include a plan for removal in targeted areas while accounting for environmental and habitat considerations.
Jurisdiction:	Valencia County, Los Lunas, Bosque Farms, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Wildfire, Drought, Flood
Responsible Agency:	Valencia Soil & Water Conservation District (VSWCD), MRGCD, Village of Los Lunas
Estimated Costs:	High
Funding Sources:	Bureau of Reclamation, New Mexico Forestry Division, Greater Rio Grande Watershed Association, Valencia County, Village of Los Lunas, Valencia SWCD (Soil and Water Conservation District)
Timeline for Implementation:	Within 5 years of Plan adoption.
Cost-Benefit Review:	Life safety and economic benefits of fire prevention and water conservation expected to outweigh the costs.
Priority:	Low
2022 Status:	In Progress: 25% complete. The County received State funding to start the project in September 2021 with assistance from the jurisdictions of Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD.

Action #8 Well Safety Education Program	
Project Description:	Local Emergency Managers will work with the New Mexico Department of Health to provide educational information for residents of the county's unincorporated areas on avoiding water well contamination due to flooding. Materials will include methods for well decontamination after flood events.
Jurisdiction:	Valencia County
Hazard(s) Addressed:	Flood
Responsible Agency:	Valencia County Emergency Management, Valencia County Health Department, New Mexico State Engineer's Office
Estimated Costs:	Low
Funding Sources:	Local budgets
Timeline for Implementation:	Within 2 to 3 years of Plan adoption.
Cost-Benefit Review:	Due to low costs, the benefits are anticipated to outweigh costs.
Priority:	Medium
2022 Status:	To Be Continued: The County will work with New Mexico Environmental Department and residents as events arise. Plan to post on social media annually.

Action #9 Flood Awareness Program	
Project Description:	Implement FEMA's "Turn Around Don't Drown" public awareness campaign. This includes identifying low water crossings and installing "Turn Around Don't Drown" signs at those locations. Also provide or post educational information for residents to avoid flooded areas.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Flood
Responsible Agency:	County and local Floodplain Managers
Estimated Costs:	Low
Funding Sources:	Local budgets
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Due to low costs, the benefits are anticipated to outweigh costs.
Priority:	High
2022 Status:	New Action

Action #10 Flood Insurance Awareness Program	
Project Description:	A public awareness program will provide the unprotected property owners throughout the planning area with information concerning their risk and available insurance.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Flood
Responsible Agency:	County and local Floodplain Managers
Estimated Costs:	Low
Funding Sources:	Local budgets
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Due to low costs, the benefits are anticipated to outweigh costs.
Priority:	High
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #11 Multi-Jurisdiction Storm Water Management Plans	
Project Description:	Conduct feasibility and buy-in for regional stormwater management planning approach. Establish committee and coordinate with neighboring communities to establish better water management planning and flood damage resilience.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Flood
Responsible Agency:	County and local public works and planning departments
Estimated Costs:	Low
Funding Sources:	Local municipal funds, New Mexico State grants, Federal grants
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Due to low costs, the benefits are anticipated to outweigh costs.
Priority:	High
2022 Status:	In Progress: 10% complete. Currently seeking funding and/or resources to complete this action. Stormwater Management Plans were completed for Belen, Los Lunas, and Rio Communities. The MRGCD in 2020 received an NRCS (National Resource Conservation Service) watershed grant with Valencia County and VSWCD as partners to develop a plan for stormwater management in southern Valencia County. Belen and Peralta are still working on development of their Storm Water plans.

Action #12 Personal Water Use Reduction Education Program	
Project Description:	Municipalities will work with the New Mexico State Engineer's Office to provide the citizens of Valencia County and its jurisdictions with methods they can use in reducing their water use. This education will focus on the benefits of installing low flow toilets and low flow shower heads in their homes. Additionally, provide information concerning the use of gray water, installation of gray water recovery systems, and the benefits gained will be provided to the public.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Drought
Responsible Agency:	Local Emergency Managers
Estimated Costs:	Low
Funding Sources:	Local municipal funds
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Due to low costs, the benefits are anticipated to outweigh costs.
Priority:	High
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #13 Gray Water Education Program	
Project Description:	Information concerning the use of gray water, installation of gray water recovery systems, and the benefits gained will be provided to the public.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Drought
Responsible Agency:	Local Emergency Managers
Estimated Costs:	Low
Funding Sources:	Local municipal funds
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Due to low costs, the benefits are anticipated to outweigh costs.
Priority:	High
2022 Status:	Delete: Combined with previous action.

Action #14 Mandatory Water Use Restrictions	
Project Description:	Municipalities will draft a water use restriction program based on a sliding scale with increasingly restrictive measures based on the severity of existing drought conditions.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Drought
Responsible Agency:	Local Emergency Managers
Estimated Costs:	Low
Funding Sources:	Local municipal funds
Timeline for Implementation:	Within two to three years of Plan adoption.
Cost-Benefit Review:	Due to low costs, the benefits are anticipated to outweigh costs.
Priority:	Medium
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources. Plan to be in coordination with the State mandates. Bosque Farms have a water use plan in place already.

Action #15 Drainage Ditch Improvements and Maintenance	
Project Description:	Clean and repair drainage ditches and culverts to increase or maintain capacity. Develop and implement a maintenance plan.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Flood
Responsible Agency:	Local and county public works departments; New Mexico Department of Transportation
Estimated Costs:	Medium
Funding Sources:	FEMA
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Due to the flood losses, the benefits are anticipated to outweigh costs.
Priority:	High
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources. County currently working on multiple projects to fulfil this action with assistance from the jurisdictions of Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD.

Action #16 Develop Hazardous Fuels Reduction Program	
Project Description:	Established a program to mow vegetation outside the bosque that can contribute to wildfires. These mowing operations can be implemented by both the property owners and local jurisdictions.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Wildfire
Responsible Agency:	Local emergency managers
Estimated Costs:	Low
Funding Sources:	Municipal Budgets
Timeline for Implementation:	Some planning efforts are on-going. Implement within one year of Plan adoption.
Cost-Benefit Review:	Due to the risk of wildfire in the area, and the low cost, the benefits are anticipated to outweigh costs.
Priority:	High
2022 Status:	In Progress: 5% complete. Public education, home assessments, and vegetation thinning efforts are underway lead by the county with assistance from the jurisdictions of Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD.

Action #17 Implement Wildfire Public Education and Outreach Activities	
Project Description:	Develop a comprehensive education process that includes fire safety education/prevention and organizing community cleanups in high fuel areas.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Wildfire
Responsible Agency:	Local emergency managers
Estimated Costs:	Low
Funding Sources:	USFS; Municipal Budgets
Timeline for Implementation:	Within two to three years of Plan adoption.
Cost-Benefit Review:	Due to low cost of awareness programs, the benefits are anticipated to outweigh costs.
Priority:	Medium
2022 Status:	In Progress: 10% complete. The County and with assistance from the jurisdictions of Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD are working with the communities to promote fire safety and will continue to do so. Planning a large outreach event in February 2022.

Action #18 Bury Power Lines	
Project Description:	Bury all power lines in Valencia County to reduce the incident of a downed tree hitting a power line.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Wildfire, Winter Storm, Severe Storms (including hail, high wind, and lightning)
Responsible Agency:	Municipal utilities
Estimated Costs:	High
Funding Sources:	Work with utility companies and incorporate into capital improvement plans
Timeline for Implementation:	Within three to five years of Plan adoption.
Cost-Benefit Review:	Costs are high; individual BCA (Benefit Cost Analysis) would need to be run.
Priority:	Low
2022 Status:	Delete: This action is not feasible for the County or jurisdictions to complete due to jurisdiction over power companies.

Action #19 Educate Residents on Water Conservation Measures	
Project Description:	Educate residents on ways to reduce vulnerability, including information about landscaping with indigenous desert plants to reduce the effects of a drought.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Drought
Responsible Agency:	Local emergency management; New Mexico Environmental Department
Estimated Costs:	Minimal
Funding Sources:	Local Budgets
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Due to low cost of awareness programs, the benefits are anticipated to outweigh costs.
Priority:	High
2022 Status:	To Be Continued: The County with assistance from the jurisdictions of Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD are continuing to work with the communities to educate them on ways to reduce risk from drought through social media campaigns annually.

Action #20 Establish Drought Indicator/Early Warning System	
Project Description:	Establish a system that detects levels of soil moisture and stream/river levels to determine when conditions are trending toward a drought. If such a system already exists, then develop a plan to interpret and disseminate the information from the system to local managers.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Drought
Responsible Agency:	Local emergency management
Estimated Costs:	Low
Funding Sources:	NRCS, USDA
Timeline for Implementation:	Within two to three years of plan adoption.
Cost-Benefit Review:	Benefits relative to costs would have to be explored in greater detail.
Priority:	Medium
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources. County currently researching and seeking additional resources and funding to complete.

Action #21 Consider Adopting Seismic Building Codes	
Project Description:	Review feasibility of adopting seismic building codes for new construction.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Earthquake
Responsible Agency:	Municipal building/permit department or authority
Estimated Costs:	Low
Funding Sources:	Local budgets
Timeline for Implementation:	Within two to three years of Plan adoption.
Cost-Benefit Review:	Low costs of exploration so the benefits are anticipated to outweigh costs.
Priority:	Medium
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #22 Conduct Feasibility of Seismic Structural and Non-Structural Retrofit to Critical Facilities and Utilities	
Project Description:	Conduct more earthquake detailed risk assessment of local critical facilities and utilities. Prepare preliminary analysis of retrofits to critical infrastructure.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Earthquake
Responsible Agency:	Local Emergency Managers
Estimated Costs:	Low (non-structural) to High (structural)
Funding Sources:	HUD (Housing and Urban Development) funds, FEMA
Timeline for Implementation:	Within three to five years of Plan adoption.
Cost-Benefit Review:	Benefits relative to costs would have to be explored in greater detail.
Priority:	Low
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #23 Prepare Public Education Effort for Winterizing Measures	
Project Description:	Provide educational information to residents on insulating pipes to reduce damage from winter storms. Find ready-made brochures to distribute.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Winter Storm
Responsible Agency:	Local Emergency Managers
Estimated Costs:	Low
Funding Sources:	HUD if funds are needed
Timeline for Implementation:	Within one year of Plan adoption.
Cost-Benefit Review:	Due to low cost of awareness programs, the benefits are anticipated to outweigh costs.
Priority:	High
2022 Status:	To Be Continued: The County with assistance from the jurisdictions of Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD are currently working with the communities to educate them on how to reduce risk from winter storm through social media platforms annually.

Action #24 Implement Tree Trimming to Protect Power Lines	
Project Description:	Trim trees along roadways to prevent interference with power lines during high winds and winter storms.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Winter Storm, Severe Storms (including hail, high winds, and lightning)
Responsible Organization:	Public Works Departments; Utility Companies
Estimated Costs:	Low to Medium
Possible Funding Sources:	Incorporate into capital improvements plans
Timeline for Implementation:	Within two to three years of Plan adoption.
Cost-Benefit Review:	Due to multiple benefits from tree-trimming, benefits expected to outweigh costs.
Priority:	Medium
2022 Status:	In Progress: Tree trimming is currently being contracted out by the county with assistance from the jurisdictions of Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD.

Action #25 Conduct Feasibility of Insulating Water Pipes on Exterior of Public Buildings	
Project Description:	Insulating the pipes can reduce incidences of pipes bursting and causing interior water damage and loss of water in public buildings.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Winter Storm
Responsible Agency:	Building Maintenance; Public Works
Estimated Costs:	Low to medium
Funding Sources:	Incorporate into capital improvements plans
Timeline for Implementation:	Within three to five years of Plan adoption.
Cost-Benefit Review:	Benefits relative to costs would have to be explored in greater detail.
Priority:	Low.
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #26 Establish Lightning Safety Program for Valencia County Residents	
Project Description:	Raise awareness among Valencia County residents of dangers of lightning and what to do in a lightning storm. Obtain ready-made guides and brochures from sources like FEMA and post on social media and/or distribute at local events.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Severe Storms (including hail, high winds, and lightning)
Responsible Agency:	Local Emergency Managers
Estimated Costs:	Minimal
Funding Sources:	Some staff time needed
Timeline for Implementation:	Within two to three years of Plan adoption
Cost-Benefit Review:	Due to low cost of awareness programs, the benefits are anticipated to outweigh costs
Priority:	Medium
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #27 Implement Methods for Protecting Public Buildings from Lightning Strike Damage	
Project Description:	Install a surge protector system for protecting electronic equipment from direct lightning strikes. Implement a severe storm plan to take the extra step of disconnecting especially sensitive equipment.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Severe Storms (including hail, high winds, and lightning)
Responsible Agency:	IT (INFORMATION TECHNOLOGY) Department; Facility and Building Maintenance
Estimated Costs:	Low to Medium
Funding Sources:	Incorporate into capital improvements plans
Timeline for Implementation:	Within two to three years of Plan adoption.
Cost-Benefit Review:	Due to excessive cost of data loss and low cost of project, the benefits are anticipated to outweigh the costs.
Priority:	Medium
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #28 Protect Public Buildings from Hail Damage	
Project Description:	As public buildings are constructed or renovated, use hail-resistant metal roofing.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Severe Storms (including hail, high winds, and lightning)
Responsible Agency:	Facility and Building Maintenance
Estimated Costs:	Low to Medium
Funding Sources:	Incorporate into capital improvements plans
Timeline for Implementation:	Within three to five years of Plan adoption.
Cost-Benefit Review:	Benefits relative to costs would have to be explored in greater detail.
Priority:	Low
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #29 Implement Residential Safe Room Rebate Program	
Project Description:	Implement program to encourage individuals to construct safe rooms at residential homes by implementing a safe room rebate program to reimburse a portion of the construction costs.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Tornados
Responsible Agency:	Local Emergency Managers
Estimated Costs:	Low to Medium
Funding Sources:	FEMA
Timeline for Implementation:	Within three to five years of Plan adoption.
Cost-Benefit Review:	Benefits relative to costs would have to be explored in greater detail.
Priority:	Low
2022 Status:	Delete: No longer applicable for the County and communities.

Action #30 Tornado Warning System	
Project Description:	Purchase and install a tornado warning system.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Tornados
Responsible Agency:	Local Emergency Managers
Estimated Costs:	Low to Medium
Funding Sources:	FEMA
Timeline for Implementation:	Within three to five years of Plan adoption
Cost-Benefit Review:	Benefits relative to costs would have to be explored in greater detail
Priority:	Low
2022 Status:	Delete: Combined with earlier action.

Action #31 Develop Dam Failure Warning System	
Project Description:	Coordinate with other communities and dam operators to develop a gauge and communication system that would provide warning in event of a dam failure.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Dam Failure
Responsible Agency:	Local Emergency Managers; USACE
Estimated Costs:	Low to Medium
Funding Sources:	USGS, FEMA
Timeline for Implementation:	Within three to five years of Plan adoption.
Cost-Benefit Review:	Benefits relative to costs would have to be explored in greater detail.
Priority:	Low
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #32 Map Dam Failure Inundation Areas	
Project Description:	Map potential dam failure inundation area.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Dam Failure
Responsible Agency:	Local Emergency Managers; University of New Mexico EDAC (Effective Daily Application Capacity); USACE
Estimated Costs:	Low to Medium
Funding Sources:	FEMA Risk MAP
Timeline for Implementation:	Within three to five years of Plan adoption.
Cost-Benefit Review:	Benefits relative to costs would have to be explored in greater detail.
Priority:	Low
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #33 Designate / Set up Public Cooling Centers	
Project Description:	Designate and set up cooling centers in well-known centrally located public facilities, that will serve as a shelter to vulnerable populations (particularly the elderly) during periods of extreme heat.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Extreme Heat
Responsible Agency:	Local Emergency Managers; Local school districts; Older Americans Program (OAP)
Estimated Costs:	Low to Medium (cost of generators)
Funding Sources:	HUD, potentially FEMA
Timeline for Implementation:	Within two to three years from Plan adoption.
Cost-Benefit Review:	Due to potential health risks due to extreme heat, the benefits are anticipated to outweigh the costs.
Priority:	Medium
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #34 Conduct Fan Drive	
Project Description:	Collect and distribute fans to most vulnerable citizens (the elderly) during periods of extreme heat. Develop a list of vulnerable citizens ahead of any extreme heat.
Jurisdiction:	Valencia County, Bosque Farms, Los Lunas, Belen, Peralta, Rio Communities, MRGCD
Hazard(s) Addressed:	Extreme Heat
Responsible Agency:	Local Emergency Managers; OAP
Estimated Costs:	Volunteer time and efforts
Funding Sources:	Local donations
Timeline for Implementation:	Within three to five years from Plan adoption.
Cost-Benefit Review:	Due to potential health risks due to extreme heat and voluntary nature of this effort, the benefits are anticipated to outweigh the costs.
Priority:	Low
2022 Status:	Deferred: No measurable progress has been made in the last 5 years due to lack of funding and staff resources.

Action #35 Agricultural Conservation	
Project Description:	Implement system improvements on MRGCD delivery infrastructure and work with irrigators to improve on-farm water delivery and application efficiency as well as other crop and soil health improvements that would help optimize water supply and delivery during low river flows.
Jurisdiction:	MRGCD
Hazard(s) Addressed:	Drought
Responsible Agency:	MRGCD
Estimated Costs:	High
Funding Sources:	MRGCD, BOR (Bureau of Reclamation), NFWF, NRCS, Valencia County
Timeline for Implementation:	Within one to five years from Plan adoption
Cost-Benefit Review	Because of continued drought and predicted climate change, endangered species obligations as well as Rio Grande Compact restrictions on storing water, the benefits are anticipated to outweigh costs.
Priority	High
2022 Status	In Progress: 10% complete. The MRGCD's Conservation Program was initiated in 2020.

SECTION 9: PLAN MAINTENANCE AND PROCEDURES

This section discusses how the Valencia County Mitigation Strategy and Mitigation Action Plan will be implemented and how the Plan will be evaluated and enhanced over time. This section also discusses how the public will continue to be involved in a sustained hazard mitigation planning process. It consists of the following three subsections:

- 9.1 Implementation and Integration
- 9.2 Monitoring, Evaluation, Update and Enhancement
- 9.3 Continued Public Involvement

44 CFR Requirement
44 CFR Part201.6(c)(4)(i):   The plan shall include a plan maintenance process that includes a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.   ***44 CFR Part 201.6(c)(4)(ii):***   The plan maintenance process shall include a process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

9.1 Implementation and Integration

Each agency, department, or other partner participating under the Valencia County Hazard Mitigation Plan is responsible for implementing specific mitigation actions as prescribed in the Mitigation Action Plan. Every proposed action listed in the Mitigation Action Plan is assigned to a specific "lead" agency or department to assign responsibility and accountability and increase the likelihood of subsequent implementation.

In addition to the assignment of a local lead department or agency, an implementation time or a specific implementation date has been assigned to assess whether actions are being implemented in a timely fashion. The County will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified for proposed actions listed in the Mitigation Action Plan.

The participating jurisdictions will integrate this Plan into relevant city and county government decision-making processes or mechanisms, where feasible. This includes integrating the requirements of the Plan into other local planning documents, processes, or mechanisms, such as comprehensive or capital improvement plans, when appropriate. The members of the Valencia County Hazard Mitigation Planning Team will remain charged with ensuring that the goals and mitigation actions of new and updated local planning documents for their agencies or departments are consistent, or do not conflict with, the goals and actions of the Plan, and will not contribute to increased hazard vulnerability in the County.

Since the previous Plan was adopted, the county and participating jurisdictions have worked to integrate the Plan into other planning mechanisms where applicable/feasible. Examples of how this integration has occurred have been documented in the Implementation Status discussion provided for each of the mitigation actions found in Section 8. Specific examples of how integration has occurred include:

- Integrating the mitigation plan (level of flooding risk) into reviews of floodplain management ordinances; (Valencia County).

- Integrating the mitigation plan (critical facilities) into reviews and updates of County emergency operations plans; (Valencia County).
- Integrating the mitigation plan (cross reference data) into review and updates of building codes; and (Valencia County and City of Roswell).
- Integrating the mitigation plan into the capital improvements plan through identification of mitigation actions that may require local funding (Valencia County, City of Belen, Rio Communities, Town of Peralta and Los Lunas and the District of MRGCD).

Opportunities to further integrate the requirements of this Plan into other local planning mechanisms shall continue to be identified through future meetings of the Hazard Mitigation Planning Team, individual county meetings, and the annual review process described herein. Although it is recognized that there are many benefits to integrating components of this Plan into other local planning mechanisms, the development and maintenance of this stand-alone Hazard Mitigation Plan is deemed by the Planning Team to be the most effective and appropriate method to implement local hazard mitigation actions at this time.

9.2 Monitoring, Evaluation, Update and Enhancement

Periodic updates of the Plan are required to ensure that the goals of the Plan are kept current, considering potential changes in hazard vulnerability and mitigation priorities. In addition, updates may be necessary to ensure that the Plan is in full compliance with applicable federal and state regulations. Periodic evaluation of the Plan will also ensure that specific mitigation actions are being reviewed and carried out according to the Mitigation Action Plan.

The Valencia County Emergency Management Coordinator will be responsible for reconvening the Hazard Mitigation Planning Team for these reviews.

Plan monitoring can be defined as the ongoing process by which stakeholders obtain regular feedback on the progress being made towards achieving their goals and objectives. In the more limited approach, monitoring may focus on tracking projects and the use of the agency's resources. In the broader approach, monitoring also involves tracking strategies and actions being taken by partners and non-partners, and figuring out what new strategies and actions need to be taken to ensure progress towards the most important results. A monitoring report will be written and submitted to the community stakeholders annually and/or when triggered by a situation change. The Mitigation Action Progress Report Form (Worksheet 7.1 from FEMA (Federal Emergency Management Agency)) will form the basis of questions to be asked and progress/obstacles to report. The plan maintenance process is cyclical and maintenance items can operate simultaneously within the process.

A plan evaluation is a rigorous and independent assessment of either completed or ongoing activities to determine the extent to which they are achieving stated objectives and contributing to decision making. An evaluation report will be written and submitted to the community stakeholders when the situation dictates. The following situations are typical examples of when an evaluation will be necessary: Post hazard event; Post tabletop or drill exercise; Notable change or completion of a mitigation project and/or action. The Plan Update Evaluation Worksheet (Worksheet 7.2 from FEMA) will provide the basis of the evaluation report. See Appendix G for FEMA guidance worksheets to facilitate plan maintenance.

9.2.1 Five Year Plan Review and Update

The Plan will be thoroughly reviewed by the Hazard Mitigation Planning Team every five years to determine whether there have been any significant changes in the County that may, in turn, necessitate updates in the types of mitigation actions proposed. New development in identified hazard areas, an

increased exposure to hazards, an increase or decrease in capability to address hazards, and changes to federal or state legislation are examples of factors that may affect the necessary content of the Plan.

The Plan review provides county officials with an opportunity to evaluate those actions that have been successful and to explore the possibility of documenting potential losses avoided due to the implementation of specific mitigation measures. The Plan review also provides the opportunity to address mitigation actions that may not have been successfully implemented as assigned. The Valencia County Emergency Management Coordinator will be responsible for reconvening the Hazard Mitigation Planning Team and conducting the five-year review and update.

During the five-year plan review and update process, the following questions will be considered as criteria for assessing the effectiveness and appropriateness of the Plan:

- Do the goals address current and expected conditions?
- Has the nature or magnitude of risks changed?
- Are the current resources appropriate for implementing the Plan?
- Are there implementation problems, such as technical, political, legal or coordination issues with other agencies?
- Have the outcomes occurred as expected?
- Did County departments participate in the plan implementation process as assigned?

Following the five-year review and update, any updates deemed necessary will be summarized and implemented according to the reporting procedures and plan amendment process outlined herein. Upon completion of the review and update/amendment process, the Hazard Mitigation Plan will be submitted to the State Hazard Mitigation Officer at NMDHSEM for final review and approval in coordination with FEMA.

Because the plan update process can take several months to complete, and because Federal funding may be needed to update the plan, it is recommended that the five-year review process begin at the beginning of the third year after the plan was last approved. This will allow the participants in the Hazard Mitigation Plan to organize to seek Federal funding if necessary and complete required plan update documentation before the plan expires at the end of the fifth year.

9.2.2 Disaster Declaration

Following a disaster declaration, the Hazard Mitigation Plan will be revised as necessary to reflect lessons learned, or to address specific issues and circumstances arising from the event. It will be the responsibility of the Valencia County Emergency Management Coordinator to reconvene the Hazard Mitigation Planning Team and ensure the appropriate stakeholders are invited to participate in the plan revision and update process following declared disaster events.

9.2.3 Reporting Procedures

The results of the five-year review and update will be summarized by the Hazard Mitigation Planning Team in a report that will include an evaluation of the effectiveness of the Plan and any required or recommended changes or amendments. The report will also include an evaluation of implementation progress for each of the proposed mitigation actions, identifying reasons for delays or obstacles to their completion along with recommended strategies to overcome them.

9.2.4 Plan Amendment Process

Upon the initiation of the amendment process, representatives from the County will forward information on the proposed change(s) to all interested parties including, but not limited to, all directly affected County departments, residents, and businesses. Information will also be forwarded to

NMDHSEM. This information will be disseminated to seek input on the proposed amendment(s) for no less than a 45-day review and comment period.

