

COUNTY OF SAN MIGUEL )  
STATE OF NEW MEXICO ) ss

SAN MIGUEL COUNTY  
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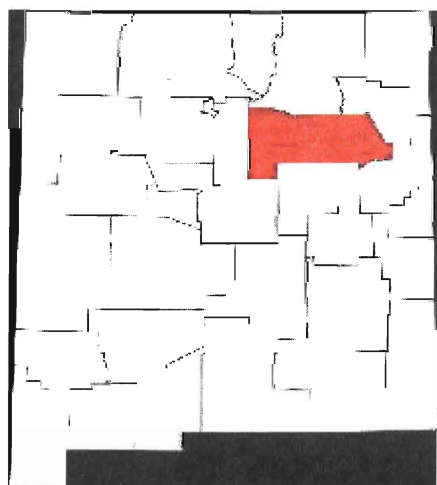
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## San Miguel County 2014 Multi-Jurisdictional Hazard Mitigation Plan November 2014

Prepared for:  
San Miguel County  
City of Las Vegas  
Village of Pecos

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## Key Acronyms and Abbreviations

|          |  |
|----------|--|
| AEL      | Annualized Earthquake Loss   |
| AELR     | Annualized Earthquake Loss Ratio   |
| BBER     | University of New Mexico Bureau of Business and Economic Research              |
| CFR      | Code of Federal Regulations  |
| CLV      | City of Las Vegas  |
| CRS      | Community Rating System  |
| CWPP     | Community Wildfire Protection Plan   |
| DEM      | Digital Elevation Model  |
| DMA 2000 | Disaster Mitigation Act of 2000  |
| EAP      | Emergency Action Plan  |
| EF scale | Enhanced Fujita Scale  |
| F        | Fahrenheit   |
| FEMA     | Federal Emergency Management Agency  |
| FR       | Forest Road  |
| F-Scale  | Fujita scale   |
| GIS      | Geographic Information System  |
| HAZUS    | Hazards U.S.   |
| HMP      | Hazard Mitigation Plan   |
| LCC      | Luna Community College   |
| LEPC     | Local Emergency Planning Committee   |
| M        | Magnitude  |
| MDWCA    | Mutual Domestic Water Consumers Association                                    |
| MPG      | Mitigation Planning Group  |
| mph      | miles per hour   |
| NCDC     | National Climatic Data Center  |
| NFIP     | National Flood Insurance Program   |
| NIBS     | National Institute of Building Sciences  |
| NMDOT    | New Mexico Department of Transportation  |
| NMED     | New Mexico Environment Department  |
| NMEMNRD  | State of New Mexico Energy, Minerals and Natural Resources Department          |
| NMHU     | New Mexico Highlands University  |
| NOAA     | National Oceanic and Atmospheric Administration                                |
| NWS      | National Weather Service   |
| OEM      | Office of Emergency Management   |
| OSE      | Office of the State Engineer   |
| PGA      | Peak Ground Acceleration   |
| Plan     | San Miguel County Multi-Jurisdictional Hazard Mitigation Plan                  |
| PNM      | Public Service Company of New Mexico   |
| PSHA     | Probabilistic Seismic Hazard Assessment Models                                 |
| RL       | Repetitive Loss  |
| SMC      | San Miguel County  |
| SRL      | Severe Repetitive Loss   |
| STAPLEE  | Social, Technical, Administrative, Political, Legal, Economic, & Environmental |
| TORRO    | Tornado and Storm Research Organisation (sic)                                  |
| USDA     | U.S. Department of Agriculture   |
| USFS     | U.S. Forest Service  |
| USGS     | U.S. Geological Survey   |

*2014 San Miguel County Hazard Mitigation Plan  
Key Acronyms and Abbreviations*

|     |                      |
|-----|----------------------|
| UWC | United World College |
| VOP | Village of Pecos     |

## **1. EXECUTIVE SUMMARY AND RESOLUTION**

### **1.1 Executive Summary**

On October 30, 2000, the President signed into law the Disaster Mitigation Act of 2000, also known as DMA 2000. Among its other features, DMA 2000 established a requirement that in order to remain eligible for federal disaster assistance and grant funds, local and state governments must develop and adopt hazard mitigation plans. DMA-2000 (Public Law 106-390) was an amendment of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Public Law 93-288) and incorporated as the Code of Federal Regulations 44 CFR 201.6 dated October, 2007. On February 26, 2002, the Federal Emergency Management Agency (FEMA) published an Interim Final Rule (IFR) that sets forth the guidance and regions under which such plans are supposed to be developed. The IFR provides detailed descriptions of both the planning process that states and localities are required to observe and the contents of the plan that emerges. This San Miguel County Multi-Jurisdictional Hazard Mitigation Plan (the Plan) responds to those requirements.

Hazard mitigation is often defined as actions taken to reduce the effects of natural hazards on a place and its population. San Miguel County decided to develop the Plan because of increasing awareness that natural hazards, especially wildfire, drought, flood, and wind, have the potential to affect people, physical assets, and operations in the County.

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The San Miguel County Multi-Jurisdictional Hazard Mitigation Plan is designed to protect people and property from the effects of natural and human-caused hazards. By taking action today, we can reduce the likelihood of injuries, loss of life and damage to our communities. That is what hazard mitigation planning is all about - taking action based on a solid understanding of our vulnerabilities to reduce the impacts of hazards that may strike sometime in the future. In addition to developing a framework for action, the Plan enables participating counties and municipalities to apply for pre and post-disaster mitigation funding that would not otherwise be available. This funding can help local jurisdictions implement identified projects that meet the goals and objectives outlined in the plan.

The County and each of its municipalities were responsible for identifying and vetting their own hazards, risks, and vulnerabilities, then developing their own mitigation projects written in the form of goals, objectives and actions. The Mitigation Action Plan includes assigned responsibilities, potential funding sources and a timeline for implementation. The Mitigation Action Plan links the broad ideas established in the Plan with strategic, action-oriented tasks.