At the end of the 45-day review and comment period, the proposed amendment(s) and all comments will be forwarded to the Hazard Mitigation Planning Team for final consideration. The Planning Team will review the proposed amendment along with the comments received from other parties, and if acceptable, the committee will submit a recommendation for the approval and adoption of changes to the Plan.

In determining whether to recommend approval or denial of a Plan amendment request, the following factors will be considered by the Hazard Mitigation Planning Team:

- There are errors, inaccuracies, or omissions made in the identification of issues or needs in the Plan.
- Current issues or needs have been identified which are not addressed in the Plan.
- There has been a change in information, data, or assumptions from those on which the Plan is based.

Upon receiving the recommendation from the Hazard Mitigation Planning Team, and prior to adoption of the Plan, the participating jurisdictions will hold a public hearing, if deemed necessary. The governing bodies of each participating jurisdiction will review the recommendation from the Hazard Mitigation Planning Team (including the factors listed above) and any oral or written comments received at the public hearing. Following that review, the governing bodies will take one of the following actions:

- Adopt the proposed amendments as presented.
- Adopt the proposed amendments with modifications.
- Refer the amendments request back to the Planning Team for further revision; or
- Defer the amendment request back to the Planning Team for further consideration and/or additional hearings.

9.3 Continued Public Involvement

44 CFR Requirement
44 CFR Part201.6(c)(4)(iii):   The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

Public participation is an integral component to the mitigation planning process and will continue to be essential as this Plan evolves over time. As described above, significant changes or amendments to the Plan shall require a public hearing prior to any adoption procedures.

Other efforts to involve the public in the maintenance, evaluation, and update process will be made, as necessary. These efforts may include:

- Advertising meetings of the Hazard Mitigation Planning Team in local newspapers, public bulletin boards and/or County office buildings, websites, and social media.
- Designating willing and voluntary citizens and private sector representatives as official members of the Hazard Mitigation Planning Team.
- Utilizing local media to update the public on any maintenance and/or periodic review activities taking place.
- Utilizing social media to advertise opportunities to comment as well as participate in surveys.

- Utilizing the websites of participating jurisdictions to advertise any maintenance and/or periodic review activities taking place.
- Keeping copies of the Plan in public libraries.

Appendix A: Plan Adoption

This appendix to the Valencia County Hazard Mitigation Plan contains a copy of the adoption resolutions for Valencia County, City of Belen, City of Rio Communities, Town of Peralta, Village of Bosque Farms, Village of Los Lunas, and Middle Rio Grande Conservation District who formally adopted the updated plan.

BOARD OF COUNTY COMMISSIONERS
RESOLUTION № 2022-20
ADOPTING THE VALENCIA COUNTY HAZARD MITIGATION PLAN OF APRIL 2022

WHEREAS, the Valencia County Board of Commissioners met upon notice of a Business Meeting, duly published, at the Valencia County Administration Building, 444 Luna Avenue, Los Lunas, New Mexico 87031 on Wednesday, March 2, 2022, at 5:00 PM as required by law; and,

WHEREAS, NMSA 1978, Section 4-37-1 (1995) provides that Counties have the power to, "provide for the safety, preserve the health, promote the prosperity and improve the morals, order, comfort and convenience of any county or its inhabitants"; and,

WHEREAS, the Valencia County Board of Commissioners recognizes the threat that natural hazards pose to people and property within Valencia County; and,

WHEREAS, Valencia County has prepared a multi-hazard mitigation plan, hereby known as Valencia County Hazard Mitigation Plan – April 2022 in accordance with the Disaster Mitigation Act of 2000; and,

WHEREAS, Valencia County Hazard Mitigation Plan – April 2022 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Valencia County from the impacts of future hazards and disasters; and,

WHEREAS, per a February 7, 2022 letter, the New Mexico DHS and Emergency Management, Preparedness Bureau, in conformance with the Final Rule on Mitigation Planning (44 CFR § 201.6), has conditionally approved this plan pending submission of this resolution and adoption by the local government entities, the approval is letter and factsheet are attached hereto an incorporated into this resolution by reference;

WHEREAS, adoption by the Valencia County Board of Commissioners demonstrates their commitment to hazard mitigation and achieving the goals outlined in the Valencia County Hazard Mitigation Plan – April 2022.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Valencia County that the following Valencia County Hazard Mitigation Plan of April 2022 is hereby adopted.

FEMA Region 6
800 N. Loop 288
Denton, TX 76209

FEMA

February 7, 2022

Chelsea Morganti, State Hazard Mitigation Officer
New Mexico DHS and Emergency Management, Preparedness Bureau
Office of Emergency Management
P.O. Box 27111
Santa Fe, NM 87502-1628

RE: Approvable Pending Adoption of the Valencia County, New Mexico
MultiJurisdiction Hazard Mitigation Plan
Funding Source: PDM; PDMC-PL-06-NM-2018-0005

Dear Ms. Morganti:

This office has concluded its review of the referenced plan, in conformance with the Final Rule on Mitigation Planning (44 CFR § 201.6). Formal approval of this plan is contingent upon the adoption by the participants on Enclosure A, as well as the receipt of the final draft of the plan containing all plan components.

Adopting resolutions must be submitted to this agency for review and approval no later than one year from the date of this letter. Failure to submit these resolutions in a timely manner could lead to a required update of the plan prior to FEMA approval.

Once this final requirement has been met, a letter of official approval will be generated. The Local Hazard Mitigation Planning Tool, with the reviewer's comments has been enclosed to further assist the jurisdictions in complying with planning requirements.

Sincerely,

Ronald C. Wanhanen
Chief, Risk Analysis Branch

Enclosure cc: Marty Chester,

R6-MT-HM Enclosure A

Attached is the list of participating local governments included in the February 7, 2022 review of the referenced Hazard Mitigation plan.

Community Name

1) Belen city
2) Bosque Farms village
3) Los Lunas village
4) Middle Rio Grande Conservancy District
5) Peralta town
6) Valencia County
7) Rio Communities

Adoption Submittal (Final)

Following the issuance this of Approvable Pending Adoption letter, all participants are provided one year to adopt the plan and submit it through the State to FEMA. For multijurisdictional plans, multiple adoptions should be submitted as a complete package as outlined below.

The State must submit the plan files via:

Floodmaps File eXchange (FFX): https://www.floodmaps.fema.gov/ffx/

Risk Management Directorate (RMD) SharePoint:

https://rmd.msc.fema.gov/Regions/VI/Mitigation%20Planning/Forms/AllItems.aspx

Note: You will be requested to register if you have not already done so.
All plans containing Protected Critical Infrastructure Information (PCII) must be submitted through the Floodmaps File Exchange (FFX) to ensure secure file submissions.

---

1. Final draft of the plan in MS Word or pdf format containing:
a. The final plan formatted as a single document.
b. Documentation demonstrating adoption by the participating jurisdictions seeking approval. (i.e. copies of signed resolutions, official meeting minutes, etc.…) Note: Adoption resolutions can be separate files. Additional adoptions are not required to provide a copy of the plan.
c. Remove strikethroughs, highlights and all Track Changes must be accepted in the final plan.

2. Send an email addressed to r6-mtd-planning@fema.dhs.gov as notification that the electronic file has been submitted. Please DO NOT send plans to the email inbox as it has very strict size limitations which will lock the inbox and not allow additional emails to be received. The email must include the following information:

a. Include the follow when applicable: (Note: A submittal letter is no longer required.)
   i. Subject line [Approval Review for Name of Plan, State]
   ii. FEMA funding source, grant or disaster number, and project number (when applicable)
   iii. list of adopting jurisdictions
   iv. Plan File name (file name must include date submitted)

3. Submittals which do not conform to the above requirements will be returned to the State for resubmission

APPROVED, ADOPTED AND RESOLVED this 2nd day of March2022

BOARD OF COUNTY COMMISSIONERS

Gerard Saiz, Chair, District I

Jhonathan Aragon, Vice-Chair, District V

Troy Richardson, District II

David A. Hyder, District III

Joseph Bizzell, District IV

Attest:

Mike Milam, County Clerk

City of Belen;
New Mexico,

RESOLUTION NO. 2022-08

A RESOLUTION OF THE CITY OF BELEN ADOPTING THE 2022 VALENCIA COUNTY HAZARD MITIGATION PLAN

WHEREAS the City of Belen City Council recognizes the threat that natural hazards pose to people and property within the City of Belen; and

WHEREAS the City of Belen has prepared a multi-hazard mitigation plan, hereby known as 2022 Valencia County Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS The 2022 Valencia County Hazard Mitigation Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the City of Belen from the impacts of future hazards and disasters; and

WHEREAS adoption by the City of Belen City Council demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the 2022 Valencia County Hazard Mitigation Plan.

NOW THEREFORE, BE IT RESOLVED BY THE CITY OF BELEN, NEW MEXICO, THAT:

Section 1. In accordance with **NMSA § 3-17-4 (2020)**, the City of Belen City Council adopts the 2022 Hazard Mitigation Plan.

ADOPTED by a vote of 4 in favor and 0 against, and 0 abstaining, this 7th day of March, 2022.

By: _____
Robert C. Noblin, Mayor

ATTEST:

By: _____
Dorothy Flores, City Clerk

APPROVED AS TO FORM:

By: _____
Jun Roh, City Attorney

TOWN OF PERALTA
90 A Molina Road
PO BOX 1830
PERALTA, NEW MEXICO 87042
Phone: 505-869-2050
Fax: 505-869-2958

RESOLUTION 2022-008

VALENCIA COUNTY HAZARD MITIGATION PLAN

March 22, 2022

WHEREAS, the Town of Peralta recognizes the threat that natural hazards pose to the residents and their property that live within the Town of Peralta; and

WHEREAS, the County of Valencia has prepared a multi-hazard mitigation plan, hereby known as the Valencia County Multi-Jurisdictional Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the County of Valencia Muti-Jurisdictional Hazard Mitigation Plan dated September 17, 2021, identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property within the Town of Peralta from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Governing Body for the Town of Peralta demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Valencia County Multi-Jurisdictional Hazard Mitigation Plan dated September 17, 2021.

NOW THEREFORE, BE IT RESOLVED, that the Governing Body for the Town of Peralta does hereby Accept, Adopts and Approves the Valencia County Multi-Jurisdictional Hazard Mitigation Plan dated September 17, 2021

ACCEPTED, ADOPTED AND APPROVED this 22nd day of March, 2022 during the Regular Council meeting by the Governing Body for the Town of Peralta, Peralta, Valencia County, New Mexico.

BRYAN R. OLGUIN, MAYOR

KORI TAYLOR, TOWN CLERK

ATTEST:

STEVEN G. ROBBINS, DEPUTY CLERK/TREASURER

VILLAGE OF BOSQUE FARMS, NEW MEXICO
RESOLUTION 996-22

A RESOLUTION ADOPTING THE VALENCIA COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

WHEREAS, the Village of Bosque Farms recognizes the threat that natural hazards pose to people and property within Bosque Farms; and

WHEREAS, Valencia County has prepared a multi-hazard mitigation plan, hereby known as the Valencia County Multi-jurisdictional Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Valencia County Multi-jurisdictional Hazard Mitigation Plan dated September 17, 2021, identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Bosque Farms from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Governing Body of the Village of Bosque Farms demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Valencia County Multi-jurisdictional Hazard Mitigation Plan dated September 17, 2021.

NOW THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF THE VILLAGE OF BOSQUE FARMS, NEW MEXICO THAT:

In accordance with 2-2-4 of the Code of Ordinances of the Village of Bosque Farms, the Governing Body of the Village of Bosque Farms adopts the Valencia County Multi-jurisdictional Hazard Mitigation Plan dated September 17, 2021.

PASSED, APPROVED AND ADOPTED THIS 16th DAY OF DECEMBER 2021.

VILLAGE OF BOSQUE FARMS, NM

(SEAL)

Russell Walkup, Mayor

ATTEST:

Gayle A. Jones, Clerk/Administrator

RESOLUTION NO. 22-05

A RESOLUTION OF THE VILLAGE OF LOS LUNAS ADOPTING THE VALENCIA COUNTY HAZARD MITIGATION PLAN, February 2022.

WHEREAS, the Village of Los Lunas recognizes the threat that natural hazards pose to people and property within Village of Los Lunas; and

WHEREAS, the Village of Los Lunas has prepared a multi-hazard mitigation plan, hereby known as the Valencia County Hazard Mitigation Plan, February 2022 in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Valencia County Hazard Mitigation Plan, February 2022 identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in the Village of Los Lunas from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Village of Los Lunas Mayor and Council demonstrates their commitment to hazard mitigation and achieving the goals outlined in the Valencia County Hazard Mitigation Plan, February 2022.

NOW THEREFORE, BE IT RESOLVED, by the governing body of the Village of Los Lunas, New Mexico, that:

That the Village of Los Lunas adopts the Valencia County Hazard Mitigation Plan, February 2022.

PASSED, APPROVED AND ADPOTED this 10th day of March, 2022.

Charles Griego, Mayor

ATTEST:

Gregory D. Martin, Village Administrator

RESOLUTION OF THE BOARD OF DIRECTORS
OF THE MIDDLE RIO GRANDE CONSERVANCY DISTRICT

ADOPTION OF THE VALENCIA COUNTY 2022 HAZARD MITIGATION PLAN

#M-03-14-22-183

WHEREAS, The Middle Rio Grande Conservancy District was created by the New Mexico Legislature in 1923 with a mission of irrigation, drainage and river flood control to address severe natural and human caused hazards; and

WHEREAS, natural and human caused hazards pose risks to the District's constituents with increasing impacts from urbanization and climate change; and

WHEREAS, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

WHEREAS, an adopted Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

WHEREAS, the Middle Rio Grande Conservancy District resides within the Planning Area, and fully participated in the mitigation planning process to prepare this Hazard Mitigation Plan; and

WHEREAS, the New Mexico Department of Homeland Security and Emergency Management and Federal Emergency Management Agency, Region VI officials have reviewed the Valencia County Hazard Mitigation Plan and approved it contingent upon this official adoption of the participating governing body; and

NOW THEREFORE BE IT RESOLVED, that the Middle Rio Grande Conservancy District's Board of Directors hereby adopts the Valencia County Hazard Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED, this Adoption Resolution will be submitted this to the New Mexico Department of Homeland Security and Emergency Management and Federal Emergency Management Agency, Region VI officials to enable the Plan's final approval.

RESOLVED: in session this 14th day of March 2022.

MIDDLE RIO GRANDE CONSERVANCY DISTRICT

Karen Dunning

Karen Dunning, Chair of the Board

ATTEST:

Jason M. Casuga, P.E.
Chief Engineer/CEO

STATE OF NEW MEXICO
CITY OF RIO COMMUNITIES
RESOLUTION 2022 – 06

WHEREAS, the City of Rio Communities recognizes the threat that natural hazards pose to the residents and their property that live within the the City of Rio Communities; and

WHEREAS, the County of Valencia has prepared a multi-hazard mitigation plan, hereby known as the Valencia County Multi-Jurisdictional Hazard Mitigation Plan in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the County of Valencia Muti-Jurisdictional Hazard Mitigation Plan dated September 17, 2021, identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property within the City of Rio Communities from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Governing Body for the City of Rio Communities demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Valencia County Multi-Jurisdictional Hazard Mitigation Plan dated September 17, 2021.

NOW THEREFORE, BE IT RESOLVED, that the Governing Body for the City of Rio Communities does hereby Accept, Adopts and Approves the Valencia County Multi-Jurisdictional Hazard Mitigation Plan dated September 17, 2021

PASSED, APPROVED AND ADOPTED THIS 28th DAY OF MARCH 2022 BY THE GOVERNING BODY OF THE CITY OF RIO COMMUNITIES, NEW MEXICO.

City of Rio Communities Governing Body

Joshua Ramsell, Mayor

Margaret R. Gutjahr, Mayor Pro-tem

Arthur Apodaca, Councilor

Lawrence R. Gordon, Councilor

Jimmie Winters, Councilor

ATTEST:

Elizabeth F. Adair, Municipal Clerk

Appendix B: Regulation Checklist

This appendix to the Valencia County Hazard Mitigation Plan contains a copy of a completed Regulation Checklist from FEMA's *Local Mitigation Plan Review Tool*. This checklist provides page numbers indicating where in the Plan each element required by FEMA is met. This serves as a final internal review to confirm that the Plan meets Federal requirements.

LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

Jurisdiction: Valencia County Multi-Jurisdictional	**Title of Plan:** Valencia County Hazard Mitigation Plan	**Date of Plan:** September 17, 2021
Local Point of Contact: Sarah Gillen-Valencia County	**Address:** 444 Luna Avenue Los Luna, NM 87301	
Title: Emergency Manager		
Agency: Office of Emergency Management		
Phone Number: 505-866-2043	**E-Mail:** sarah.gillen@co.valencia.nm.us	

State Reviewer: W. Scott Field	**Title:** Senior Emergency Management Specialist	**Date:** 1/20/2022

FEMA Reviewer: Matt Embry Shanene Thomas	**Title:** Emergency Management Specialist Community Planner	**Date:** 1/24/2022 2/1/2022
Date Received in FEMA Region 6	January 20, 2022	
Plan Not Approved		
Plan Approvable Pending Adoption	February 7, 2022	
Plan Approved		

LOCAL MITIGATION PLAN REVIEW TOOL

SECTION 1:
REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST **Regulation (44 CFR 201.6 Local Mitigation Plans)**	**Location in Plan (section and/or page number)**	**Met**	**Not Met**
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Pgs. 6-9; 10- 14 (Table 2.1); 123-139; 143-145; 166- 181; 282-300	X	
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Pgs. 15-17; 48; 72-73; 78; 86; 94; 97; 109; 116; 290-300	X	
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Pgs. 15-17; 290-300; Appendix D & E	X	
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Pgs. 8-9; 123-139; 143-145; 166-170	X	
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Pgs. 169-170	X	
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Pgs. 166-170	X	
ELEMENT A: REQUIRED REVISIONS			

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Pgs. 18-26; 27-33; 35-39; 48-50; 54-61; 73-75; 78-80; 86-91; 94-95; 98-105; 109-110	X	
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Pgs. 40-47; 50-53; 61-72; 76-77; 80-84; 91-92; 95-96; 106-107; 114-115	X	
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Pgs. 47-48; 54; 72-73; 77-78; 85-86; 92-94; 96-97; 107-109; 115-117	X	
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Pgs. 107	X	
ELEMENT B: REQUIRED REVISIONS			

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Pgs. 123-139 (6.4.1 addresses expansion)	X	
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Pgs. 129-132	X	
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Pgs. 142	X	
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Pgs. 148-165	X	
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Pgs. 141-142	X	
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Pgs. 128-138; 140-141; 143	X	
ELEMENT C: REQUIRED REVISIONS			

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Pg. 123	X	
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Pgs. 141-147	X	
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Pg. 141	X	
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	N/A	X	
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	N/A	X	
ELEMENT E: REQUIRED REVISIONS For each participating jurisdiction, the plan must include adoption documentation to obtain plan approval.			
OPTIONAL: HIGH HAZARD POTENTIAL DAM RISKS			
HHPD1. Did Element A4 (planning process) describe the incorporation of existing plans, studies, reports, and technical information for high hazard potential dams?			
HHPD2. Did Element B3 (risk assessment) address HHPDs?			
HHPD3. Did Element C3 (mitigation goals) include mitigation goals to reduce long-term vulnerabilities from high hazard potential dams that pose an unacceptable risk to the public?			
HHPD4. Did Element C4-C5 (mitigation actions) address HHPDs prioritize mitigation actions to reduce vulnerabilities from high hazard potential dams that pose an unacceptable risk to the public?			
REQUIRED REVISIONS			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (optional for State reviewers only; not to be completed by FEMA)			
F1.			
F2.			
ELEMENT F: REQUIRED REVISION			

LOCAL MITIGATION PLAN REVIEW TOOL

SECTION 2:

PLAN ASSESSMENT

INSTRUCTIONS: The purpose of the Plan Assessment is to offer the local community more comprehensive feedback to the community on the quality and utility of the plan in a narrative format. The audience for the Plan Assessment is not only the plan developer/local community planner, but also elected officials, local departments and agencies, and others involved in implementing the Local Mitigation Plan. The Plan Assessment must be completed by FEMA. The Assessment is an opportunity for FEMA to provide feedback and information to the community on: 1) suggested improvements to the Plan; 2) specific sections in the Plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing partnership(s) and information on other FEMA programs, specifically RiskMAP and Hazard Mitigation Assistance programs. The Plan Assessment is divided into two sections:

1. Plan Strengths and Opportunities for Improvement
2. Resources for Implementing Your Approved Plan

Plan Strengths and Opportunities for Improvement is organized according to the plan Elements listed in the Regulation Checklist. Each Element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item, and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each Element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature, and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the Plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

Resources for Implementing Your Approved Plan provides a place for FEMA to offer information, data sources and general suggestions on the overall plan implementation and maintenance process. Information on other possible sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

LOCAL MITIGATION PLAN REVIEW TOOL

A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

Element A: Planning Process

How does the Plan go above and beyond minimum requirements to document the planning process with respect to:

- Involvement of stakeholders (elected officials/decision makers, plan implementers, business owners, academic institutions, utility companies, water/sanitation districts, etc.);
- Involvement of Planning, Emergency Management, Public Works Departments or other planning agencies (i.e., regional planning councils);
- Diverse methods of participation (meetings, surveys, online, etc.); and
- Reflective of an open and inclusive public involvement process.

Element B: Hazard Identification and Risk Assessment

In addition to the requirements listed in the Regulation Checklist, 44 CFR 201.6 Local Mitigation Plans identifies additional elements that should be included as part of a plan's risk assessment. The plan should describe vulnerability in terms of:

1) A general description of land uses and future development trends within the community so that mitigation options can be considered in future land use decisions;
2) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; and
3) A description of potential dollar losses to vulnerable structures, and a description of the methodology used to prepare the estimate.

How does the Plan go above and beyond minimum requirements to document the Hazard Identification and Risk Assessment with respect to:

- Use of best available data (flood maps, HAZUS, flood studies) to describe significant hazards;
- Communication of risk on people, property, and infrastructure to the public (through tables, charts, maps, photos, etc.);
- Incorporation of techniques and methodologies to estimate dollar losses to vulnerable structures;

- Incorporation of Risk MAP products (i.e., depth grids, Flood Risk Report, Changes Since Last FIRM, Areas of Mitigation Interest, etc.); and
- Identification of any data gaps that can be filled as new data became available.

Element C: Mitigation Strategy

How does the Plan go above and beyond minimum requirements to document the Mitigation Strategy with respect to:

- Key problems identified in, and linkages to, the vulnerability assessment;
- Serving as a blueprint for reducing potential losses identified in the Hazard Identification and Risk Assessment;
- Plan content flow from the risk assessment (problem identification) to goal setting to mitigation action development;
- An understanding of mitigation principles (diversity of actions that include structural projects, preventative measures, outreach activities, property protection measures, post-disaster actions, etc);
- Specific mitigation actions for each participating jurisdictions that reflects their unique risks and capabilities;
- Integration of mitigation actions with existing local authorities, policies, programs, and resources; and
- Discussion of existing programs (including the NFIP), plans, and policies that could be used to implement mitigation, as well as document past projects.

Element D: Plan Update, Evaluation, and Implementation (Plan Updates Only)

How does the Plan go above and beyond minimum requirements to document the 5-year Evaluation and Implementation measures with respect to:

- Status of previously recommended mitigation actions;
- Identification of barriers or obstacles to successful implementation or completion of mitigation actions, along with possible solutions for overcoming risk;
- Documentation of annual reviews and committee involvement;
- Identification of a lead person to take ownership of, and champion the Plan;
- Reducing risks from natural hazards and serving as a guide for decisions makers as they commit resources to reducing the effects of natural hazards;
- An approach to evaluating future conditions (i.e. socio-economic, environmental, demographic, change in built environment etc.);
- Discussion of how changing conditions and opportunities could impact community resilience in the long term; and
- Discussion of how the mitigation goals and actions support the long-term community vision for increased resilience.

B. Resources for Implementing Your Approved Plan

This section provides examples of possible resources plan implementation.

Ideas may be offered on moving the mitigation plan forward and continuing the relationship with key mitigation stakeholders such as the following:

- What FEMA assistance (funding) programs are available (for example, Hazard Mitigation Assistance (HMA)) to the jurisdiction(s) to assist with implementing the mitigation actions?
- What other Federal programs (National Flood Insurance Program (NFIP), Community Rating System (CRS), Risk MAP, etc.) may provide assistance for mitigation activities?
- What publications, technical guidance or other resources are available to the jurisdiction(s) relevant to the identified mitigation actions?
- Are there upcoming trainings/workshops (Benefit-Cost Analysis (BCA), HMA, etc.) to assist the jurisdictions(s)?
- What mitigation actions can be funded by other Federal agencies (for example, U.S. Forest Service, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA) Smart Growth, Housing and Urban Development (HUD) Sustainable Communities, etc.) and/or state and local agencies?

FEMA Mitigation grants are available to eligible applicants. Search grants.gov for additional resources for implementing mitigation actions.