*2014 San Miguel County Hazard Mitigation Plan  
Executive Summary and Resolution*

This publication constitutes the Hazard Mitigation Plan, including instructions for its implementation, for San Miguel County and the incorporated communities within its borders, including the City of Las Vegas and the Village of Pecos.

The continually changing nature of hazard risks within the County requires that updates to this plan occur on a regular basis. An Implementation and Maintenance Plan is included as part of the Plan.

Hazardous conditions and situations exist in all communities. They from natural hazards such as wildfire and drought to technological hazards such as hazardous materials release and dam failure. Citizens often give little thought to potential hazards until they occur or threaten the community. The county emergency managers, staff, and municipal leaders have the responsibility to identify real and potential hazards and, to the extent possible, prepare plans for coping when they occur.

County and municipal government response to life-threatening hazards requires continuous planning, training and education, all of which may be coordinated through the San Miguel County and City of Las Vegas Office of Emergency Management. This Hazard Mitigation Plan identifies hazards affecting the County and its municipalities, and recommends actions to prevent or limit loss of life, injury, and property damage due to those hazards.

The first step in the planning process was the review and consideration of the hazards identified and profiled in the 2010 draft plan. These hazards were reviewed and discussed by the Mitigation Planning Group (MPG) participants, and their applicability to the current plan was considered. After discussion, 18 hazards natural, technological, and human-caused hazards were identified for inclusion in the Plan. It is understood that FEMA will only review and approve the 14 natural hazards. San Miguel County, the City of Las Vegas, and the Village of Pecos have decided to include technological and human-caused hazards as an all-hazards approach toward stronger and better mitigation measures to protect the County's residents and assets.

Emergency mitigation and response actions are designed for every person in the County who might be affected by an emergency. These services will be provided regardless of race, color, national origin, religion, sex, age, or handicap.

"Hazard mitigation" does not mean that all hazards are stopped or prevented. It does not suggest complete elimination of the damage or disruption caused by such incidents. Most natural hazard events are well beyond human control. Similarly, technological and human-caused hazards are often unpredictable. Mitigation is not designed or intended as a quick fix, but rather a long-term approach for reducing vulnerability. As defined by the Federal Emergency Management Agency (FEMA), "hazard mitigation" is any sustained action or strategy taken to reduce or eliminate long-term risk to life and property from a hazard event.

Focused, integrated, comprehensive planning is one of the best ways to spot vulnerabilities and produce strategies to improve the County's approach to hazard response and preparation. A well-prepared plan ensures that actions and strategies are reviewed and implemented so that problems are addressed with the most appropriate and efficient solutions. It can also ensure that strategies are coordinated with other programs, preventing conflicts and potentially reducing the costs of implementing individual activities.

## **1.2 Organization of the Plan**

The San Miguel County Multi-Jurisdictional Hazard Mitigation Plan generally conforms to the basic plan set forth in Federal Emergency Management Agency guidelines for the Disaster Mitigation Act of 2000. The Plan is organized to parallel the structure provided in the IFR. The Plan has 10 sections.

- Section 1 Executive Summary and Resolution
- Section 2 Introduction and Purpose of the Plan
- Section 3 Planning Process
- Section 4 San Miguel County Community Profiles
- Section 5 Hazard Profiles
- Section 6 Assessing Vulnerabilities
- Section 7 Capability Assessments
- Section 8 Mitigation Action Plan
- Section 9 Plan Monitoring and Maintenance
- Section 10 References
- Appendices

There are references to the IFR throughout the Plan. Where possible, these provide specific section and subsection notations to aid the review process.

## **1.3 Summary of Hazards in San Miguel County**

The following list of hazards that have impacted or are likely to impact San Miguel County and its municipalities was developed through research into the history of hazards and through discussion at the first MPG meeting of the planning period. A detailed list of events that have impacted San Miguel County are provided in Appendices B and C (Hazard History and Presidential Declarations).

- Bridge Failure (addressed in related natural hazards)
- Dam Failure
- Drought
- Earthquake
- Flood
- Expansive Soils
- Extreme Heat
- Hailstorm
- Hazardous Materials Incidents
- High Wind
- Landslide
- Levee Failure
- Pandemic/Epidemic
- Pests
- Severe Winter Weather
- Terrorism
- Thunderstorm

- Tornado
- Wildfire

### 1.3.1 Prioritized Mitigation Strategies

The mitigation actions that were ranked as a high priority by the MPG and that received a STAPLEE score of 17 or greater include the following actions:

- San Miguel County:
  - Develop water storage/hydrant systems in for raw, drinking and effluent water
  - Implement a county-wide mass notification/emergency messaging system to provide a centralized notification system
  - Create a centralized GIS/Data System to be able to obtain/compile/disseminate information for all hazard events (mapping, assessments, cost analysis, etc.)
  - Improve and protect existing culverts, arroyos, and acequias, and install new culverts within the county as needed to reduce flooding county-wide
  - Identify critical infrastructure facilities to install generator hook-ups and purchase mobile generators to use in power outages
  - Identify senior centers, community centers, and schools throughout the county that can be used for heating/cooling stations and install generator hook ups, towable generators and electric A/C & heating combination systems
- City of Las Vegas
  - Develop water storage/hydrant systems in for raw, drinking and effluent water
  - Research funding opportunities and garner support for repair to the reservoir seepage area
  - Identify critical infrastructure facilities to install generator hook-ups and purchase mobile generators to use in power outages
  - Conduct field testing & sampling of surface and sub-surface water sources
  - Well exploration to identify potable water supplies
  - Increase aquifer storage and recovery
  - Enlarge reservoir
  - Construct a tower and transponder to have the ability to receive NOAA weather alert notification and purchase NOAA radios for public facilities and vulnerable populations to receive these messages
  - Design & develop an OEM web-site that provides drop down links toward mitigation/preparedness/response/recovery and identify funding sources toward hailstorm mitigation programs
  - Work with USGS to install continuous monitoring stream gages on Tecolote Creek, the Conchas River (above the lake), the Canadian River, the Pecos River, and the Gallinas River 1000' south of the diversion gate
  - Rehabilitate old wells
  - Research vulnerable infrastructure and harden/improve water/sewer sanitation services in identified areas
  - Conduct a seismic study of all critical infrastructure within the county to identify the effects of an earthquake on existing facilities
  - Develop emergency evacuation and sheltering plans Conduct a geological study on local structures, strengthen historic structures/chimneys in the Cat D seismic zone