LOCAL MITIGATION PLAN REVIEW TOOL

SECTION 3:
MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)

INSTRUCTIONS: For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were 'Met' or 'Not Met,' and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/ borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Require-ments
1	Valencia	County	Sarah Gillen	444 Luna Avenue Los Lunas, NM 87031	sarah.gillen@co.valencia.nm.us	505-866-2043	**Y**	**Y**	**Y**	**Y**	**Y**	
2	Belen	City	Steven Gonzales	100 S Main Street Belen, NM 87002	steven.gonzales@belen-nm.gov	505-966-2742	**Y**	**Y**	**Y**	**Y**	**Y**	
3	Rio Communities	City	Martin Moore	360 Rio Communities Boulevard Rio Communities, NM 87002	mmoore@riocommminuties.net	505-861-6803	**Y**	**Y**	**Y**	**Y**	**Y**	
4	Peralta	Town	Steven Robbins	90-A Molina Road Peralta, NM 87042	robbins@townofperalta.org	505-869-2050	**Y**	**Y**	**Y**	**Y**	**Y**	
5	Bosque Farms	Village	Galye Jones	P.O. Box 660 Peralta, NM 87042	clerkadmin@bosquefarmsnm.gov	505-869-2358	**Y**	**Y**	**Y**	**Y**	**Y**	
6	Los Lunas	Village	Jason Gonzales	P.O. Box 1209 Los Lunas, NM 87031	gonzalesj@loslunasnm.gov	505-866-2116	**Y**	**Y**	**Y**	**Y**	**Y**	
7	MRGCD	District	Yasmeen Najmi	P.O. Box 581 Albuquerque, NM 871003-0581	yasmeen@mrgcd.us	505-317-7953	**Y**	**Y**	**Y**	**Y**	**Y**	

Appendix C: FEMA Approval Letter

This appendix to the Valencia County Hazard Mitigation Plan contains a copy of the letter from FEMA approving the final plan.

U.S. Department of Homeland Security
FEMA Region 6
800 N. Loop 288
Denton, TX 76209

FEMA

February 7, 2022

Chelsea Morganti, State Hazard Mitigation Officer
New Mexico DHS and Emergency Management, Preparedness Bureau
Office of Emergency Management
P.O. Box 27111
Santa Fe, NM 87502-1628

RE: Approvable Pending Adoption of the Valencia County, New Mexico Multi-Jurisdiction Hazard Mitigation Plan
Funding Source: PDM; PDMC-PL-06-NM-2018-0005

Dear Ms. Morganti:

This office has concluded its review of the referenced plan, in conformance with the Final Rule on Mitigation Planning (44 CFR § 201.6). Formal approval of this plan is contingent upon the adoption by the participants on Enclosure A, as well as the receipt of the final draft of the plan containing all plan components.

Adopting resolutions must be submitted to this agency for review and approval no later than one year from the date of this letter. Failure to submit these resolutions in a timely manner could lead to a required update of the plan prior to FEMA approval.

Once this final requirement has been met, a letter of official approval will be generated. The Local Hazard Mitigation Planning Tool, with the reviewer's comments has been enclosed to further assist the jurisdictions in complying with planning requirements.

Sincerely,

Ronald C. Wanhanen
Chief, Risk Analysis Branch

Enclosure

cc: Marty Chester, R6-MT-HM

Enclosure A

Attached is the list of participating local governments included in the February 7, 2022 review of the referenced Hazard Mitigation plan.

Community Name
1) Belen city
2) Bosque Farms village
3) Los Lunas village
4) Middle Rio Grande Conservancy District
5) Peralta town
6) Valencia County
7) Rio Communities

Adoption Submittal (Final)

Following the issuance this of Approvable Pending Adoption letter, all participants are provided one year to adopt the plan and submit it through the State to FEMA. For multi-jurisdictional plans, multiple adoptions should be submitted as a complete package as outlined below.

The State must submit the plan files via:

Floodmaps File eXchange (FFX): https://www.floodmaps.fema.gov/ffx/

Risk Management Directorate (RMD) SharePoint:

https://rmd.msc.fema.gov/Regions/VI/Mitigation%20Planning/Forms/AllItems.aspx

Note: You will be requested to register if you have not already done so.
All plans containing Protected Critical Infrastructure Information (PCII) must be submitted through the Floodmaps File Exchange (FFX) to ensure secure file submissions.

---

1. Final draft of the plan in MS Word or pdf format containing:
   a. The final plan formatted as a single document.
   b. Documentation demonstrating adoption by the participating jurisdictions seeking approval. (i.e. copies of signed resolutions, official meeting minutes, etc.…) Note: Adoption resolutions can be separate files. Additional adoptions are not required to provide a copy of the plan.
   c. Remove strikethroughs, highlights and all Track Changes must be accepted in the final plan.

2. Send an email addressed to r6-mtd-planning@fema.dhs.gov as notification that the electronic file has been submitted. Please DO NOT send plans to the email inbox as it has very strict size limitations which will lock the inbox and not allow additional emails to be received. The email must include the following information:

   a. Include the follow when applicable: (Note: A submittal letter is no longer required.)
      i. Subject line [Approval Review for Name of Plan, State]
      ii. FEMA funding source, grant or disaster number, and project number (when applicable)
      iii. list of adopting jurisdictions
      iv. Plan File name (file name must include date submitted)

3. Submittals which do not conform to the above requirements will be returned to the State for resubmission

Appendix D: Public Outreach Strategy

This appendix to the Valencia County Hazard Mitigation Plan contains a copy of the Public Outreach Strategy to guide the public outreach element of the mitigation planning process.

Public Outreach Strategy

Project Summary

The County of Valencia, in coordination with their participating municipal jurisdictions, are updating their hazard mitigation plan. The Valencia County Hazard Mitigation Plan will identify local policies and actions for reducing risk and future losses from natural hazards such as floods, severe storms, wildfires, and winter weather.

The plan will also serve to meet key federal planning regulations which require local governments to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance, including funding for hazard mitigation projects. These mitigation planning requirements stem from the Disaster Mitigation Act of 2000, which was passed by the U.S. Congress in October of 2000. This Act amended federal law to require that all states and local governments must have hazard mitigation plans in place in order to be eligible to apply for funding under such programs as the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation (PDM) program.

Public Outreach

A key element in the mitigation planning process is the discussion it promotes among community members about creating a safer, more disaster-resilient community. A plan that accurately reflects the community's values and priorities is likely to have greater legitimacy and "buy-in" and greater success in implementing mitigation actions and projects to reduce risk.[1] Therefore, the purpose of the Valencia County Hazard Mitigation Plan Public Outreach Strategy is to:

- Generate public interest;
- Solicit citizen input; and
- Engage additional partners in the planning process.

The following specific public outreach opportunities and methods have been identified for citizens and targeted stakeholders to participate at various points in the mitigation planning process, and are presented in more detail on the following pages:

1. In-person public meeting
2. Public information website (including social media integration)
3. Planning resources
4. Public participation survey

[1] FEMA, *Local Mitigation Planning Handbook*, March 2013.

OUTREACH METHOD 1
In-Person Public Meeting
AVAILABILITY
Public survey & at each jurisdiction council meeting for adoption.
BRIEF DESCRIPTION
Public meetings will be scheduled at key points in the project timeline following completion of the draft plan (and prior to the plan's local adoption). These meetings will be coordinated and arranged by Valencia County with facilitation support from AECOM.
DETAILS
For all public meetings: • The purpose will be to inform the public on the process and current status of the regional planning process, as well as gain input to the process during the drafting stage and prior to plan completion and approval • AECOM will prepare presentation and handout materials as needed to help facilitate two-way communication with public meeting attendees
LEAD AGENCY
Valencia County/AECOM

OUTREACH METHOD 2
Public Information Website (including Social Media Integration)
AVAILABILITY
October 2020
BRIEF DESCRIPTION
A project information website will be hosted by Valencia County and will be available to the general public and to members of the Hazard Mitigation Planning Committee for the duration of the project. The primary purpose of this site will be to share information relevant to the Valencia Hazard Mitigation Plan planning process.
DETAILS
Specific resources to be included on this site include: • Project information fact sheet • Drafts of Hazard Mitigation Plan sections • List of Local Jurisdiction Leads • List of project tasks and subtasks with schedule • PowerPoint files from Hazard Mitigation Planning Committee meetings • PDFs of existing county-level hazard mitigation plans for reference during the plan update process • Links to planning resources, including recently published FEMA hazard mitigation planning guidance • Social media integration including, but not limited to, Facebook, Twitter, Tumblr, and Pinterest
LEAD AGENCY
Valencia County /AECOM

OUTREACH METHOD 3
Planning Resources
AVAILABILITY
October 2020
BRIEF DESCRIPTION
Mitigation planning resources will be made available for Hazard Mitigation Planning Committee members and other interested parties in order to promote education and participation in the mitigation planning process.
DETAILS

Specific planning resources will include:
• FEMA mitigation planning guidance
  ○ *Local Mitigation Planning Handbook*
  ○ *Mitigation Ideas*
  ○ *Integrating Hazard Mitigation Into Local Planning*
• Other appropriate planning resources as identified throughout the duration of the planning process

LEAD AGENCY
Valencia County/AECOM

OUTREACH METHOD 5

Public Participation Survey

AVAILABILITY

October 2020-May 2021

BRIEF DESCRIPTION

An online public participation survey will be hosted by AECOM using the SurveyMonkey web hosting service and will be open to the public for the duration of the planning process. The primary purpose of this survey will be to solicit input from any interested parties in the planning area and will be used so that individuals throughout the planning area have the opportunity to provide valuable information and feedback to the project team. The online survey will give individuals that are unable to attend the in-person meetings the opportunity to participate in the plan update process. Information from the online survey will allow the project team to better understand the types of hazards that most concern the public and the mitigation actions that are of particular interest. The survey will be made accessible through hyperlinks posted on the project information website and can be circulated via email, Facebook, etc. Additionally, hard copies of the survey will be distributed at the in-person public meetings. The feedback received will be evaluated and incorporated into the Hazard Mitigation Planning Committee's decision making process and the final plan.

DETAILS

Types of specific questions to be asked as part of this survey may include:

- Personal history with natural hazards
- Natural hazard concerns
- Perception of vulnerable community assets
- Importance of community assets
- Priorities concerning natural hazard preparedness
- Steps local government can take to reduce natural hazard risk
- Types of mitigation activities deemed important
- Personal interest in natural hazard mitigation
- Effective ways to communicate with residents
- Location in the floodplain
- Questions regarding flood insurance
- Personal actions to mitigate property
- Mitigation activities planned for the respondent's household
- Location within the planning area
- Age (optional)*
- Gender (optional)
- Highest level of education (optional)
- Length of time living in the planning area
- Ownership of property versus rental status
- Type of dwelling
- Open comments**

** All information will be kept strictly confidential*

*** Information will be processed and summarized by AECOM in order to produce summary statistics and summary responses*

LEAD AGENCY

Valencia County/AECOM

Appendix E: Public Participation Survey

This appendix to the Valencia County Hazard Mitigation Plan contains a summary of the results obtained through the public participation survey offered from October 2020 to August 2021. The survey was conducted online through SurveyMonkey, an online survey software provider, and was also made available in print form at public meetings and at other locations throughout the planning area. These written responses were added to the online database and are reflected in the summary report provided in this appendix.

There was a total of 274 surveys completed by the public. Of those 274 surveys, here are some key facts:

- 56% of residents have experienced or been impacted by a disaster.
    - Severe Storms was the most common at 59% with Dam Failure as the least common at 7%.

- 56% of the residents stated they were very concerned about their community being impacted by Drought and 74% stated they were not concerned about Dam Failure.

- When asked which assets are most important, 87% said Fire, Police and EMS stations, and Hospitals and Medical Facilities.

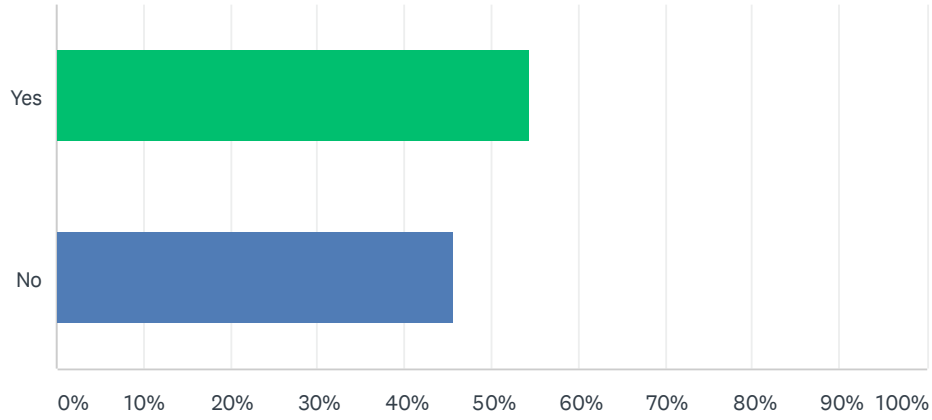
- 91% stated that protecting critical facilities (hospitals, police stations, fire stations, etc.) is most important for planning against natural hazards.

- 68% of the residents stated that the internet (social media) is the best way for them to receive information about natural hazards. 47-56% also stated internet (web pages), mobile messages/alerts, mail and newspaper were the best ways.

- 58% of the residents have lived in the Valencia County area for 20 years or more.

Q1 Have you ever experienced or been impacted by a natural disaster?

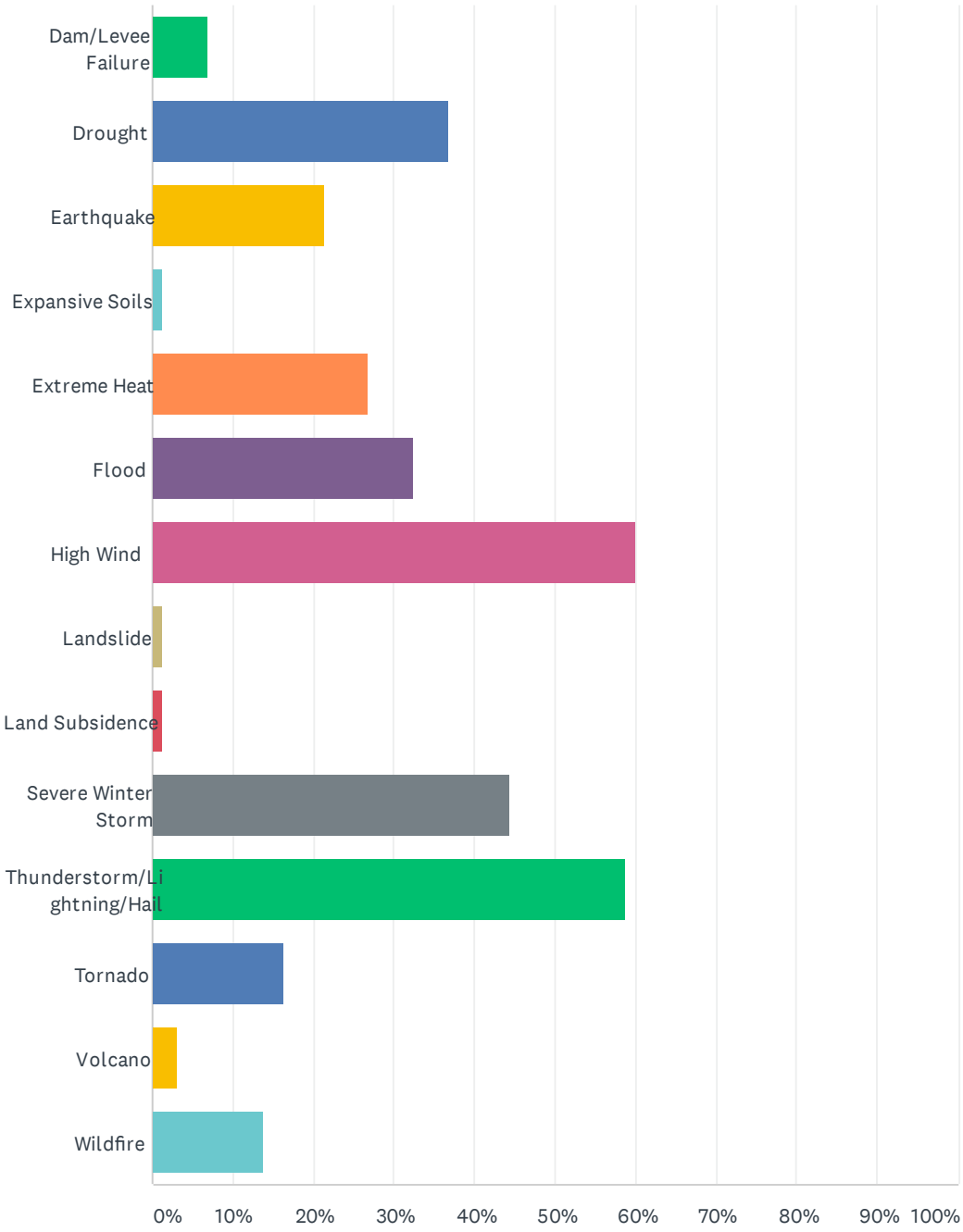
Answered: 261 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	54.41%	142
No	45.59%	119
TOTAL		261

Q2 If yes, Which of these natural hazards have you experienced or been impacted by? (Check all that apply.)

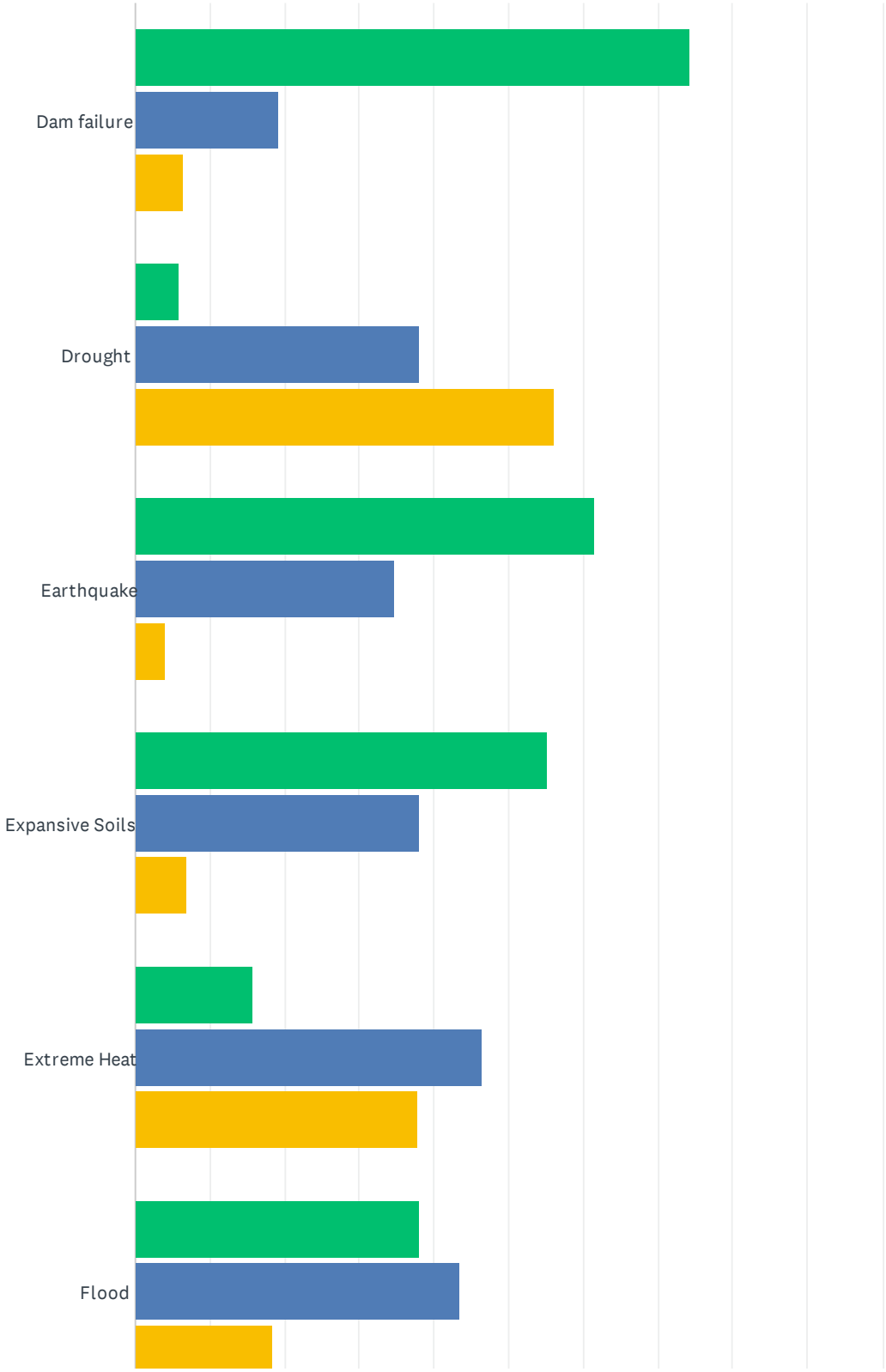
Answered: 160 Skipped: 102

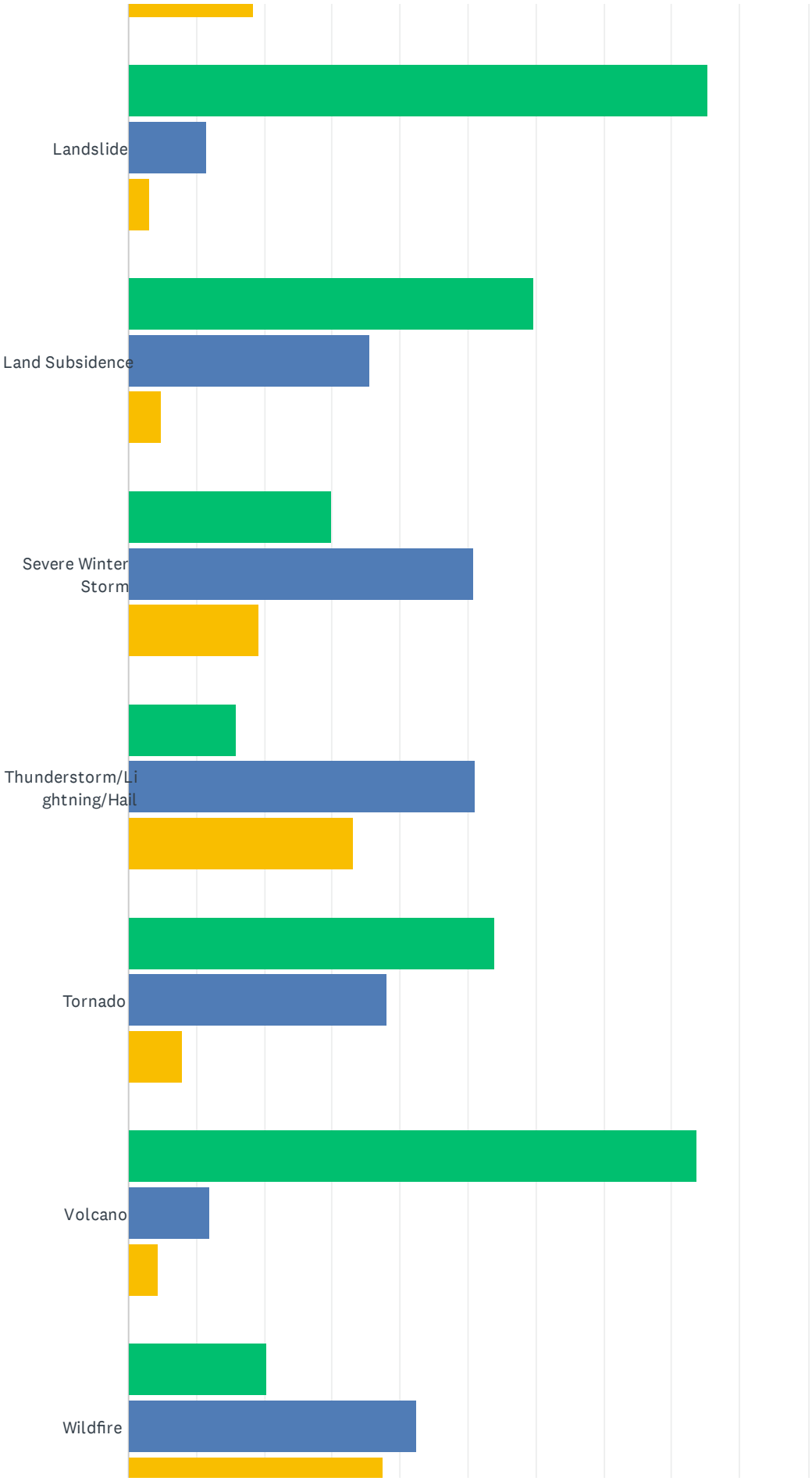


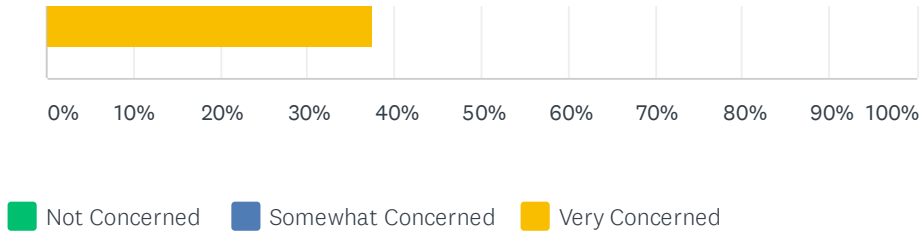
ANSWER CHOICES	RESPONSES	
Dam/Levee Failure	6.88%	11
Drought	36.88%	59
Earthquake	21.25%	34
Expansive Soils	1.25%	2
Extreme Heat	26.88%	43
Flood	32.50%	52
High Wind	60.00%	96
Landslide	1.25%	2
Land Subsidence	1.25%	2
Severe Winter Storm	44.38%	71
Thunderstorm/Lightning/Hail	58.75%	94
Tornado	16.25%	26
Volcano	3.13%	5
Wildfire	13.75%	22
Total Respondents: 160		

Q3 How concerned are you about the possibility of your community being impacted by each of these natural hazards? (Check the corresponding circle for each natural hazard.)

Answered: 260 Skipped: 2



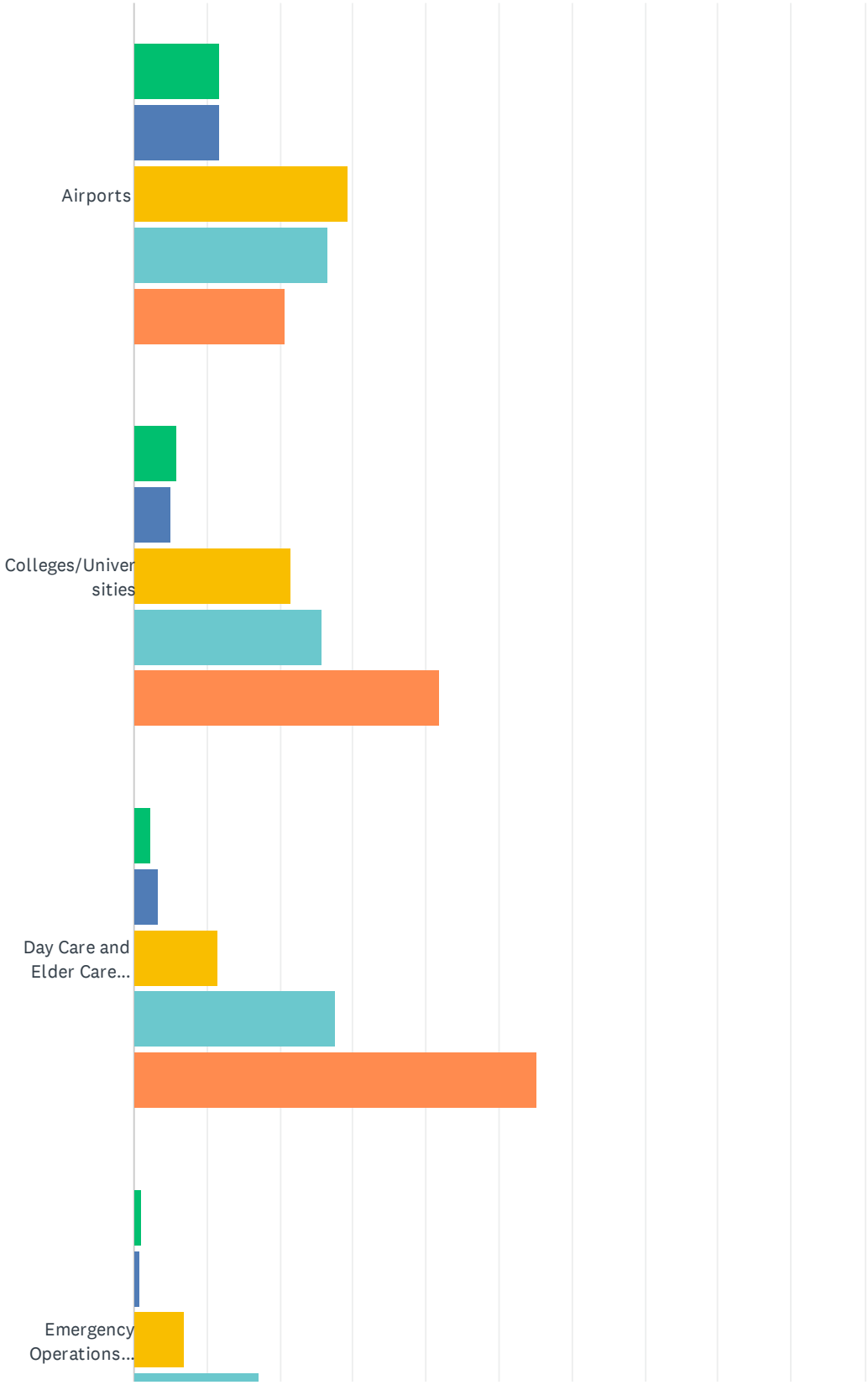

Landslide
Land Subsidence
Severe Winter Storm
Thunderstorm/Lightning/Hail
Tornado
Volcano
Wildfire

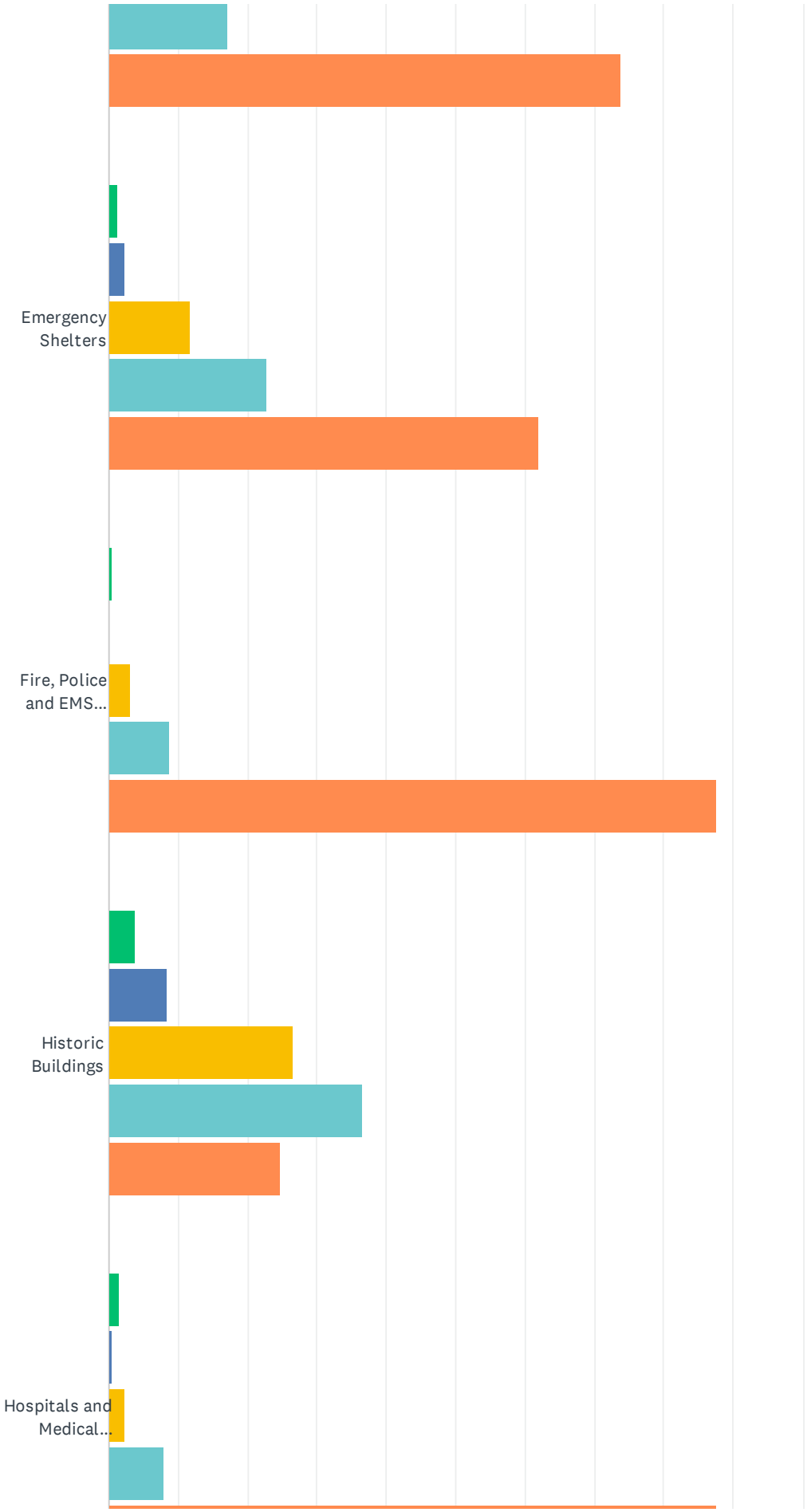


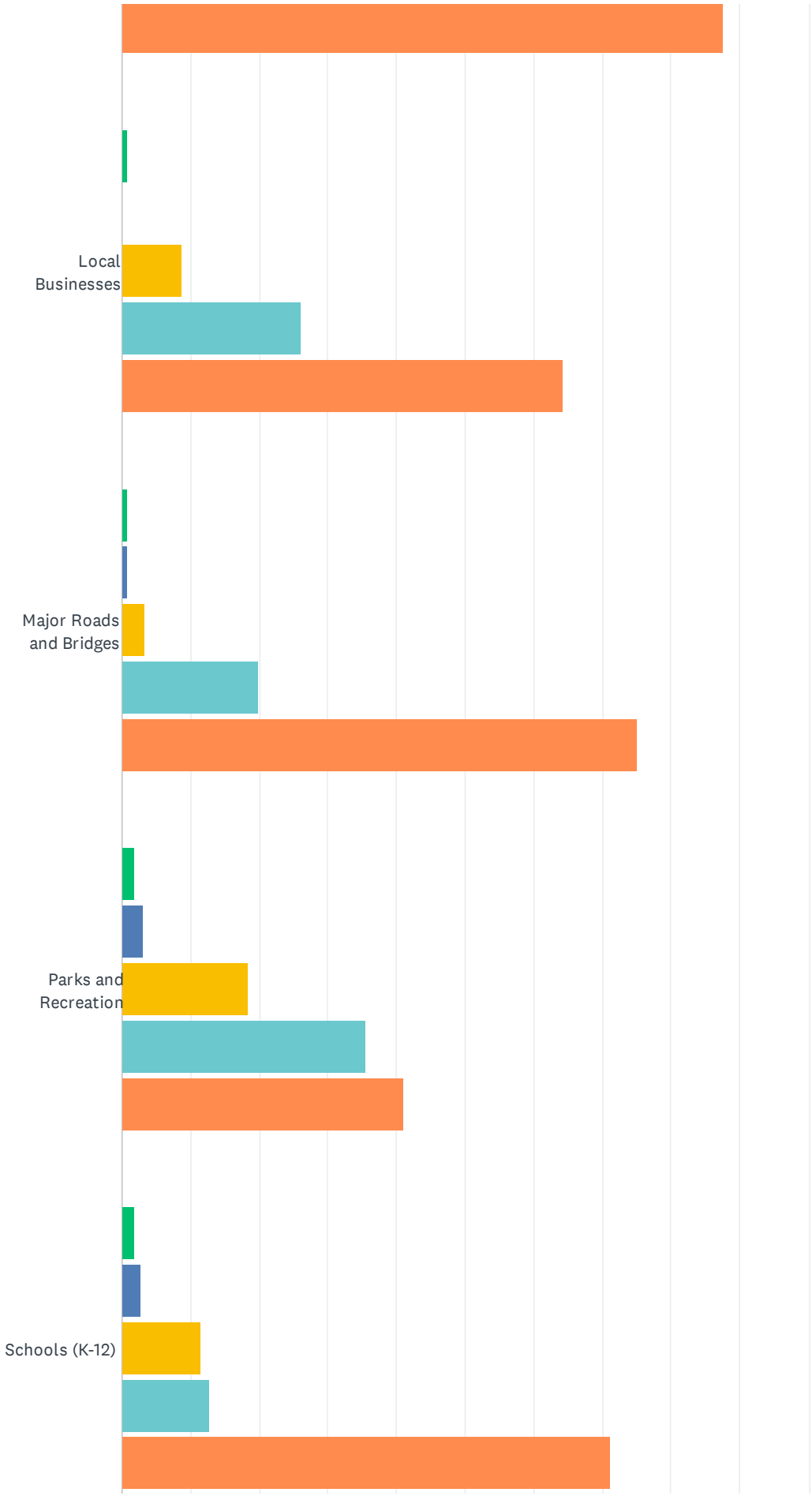
	NOT CONCERNED	SOMEWHAT CONCERNED	VERY CONCERNED	TOTAL	WEIGHTED AVERAGE
Dam failure	74.30% 185	19.28% 48	6.43% 16	249	1.32
Drought	5.77% 15	38.08% 99	56.15% 146	260	2.50
Earthquake	61.42% 156	34.65% 88	3.94% 10	254	1.43
Expansive Soils	55.20% 138	38.00% 95	6.80% 17	250	1.52
Extreme Heat	15.63% 40	46.48% 119	37.89% 97	256	2.22
Flood	38.04% 97	43.53% 111	18.43% 47	255	1.80
Landslide	85.43% 217	11.42% 29	3.15% 8	254	1.18
Land Subsidence	59.68% 148	35.48% 88	4.84% 12	248	1.45
Severe Winter Storm	29.92% 76	50.79% 129	19.29% 49	254	1.89
Thunderstorm/Lightning/Hail	15.95% 41	50.97% 131	33.07% 85	257	2.17
Tornado	53.97% 136	38.10% 96	7.94% 20	252	1.54
Volcano	83.73% 211	11.90% 30	4.37% 11	252	1.21
Wildfire	20.23% 52	42.41% 109	37.35% 96	257	2.17

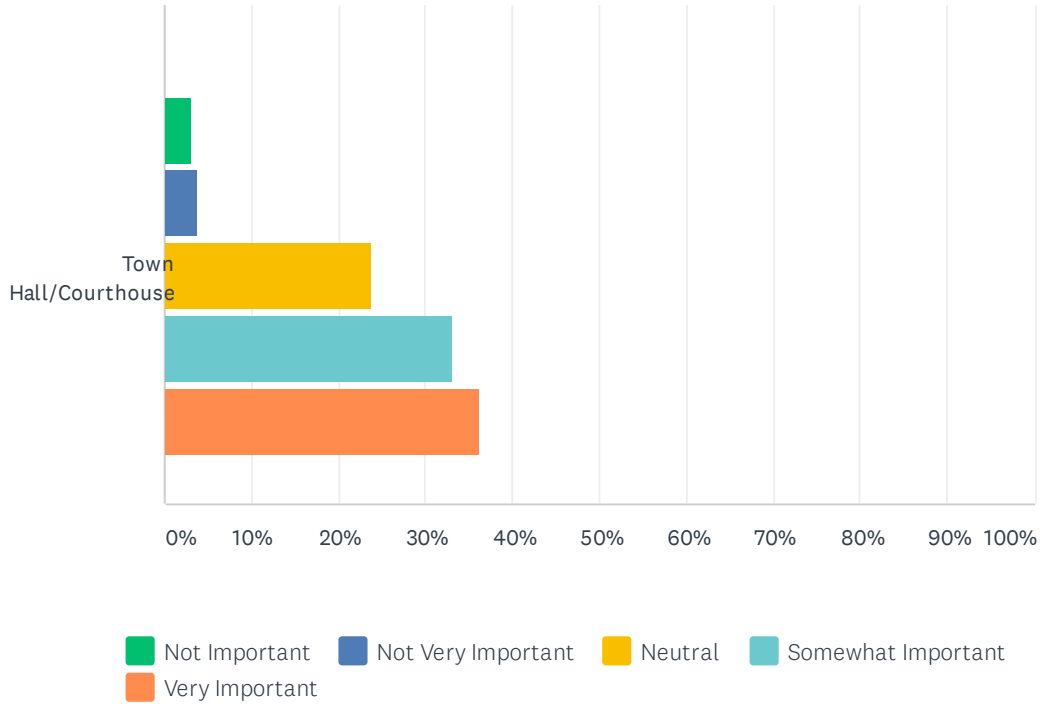
Q4 How important is each of the following specific community assets to you? (Check the appropriate circle for each asset.)

Answered: 261 Skipped: 1




Emergency Shelters
Fire, Police and EMS...
Historic Buildings
Hospitals and Medical...

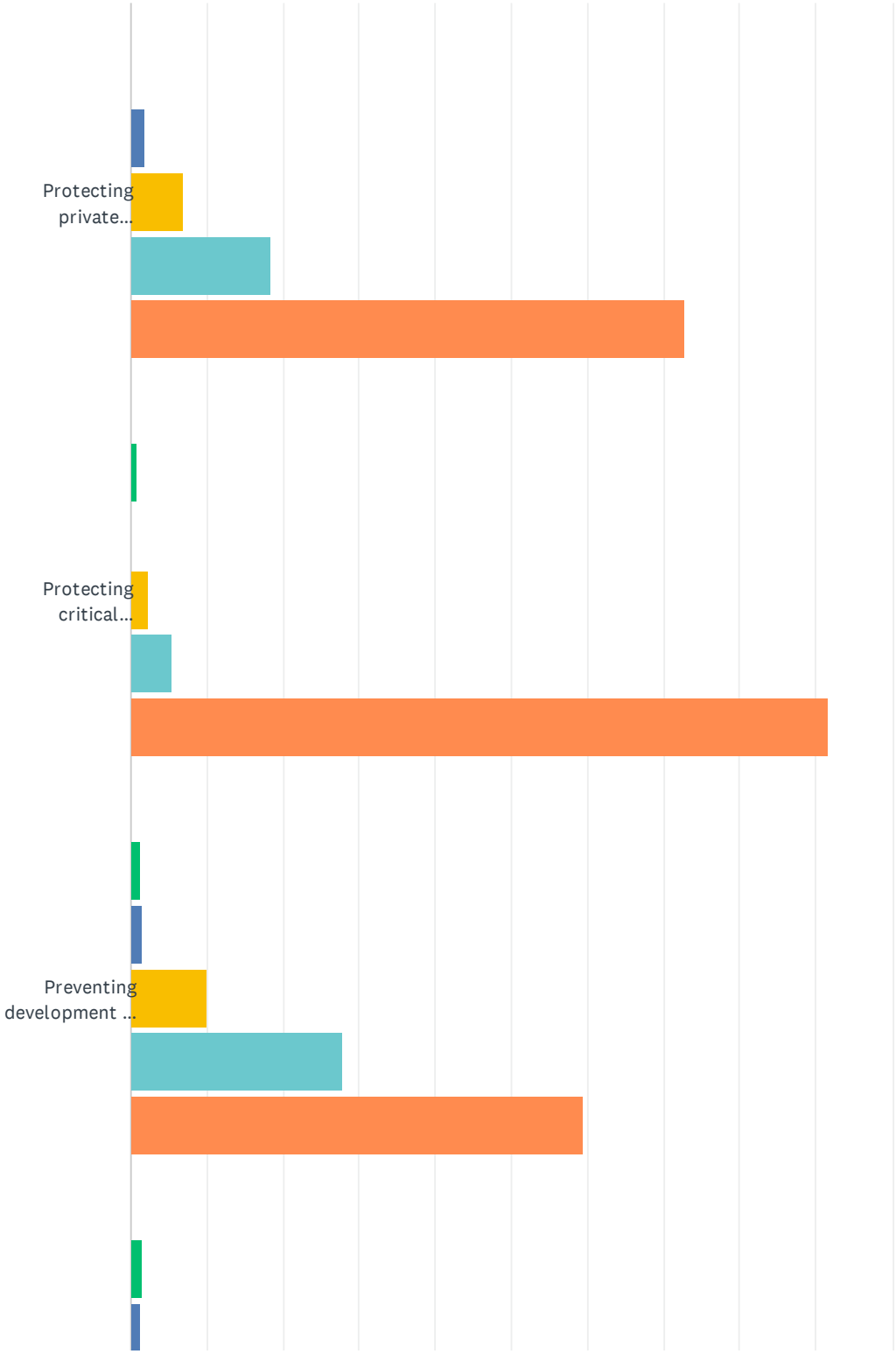

Local Businesses
Major Roads and Bridges
Parks and Recreation
Schools (K-12)

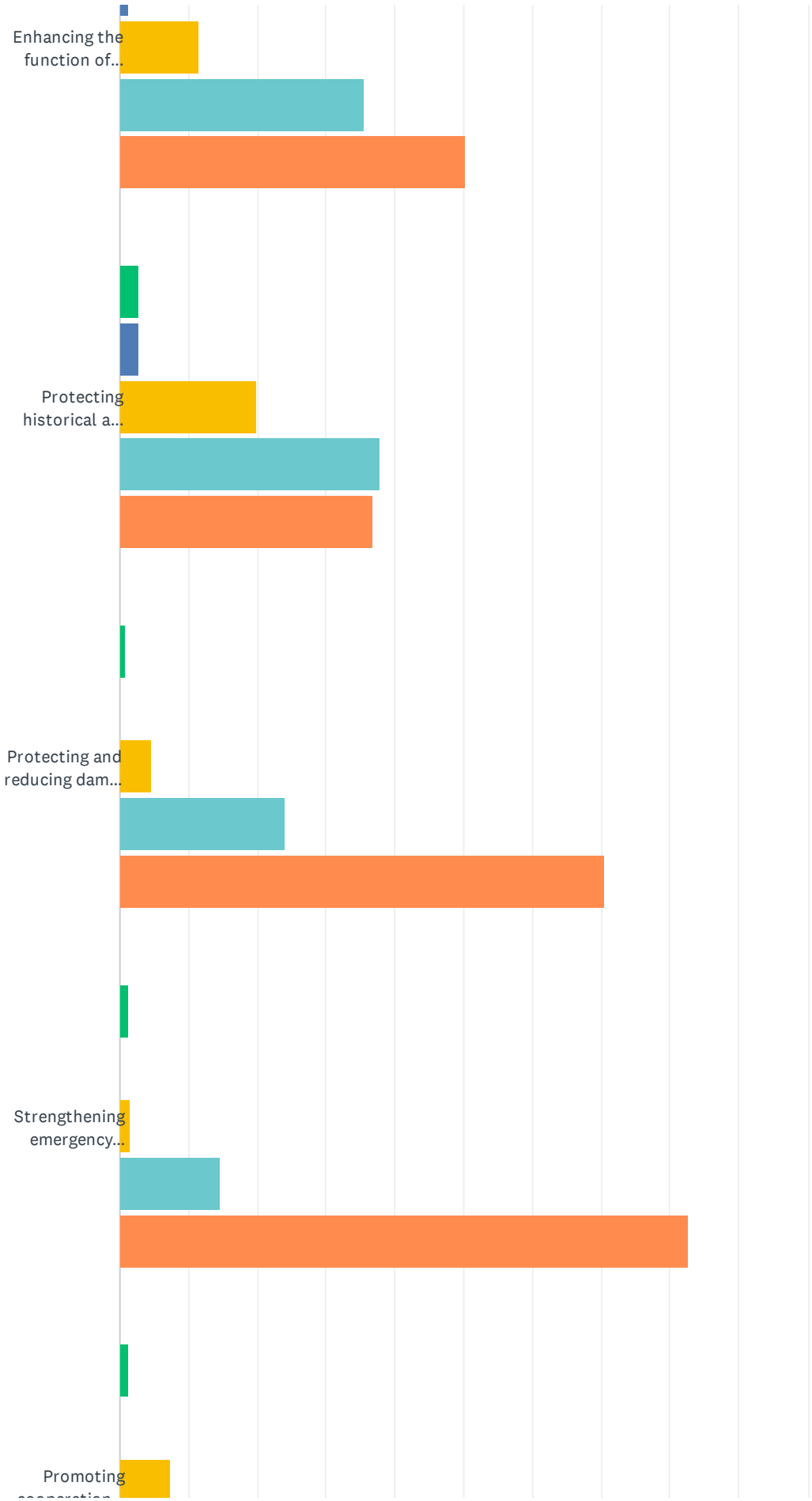


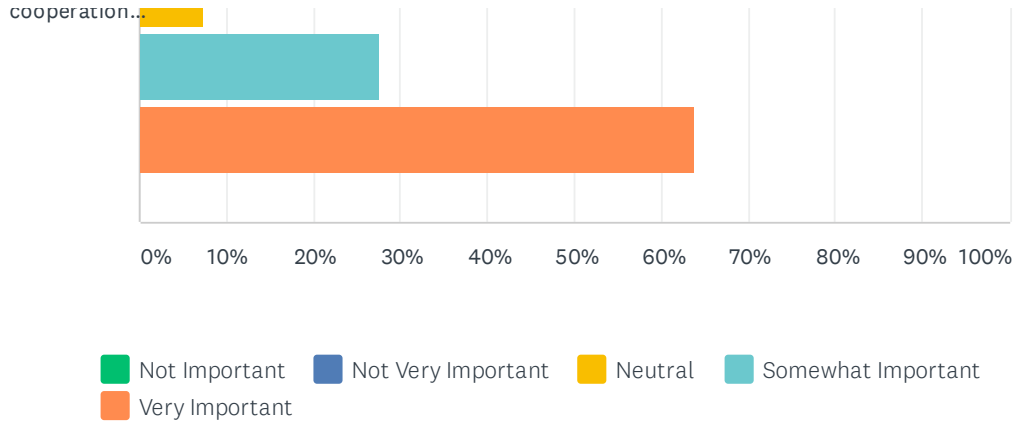
	NOT IMPORTANT	NOT VERY IMPORTANT	NEUTRAL	SOMEWHAT IMPORTANT	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Airports	11.72% 30	11.72% 30	29.30% 75	26.56% 68	20.70% 53	256	3.33
Colleges/Universities	5.77% 15	5.00% 13	21.54% 56	25.77% 67	41.92% 109	260	3.93
Day Care and Elder Care Facilities	2.30% 6	3.45% 9	11.49% 30	27.59% 72	55.17% 144	261	4.30
Emergency Operations Centers	1.15% 3	0.77% 2	6.90% 18	17.24% 45	73.95% 193	261	4.62
Emergency Shelters	1.16% 3	2.33% 6	11.63% 30	22.87% 59	62.02% 160	258	4.42
Fire, Police and EMS Stations	0.39% 1	0.00% 0	3.09% 8	8.88% 23	87.64% 227	259	4.83
Historic Buildings	3.85% 10	8.46% 22	26.54% 69	36.54% 95	24.62% 64	260	3.70
Hospitals and Medical Facilities	1.53% 4	0.38% 1	2.30% 6	8.05% 21	87.74% 229	261	4.80
Local Businesses	0.77% 2	0.00% 0	8.85% 23	26.15% 68	64.23% 167	260	4.53
Major Roads and Bridges	0.77% 2	0.77% 2	3.45% 9	19.92% 52	75.10% 196	261	4.68
Parks and Recreation	1.92% 5	3.07% 8	18.39% 48	35.63% 93	41.00% 107	261	4.11
Schools (K-12)	1.93% 5	2.70% 7	11.58% 30	12.74% 33	71.04% 184	259	4.48
Town Hall/Courthouse	3.08% 8	3.85% 10	23.85% 62	33.08% 86	36.15% 94	260	3.95

Q5 Natural hazards can have a significant impact on a community, but planning for these types of events can help lessen the impacts. Please tell us how important each statement is to you by checking the appropriate circle for each.