- Develop and distribute public awareness information regarding potential mitigation measures using various means to reach adults, children, visitors, and vulnerable populations
- Implement a county-wide mass notification/emergency messaging system to provide a centralized notification system
- Research and identify public warning systems that use redundant means of contact to reach stakeholders and the community to deliver and receive information regarding hazards, threats, impacts, and damage. Purchase, install, and implement the warning system
- Create a centralized GIS/Data System to be able to obtain/compile/disseminate information for all hazard events (mapping, assessments, cost analysis, etc.)
- Create a public awareness program to promote "See Something, Say Something" in conjunction with New Mexico Department of Homeland Security
- Village of Pecos (The highest ranking hazards for the Village of Pecos scored 15 points. They are noted below)
  - Conduct a more in depth hazard analysis for wildfires and their effects on residences, infrastructure, water supplies, and the economy
  - Improve and protect existing culverts, arroyos, and acequias, and install new culverts within the county as needed to reduce flooding county-wide
  - Identify funding streams and resources for technical assistance to scope bridge repair or reinforcement projects on identified vulnerable bridges

### **1.3.2 Existing/On-Going Mitigation Strategies**

The following list includes projects that are currently being used by the County as mitigation strategies. Updates to those projects were provided by the San Miguel County and City of Las Vegas Office of Emergency Management on July 20, 2013:

- Limiting the number of vehicular camping spaces near streams;
  - Travel Management Plan was approved in 2013. A map that depicts where camping is permitted will be issued annually
- Respect the Rio: a public education campaign where rangers visit campgrounds to teach visitors about water quality hazards, and appropriate use of sites near streams;
  - Ongoing project dependent on funding
- Upper Pecos Watershed Project;
  - The Upper Pecos Watershed Association is completing a NEPA analysis for "roadside thinning" within the Pecos Canyon
- FireWise programs;
  - On-going
- Gallinas Fuels Reduction project;
  - To date, approximately 2,500 acres of thinning has been completed with a balance of 5,000 acres. Approximately 400 acres of piles have been reduced by prescribed burns. No broadcast burns yet with a balance of approximately 1,500 acres.
- Travel Management, 2005 project to define the roads in USFS and Wilderness lands;
  - Travel Management Plan was approved in 2013. A map that depicts where camping is permitted will be issued annually
- USFS Fire Prevention Officer provides outreach about fire prevention strategies;
  - On-going
- USFS Public Information Officer provides informational wildfire flyers;

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- On-going ([www.nmfireinfo.com](http://www.nmfireinfo.com))
- NM State Parks: Conchas Lake State Park has a Wildfire Evacuation Plan; and
  - On-going
- Historical tree thinning project on City of Las Vegas land that produced 200 to 300 cords of free firewood for residents.
  - On-going
- Install and maintain ITAC channels in public safety radios to improve inter-operability with Santa Fe County
- San Miguel County and Santa Fe County have established Joint Command Operations in previous disaster events
- San Miguel County, City of Las Vegas, and Village of Pecos have adopted the state fire and building codes

### **1.3.3 Resolution Adopting Plan**

The following pages include the local adoption resolutions for San Miguel County, the City of Las Vegas, and the Village of Pecos.



## Board of County Commissioners

### SAN MIGUEL COUNTY RESOLUTION NO. 11-12-14-OEM-MITIGATION

#### A RESOLUTION APPROVING PARTICIPATION IN THE ALL HAZARDS MULTI-JURISDICTIONAL MITIGATION PLANNING PROCESS AND ADOPTION OF THE ALL HAZARDS MULTI-JURISDICTIONAL MITIGATION PLAN

*Nicolas T. Leger*  
Chairman - District 5

*Ron R. Ortega*  
Vice-Chair - District 1

*Marcellino A. Ortiz*  
Commissioner - District 2

*Arthur J. Padilla*  
Commissioner - District 3

*Gilbert J. B. Sena*  
Commissioner - District 4

*Les W. J. Montoya*  
County Manager

**WHEREAS**, the San Miguel County Government desires to prepare and mitigate for such hazards and seeks to promote the public health, and general welfare of the jurisdiction and the safe, orderly, and healthful development of the jurisdiction, and,

**WHEREAS**, the San Miguel County Government worked with their members and other participating jurisdictions and entities to develop an all-hazards multi-jurisdictional mitigation plan; and,

**WHEREAS**, mitigation plans must conform to 44 CFR, Part 201, and all applicable mitigation planning guidance issued by FEMA, and,

**WHEREAS**, a community must be a participant in a current, FEMA-approved mitigation plan to be eligible for FEMA mitigation grant funding; and,

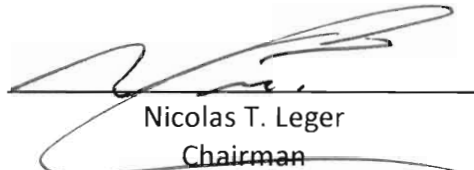
**WHEREAS**, the New Mexico Department of Homeland Security and Emergency Management supports local mitigation planning and encourages local governments to participate in the County mitigation planning process.


**WHEREAS**, staff recommends that the San Miguel County Government approve the All Hazards Multi-Jurisdictional Mitigation Plan Update; and


**WHEREAS**, the San Miguel County Government deems it in the public interest to approve this plan.

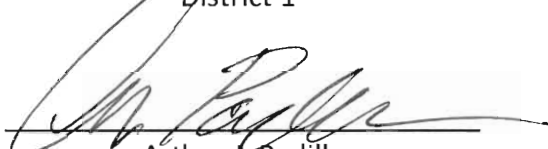
**NOW THEREFORE, BE IT RESOLVED**, by the San Miguel County Government that this plan be approved.


**MOVED, SECONDED AND ADOPTED** by the Board of Commissioners of San Miguel County, New Mexico, on this 12th day of November, 2014.

  
Nicolas T. Leger  
Chairman  
District 5

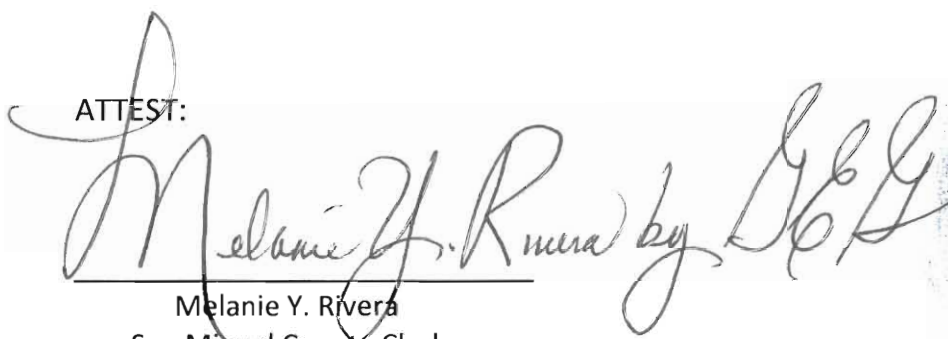
  
Ron R. Ortega  
Vice-Chair  
District 1

  
Marcellino A. Ortiz  
Commissioner  
District 2

  
Arthur J. Padilla  
Commissioner  
District 3

  
Gilbert J. B. Sena  
Commissioner  
District 4

  
Les W. J. Montoya  
San Miguel County Manager

ATTEST:  
  
Melanie Y. Rivera  
San Miguel County Clerk





**CITY OF LAS VEGAS  
RESOLUTION NO. 14-67**

**A RESOLUTION SUPPORTING PARTICIPATION IN THE ALL HAZARDS MULTI-JURISDICTIONAL MITIGATION PLANNING PROCESS AND ADOPTION OF THE ALL HAZARDS MULTI-JURISDICTIONAL MITIGATION PLAN**

**WHEREAS**, the City of Las Vegas Governing body desires to prepare and mitigate for such hazards and seeks to promote the public health, and general welfare of the jurisdiction and the safe, orderly, and healthful development of the jurisdiction ; and

**WHEREAS**, the City of Las Vegas Governing body worked with their members and other participating jurisdictions and entities to develop an all-hazards multi-jurisdictional mitigation plan; and

**WHEREAS**, mitigation plans must conform to 44 CFR, Part 201, and all applicable mitigation planning guidance issued by FEMA ; and

**WHEREAS**, a community must be a participant in a current, FEMA-approved mitigation plan to be eligible for FEMA mitigation grant funding; and


**WHEREAS**, the New Mexico Department of Homeland Security and Emergency Management supports local mitigation planning and encourages local governments to participate in the All Hazards Multi-jurisdictional mitigation planning process; and

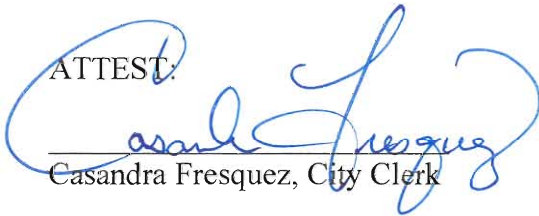
**WHEREAS**, staff recommends that the City of Las Vegas Governing body approve the All Hazards Multi-Jurisdictional Mitigation Plan Update; and

**WHEREAS**, the City of Las Vegas Governing body deems it in the public interest to approve this plan.

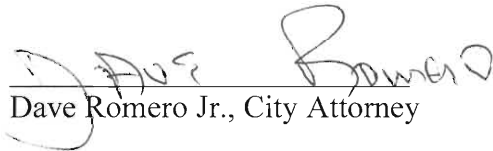
**NOW THEREFORE, be it resolved that the governing body of the City of Las Vegas**

PASSED, APPROVED AND ADOPTED this 19 day of November, 2014.

  
Mayor Alfonso E. Ortiz, Jr.

ATTEST:  
  
Casandra Fresquez, City Clerk

REVIEWED AND APPROVED AS TO LEGAL SUFFICIENCY ONLY:

  
Dave Romero Jr., City Attorney



***The Village of Pecos***

P.O. Drawer 337

Pecos, New Mexico 87552

Phone (505) 757-6591

Fax (505) 757-2833

Tony J. Roybal  
*Mayor*

Ramona Quintana  
*Village Clerk*

Arthur R. Varela,  
*Village Treasurer*

***Board of Trustees***  
Joe M. Benavidez  
Florencio Varela  
Herman Gallegos  
Ralph Lopez

**VILLAGE OF PECOS  
RESOLUTION NO. 2014-265**

**A RESOLUTION SUPPORTING PARTICIPATION IN THE ALL HAZARDS MULTI-JURISDICTIONAL MITIGATION PLANNING PROCESS AND ADOPTION OF THE ALL HAZARDS MULTI-JURISDICTIONAL MITIGATION PLAN**

**WHEREAS**, the Village of Pecos Governing body desires to prepare and mitigate for such hazards and seeks to promote the public health, and general welfare of the jurisdiction and the safe, orderly, and healthful development of the jurisdiction; and