Answered: 261 Skipped: 1



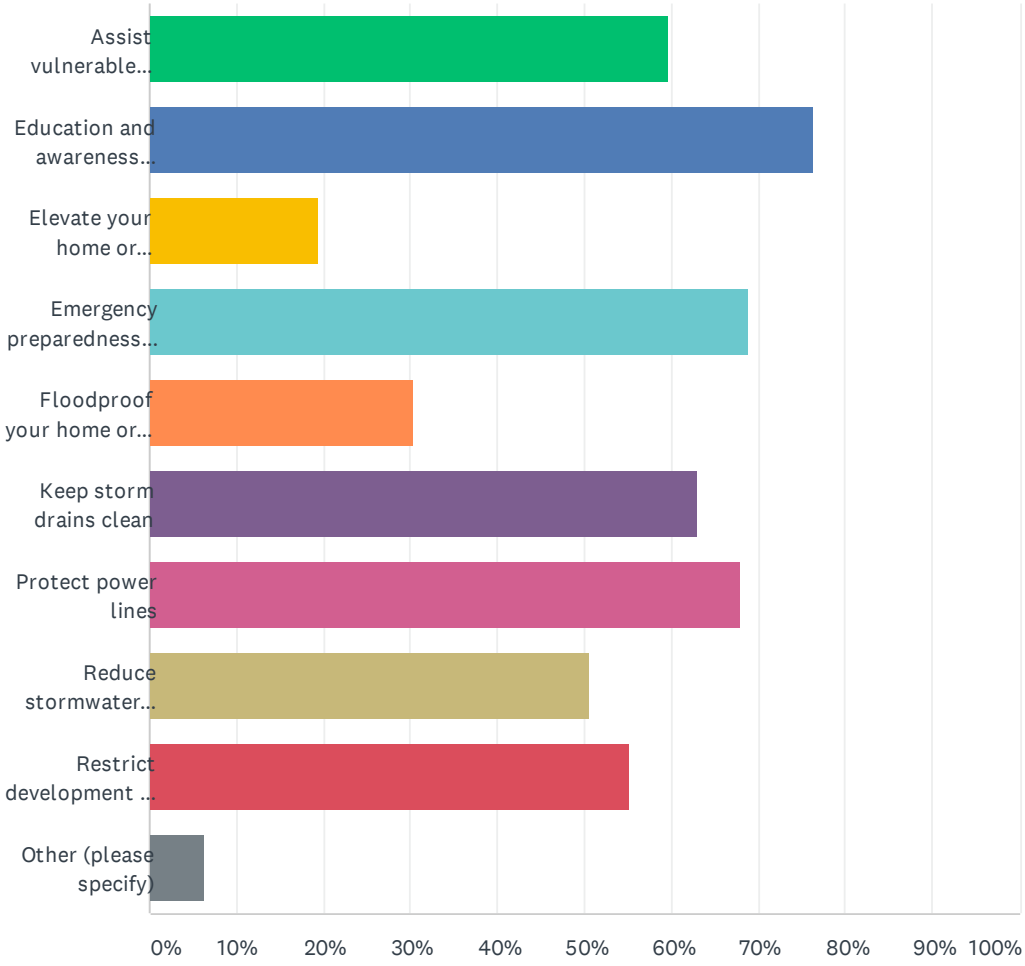

Enhancing the function of...
Protecting historical a...
Protecting and reducing dam...
Strengthening emergency...
Promoting



	NOT IMPORTANT	NOT VERY IMPORTANT	NEUTRAL	SOMEWHAT IMPORTANT	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Protecting private property	0.00% 0	1.92% 5	6.90% 18	18.39% 48	72.80% 190	261	4.62
Protecting critical facilities (for example, hospitals, police stations, fire stations, etc.)	0.77% 2	0.00% 0	2.30% 6	5.36% 14	91.57% 239	261	4.87
Preventing development in hazard areas	1.16% 3	1.54% 4	10.04% 26	27.80% 72	59.46% 154	259	4.43
Enhancing the function of natural features (for example, streams, wetlands, etc.)	1.54% 4	1.16% 3	11.58% 30	35.52% 92	50.19% 130	259	4.32
Protecting historical and cultural landmarks	2.68% 7	2.68% 7	19.92% 52	37.93% 99	36.78% 96	261	4.03
Protecting and reducing damage to utilities	0.77% 2	0.00% 0	4.60% 12	24.14% 63	70.50% 184	261	4.64
Strengthening emergency services (for example, police, fire, ambulance)	1.15% 3	0.00% 0	1.54% 4	14.62% 38	82.69% 215	260	4.78
Promoting cooperation among public agencies, citizens, non-profit organizations, and businesses	1.15% 3	0.00% 0	7.31% 19	27.69% 72	63.85% 166	260	4.53

Q6 What are some steps that you and/or your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?

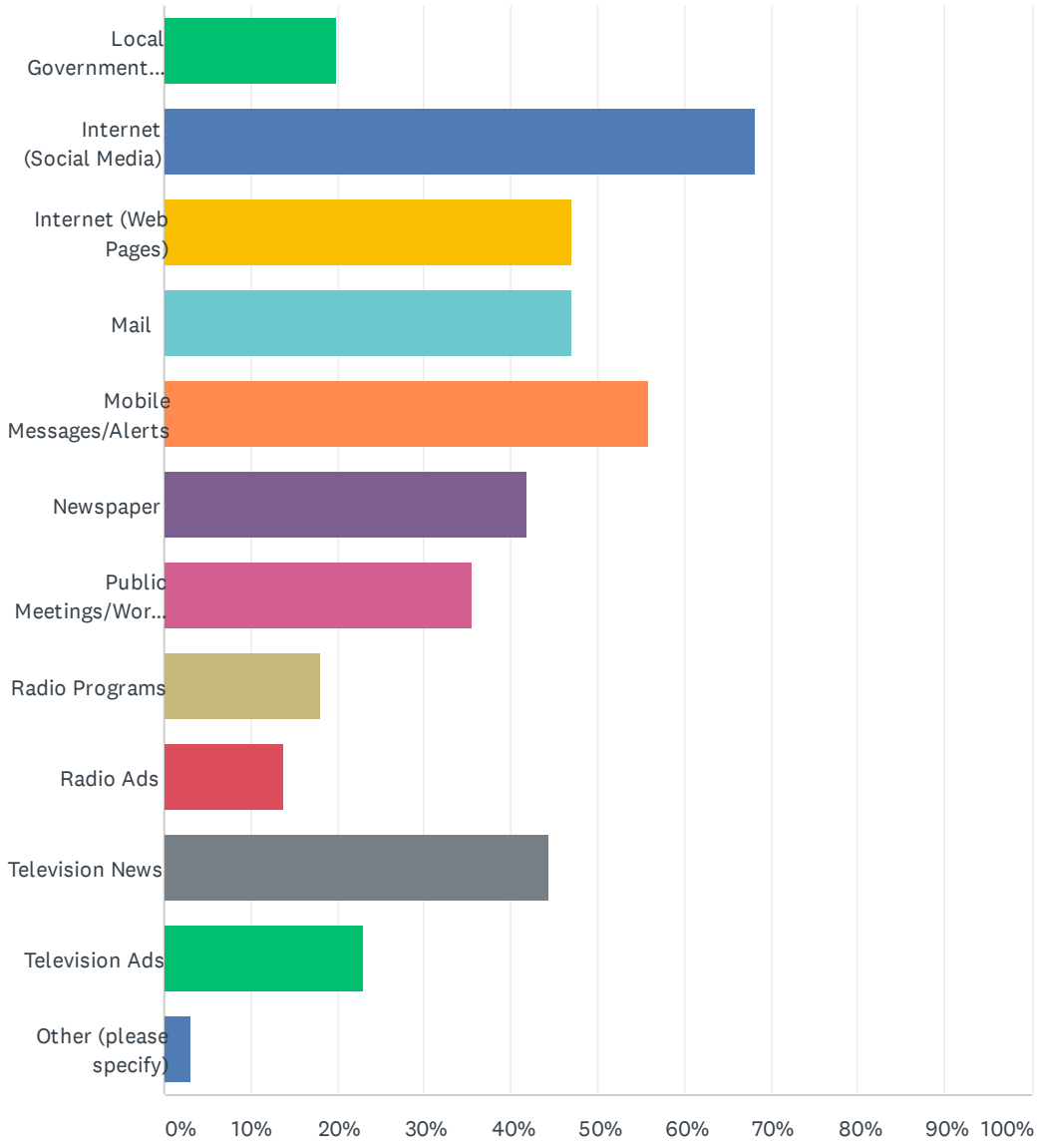
Answered: 257 Skipped: 5



ANSWER CHOICES	RESPONSES	
Assist vulnerable populations	59.53%	153
Education and awareness activities	76.26%	196
Elevate your home or business	19.46%	50
Emergency preparedness kits	68.87%	177
Floodproof your home or business	30.35%	78
Keep storm drains clean	63.04%	162
Protect power lines	68.09%	175
Reduce stormwater runoff	50.58%	130
Restrict development in floodplain areas	55.25%	142
Other (please specify)	6.23%	16
Total Respondents: 257		

Q7 What are the most effective ways for you to receive information about how to make your home and neighborhood more resistant to natural hazards?

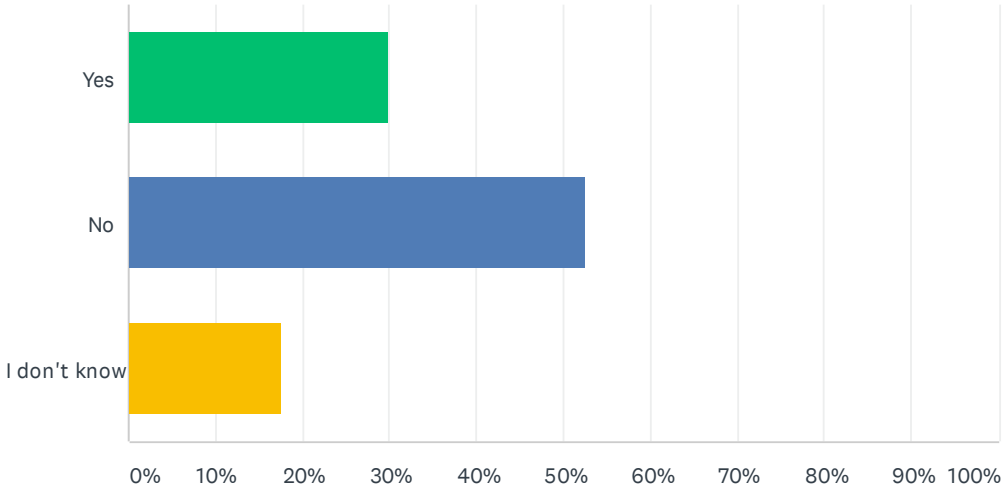
Answered: 261 Skipped: 1



ANSWER CHOICES	RESPONSES	
Local Government Channel	19.92%	52
Internet (Social Media)	68.20%	178
Internet (Web Pages)	47.13%	123
Mail	47.13%	123
Mobile Messages/Alerts	55.94%	146
Newspaper	41.76%	109
Public Meetings/Workshops	35.63%	93
Radio Programs	18.01%	47
Radio Ads	13.79%	36
Television News	44.44%	116
Television Ads	22.99%	60
Other (please specify)	3.07%	8
Total Respondents: 261		

Q8 Is your home located in a floodplain?

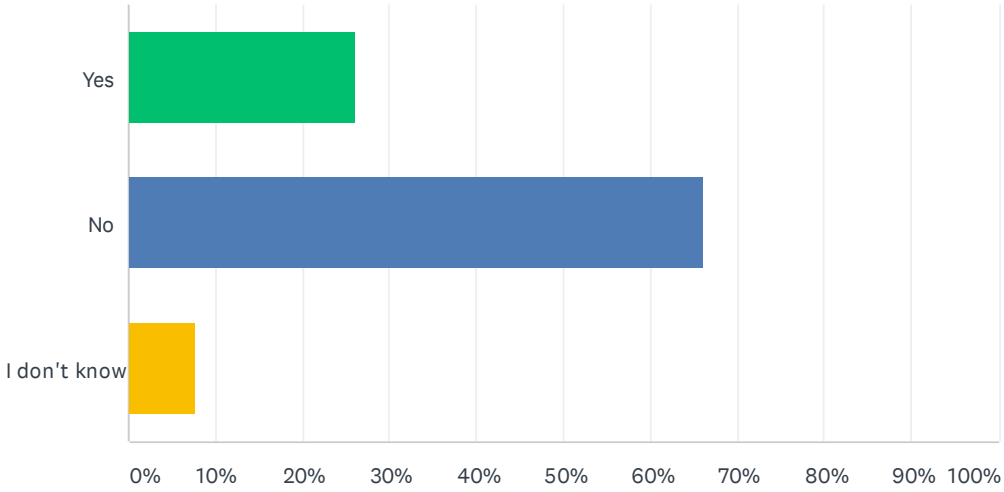
Answered: 261 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	29.89%	78
No	52.49%	137
I don't know	17.62%	46
TOTAL		261

Q9 Do you have flood insurance?

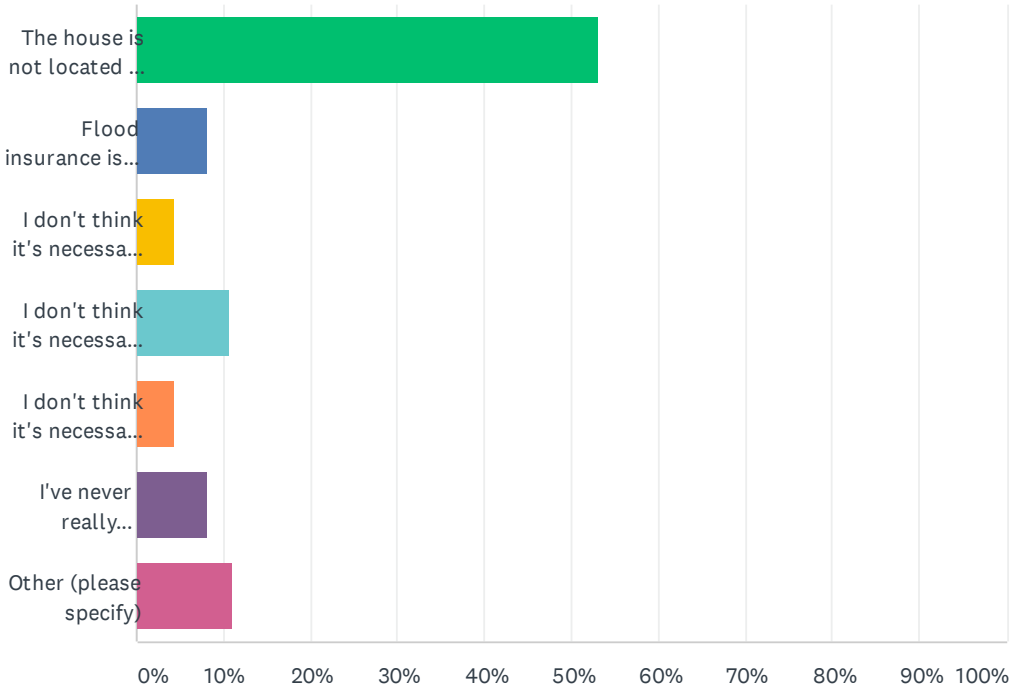
Answered: 259 Skipped: 3



ANSWER CHOICES	RESPONSES	
Yes	26.25%	68
No	66.02%	171
I don't know	7.72%	20
TOTAL		259

Q10 If “No,” why not?

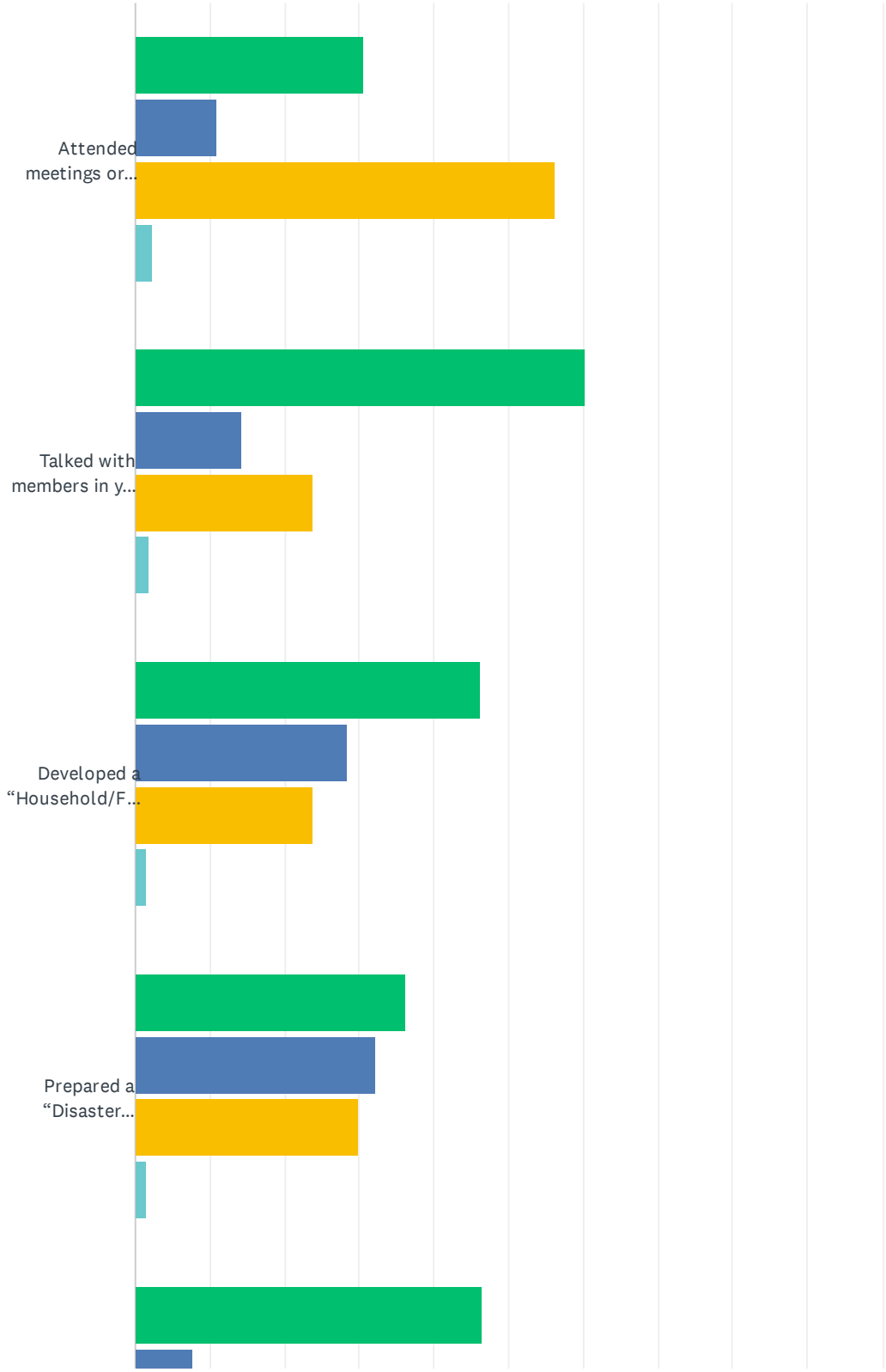
Answered: 207 Skipped: 55

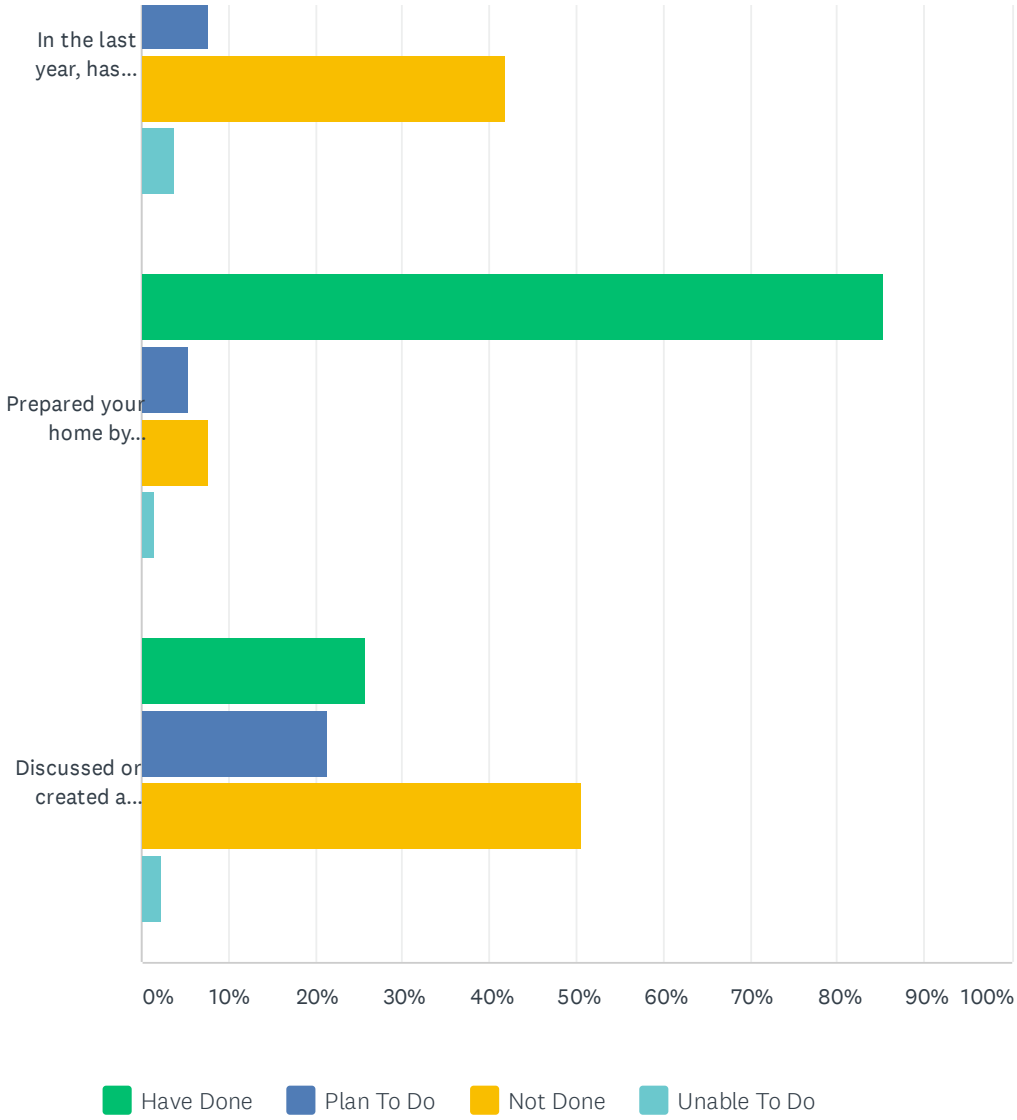


ANSWER CHOICES	RESPONSES	
The house is not located in a floodplain	53.14%	110
Flood insurance is too expensive	8.21%	17
I don't think it's necessary because it never floods	4.35%	9
I don't think it's necessary because I’m elevated or otherwise protected	10.63%	22
I don't think it's necessary because I have homeowners insurance	4.35%	9
I've never really considered it	8.21%	17
Other (please specify)	11.11%	23
TOTAL		207

Q11 In the following list, please check the activities that you have done in your household, plan to do in the near future, have not done, or are unable to do. (Please check one response for each preparedness activity.)