**WHEREAS**, the Village of Pecos Governing body worked with their members and other participating jurisdictions and entities to develop an all-hazards multi-jurisdictional mitigation plan; and

**WHEREAS**, mitigation plans must conform to 44 CFR, Part 201, and all applicable mitigation planning guidance issued by FEMA ; and

**WHEREAS**, a community must be a participant in a current, FEMA-approved mitigation plan to be eligible for FEMA mitigation grant funding; and

**WHEREAS**, the New Mexico Department of Homeland Security and Emergency Management supports local mitigation planning and encourages local governments to participate in the All Hazards Multi-jurisdictional mitigation planning process; and

**WHEREAS**, staff recommends that the Village of Pecos Governing body approve the All Hazards Multi-Jurisdictional Mitigation Plan Update; and

**WHEREAS**, the Village of Pecos Governing body deems it in the public interest to approve this plan.

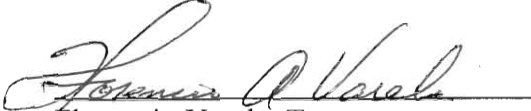
**NOW THEREFORE, be it resolved that the governing body of the Village of Pecos**

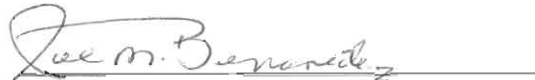
PASSED, APPROVED AND ADOPTED this 10th day of November, 2014.

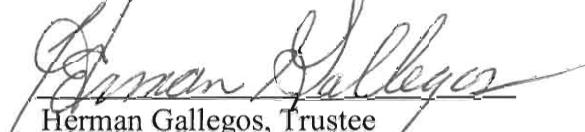
ATTEST:

  
\_\_\_\_\_  
Ramona Quintana, Village Clerk

  
\_\_\_\_\_  
Tony J. Roybal, Village Mayor

  
\_\_\_\_\_  
Florencio Varela, Trustee

  
\_\_\_\_\_  
Joe Modesto Benavidez, Mayor Pro-Tem

  
\_\_\_\_\_  
Herman Gallegos, Trustee

  
\_\_\_\_\_  
Ralph Lopez, Trustee



### **1.3.4 Status of the Plan**

San Miguel County contracted with Witt O'Brien's, LLC, to review, update, and complete the local Multi-Jurisdictional All-Hazards Mitigation Plan. Dennis English, the San Miguel County and City of Las Vegas Office of Emergency Management (OEM) Manager, Les Montoya, the San Miguel County Manager, Wendy Blackwell, the New Mexico (NM) State Hazard Mitigation Officer, and other stakeholders met with the Witt O'Brien's planning team on May 30, 2013 to outline the planning process and timeline, and to discuss the hazards that may impact San Miguel County. The meeting was also provided clarification regarding how the county stakeholders and Witt O'Brien's will proceed with the planning effort

The Plan was completed using the 2011FEMA Local Mitigation Plan Review Guide and the 2013 FEMA Local Mitigation Planning Handbook. The new FEMA planning guidance replaced the previous crosswalk guidelines, but not the requirement of the plan as prescribed under 44 CFR 201.6. These guidelines and requirements were incorporated into the Plan.

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## **2. INTRODUCTION AND PURPOSE OF PLAN**

### **2.1 Overview**

Across the United States, natural and human-caused disasters have led to increasing levels of death, injury, property damage, and interruption of business and government services. The impact on individuals can be immense, and damages to businesses and infrastructure can result in regional economic consequences. The time, money, and effort spent to respond to and recover from these disasters often divert public resources and attention from other important programs and problems. San Miguel County recognizes the consequences of disasters and the need to reduce the impacts of natural, technological, and human-caused hazards. The elected and appointed officials of the County, the City of Las Vegas, and the Village of Pecos also know that with careful selection, mitigation actions in the form of projects and programs can become long-term, cost-effective means for reducing the impacts of natural, technological, and human-caused hazards. The Plan was prepared with input from county residents, local government officials, state and federal government entity partners, private sector stakeholders, and with the support of the San Miguel County and City of Las Vegas Office of Emergency Management (SMCLV OEM), the New Mexico Department of Homeland Security and Emergency Management, (NDDHSEM) and the Federal Emergency Management Agency (FEMA). The planning period included nearly a year of coordination with representatives from various jurisdictions and agencies in the County. The Plan includes the local jurisdictions of San Miguel County, the City of Las Vegas, and the Village of Pecos.

### **2.2 Definition of Hazard Mitigation**

A hazard is a situation or event that poses a threat to life, health, property, or the environment. Hazard mitigation is defined as sustained action taken to reduce or eliminate the impact of disasters on people, property, and infrastructure.<sup>1</sup> The Plan specifies “all-hazards,” which includes natural, technological, and human-caused hazards that have or could impact the County. The Plan documents the community’s process of identifying hazards and ranking vulnerability, developing mitigation goals and strategies, and outlines a specific approach to make the County more disaster resilient. Definitions of terminology used in this document are presented in Appendix A.

### **2.3 Mitigation Planning**

The purpose of performing hazard mitigation planning is to understand the risks to hazards that could impact the planning area, then identify ways in which the community can reduce its vulnerability to those identified hazards. The planning process documents community demographics, assets, and infrastructure, and develops strategies to reduce vulnerability. Hazards that may impact San Miguel County are identified by the MPG and then prioritized according to the potential severity of the impact and the likelihood of occurrence.

A community-wide inventory of critical facilities allows decision-makers to understand what assets are at risk, and where they are located. This inventory also helps emergency managers to be more prepared in the event of a disaster and to mitigate vulnerability in advance of the disaster. There are a wide range of mitigation strategies available to reduce community vulnerability, including

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<sup>1</sup> FEMA “What is Mitigation. Collected 07.09.13 from <http://www.fema.gov/what-mitigation#1>

*2014 San Miguel County Hazard Mitigation Plan  
Introduction and Purpose of the Plan*

public education, modifications to building code or zoning maps, capital improvements in key infrastructure, preparedness training, and inter-jurisdictional coordination.

The ultimate purpose of mitigation planning is to build resiliency into the community. Through broad-based community involvement, the County MPG determined the primary hazards of concern, vulnerable assets, programs and projects that aim to reduce potential impacts due to natural and human-caused disasters. The Plan will serve as a guide toward greater disaster resilience against those hazards that threaten San Miguel County, its municipalities, residences, industry, and infrastructure.

## **2.4 Purpose of the Plan**

The San Miguel County All-Hazard Mitigation Plan is intended to serve a variety of purposes. These include:

- *Enhance Public Awareness and Understanding* – to help residents of the County better understand the natural and human-caused hazards that threaten public health, safety, and welfare; economic vitality; and the operational capability of important institutions
- *Create a Decision Tool for Management* – to provide information that managers and leaders of local government, business and industry, community associations, and other key institutions and organizations need to take action to address vulnerabilities to future disasters
- *Promote Compliance with State and Federal Program Requirements* – to ensure that San Miguel County and its incorporated communities can take full advantage of State and federal grant programs, policies, and regulations that encourage or mandate that local governments develop comprehensive hazard mitigation plans
- *Enhance Local Policies for Hazard Mitigation Capability* – to provide the policy basis for mitigation actions that should be promulgated by participating jurisdictions to create a more disaster-resistant future
- *Inter-Jurisdictional Coordination of Mitigation-Related Programming* – to ensure that proposals for mitigation initiatives are reviewed and coordinated among the participating jurisdictions within the County.

## **2.5 Conclusion**

This plan is an official policy document adopted by the San Miguel County Commission, the City of Las Vegas, and the Village of Pecos, in order to guide emergency mitigation efforts. It is intended to influence future development decisions, public awareness and training efforts, and other mitigation measures. The scope of the plan is long-range and County-wide. The proposed mitigation strategies may apply to the entire county or to specific jurisdictions as defined in the Mitigation Action Plan, however, it is important to note that the City of Las Vegas Comprehensive Plan governs land use and development within Las Vegas city limits.

This Plan is specifically written to satisfy the requirements of the Disaster Mitigation Act of 2000 (DMA 2000), which is the latest legislation that guides the hazard planning process. By adopting the Plan, San Miguel County, the City of Las Vegas, and the Village of Pecos will become eligible for a variety of federally-funded hazard mitigation grant opportunities for five years. This plan must be

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updated, approved, and adopted every five years for the County and participating jurisdictions to remain eligible for potential federal mitigation funding streams.

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### 3. THE PLANNING PROCESS

#### 3.1 Interim Final Rule Requirements for the Planning Process

**Requirement §201.6(b):** *An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include:*

*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*

*(2) 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 private, and non-profit interests to be involved in the planning process; and*

*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

**Requirement §201.6(c)(1):** *[The plan shall document] 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.*

#### 3.2 Introduction

San Miguel County received partial funding from FEMA to perform a hazard mitigation plan and geo-hydrological study. The County contracted Witt O'Brien's, a consulting firm, to assist the county in developing the hazard mitigation plan. The County Manager, Les Montoya, and the San Miguel County and City of Las Vegas Emergency Manager, Dennis English led development of the Plan which identifies and details the goals, objectives, and mitigation strategies for building resiliency and lessening the impacts of the profiled hazards. The Plan follows DMA 2000 planning requirements and guidance for developing local hazard mitigation plans.

The Code of Federal Regulations [44 CFR §201.6(b) and §201.6(c)(1)] (CFR) requires that the planning process includes an opportunity for the neighboring communities, agencies involved in hazard mitigation activities, and members of the public to participate and comment on the plan during the drafting stages. Under the CFR, the Plan must include review of existing plans, studies, reports, and other technical information. The plan must also document the process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved. In order to develop a more comprehensive approach to reducing the effects of natural, technological, and human-caused hazards, the MPG incorporated the following public involvement into the planning process:

- An opportunity for the public to comment on the plan during the draft stage;
- An opportunity for the public to comment on the plan prior to plan approval; and
- An opportunity for each of the following to be involved in the process:
  - Agencies that have authority to regulate development;
  - Neighboring communities and counties;
  - Academia (public, private, and institutions of higher education);

- Local, regional, and state agencies;
- Local private sector; and
- Locally affiliated and supportive non-governmental organizations.

The MPG, listed by name and jurisdiction in the Acknowledgements (p. i), included staff from the County, the City of Las Vegas, the Village of Pecos, and other local, state, and federal agencies, private partners, and interest groups who contributed technical information based on their areas of expertise, performed the hazard identification, asset ranking, and project prioritization process, and reviewed draft plans. Names of jurisdictional points of contacts are noted in Appendix D, *Meeting Notes and Attendance Rosters*, and Appendix M, *Multi-Jurisdiction Participation Summary*. Invitations and Advertisements for participation are found in Appendix E, *Invitations and Advertisements*.

### **3.3 Multi-Jurisdiction Planning Effort**

The Plan is structured as a multi-jurisdictional plan. This means that all incorporated local governments within the County were involved in the planning effort and are identified in the Acknowledgements. Jurisdictional points of contact and related participation tracking is noted in Appendix M, *Multi-Jurisdiction Participation Summary*. Because this is the first mitigation plan for the County, all participating jurisdictions are newly participating. For San Miguel County, there are only two incorporated municipalities, the City of Las Vegas and the Village of Pecos. Additionally, San Miguel County is the local government body that led the planning effort and administered the FEMA planning grant. The MPG worked with each jurisdiction to identify the present emergency response capacity and resources, the history of hazards experienced in each region, concerns about future disasters, and potential mitigation projects to improve the capacity for local response to hazards. Furthermore, representatives from each jurisdiction were invited to participate in the MPG.