Answered: 261 Skipped: 1

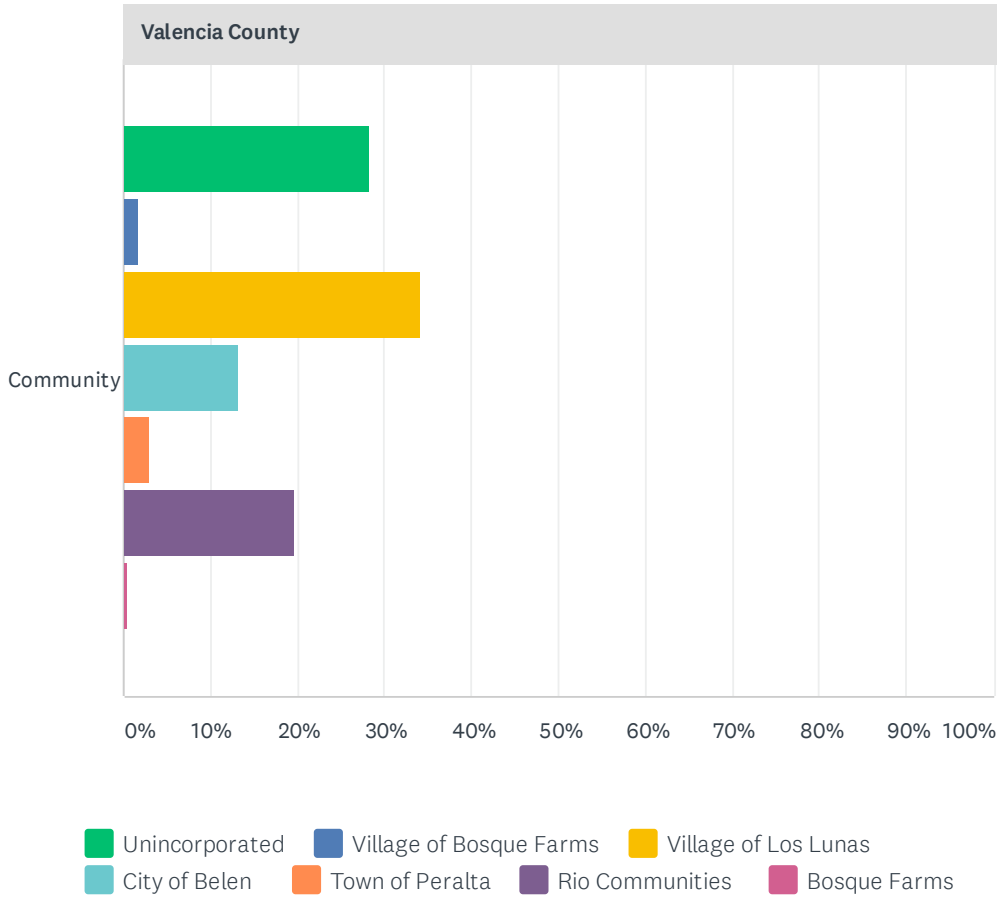




	HAVE DONE	PLAN TO DO	NOT DONE	UNABLE TO DO	TOTAL
Attended meetings or received written information on natural disasters or emergency preparedness?	30.50% 79	10.81% 28	56.37% 146	2.32% 6	259
Talked with members in your household about what to do in case of a natural disaster or emergency?	60.15% 157	14.18% 37	23.75% 62	1.92% 5	261
Developed a “Household/Family Emergency Plan” in order to decide what everyone would do in the event of a disaster?	46.15% 120	28.46% 74	23.85% 62	1.54% 4	260
Prepared a “Disaster Supply Kit” (stored extra food, water, batteries or other emergency supplies)?	36.15% 94	32.31% 84	30.00% 78	1.54% 4	260
In the last year, has anyone in your household been trained in First Aid or Cardio-Pulmonary Resuscitation (CPR)?	46.54% 121	7.69% 20	41.92% 109	3.85% 10	260
Prepared your home by installing smoke detectors on each level of the house?	85.44% 223	5.36% 14	7.66% 20	1.53% 4	261
Discussed or created a utility shutoff procedure in the event of a natural disaster?	25.68% 66	21.40% 55	50.58% 130	2.33% 6	257

Q12 In which community do you live?

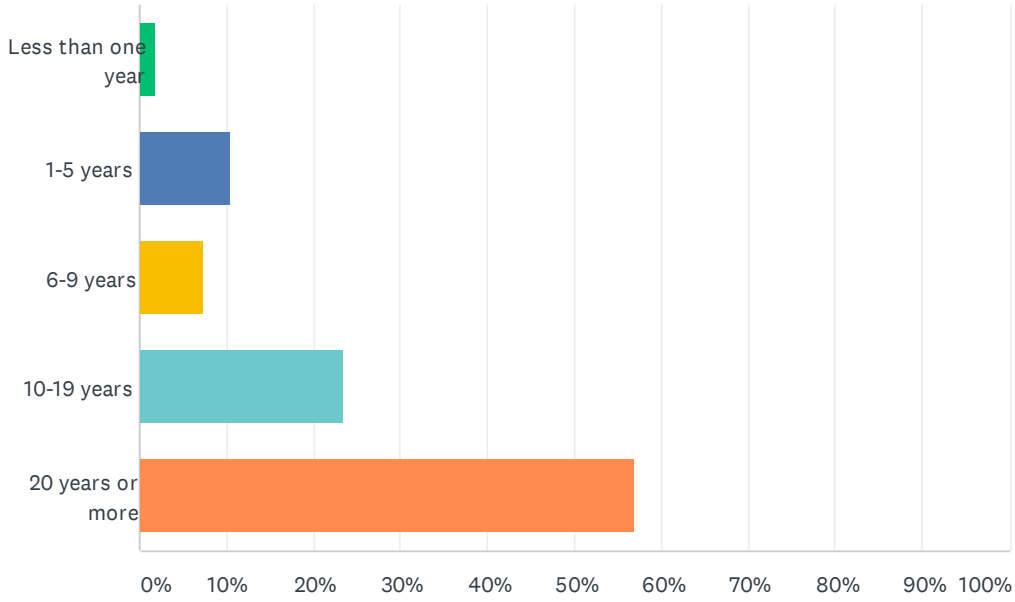
Answered: 244 Skipped: 18



Valencia County								
	UNINCORPORATED	VILLAGE OF BOSQUE FARMS	VILLAGE OF LOS LUNAS	CITY OF BELEN	TOWN OF PERALTA	RIO COMMUNITIES	BOSQUE FARMS	TOTAL
Community	28.28% 69	1.64% 4	34.02% 83	13.11% 32	2.87% 7	19.67% 48	0.41% 1	 244

Q13 How long have you lived in the Valencia County area?

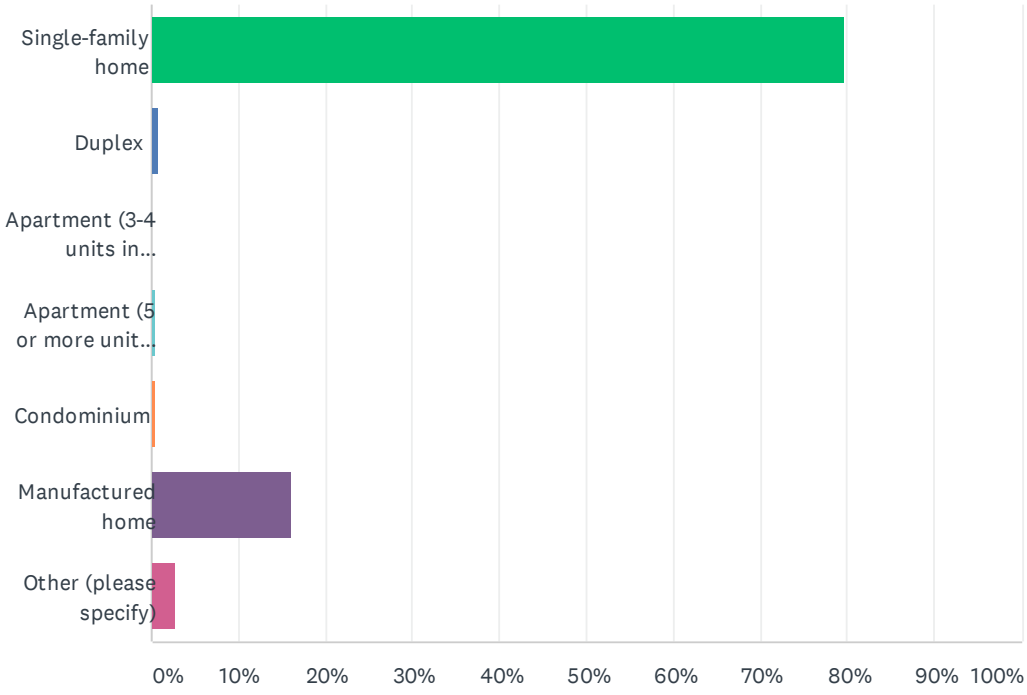
Answered: 260 Skipped: 2



ANSWER CHOICES	RESPONSES	
Less than one year	1.92%	5
1-5 years	10.38%	27
6-9 years	7.31%	19
10-19 years	23.46%	61
20 years or more	56.92%	148
TOTAL		260

Q14 What type of building do you live in?

Answered: 260 Skipped: 2



ANSWER CHOICES	RESPONSES	
Single-family home	79.62%	207
Duplex	0.77%	2
Apartment (3-4 units in structure)	0.00%	0
Apartment (5 or more units in structure)	0.38%	1
Condominium	0.38%	1
Manufactured home	16.15%	42
Other (please specify)	2.69%	7
TOTAL		260

Q15 Additional Comments

Answered: 44 Skipped: 218

Appendix F: Meeting Files

This appendix to the Valencia County Hazard Mitigation Plan contains a copy of the meeting materials used during the development of the plan.

Valencia County Hazard Mitigation Plan

Project Kickoff Meeting

October 13, 2020
9:00 a.m. – 11:00 a.m.
Virtual Meeting (Google Meet)

AGENDA

1. Welcome and Introductions

2. Project Overview
    - Purpose, scope and schedule
    - Roles and responsibilities

3. Plan Update Process
    - Planning team organization, including official adoption
    - Leveraging existing resources
    - Communication, including websites, social media, etc.

4. Review and Discussion of Existing Plan

5. Capability Assessment Surveys

6. Public Participation Survey
    - Public outreach and stakeholder engagement strategy
    - Discussion of questions to ask the public

7. Mitigation Goals
    - Review existing mitigation goals

8. "Mayor for a Day"
    - Hazard identification and assessment exercise
    - Includes discussion of existing and new hazards

9. Break

10. Exercise Results and Discussion

11. Mitigation Action Plans
    - Creation of new actions
    - Update of existing actions

12. Maintaining Momentum and Implementing the Plan
    - Keeping the public and stakeholders involved
    - Plan Maintenance Procedures

13. Reviewing the Final Draft
    - Status on plan sections
    - Review/comment process
    - Suggested areas of focus

14. Questions and Open Discussion
    - Potential opportunities for this plan update
    - Potential obstacles or barriers
    - Other local issues, concerns or ideas

15. Next Steps
    - Jurisdictions will review and begin updating 2015 Mitigation Action Plans (MAPs)
    - Discuss time/date/location for Draft Hazard Mitigation Plan Meeting

Hazard Mitigation Kick-Off Meeting October 13th 2020

40 guests

25 yes, 3 no, 2 maybe, 10 awaiting

Sarah Gillen

Organizer

Adren Nance *

Angie Womack

brian.culp@co.valencia.nm.us *

Watson, Catherine, DHSEM *

charles.eaton@belen-nm.gov *

Gayle Jones *

code.enforcer@riocommunities.net *

Danny Monette

Turk, Dave *

Nemeth, Eric *

Gabriel Luna

Moralez, Ginger, DHSEM *

Jason Gonzales *

greeves@riocommunities.net *

Jess Weston

John Gabaldon *

ktaylor@townofperalta.org *

Lina Benavidez

Naithan Gurule *

Peggy Gutjahr *

Gerlitz, Sara M, DHSEM *

Scott Overpeck - NOAA Federal *

Shawn Penman *

Steven Robbins *

Lisa Hecker *

Martin, Gregory *

timothy.zapata@fema.dhs.gov *

Kerry Jones *

Hatch, Loretta, DHSEM *

Lisa Adair - Administration Of Rio Communities *

Adren Nance *

Asst Chief Tabet *

Bret Ruff *

Dave Pato *

David Gentry *

John Dear *

Orlando Montoya

Steven Gonzales *

vtorress@loslunasnm.gov *

Valencia County Multi-jurisdictional Hazard Mitigation Plan Update Kickoff Meeting

Eric Nemeth – Project Manager

David Turk – Project Director

Brent Edwards – Lead Planner

October 13, 2020

Agenda

- Project Overview
- Capability Assessments
- Public Participation Survey
- Mitigation Goals
- Hazard Exercise
- Mitigation Actions
- Review of Final Draft
- Adoption Process
- Next Steps
- Open Discussion

AECOM

What is Hazard Mitigation Planning?

- What are you at risk for and how can we fix it?
- Ticket to funding
- Long Term!!

Vision and Purpose

– Comprehensive hazard mitigation planning prepares a community to:

  – Protect lives and property
  – Avoid damages and save dollars
  – Reduce or eliminate future damages by guiding new development
  – Speed post-disaster recovery
  – Avoid interruptions caused by hazards

AECOM

Mitigation Planning Cycle

AECOM

Where are we in Process?

- Initiated Kickoff Meeting
- Identified Planning Team
- Create initial DRAFT plan

➢ Review Goals

➢ Review Hazards

➢ Discuss Actions

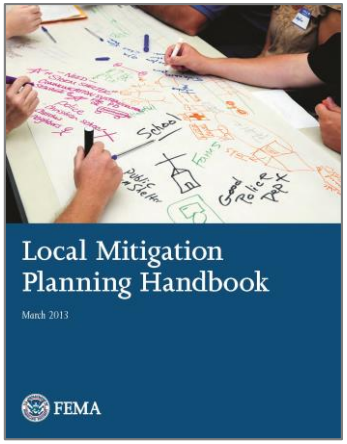
➢ Discuss Capabilities

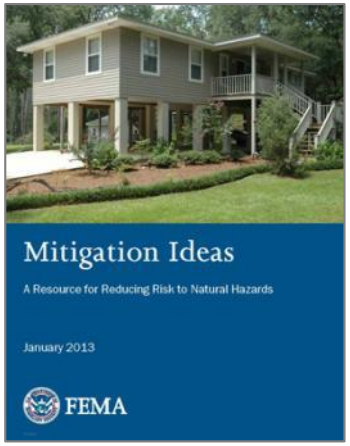
❖ Provide Specific Comments

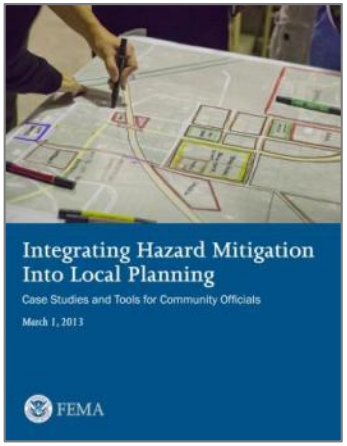
AECOM

Planning Resources

- FEMA planning guidance
  - *Local Mitigation Planning Handbook*
  - *Mitigation Ideas*
  - *Integrating Hazard Mitigation Into Local Planning*







- Links to other online planning resources

AECOM

Review of Existing Plan

Review and Discussion of Existing Plans

- Valencia County Hazard Mitigation Plan 2015
  - Areas for improvement?
  - Additional information?
  - Format changes?

AECOM

Capability Assessment

Capability Assessment Survey

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education and outreach capability
- Political capability
- Self assessment

Local Capability Assessment Survey Methodology

- Point system for capability ranking
  - 0-29 points = Limited overall capability
  - 30-59 points = Moderate overall capability
  - 60-100 points = High overall capability

AECOM

Public Outreach Strategy

Public Outreach Strategy

- Goals
  - Generate public interest
  - Solicit citizen input
  - Engage additional partners in the planning process
- Identification of specific opportunities for participation
  - In-person/virtual meetings
  - Web-based survey(s)
  - Social media (Facebook, Twitter, RSS, etc.)
- Products/resources
  - Project information fact sheet

AECOM

Mitigation Strategy

Mitigation Strategy

- Strategies
- Goals
- Objectives
- Actions

Goals

1. Make the county and its municipalities safer from natural hazards
2. Reduce the damage to cultural sites and natural resources from natural hazards
3. Reduce property damages caused by natural hazards
4. Make the county and its municipalities more resilient by shortening the recovery time after a natural hazard event
5. Increase the county and its municipalities' capability to mitigate natural hazards
6. Enhance the collaborative process with federal, state and local agencies to mitigate natural hazards in the planning area
7. Increase awareness and understanding of risks and opportunities for mitigation among residents

Hazards Addressed

- Dam Failure
- Drought
- Earthquake
- Expansive Soils
- Extreme Heat
- Flood
- High Wind
- Land Subsidence
- Landslide
- Sever Storms
- Tornado
- Volcano
- Wildfire
- Winter Weather

Hazard Identification Exercise

AECOM

Hazard Identification Exercise Results

AECOM

Mitigation Action Plans

Actions

- Discuss Actions
  - What is the best process of completion?
  - What is each action's priority? (High/Medium/Low)
  - What is action's funding source?
  - What is action's timeframe?
  - What is needed to complete the action? (funding/resources)

Grants

Hazard Mitigation Grant Program (HMGP)

Assists in implementing long-term hazard mitigation planning and projects following a Presidential major disaster declaration.

HMGP Post Fire Grant

Assistance available to help communities implement hazard mitigation measures after wildfire disasters.

Flood Mitigation Assistance (FMA) Program

Provides funds for planning and projects to reduce or eliminate risk of flood damage to buildings that are insured annually under the National Flood Insurance Program.

Building Resilient Infrastructure & Communities (BRIC)

Support for states, local communities, tribes and territories as they undertake hazard mitigation projects, reducing the risks they face from disasters and natural hazards.

Pre-Disaster Mitigation (PDM) Program

Provides funds annually for hazard mitigation planning and projects.

Plan Maintenance Procedures

Plan Maintenance Questions

- What will be the schedule for any ongoing meetings of the HMPC, prior to the next 5-year plan update?
  - Annual meetings, bi-annual meetings, "as-needed" meetings, etc.
- To what extent will you seek to integrate the regional plan with other local plans, policies and programs?
  - Comprehensive plans, land use plans, emergency operations plans, etc.
- What other implementation strategies can you use?

AECOM

Draft Review

Draft Review

- Identify any incorrect data or statements
- Addition of missing information and incorporation of new data
- Options for comments
  - Track changes
  - Word documents list
  - Email list

Adoption Process

Adoption

- All jurisdictions must adopt
  - If your jurisdiction is listed in the plan as a participating jurisdiction then you must adopt as well as the County
- One year after the first adoption is approved

Next Steps

- AECOM to receive information discussed to review & incorporate
- Create draft plan
- Discussion on next meeting and public meeting

Questions?

Thank You!

eric.nemeth@aecom.com

dave.turk@aecom.com

brent.edwards@aecom.com

AECOM

Meeting Minutes

Project Name:	***Valencia County Hazard Mitigation Plan Update***		
Meeting:	***Kickoff Meeting***		
Date:	October 13, 2020	Time:	9:00 AM MDT
Place:	Google Meet Virtual Platform		

Attendees: See attached Sign-In roster.
Materials: Agenda and Presentation Slides

Welcome and Introductions

- E. Nemeth (AECOM Project Manager) introduced himself and indicated the purpose of meeting was to (1) Explain hazard mitigation planning, (2) Kickoff the process to update the Valencia County Multi-Jurisdictional Hazard Mitigation Plan (HMP), and (3) Obtain input from the participating communities to support the update. He then gave instructions to sign in using the Google Meet chat box.
- S. Gillen (Valencia County Emergency Manager) introduced herself, welcoming attendees, and indicated the HMP impacts federal funds received for mitigating natural hazards in the Valencia County area.
- E. Nemeth explained the meeting is interactive and encouraged questions during the call or via the chat function. He then noted the other AECOM team members and invited them to introduce themselves.
- D. Turk (AECOM Project Director) introduced himself and explained AECOM developed the previous Valencia County HMP and has expertise in hazard mitigation and floodplain mapping. AECOM looks forward to supporting Valencia County again with this HMP update.
- E. Nemeth then introduced B. Edwards and invited him to present and discuss the contents of AECOM's PowerPoint.
- B. Edwards (AECOM Lead Mitigation Planner) encouraged participation via questions and conversation and reminded attendees to sign-in to help correctly identify the planning team.

Project Overview

- B. Edwards requested input from attendees via an interactive website named "Menti" at menti.com to be used later in the presentation.
- B. Edwards continued by explaining the basics of hazard mitigation planning and how it prepares communities for the future by reducing their risk to natural disasters. He emphasized the importance of community input during the creation and updating processes of the community's HMP.
- B. Edwards described how AECOM supported the creation of the original HMP for Valencia County and now an update of pertinent data is needed. The kickoff meeting will serve to review the entire HMP process to keep everyone informed. The overall process includes: capability assessments, public participation survey, mitigation goals, hazard risk assessments, mitigation actions, draft plan review, and plan adoption.

- B. Edwards explained a basic HMP describes (1) What are you at risk for and (2) How can you fix it. The plan is set up starting with an introduction and description of the planning process. This is followed by a description of the planning area that you are working on (i.e. Valencia County). Next you identify the hazards that affect this area. Then you do a risk assessment on those hazards to determine the affects of those hazards. Afterwards, you determine the capabilities you have to protect yourself from the hazards you just identified. Then you get into the actions, which describe how you plan, within your capabilities, to reduce the hazard from the assessed risk to protect that part of the county.
- The HMP is a building block where you work your way up, and when you get to the end and put it all together, then you know and have a plan for what you are doing. Having an official HMP also allows the community to acquire grant funding to support the actions noted in the plan to help in the long term.
- S. Gerlitz (NMDHSEM Mitigation Specialist) wanted clarified that the State only has two annual grants guaranteed every year, which are the (1) Building Resilient Infrastructure Communities (BRIC) Grant and (2) Floodplain Management Assistance Grant. Otherwise, all other funding is based on a presidential disaster declaration event or a Fire Management Assistance Grant (FMAG) declaration for fire management response.

Plan Update Process

- B. Edwards explained the mitigation planning process which involves (1) Public outreach, (2) Risk assessment, (3) Capability assessment, (4) Mitigation strategy, (5) Plan maintenance, and (6) Plan adoption.
- B. Edwards noted at least two public engagements are required as part of the HMP update process. The first will be a public survey and the second will be a public meeting. Public meetings can be held virtually, or in person, pending COVID-19 safe practices and guidance. The purpose of public meetings is to gain public information and community input. There is not a limit on the number of public meetings to be held, and there are not strict standards for what counts as a public meeting to be recorded in the HMP.
- B. Edwards explained thus far in the HMP process: the kickoff meeting has been initiated, the planning team has been identified (kickoff meeting invitees and attendees), and the previous HMP is ready for updating.
- B. Edwards relayed three very beneficial mitigation planning resources published by FEMA which are (1) Local Mitigation Planning Handbook, (2) Mitigation Ideas, and (3) Integrating Hazard Mitigation Into Local Planning. Additional information can be found by searching "Hazard Mitigation" on FEMA's website (www.fema.gov).
- Y. Najmi (MRGCD Planner) requested a link to Valencia County's current HMP, and if it is necessary to become a signatory agency.
- E. Nemeth indicated the previous HMP can be sent via email or WeTransfer to anyone who would like a copy and becoming a signatory agency is not necessary to provide input into the new HMP. However, the Valencia County Multi-Jurisdictional HMP Update will include Middle Rio Grande Conservancy District (MRGCD) as a participating jurisdiction. And, participating jurisdictions should provide input into the plan and will need to adopt the final updated HMP.

- B. Culp (Valencia County Fire Chief) explained MRGCD was not a participating jurisdiction for the previous HMP, but based on a request from MRGCD, will be included in this update to Valencia County's HMP. He explained MRGCD is requesting to be a participating jurisdiction in the county HMPs that are being updated within their district.

Review and Discussion of Existing Plan

- The purpose of the HMP is to convey to the communities what the risks are and what will be done to decrease the community's risk level and protect life and property from hazards.
- B. Edwards explained FEMA only requires and will review natural disaster hazards. Pandemics are not considered a reviewable hazard by FEMA. Instances such as COVID-19 may be included in other plans, such as response and/or public health plans and be referenced in the HMP but are not a reviewable hazard for the HMP.
- B. Edwards explained the current plan will be used as the framework for the new plan. The formatting will change to include standard wording followed by descriptions and data. There will be an increase in tables from the last plan and possibly more maps.
- B. Edwards invited input and critique of the previous HMP; things attendees might like to see changed from what is currently shown in HMP. No participants provided any suggestions to change the format from the existing Valencia HMP.