### **3.4 Mitigation Planning Group**

The purpose of the MPG is to guide the process of developing the Plan for San Miguel County. The MPG consists of representatives from federal, state, and local governing bodies, utility service providers, higher education, water associations, and private sector stakeholders. Participants are recognized in the Acknowledgements section. There were three MPG meetings, held between May 2013 and November 2013, local individual jurisdiction meetings with the County, the City of Las Vegas, and the Village of Pecos. Members of the MPG participated by attending planning meetings, sharing relevant plans, photos and data related to hazards, and contributing specific input.

#### **3.4.1 Roles and Responsibilities of the MPG**

The Mitigation Planning Group is responsible for:

- Increasing community awareness and understanding of hazard mitigation
- Identification of the community's hazard threat
- Assessment of recent disaster events
- Vulnerability assessment
- Evaluation of existing policies, plans, and regulations
- Identification and characterization of proposed mitigation initiatives



## *2014 San Miguel County Hazard Mitigation Plan Planning Process*

- Prioritization of proposed mitigation initiatives
- Review and coordination of proposed mitigation initiatives
- Incorporation of proposed mitigation initiatives into the strategy
- Implementation of proposed mitigation initiatives
- Monitoring of implementation of mitigation initiatives
- Approval and issuance of the San Miguel County Multi-Jurisdictional Hazard Mitigation Plan

The first meeting was held following the preliminary research and public outreach efforts. The MPG presented the process of hazard mitigation planning and data on the history of potential hazards in San Miguel County. The intent of the first meeting was to discuss the benefits of participation, the project timeline, and to identify the hazards of concern for the planning area. Based on experience and local knowledge, the MPG identified the hazards that were of the highest concern within the county. Participants were also asked to share any relevant existing plans and procedures that they follow to address emergency events.

The second meeting provided an update to the MPG, and reviewed the mitigation goals, asset ranking methodology, risk assessment data, and public surveys. The focus of the second meeting was to identify and prioritize mitigation goals and to perform qualitative assessments of the identified hazards based on available data and hazard history. The MPG was presented with the results of the hazard history research and methodologies for ranking hazard impacts and assets. The data and methodologies allowed the MPG to provide an informed evaluation of the severity of the potential hazards and identify potential impacts through the qualitative assessment process.

The third set of meetings with San Miguel County, the City of Las Vegas, and the Village of Pecos focused on the Mitigation Action Plan and included refining mitigation objectives and identifying specific mitigation actions. Specific actions were identified for each hazard in each of the participated jurisdictions. Risk, capability assessment, and public survey results were reviewed, where necessary, to determine appropriate actions. Actions were later organized into the appropriate goals and objectives, then provided to stakeholder jurisdictions for prioritization using FEMA recommended evaluation criteria.<sup>2</sup>

Meeting notes and rosters can be found in Appendix D.

### **3.5 San Miguel County and City of Las Vegas Office of Emergency Management**

The San Miguel County and City of Las Vegas Office of Emergency Management provided oversight and guidance for the development of the Plan. The Emergency Management Office coordinated the efforts of all-local governmental departments and agencies within the county as well as served as the county liaison with external emergency management agencies and organizations at the state and federal level. Emergency Management staff provided valuable understanding and expertise in the area of emergency management, as well as allowed the MPG to utilize their existing community and agency relationships to help inform this planning process.

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<sup>2</sup> FEMA Local Mitigation Planning Handbook, March 2013. Task 6, Page 6-7. Print

### 3.6 Local Emergency Planning Committee

The Emergency Management Office facilitates the Local Emergency Planning Committee (LEPC). The role of the LEPC is to form a partnership with local governments and industries as a resource for enhancing hazardous materials preparedness. The membership comes from the local area and is familiar with factors that affect public safety, the environment, and the economy of the community. Members of the LEPC represent various organizations, agencies, departments, facilities, and other groups within the county. The LEPC is most familiar with hazards and vulnerabilities in the community and therefore works to advise the county in the development of the emergency plans.

The San Miguel County LEPC provided input regarding the HMP throughout the planning process. The LEPC chairperson participated in the MPG and served as the primary link between the two organizations.

In addition to being a valued member of the hazard mitigation planning process, the LEPC will also be critical in the implementation of this plan. One of the key roles of the LEPC is to increase the general public's awareness of the benefits of hazard mitigation and the available techniques for making the community more prepared to handle natural, technological, and human-caused hazard situations. An important assessment for determining the effectiveness of this plan is a demonstrated change in the level of public understanding of, acceptance for and willingness to implement a range of mitigation initiatives as well as how it influences future decision-making within the participating jurisdictions.

### 3.7 Public Input

The public was involved in the planning process through public surveys and public comment periods on the draft plan. Invitations for public participation were advertised through local traditional and social media outlets and were available online or through print copies via the SMCLVOEM office. The public survey included questions about risk from natural, technological, and human-caused hazards, disaster history, level of preparedness and experiences. The public survey was available on-line and was advertised through local media including the Las Vegas Optic Newspaper as well as on the county and municipal websites:

- City of Las Vegas website
- San Miguel County website
- OEM Facebook page
- LEPC Distribution list (email)
- Las Vegas Daily Optic newspaper

A total of 123 surveys were completed between August 2013 and October 2013. The survey results are included in Appendix F and a summary follows.

According to survey respondents, 42.2 percent have received information about making their homes and families safer from natural disasters with 42.6 percent of those respondents saying they had received information in the last six month. Over 60 percent of the respondents believe they are at least adequately prepared for the impacts of natural or human-caused disasters having first-aid

training, maintaining flashlights and batteries, and knowing their home's utility shut-off locations. Less than 30 percent have a prepared disaster supply kit or a designated family meeting place. All respondents showed that they had experienced at least one of the identified hazards in the Plan, and all identified hazards had been experienced by between five (expansive soils hazard) and 59 (hailstorm hazard) respondents. Nearly every respondent showed some level of concern for the drought and wildfire hazards; both hazards were of the most concern to the majority of respondents. Earthquake, expansive soils, and landslide were of the least concern to the majority of respondents.