Capability Assessment

- B. Edwards explained the capability assessment was created to identify what capabilities are currently present in the communities for hazard mitigation.
- He further explained the capability assessment reviews many community categories, such as: planning and regulatory capability, administrative and technical capability, fiscal capability, education and outreach capability, political capability, etc.
- B. Edwards stated that AECOM will apply a scoring system to the results of the assessment survey to indicate each community's capability to mitigate hazards. The scoring system is as follows:
    - 0-29 points = Limited overall capability
    - 30-59 points = Moderate overall capability
    - 60-100 points = High overall capability
- B. Edwards explained, high capability does not equal a large number of actions possible and limited capability does not equal no actions possible. The capabilities are simply guidelines for the type of actions that are possible.
- B. Edwards briefly walked through the capability assessment survey.
- L. Hatch (NMDHSEM State Floodplain Coordinator) asked if the "Floodplain Management Plan" would include Flood Prevention Ordinances for the capability assessment.
- E. Nemeth indicated if a floodplain management plan was in existence, it would likely include flood prevention ordinances.
- B. Edwards explained the capability assessment survey will be sent out to each jurisdiction in the next few weeks so the results can be relayed prior to next meeting and used for the mitigation action planning.

Public Outreach Strategy

- B. Edwards described the goal of the public outreach for the HMP is to generate public interest, solicit citizen input, and engage more partners in the planning process.
- B. Edwards explained from previous experience it has been hard to garner public input with in-person meetings alone. Therefore, AECOM uses an online public survey, since we have found this greatly increases the amount of public input and involvement.
- B. Edwards stated that AECOM uses the public survey and has seen good response when the survey link is posted on both county websites and on social media (Facebook, Twitter, RSS, etc.). Sometimes incentives, such as swag, can garner more participation.
- B. Edwards indicated the survey currently consists of 17 questions to ask the public. He displayed a standard questionnaire that AECOM typically uses for HMPs and indicated that feedback can be monitored to ascertain if questions are being answered or skipped. Based on the feedback, some survey questions may need to be changed or omitted.
- B. Edwards invited participants to provide any initial comments on the public survey.
- E. Nemeth suggested attendees review the survey as the survey has been found to get more participation from the community than public meeting generally do, and the survey is easier to share and participate in.
- E. Nemeth reiterated the importance of the survey being a reasonable length so as not to lose the participants interest. And, by using the survey, greater public input can be incorporated into the HMP.
- B. Edwards and E. Nemeth indicated a copy of the survey would be sent to the HMP planning team soon after the kickoff meeting to allow for review and updates prior to the survey being made public.
- L. Hatch asked if a paper option of the survey would be possible for areas with high senior residency where completing a survey online might not be possible.
- E. Nemeth and B. Edwards indicated that paper copies can easily be sent out, and the paper survey can even be shortened to match the audience.
- B. Edwards indicated the survey is anonymous and can be completed multiple times, and data from the paper surveys can be entered into the online survey by a representative.

Mitigation Goals

- B. Edwards reviewed the previous seven HMP goals and mentioned each mitigation action should fall under one of the goals.
- B. Edwards invited participants' review for updating/consolidating goals.

"Mayor For A Day" Hazard Identification Exercise

- B. Edwards listed the 14 hazards addressed in the current HMP.
- B. Edwards held an exercise, via Menti, to determine from the attendees which hazards have the highest priority for mitigation. Each attendee was given $100 to put toward any of the hazards. If you were a mayor for a day, where would you put your money to mitigate the hazard?
- Below are the results showing the attendee's highest priority hazards:

Hazard	Percent	Rank
Flood	33%	1
Drought	18%	2
Wildfire	18%	2
Extreme Heat	7%	3
Severe Winter Storm	6%	4
Thunderstorms (Lightening/Hail)	5%	5
High Wind	5%	5
Tornado	3%	6
Expansive Soils	3%	6
Dam Failure	2%	7
Earthquake	2%	7
Land Subsidence	1%	8
Landslide	0%	9
Volcano	0%	9

Hazards Discussion

- B. Edwards, prior to beginning actions discussion, asked if any listed hazards should possibly be removed or if any other hazards should be added.
- S. Gerlitz shared the statewide HMP which includes the same 14 hazards listed in Valencia County's HMP. She also explained FEMA only reviews and approves natural hazards, but if the community wants to add additional hazard types to the plan they can.
- B. Edwards explained FEMA reviews and approves natural hazards using a plan review tool to make sure certain requirements are met for each hazard, such as description, location and extent for each jurisdiction, all historical occurrences, probability of future occurrences, vulnerability and impact. This is not the case for other man-made hazards, where FEMA does not evaluate or review these hazards against their criteria list.
- S. Penman (EDAC New Mexico CTP Coordinator) asked how does climate change fit into this classification (natural hazard review) and if this element is being considered for this HMP update?
- B. Edwards explained climate change statements can be included with each hazard to indicate the impact of climate change on the hazard.
- S. Penman also asked will there be a section discussing the drought/wildfire/flood cycle in New Mexico?
- B. Edwards explained there are multiple ways to incorporate the drought/wildfire/flood cycle in the plan. It can be mentioned with each hazard, or if desired, have its own section created within the plan.
- E. Nemeth highlighted points made in the Google chat box:
    - Y. Najmi: The Bureau of Reclamation has a whole report on climate change predicted impacts on the river and water supply.
    - S. Gerlitz: There is a drought/wildfire/flood cycle in the 2018 State HMP for reference material.

- Y. Najmi: There are predictions available regarding fires, temperature and precipitation changes and floods in New Mexico.
- S. Penman: The State of New Mexico is working on a Climate Change Report annually that would have helpful information.
- S. Penman: Climate Change is a priority for the Governor.

- S. Gerlitz, indicated the State is funding a climate change section for the next 2023 Statewide HMP. A climate change task force has been created and can be found online.
- B. Edwards indicated information that is available for the next State HMP can be used for the Valencia County HMP update if preferred.
- E. Nemeth shared chat box comment:
  - S. Overpeck (NOAA NWS Meteorologist): From the meteorologist's perspective - climate change is very long term. Think long term impacts. Climate change is not going to have much effect on severe storms or tornadoes, etc. But you will need to think about impacts from drought, floods, wildfires. I just want to point out that there are differences between how climate change affects these hazards and how some of these hazards are more weather based or what is observed on time scales of days versus time scales of years.
- E. Nemeth and B. Edwards reiterated the hazard list can be updated to include climate change impacts and can also be discussed further in the future.

<u>Continued Hazards Discussion</u>

- B. Edwards verified with the team that flood, drought, and wildfire are the top 3 hazards for Valencia County.
- A discussion began in the chat box regarding whether to keep volcano and landslide hazards:
  - S. Penman: The State plan addresses volcanoes, but it doesn't make sense for Valencia county.
  - J. Gonzales (Los Lunas Chief of Fire Prevention and Emergency Management): Los Lunas Hill is a dormant volcano.
  - S. Gillen: The Tomé Land Grant is also a dormant volcano.
  - S. Penman: Not a subject matter expert on volcanoes, but what is the risk from dormant volcanoes?
  - J. Gonzales: I think the risk isn't from the volcano itself...it's the fault line "Rio Grande Rift" that poses the concern for me. I'd like to leave it in. If the rift goes....so will the volcano.
  - S. Gillen: Landslide was listed as highly unlikely in the 2015 Valencia HMP.
  - S. Penman: True, Rio Grande Rift is an issue, but isn't that a risk of earthquake not volcano? They did the Rio Grande Rift exercise a couple of years ago.
- B. Edwards would agree to keep volcano because of the existence of dormant volcanoes in the area; however, volcano can also be removed and re-added with an amendment prior to the next update in 5 years.
- B. Edwards explained the HMP is a living document which can be adjusted in between official updates.

- B. Edwards suggests keeping volcano and removing landslides as there are other geologic hazards included which have a higher risk.
- B. Edwards noted definitive decisions do not have to be made presently and can be addressed in a later meeting.

Mitigation Actions

- B. Edwards indicated the mitigation actions section is the most important but often the hardest part of creating and updating an HMP. He can assist but cannot create actions, as those must come from the communities and participating jurisdictions. Requirements for an action include:
  - Description of the hazard
  - Priority level
  - Funding source
  - Time frame
  - Estimated cost
  - Description of status
- B. Edwards explained the "Estimated cost" will be applied as high, medium, or low. Less than $5,000 is low, $5,00-$15,000 is medium, greater than $15,000 is high. The cost estimate is more like a place holder. There is no penalty if a project ends up costing more than estimated.
- B. Edwards explained the mitigation actions need to be updated in the Valencia County HMP but the action itself is not required to be completed prior to the next update. The action can just be noted as in-progress, partially complete, deferred, etc.
- B. Edwards noted every hazard listed in the HMP is required to have at least two mitigation actions for each jurisdiction.
- S. Gerlitz relayed a chat box comment:
  - Y. Najmi: I was told in the Bernalillo County HMP that we don't have to create actions for hazards we feel don't impact us as a jurisdiction but must justify why not.
  - S. Gerlitz and B. Edwards agreed. B. Edwards clarified if a jurisdiction addresses a hazard in the risk assessment, then the jurisdiction must also create at least two mitigation actions for that hazard. However, if a jurisdiction does not address a hazard, they must explain why not, and then no mitigation actions need to be created by the jurisdiction for that hazard.

Plan Maintenance

- B. Edwards explained the HMP needs to be maintained prior to the next 5-year plan update.
- The plan maintenance section will include documentation of the schedule for ongoing HMP annual, bi-annual, etc. meetings.
- B. Edwards noted amendments can always be made to add additional information to the plan after it is approved.

Draft Review

- B. Edwards explained the draft HMP will be created by AECOM with the planning team's input. Once finished, the draft will need to be reviewed by each jurisdiction to make sure the data,

statements, and information is correct or if something needs to be added or removed due to importance.

- B. Edwards explained once AECOM has the updated plan drafted, it will be sent out to the attendees for review. A meeting will also be held to discuss the plan and any edits or comments that need to be incorporated.
- B. Edwards described when the time comes, the draft HMP can be reviewed by using the "find" function to search and review information that pertains to the respective jurisdiction. The draft can also be reviewed line-by-line if preferred, but for efficiency, it is recommended to review the pertinent information.
- B. Edwards asks that reviewers please use track changes and comment balloons, as this will make change incorporation faster and more effective.
- Documents would be preferred to be delivered digitally, via WeTransfer. Other options include regular mail, CD-ROM, and USB.
- After review and comment incorporation, the final draft will be made. Once the final draft is ready, there will be another public meeting, followed by changes if needed. Then, the plan is sent for State review followed by FEMA review. Once the FEMA review is complete, and any changes incorporated, the plan will then become "Approved Pending Adoption" (APA).

Adoption Process

- B. Edwards explained that once the plan is APA, the county is then able to adopt the plan.
- B. Edwards noted all jurisdictions must adopt the plan individually.
- B. Edwards explained each jurisdiction has one year to adopt the plan from the time the county adopts.
- B. Edwards described how jurisdiction specific adoption gives each jurisdiction the ability to apply for funding on their own; otherwise, they would have to go through the county to apply.
- B. Edwards stated that once the State approves the plan to be sent to FEMA, AECOM will reach out to the team asking for adoption of plan, this will likely skip the "pending adoption" phase.

Next Steps

- AECOM will send out the public survey questions for review and approval before the survey is posted on-line for public input.
- AECOM will send out the capability assessments to the team.
- AECOM will send out the mitigation goals for approval/revision.
- AECOM will reach out to the county and jurisdictions for GIS information needed for the risk assessment.
- Later in the process, AECOM will reach out with guidance to create mitigation actions which will likely be another virtual meeting to work through actions as they make up a large part of the plan.
- This next HMP meeting and the public meeting will be scheduled.
- AECOM will then create the draft plan and prepare it for review.
- The communication protocol for all jurisdictions will go through S. Gillen at Valencia County then to E. Nemeth at AECOM and vice versa.

Action Items

- AECOM
  - E. Nemeth to provide S. Gillen the public survey to distribute to the team for review. – COMPLETED 10/14/20
  - E. Nemeth to provide S. Gillen the capability assessments to distribute to each jurisdiction.
  - E. Nemeth to provide S. Gillen the mitigation goals to distribute to the team for review.
  - E. Nemeth to coordinate with S. Gillen to acquire any available GIS or hazard data necessary for the risk assessment.
  - E. Nemeth coordinate with S. Gillen to acquire any critical asset information for the risk assessment.
  - E. Nemeth to coordinate with S. Gillen to setup the next HMP meeting and public meeting.

Meeting was adjourned at 11:00 AM. These notes are an interpretation of discussions held. Please provide any additions or corrections to the originator within 5 days of the date signed; otherwise they will be assumed correct as written.

Prepared by: Eric Nemeth and David Turk, AECOM

Date: October 26, 2020

Participant Sign-In Roster

Event: **VC Hazard Mitigation Plan Update Kick off Meeting** Date : 10/13/2020 Location: Virtual Meeting

	NAME, PRINTED	JOB	ORGANIZATION	PHONE NUMBER	EMAIL ADDRESS
1	Una Benavidez	publicWorks	VC		
2	Brent Edwards	Contractor	AECOM		
3	Eric Nemeth	Contractor	AECOM		
4	Loretta Hatch	State Floodplain	NMDHSEM		
5	Brian Culp	Fire Chief	VC		
6	Michael Montoya	Plz Admin	Bosque Farms		
7	Angie Womack	City Mgr Admin Asst.	VC		
8	Dave Tuck	Contractor	AECOM		
9	Scott Overpeck	NWS	National Weather Service		
10	Sean Penman	.	UNM		
11	Gabe Luna		Valencia County		
12	Sarah Gerling	Program	NMDHSEM		
13	Gayle Jones		Bosque Farms		
14	Jason Gonzales	LL OEM	Los Lunas		
15	Danny Monette	County Mgr	Valencia County		
16	Jess Weston	CFM	VC Animal Control		
17	John Gabaldon	Fire Chief	Los Lunas		
18	LE Rubin		Rio Communities		
19	Pat Jaramillo	Parks/Rec	Los Lunas		

Participant Sign-In Roster

21	Yazmine	?	MRGDC		
22	Edson Dyrah	Parks + Rec	Los Lunas		
23	Nancy Jo Gonzales	Community Development	VC		
24	Sarah Gillen	Emergency Mgr	VC		
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					

Valencia County Hazard Mitigation Plan

Draft Hazard Mitigation Plan Meeting

February 10, 2021
9:00 a.m. to 11:00 a.m.
Virtual Meeting (Google Meet)

AGENDA

1. Welcome and Introductions

2. Risk Assessment Results

3. Capability Assessment Update

4. Review Mitigation Action Plans (MAPs)

5. Maintaining Momentum and Implementing the Plan
    - Update on Public Participation Survey
    - Keeping the public and stakeholders involved
    - Plan Maintenance Procedures

6. Overview of Draft Hazard Mitigation Plan
    - Status on plan sections
    - Review/comment process
    - Suggested areas of focus

7. Questions and Open Discussion

8. Next Steps
    - Final draft
    - State and FEMA review
    - Local adoption

Community Risk Assessment Meeting February 10th 2021

31 guests

17 yes, 3 no, 11 awaiting

Sarah Gillen
Organizer

Asst Chief Tabet *

Angie Womack
Outside working hours

Casey Davis

Gayle Jones *

Danny Monette

Nemeth, Eric *

Gabriel Luna

Jason Gonzales *

Jaime Gonzales

John Gabaldon *

Lina Benavidez
Outside working hours

Nancy Jo Gonzales *

Nicholas Moya
Outside working hours

Peggy Gutjahr *

Scott Overpeck - NOAA Federal *

Shawn Penman *

griegoc@loslunasnm.gov *

Steven Gonzales *

Yasmeen Najmi *

andrew.slas@belen-nm.gov *

Edwards, Brent *

Bret Ruff *

John Dear *

Julia Dendinger *

jerah.cordova@belen-nm.gov *

Kerry Jones *

ktaylor@townofperalta.org *

Martin, Gregory *

Robert Noblin *

Gerlitz, Sara M, DHSEM *

VALENCIA COUNTY HAZARD MITIGATION PLAN MEETING

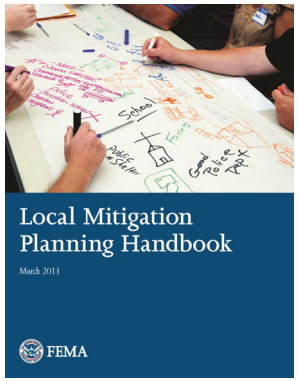
David Turk – Project Director
Eric Nemeth – Project Manager
Brent Edwards – Lead Planner

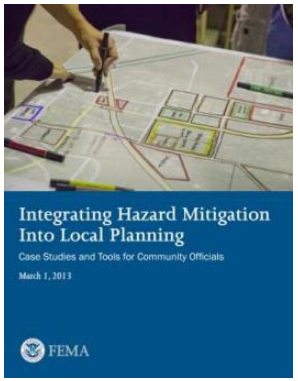
February 10, 2021

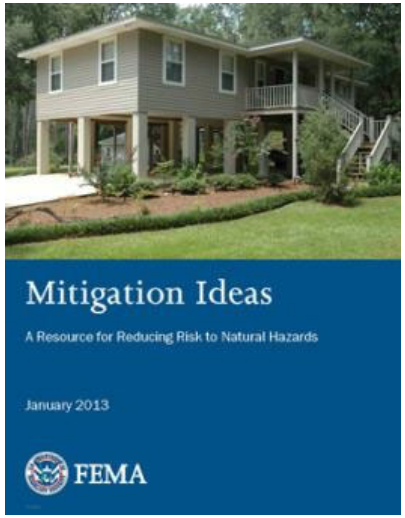
AECOM

AGENDA

- Capability Assessments
- Public Participation Survey
- Mitigation Actions
- Next Steps
- Open Discussion







PLANNING RESOURCES

- FEMA planning guidance
  - *Local Mitigation Planning Handbook*
  - *Mitigation Ideas*
  - *Integrating Hazard Mitigation Into Local Planning*
- Links to other online planning resources

CAPABILITY ASSESSMENT

CAPABILITY ASSESSMENT SURVEY

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education and outreach capability
- Political capability
- Self assessment

LOCAL CAPABILITY ASSESSMENT SURVEY METHODOLOGY

- Point system for capability ranking
  - 0-29 points = Limited overall capability
  - 30-59 points = Moderate overall capability
  - 60-100 points = High overall capability

PUBLIC OUTREACH STRATEGY

PUBLIC OUTREACH STRATEGY

- Goals
  - Generate public interest
  - Solicit citizen input
  - Engage additional partners in the planning process
- Identification of specific opportunities for participation
  - In-person/virtual meetings
  - Web-based survey(s)
    - https://www.surveymonkey.com/r/JT2MWFL
  - Social media (Facebook, Twitter, RSS, etc.)

MITIGATION STRATEGY

MITIGATION STRATEGY

Strategies

Goals

Objectives

Actions

GOALS

Make	Make the county and its municipalities safer from natural hazards
Reduce	Reduce the damage to cultural sites and natural resources from natural hazards
Reduce	Reduce property damages caused by natural hazards
Make	Make the county and its municipalities more resilient by shortening the recovery time after a natural hazard event
Increase	Increase the county and its municipalities' capability to mitigate natural hazards
Enhance	Enhance the collaborative process with federal, state and local agencies to mitigate natural hazards in the planning area
Increase	Increase awareness and understanding of risks and opportunities for mitigation among residents

MITIGATION ACTION PLANS

ACTIONS

- Discuss Actions
  - ? What is the best process of completion?
  - ? What is each action's priority? (High/Medium/Low)
  - ? What is action's funding source?
  - ? What is action's timeframe?
  - ? What is needed to complete the action? (funding/resources)

DRAFT REVIEW

DRAFT REVIEW

Acknowledge any wrong data or statements

Addition of missing information/new data

Options for comments

Track changes

Word documents list

Email list

ADOPTION PROCESS

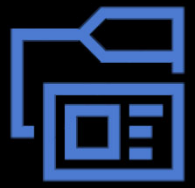
ADOPTION

All jurisdictions must adopt

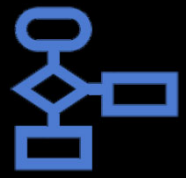
If your jurisdiction is listed in the plan as a participating jurisdiction then you must adopt as well as the County

One year after the first adoption is approved

NEXT STEPS



AECOM to receive information discussed to incorporate



Complete draft plan

Review and Update Actions

- dave.turk@aecom.com
- eric.nemeth@aecom.com
- brent.edwards@aecom.com

QUESTIONS?

THANK YOU!

AECOM

Meeting Minutes

Project Name:	***Valencia County Hazard Mitigation Plan (HMP) Update***		
Meeting:	***Draft HMP Meeting***		
Date:	February 10, 2021	Time:	9:00 AM MST
Place:	Google Meet Virtual Platform		

Attendees: See attached Sign-In roster.
Materials: Presentation Slides

Welcome and Introductions

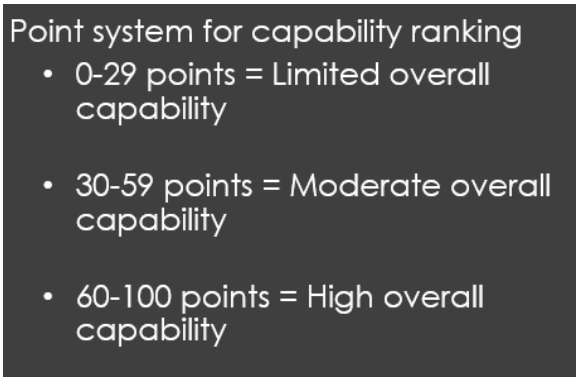
- S. Gillen (Valencia County Emergency Manager) introduced herself and welcomed attendees.
- E. Nemeth (AECOM Project Manager) introduced himself and indicated the purpose of the meeting is to provide a project status and discuss capability assessments then discuss the previous mitigation actions from the old plan and how the group believes they should be updated for the new plan.
- B. Edwards (AECOM Lead Planner) introduced himself and indicated that he will be reviewing the capability assessment, public survey, mitigation actions, next steps and will then open it up for discussion. He encouraged those present to ask questions along the way.

Project Overview

- B. Edwards described how AECOM supported the creation of the original HMP for Valencia County and now an update of pertinent data is needed. This meeting will primarily be used to review and update the Mitigation Actions.
- B. Edwards reviewed the FEMA planning resources that are available for use:
  - Local Mitigation Planning Handbook
  - Mitigation Ideas
  - Integrating Hazard Mitigation into Local Planning

Capability Assessment

- B. Edwards explained that the Capability Assessment survey that was provided to each jurisdiction is not a FEMA regulated survey; it was designed by AECOM and reviews the following areas:
  - Planning and regulatory capability
  - Administrative and technical capability
  - Fiscal capability
  - Education and outreach capability
  - Political capability
  - Self-assessment
- Once the Capability Assessment survey is complete, the points are totaled to give an overall understanding of each jurisdiction's capability ranking, which is shown in the graphic on the next page.



- B. Edwards walked through the Valencia County Capability Assessment as an example on how to fill it out.
- The following is a summary of the responses to the items and questions listed in the Valencia County Capability Assessment:
  - Planning and Regulatory Capability:
    - N. Gonzales (Valencia County Community Development Director) confirmed that the county has a Comprehensive Land Use Plan from 2005 which will be updated by the end of the year, but they do not currently have an Open Space Management Plan.
    - S. Gillen confirmed that the County does not currently have a Storm Water Management Plan, Facility Emergency Response Plan, or Radiological Emergency Plan.
    - S. Gillen confirmed that the Evacuation and Disaster Recovery Plans are under the Comprehensive Emergency Operations Plan for the County.
    - N. Gonzales confirmed that the County does have a Capital Improvement Plan and asked that the Economic Development Plan be noted as "under development" as well as the Historic Preservation and Transportation to be worked into the new comprehensive plan.
    - E. Edwards stated that the County and each jurisdiction will need to complete and verify their individual Capability Assessments, so we can score them appropriately.
    - G. Luna (Valencia County Community Planner) confirmed that the County has a Floodplain Ordinance.
    - N. Gonzales confirmed that they have Zoning, Subdivision, Site Plan Review, and Building Code but does not have a Unified Development Ordinance. She also confirmed that the County participates in NFIP but is not a CRS community.
  - Administrative and Technical areas:
    - Knowledge of Land Development and Land Management Practices: Yes
    - Engineers and Professionals trained in construction practices related to building and infrastructure: No
    - Planners or Engineers with an understanding of natural or human caused hazards: Yes
    - Building Official: No
    - Floodplain Manager: Yes
    - Land Surveyors: No
    - Scientists familiar with hazards of the community: No
    - Staff with education expertise to assess the community's vulnerability to hazards: Yes
    - Personnel skilled in GIS or Hazards program: Yes

- Resource Development Staff or Grant Writers: Yes
- Maintenance Program: Yes
- Warning Systems: Yes (Alert Sense)
- Mutual Aid Agreement: Yes
- Capital Improvement Program: Yes
- Community Development Block Programs: Yes
- Special Purposes Taxes: Yes
- Gas, Electric, Utility Fees: No
- Water Sewer Fees: No
- Stormwater Utility: No
- Development Impact: No
- General Obligation Bond: Yes
- Revenue Bond: Yes
- Special Tax Bond: No

- Education and Outreach:
  - Local citizen groups or non-profit organizations: Yes
  - Ongoing public education or information programs: Yes
  - Natural Disaster or safety related school programs: Yes
  - Storm ready certified: No (S. Overpeck, NOAA Meteorologist will verify)
  - Firewise Communities: No
  - Public or private partnership initiative addressing disaster related issues: Yes

Public Participation Survey

- B. Edwards explained a public HMP survey was posted on social media to generate public interest, solicit citizen input, and engage additional partners. The survey has remained open allowing public input during the planning process. He noted public input is vital to the creation and review of the HMP.
  - SurveyMonkey was used for the public HMP survey, which is still available at: https://www.surveymonkey.com/r/JT2MWFL
  - 254 surveys have been taken to date, which is an incredible number.
  - According to the survey, high wind, thunderstorm, and winter storm ranked as the highest hazards that have impacted those surveyed.

Mitigation Actions

- B. Edwards discussed the Mitigation Actions, which is one of the most important parts of the HMP, and how they need to be updated from the previous plan.
- The following information is needed for each mitigation action: (1) description, (2) hazards addressed, (3) priority, (4) lead agency, (5) applicable jurisdiction, (6) potential funding source, (7) cost estimate, (8) implementation schedule, and (9) implementation status.
- Each mitigation actions from the previous plan needs to be updated.
- The most important part of the mitigation actions is the status as it lets FEMA know what has been done in the last 5 years.

- Cost estimate is a rough guess; there will be no impact if it ends up costing more or less. Cost category can be low, medium, high, or "staff time".
- Unless you know an approximate implementation date, it's suggested that you input 5 years.
- For every hazard, you need to have two actions built into your plan; if the action status shows as "completed", it will not count toward your total of two actions per hazard. Consider changing the status of "completed" to "to be continued".
- Descriptions should be updated to include more detailed information.
- Completed actions must be documented with FEMA prior to deletion.
- B. Edwards walked through the previous Valencia County Mitigation Actions and updated them during the meeting.
- See attachment draft Valencia County Mitigation Actions that were discussed and updated.

Draft HMP Review

- B. Edwards explained following this meeting after the remaining information is incorporated into the plan. The draft plan will be sent out to each jurisdiction for review.
- When you receive the draft plan for review, B. Edwards recommends looking through the plan, identifying the jurisdiction that is relevant to you and verifying the information for accuracy; you are not expected to read every line of the document.
- Any comments or edits to the document can be identified and discussed via your preferred method (i.e. track changes, email, call, meeting, etc.).

State and FEMA Review

- B. Edwards described the process after the draft HMP review.
- The final draft HMP will be submitted to the State for review. Any comments will be incorporated as appropriate.
- Once the State approves, the plan will then be submitted to FEMA for review. Any comments will be incorporated as appropriate.
- Once FEMA approves, the plan will be given the status of Approved Pending Adoption (APA).

Adoption Process

- Once FEMA approves the plan pending adoption, all five jurisdictions must adopt – AECOM will need a copy of the signed and sealed adoption resolutions to submit to FEMA.
- Jurisdictions have up to one year after the first adoption is approved by FEMA to adopt the plan.
- Once FEMA approves the adoptions, you will have a final approved HMP.

Action Items

- AECOM
  - B. Edwards to score the Capability Assessments.
  - B. Edwards to distribute Public Survey results.
  - B. Edwards to update the Mitigation Actions and distribute for review.
  - B. Edwards to update the Draft Plan and distribute sections for review.
- Valencia County
  - Verify if the County has an existing Floodplain Management Plan.
  - Verify if the County is storm ready certified.

- Provide each jurisdiction's Capability Assessments.
- Provide each jurisdiction's updated Mitigation Actions.
- Review the Draft Plan sections as they are distributed.

Meeting was adjourned at 11:00 AM. These notes are an interpretation of discussions held. Please provide any additions or corrections to the originator within 5 days of the date signed; otherwise they will be assumed correct as written.

Prepared by: Eric Nemeth and Brent Edwards, AECOM

Date: March 4, 2021

Participant Sign-In Roster

Event: **PDM-HMP Capability Assessment meeting** Date: 10 February 2021 Location: Virtual meeting

	NAME, PRINTED	JOB	ORGANIZATION	PHONE NUMBER	EMAIL ADDRESS
1	Andrew Salas	City manager	City of Belen		
2	Nancy Jo Gonzales	Comm Dev Dir	VC Community Dev		
3	Angie Womack	Document Spec.	VC County Mgr		
4	Shawn Peman	Coordinator	EDAC, UNM, CTP		
5	Brent Edwards	Lead Planner	Aecom		
6	Lina Benavidiz	Director	Public Works VC		
7	Danny Monette	County Mgr	VC county Admin		
8	Sarah Gillen	EM	VCFD : OEM		
9	Nicholas Maya	VC Asst Fire chief	VCFD		
10	Steven Walker		VLL Streets		
11	Jason Gonzales	EM, Div chief	LL Fire Dept		
12	John Gabaldon	Fire chief	LL Fire Chief		
13	Luis Chavez	Fire Cpt	LL Fire Dept		
14	Tommy Madrid	Asst chief	LL Fire Dept		
15	Casey Davis	Interim Fire Chief	VCFD		
16	Eric Nemeth	Project mgr	Aecom		
17	Gabe Luna	land use planner	VC Admin		
18	Brett Ruff	Fire Chief	Belen Fire Chief		
19	Jaime Gonzales	Asst chief	VCFD		

Participant Sign-In Roster

Event: PDM-HMP Meet and Greet Date : 10 September 2020 Location: VC Fire Admin

	NAME, PRINTED	JOB	ORGANIZATION	PHONE NUMBER	EMAIL ADDRESS
21	Gregory Martin	Village Administration	Village of Los Lunas		
22	Pat Jaramillo		Village of Los Lunas		
23	Scott Overpeck		NMNWS		
24	Jason Duran		Park + Rec		
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					

Valencia County Fire Department

Office of Emergency Management

444 Luna Ave ◊ P.O. Box 1119 ◊ Los Lunas, New Mexico 87031

Office: (505) 866-2040 ◊ Fax: (505) 866-8749

www.valenciafd.com

Municipality Update for Hazard Mitigation
06/18/2021

I. Old Business
   A. Update of What's going on this the Hazard Mitigation Plan Update

II. New Business
   A. Aecom Invoice Discussion
   B. In-kind Match to Cash Match
   C. Letters to show change from in-kind match to cash match

III. Questions

Contact list:

A. Brian Culp" <brian.culp@co.valencia.nm.us>,
Gayle Jones <clerkadmin@bosquefarmsnm.gov>,
Jason Gonzales <gonzalesj@loslunasnm.gov>,
Steven Gonzales <steven.gonzales@belen-nm.gov>,
Bret Ruff <Bret.Ruff@belen-nm.gov>,
John Gabaldon <jgabaldon@loslunasnm.gov>,
Ktaylor@townofperalta.org,
jd5109@comcast.net,
Shawn Penman <spenman@edac.unm.edu>,
Code.Enforcer@riocommunities.net,
"Hatch, Loretta, DHSEM" <Loretta.Hatch@state.nm.us>,
"Gerlitz, Sara M, DHSEM" <SaraM.Gerlitz@state.nm.us>,
Lisa Adair - Administration Of Rio Communities <admin@riocommunities.net>,
Adren Nance <adren@npslawfirm.com>,
charles.eaton@belen-nm.gov,
Danny Monette <danny.monette@co.valencia.nm.us>,
"Turk, Dave" <dave.turk@aecom.com>,
"Nemeth, Eric" <eric.nemeth@aecom.com>,
Dave Pato <dave@npslawfirm.com>,
Gabriel Luna <gabriel.luna@co.valencia.nm.us>,
Jess Weston <jess.weston@co.valencia.nm.us>,
Lina Benavidez <lina.benavidez@co.valencia.nm.us>,
Kerry Jones <kerry.jones@noaa.gov>,
"Martin, Gregory" <marting@loslunasnm.gov>,
Michael Hamman <mikeh@mrgcd.us>,
Nancy Jo Gonzales <nancy.gonzales@co.valencia.nm.us>,
Orlando Montoya <orlando.montoya@co.valencia.nm.us>,
Steven Robbins <srobbins@townofperalta.org>,
Asst Chief Tabet <andrewtabet826@gmail.com>,
Yasmeen Najmi <Yasmeen@mrgcd.us>,
"Edwards, Brent" <Brent.Edwards@aecom.com>,
Scott Overpeck - NOAA Federal <scott.overpeck@noaa.gov>

L.L - 1258.29
VC - 520.35

marty moore - Rio Communities City Manager mmoore@riocommunities.net.
Andrew Tabet

Participant Sign-In Roster

Event: **Community Partners** Date: 18 June 2021 Location: Virtual Meeting

	NAME, PRINTED	JOB	ORGANIZATION	PHONE NUMBER	EMAIL ADDRESS
1	Sarah Gillen	VC Emergency Manager	Valencia County Fire Department	505-264-6240	Sarah.gillen@co.valencia.nm.us
2	Jason Gonzales	LL Emergency Manager	Los Lunas Fire Department		gonzalesj@loslunasnm.gov
3	Gayle Jones	Bosque Farms Administrator/ Clerk	Village of Bosque Farms		clerkadmin@bosquefarmsnm.gov
4	Kory Taylor	Clerk	Town of Peralta		ktaylor@townofperalta.org
5	Steven Robbins		Town of Peralta		srobbins@townofperalta.org
6	Angie Womack	Document Specialist	Valencia County Managers Office		Angie.womack@co.valencai.nm.us
7	Steven Gonzales	HR/ Emergency Manager	City of Belen		Steven.gonzales@belen-nm.gov
8	Yasmeen Najmi	Planner	Middle Rio Grande Conservancy District		yasmeen@mrgdc.us
9	Peggy Gutjahr	Mayor Pro-tem	City of Rio Communities		pgutjhar@riocommunities.net
10	Marty Moore	City Manager	City OF Rio Communities		mmoore@riocommuniites.net
11					
12					
13					
14					
15					
16					
17					
18					
19					

Valencia County Fire Department

Office of Emergency Management

444 Luna Ave ◊ P.O. Box 1119 ◊ Los Lunas, New Mexico 87031

Office: (505) 866-2040 ◊ Fax: (505) 866-8749

www.valenciafd.com

Municipality Update for Hazard Mitigation Plan Update
7/27/2021

I. Old Business
   A. AECOM Invoice Discussion
   B. In-kind to Cash Match
   C. Letter to Show change from in-kind match to cash match

II. New Business
   A. Review of Hazard Mitigation Plan with AECOM Contractors and Municipality participants

Hazard Mitigation Review July 27th, 2021

22 guests

10 yes, 2 no, 3 maybe, 7 awaiting

Sarah Gillen

Organizer

Angie Womack

Casey Davis

Danny Monette

Nemeth, Eric *

Jason Gonzales *

John Gabaldon *

ktaylor@townofperalta.org *

Lina Benavidez

Martin Moore *

Andrew E. Salas *

Nicholas Moya

jaramillopa@loslunasnm.gov *

Martin, Gregory *

Nancy Jo Gonzales *

Asst Chief Tabet *

Edwards, Brent *

Gayle Jones *

John Dear *

Julia Dendinger *

Peggy Gutjahr *

Steven Robbins *

Hazard Mitigation Plan Review

7/27/2021

Sign In Roster

Sarah Gillen	Sarah.gillen@co.valencia.nm.us
Steven Gonzales	steven.gonzales@belen-nm.gov
Jaime Gonzales	jaime.gonzales@co.valencia.nm.us
maryah madden	
Nancy Jo Gonzales	nancy.gonzales@co.valencia.nm.us
Angie Womack	angie.womack@co.valencia.nm.us
Gayle Jones	clerkadmin@bosquefarmsnm.gov
MICHAEL MONTOYA	PZADMI@BOSQUEFARMSNM.GOV
Eric Nemeth	eric.nemeth@aecom.com
Jordan Gillen	

Valencia County Fire Department

Office of Emergency Management

444 Luna Ave ◊ P.O. Box 1119 ◊ Los Lunas, New Mexico 87031

Office: (505) 866-2040 ◊ Fax: (505) 866-8749

www.valenciafd.com

Hazard Mitigation Review
August 3rd, 2021

I. Review of Hazard Mitigation Plan with the Municipality partners for live corrections with the Contractor
II. Questions
III. Conclude the meeting

Hazard Mitigation Review August 3rd 2021

22 guests

10 yes, 2 no, 3 maybe, 7 awaiting

Sarah Gillen

Organizer

Angie Womack

Casey Davis

Danny Monette

Nemeth, Eric *

Jason Gonzales *

John Gabaldon *

ktaylor@townofperalta.org *

Lina Benavidez

Martin Moore *

Andrew E. Salas *

Nicholas Moya

jaramillopa@loslunasnm.gov *

Martin, Gregory *

Nancy Jo Gonzales *

Asst Chief Tabet *

Edwards, Brent *

Gayle Jones *

John Dear *

Julia Dendinger *

Peggy Gutjahr *

Steven Robbins *

Participant Sign-In Roster

Event: **PDM-HMP Review Meeting** Date: 3 August 2021 Location: VC Fire Admin

	NAME, PRINTED	JOB	ORGANIZATION	PHONE NUMBER	EMAIL ADDRESS
1	Sarah Gillen	Emergency Mgr	VCFD·OEM	505 264 6240	sarah.gillen@co.valencia.nm.us.
2	Eric Nemeth	Project Mgr	AECOM	505 206 1395	eric.nemeth@aecom.com
3	Lina Benavidez	Public Works	Valencia County	505-620-8602	lina.benavidez@cavalencia.nm.us
4	Peggy Gutsche	Mayor	City of Rio Comm.	505-385-0160	pgutjahre@rio communites.net
5	Danny Monette	VC Mgr	Valencia County	505-866-2034	danny.monette@co.valencia.nm.us
6	Jason Gonzales	2LOEM	Los Lunas	866-2116	gonzalesj@loslunasnm.gov
7	Martin Moore	City Mgr.	City of Rio Communities	505-274-0577	mmoore@riocommunities.net
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					

Announcement

Valencia County Hazard Mitigation Plan Public Meeting

What: Public meeting to obtain and incorporate communities' thoughts and concerns about the Valencia County Hazard Mitigation Plan

When: 12/1/2021, 1pm to 2pm

Where: Valencia County Commission Chambers



Floods, Wildfires, Tornadoes, Winter Storms, Hurricanes…What Concerns You?

Do you have ideas for helping our community become better more resilient for future natural disasters?

You are invited to come to share your thoughts and concerns about your community's resiliency against natural disasters and leave your comments for the decision-making process.

About the Valencia County Hazard Mitigation Plan

Valencia County in coordination with their participating municipal jurisdictions is updating the hazard mitigation plan that covers the Valencia County Area to include the Village of Los Lunas, the City of Belen, the Town of Peralta, Village of Bosque Farms, and the City of Rio Communities and the Middle Rio Grande Conservancy District. The Valencia County Hazard Mitigation Plan identifies local policies and actions for reducing risk and future losses from natural hazards such as floods, severe storms, wildfires, and winter weather.

For More Information

If you would like to learn more, please contact the following county coordinator for this project:

Sarah Gillen, Valencia County Emergency Management (505) 866-2043 sarah.gillen@co.valencia.nm.us

You can also visit for more information

SCAN ME

We look forward to you joining us on December 1st, 2021!

Nemeth, Eric

Subject: [EXTERNAL] Updated invitation: Valencia County's Hazard Mitigation Public Engagement @ Wed Dec 1, 2021 12pm - 1pm (PST) (eric.nemeth@aecom.com)
Location: https://us02web.zoom.us/j/85804490423?pwd=Y3o4Vi9JMnlNdFJ3Qk9vSzJUOTJGZz09

Start: Wed 12/1/2021 1:00 PM
End: Wed 12/1/2021 2:00 PM
Show Time As: Tentative

Recurrence: (none)

Organizer: sarah.gillen@co.valencia.nm.us

This event has been changed.

Valencia County's Hazard Mitigation Public Engagement

When Wed Dec 1, 2021 12pm – 1pm Pacific Time - Los Angeles

Where https://us02web.zoom.us/j/85804490423?pwd=Y3o4Vi9JMnlNdFJ3Qk9vSzJUOTJGZz09 (map)

Calendar eric.nemeth@aecom.com

Who
- sarah.gillen@co.valencia.nm.us - organizer
- tesa.mast@co.valencia.nm.us - creator
- Casey Davis
- Commissioners
- danny.monette@co.valencia.nm.us
- nicholas.moya@co.valencia.nm.us
- angie.womack@co.valencia.nm.us
- nancy.gonzales@co.valencia.nm.us
- jaime.gonzales@co.valencia.nm.us
- eric.nemeth@aecom.com
- mpropp@tcnm.us
- steven.gonzales@belen-nm.gov
- jess.weston@co.valencia.nm.us
- andrew.salas@belen-nm.gov
- andrewtabet826@gmail.com
- rclark@bernco.gov
- yasmeen@mrgcd.us
- gabriel.luna@co.valencia.nm.us
- kelly.keefe@aecom.com
- jocelyn.padilla@state.nm.us
- marting@loslunasnm.gov
- srobbins@townofperalta.org
- zach.wachter@state.nm.us
- tgreeno@sandovalcountynm.gov
- dmiddleton@co.cibola.nm.us

- loretta.hatch@state.nm.us
- mmoore@riocommunities.net
- clerkadmin@bosquefarmsnm.gov

more details »
Changed: https://www.surveymonkey.com/r/JT2MWFL

Valencia County is inviting you to a scheduled Zoom meeting.

Join Zoom Meeting
https://us02web.zoom.us/j/85804490423?pwd=Y3o4Vi9JMnlNdFJ3Qk9vSzJUOTJGZz09

Meeting ID: 858 0449 0423
Passcode: 573134
One tap mobile
+13462487799,,85804490423#,,,,*573134# US (Houston)
+16699006833,,85804490423#,,,,*573134# US (San Jose)

Dial by your location
+1 346 248 7799 US (Houston)
+1 669 900 6833 US (San Jose)
+1 253 215 8782 US (Tacoma)
+1 312 626 6799 US (Chicago)
+1 929 205 6099 US (New York)
+1 301 715 8592 US (Washington DC)
Meeting ID: 858 0449 0423
Passcode: 573134
Find your local number: https://us02web.zoom.us/u/kcKph5ShJp
Going (eric.nemeth@aecom.com)? **Yes** - **Maybe** - **No** more options »

Appendix G: FEMA Worksheets

This appendix to the Valencia County Hazard Mitigation Plan includes FEMA Local Mitigation Planning Handbook (March 2013) guidance worksheets to facilitate plan maintenance.

Mitigation Planning Team Worksheet

Use this worksheet to identify partner organizations to invite to participate on the planning team. Some organizations do not need to be involved in every decision of the planning process but are stakeholders that require outreach and involvement during the planning process. Revise the list of general partners below to reflect the organizations in your community. Mark which organizations will be invited to participate on the planning team and which will be involved through stakeholder outreach activities.

Planning Team – The core group responsible for making decisions, guiding the planning process, and agreeing upon the final contents of the plan

Stakeholders – Individuals or groups that affect or can be affected by a mitigation action or policy

Partner Organization	Planning Team	Stakeholder	Notes
Local Agencies			
Building Code Enforcement			
City Management/County Administration			
Emergency Management			
Fire Department/District			
Floodplain Administration			
Geographic Information Systems			
Parks and Recreation			
Planning/Community Development			
Public Works			
Stormwater Management			
Transportation (Roads and Bridges)			
City Council/Board of Commissioners			
Planning Commission			
Planning/Community Development			
Regional/Metropolitan Planning Organization(s)			
City/County Attorney's Office			
Economic Development Agency			
Local Emergency Planning Committee			
Police/Sheriff's Department			
Sanitation Department			
Tax Assessor's Office			
Special Districts and Authorities			
Airport, Seaport Authorities			
Fire Control District			
Flood Control District			
School District(s)			
Transit Authority			
Utility Districts			

Worksheet 2.1
Mitigation Planning Team Worksheet

Partner Organization	Planning Team	Stakeholder	Notes
Non-Governmental Organizations			
American Red Cross			
Chamber of Commerce			
Community/Faith-Based Organizations			
Environmental Organizations			
Homeowners Associations			
Neighborhood/Community Organizations			
Utility Companies			
State Agencies			
State Emergency Management Agency			
State Dam Safety			
State Department of Transportation			
State Fire and Forestry Agency			
State Geological Survey			
State Water Resources Agency			
State National Flood Insurance Program Coordinator			
State Planning Office			
Federal Agencies			
Federal Emergency Management Agency			
Land Management Agencies (USFS/NPS/BLM)			
National Weather Service			
US Army Corps of Engineers			
US Department of Housing and Urban Development			
US Department of Transportation			
US Environmental Protection Agency			
US Geological Survey			
Other			
Tribal Officials			
Colleges/Universities			
Land Developers and Real Estate Agencies			
Major Employers and Businesses			
Professional Associations			
Neighboring Jurisdictions			

Note: Multi-jurisdictional planning teams require at least one representative for each participating jurisdiction. This worksheet can be used by each jurisdiction to identify their local sub-team.

Mitigation Action Evaluation Worksheet

Use this worksheet to help evaluate and prioritize each mitigation action being considered by the planning team. For each action, evaluate the potential benefits and/or likelihood of successful implementation for the criteria defined below.

Rank each of the criteria with a -1, 0 or 1 using the following scale:

- 1 = Highly effective or feasible
- 0 = Neutral
- -1 = Ineffective or not feasible

Example Evaluation Criteria

Life Safety – How effective will the action be at protecting lives and preventing injuries?

Property Protection – How significant will the action be at eliminating or reducing damage to structures and infrastructure?

Technical – Is the mitigation action technically feasible? Is it a long-term solution? Eliminate actions that, from a technical standpoint, will not meet the goals.

Political – Is there overall public support for the mitigation action? Is there the political will to support it?

Legal – Does the community have the authority to implement the action?

Environmental – What are the potential environmental impacts of the action? Will it comply with environmental regulations?

Social – Will the proposed action adversely affect one segment of the population? Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?

Administrative – Does the community have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?

Local Champion – Is there a strong advocate for the action or project among local departments and agencies that will support the action's implementation?

Other Community Objectives – Does the action advance other community objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of the comprehensive plan?

Worksheet 6.1

Mitigation Action Evaluation Worksheet

Mitigation Action	Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Total Score
Local Plans and Regulations											
Structure and Infrastructure Projects											
Natural Systems Protection											
Education and Awareness Programs											

Mitigation Action Implementation Worksheet

Complete a mitigation action implementation worksheet for each identified mitigation action.

Jurisdiction:	
Mitigation Action/Project Title:	
Background/Issue:	
Ideas for Integration:	
Responsible Agency:	
Partners:	
Potential Funding:	
Cost Estimate:	
Benefits: (Losses Avoided)	
Timeline:	
Priority:	
Worksheet Completed by:	(Name/Department)

Worksheet 6.2
Mitigation Action Implementation Worksheet

This page intentionally left blank.

Mitigation Action Progress Report Form

Progress Report Period	From Date:	To Date:
Action/Project Title		
Responsible Agency		
Contact Name		
Contact Phone/Email		
Project Status	❑ Project completed ❑ Project canceled ❑ Project on schedule ❑ Anticipated completion date:_____ ❑ Project delayed Explain _____	

Summary of Project Progress for this Report Period

1. What was accomplished for this project during this reporting period?

_____

_____

2. What obstacles, problems, or delays did the project encounter?

_____

_____

3. If uncompleted, is the project still relevant? Should the project be changed or revised?

_____

_____

4. Other comments

_____

_____

Worksheet 7.1
Mitigation Action Progress Report Form

This page intentionally left blank.

Plan Update Evaluation Worksheet

Plan Section	Considerations	Explanation
Planning Process	Should new jurisdictions and/or districts be invited to participate in future plan updates?	
	Have any internal or external agencies been invaluable to the mitigation strategy?	
	Can any procedures (e.g., meeting announcements, plan updates) be done differently or more efficiently?	
	Has the Planning Team undertaken any public outreach activities?	
	How can public participation be improved?	
	Have there been any changes in public support and/or decision- maker priorities related to hazard mitigation?	
Capability Assessment	Have jurisdictions adopted new policies, plans, regulations, or reports that could be incorporated into this plan?	
	Are there different or additional administrative, human, technical, and financial resources available for mitigation planning?	
	Are there different or new education and outreach programs and resources available for mitigation activities?	
	Has NFIP participation changed in the participating jurisdictions?	
Risk Assessment	Has a natural and/or technical or human-caused disaster occurred?	
	Should the list of hazards addressed in the plan be modified?	
	Are there new data sources and/or additional maps and studies available? If so, what are they and what have they revealed? Should the information be incorporated into future plan updates?	
	Do any new critical facilities or infrastructure need to be added to the asset lists?	
	Have any changes in development trends occurred that could create additional risks?	
	Are there repetitive losses and/or severe repetitive losses to document?	

Worksheet 7.2
Plan Update Evaluation Worksheet

Plan Section	Considerations	Explanation
Mitigation Strategy	Is the mitigation strategy being implemented as anticipated? Were the cost and timeline estimates accurate?	
	Should new mitigation actions be added to the Action Plan? Should existing mitigation actions be revised or eliminated from the plan?	
	Are there new obstacles that were not anticipated in the plan that will need to be considered in the next plan update?	
	Are there new funding sources to consider?	
	Have elements of the plan been incorporated into other planning mechanisms?	
Plan Maintenance Procedures	Was the plan monitored and evaluated as anticipated?	
	What are needed improvements to the procedures?	