While 59 percent of the respondents do not believe they live in a designated flood zone, 24 percent are unsure, and 17 percent affirm they do. Twenty-four percent claim to have flood insurance and 76 percent do not. Of those that do not, 24 percent say they are not familiar with it, 15 percent say it is too expensive, and 35 percent believe they don't need it because their home is not in a floodplain

Only 30 percent of respondents considered the potential impacts of hazards of their home prior to purchasing/moving in. Approximately 43 percent of the respondents would be willing to invest a portion of their own money into mitigation actions on their own homes, and 85 percent believe that incentive programs such as tax breaks or permit waivers would encourage personal mitigation actions. Of those living in high-hazard areas or having properties that have received repeated damages from hazards, nearly 62 percent said they would consider an allocation, relocation, or elevation mitigation proposal if offered by a public agency.

The May 7, 2014 to Jun 3 7, 2014 public comment period provided an opportunity for the residents to review the draft plan, ask questions, and make comments for consideration by the Mitigation Planning Committee. The draft plan was made available for review through the San Miguel County and City of Las Vegas websites, the San Miguel/City of Las Vegas OEM Facebook page, and in print at local libraries. The public was asked to utilize the comment review forms and provide them to SMCLVOEM for review. Vetted comments were incorporated into the plan prior to submitting the document for state and FEMA approval. Copies of the advertisements and posted locations of available copies for this comment period are located in Appendix E, Invitations and Advertisements. Public comment sheets are provided in Appendix N, *Public Comments*.

### **3.8 Research and Plan Review**

The MPG gathered and reviewed various existing plans and documents provided by participating stakeholders and conducted extensive research related to identifying the hazards threatening the planning area. Plans and related documents included:

- 2012 New Mexico State Hazard Mitigation Plan
- 2010 Draft San Miguel County Hazard Mitigation Plan
- San Miguel County Comprehensive Emergency Management Plan
- San Miguel County Community Wildfire Protection Plan
- Assessing Seismic Preparedness of New Mexico (Report)
- Groundwater – Well Data of San Miguel County (Report)
- Local Dam Emergency Action Plans

The purpose of this analysis was to identify locations, facilities, or systems within San Miguel County that may be vulnerable to the impacts of the profiled hazards and to identify potential land

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uses that may be affected by those hazards. The MPG also utilized data provided in a geographic information system (GIS) for identifying, depicting and analyzing hazards.

### **3.9 Hazard Mitigation Plan Review and Approval**

The draft hazard mitigation plan was reviewed by the MPG as well as by the participating jurisdictions including San Miguel County, City of Las Vegas, and Village of Pecos. The MPG also provided the public, neighboring jurisdictions, and stakeholder representatives the opportunity to review and comment on the Plan. In addition, the Plan was reviewed by the New Mexico Department of Homeland Security and Emergency Management as well as FEMA Region VI to ensure compliance with the hazard mitigation planning guidance and 44 CFR 201.6

## 4. COMMUNITY PROFILES

### 4.1 History

The record of human events in San Miguel County begins circa 1100 A.D., the estimated date of the settlement of Pecos Pueblo near the modern day Village of Pecos. Over the next two centuries, the Pueblo became a vital regional trading center for people of the southern High Plains (i.e. Apaches) and the Puebloan Southwest. By the beginning of the fifteenth century, Pecos Pueblo was the area's most important settlement, acting as both a center of commerce and a fortress for the region.

The first Spanish explorers met with the Pecos Puebloans in 1540. There was intermittent contact between the Pueblo and the *conquistadores* over the next forty years. Conquest occurred in 1580 and, aside from a ten-year span after the Pueblo revolt in 1692, was continuous until the last remaining seventeen residents abandoned the Pueblo at the beginning of the nineteenth century. Disease, occupation, shifting trade routes, and intra-tribal conflict had combined to deplete the community of its resources, deprive it of its strategic position, and diminish its cultural cohesion. Throughout the Spanish and American settlement period, large Pueblo communities dominated the landscape of the Rio Grande Valley and Four Corners region. The fortified village of Pecos Pueblo was a major population and trading center for plains buffalo meat and hides, and Rio Grande ceramics and agricultural products until approximately 1700. Pecos Pueblo came under Spanish jurisdiction and religious rule in 1590. Pecos Pueblo participated in the Pueblo Revolt of 1680, but accepted Spanish re-conquest in 1692. In 1794, settlers from Santa Fe came to the valley of the Pecos River, established the San Miguel del Vado land grant, and started farming and ranching. They founded communities that survived through the rugged life on the Spanish and Mexican frontiers, and the eventual loss of their grant's common lands in the 1800s (Hall 1991). By the end of the eighteenth century, the San Miguel del Vado Land Grant represented the furthest extension of Spanish colonization in the northeast. The early nineteenth century was marked by Mexico's War of Independence. Under Mexican rule, the land grant system remained essentially the same as under the previous Spanish system.

In 1846, Mexican rule of New Mexico was terminated when United States troops arrived in Las Vegas and claimed New Mexico. On August 14, 1846, General Stephen Kearney Watts stood on top of a plaza building in Las Vegas and claimed the territory for the United States. A commemorative plaque located in Plaza Park documents the event. Over the course of the century, Las Vegas became an important stop along the Santa Fe Trail and one of the largest settlements in the territory. The United States' forced occupation of New Mexico lasted until 1848, when much of the West was ceded by Mexico as a result of the American victory in the Mexican-American War, and in 1851, Fort Union was built just 20 miles outside of Las Vegas to protect Santa Fe Trail travelers from Indian raids. Fort Union became an important part of the area's economy as milling and farming became critical support industries for the fort. San Miguel County was one of nine original counties created in the New Mexico Territory in 1852.

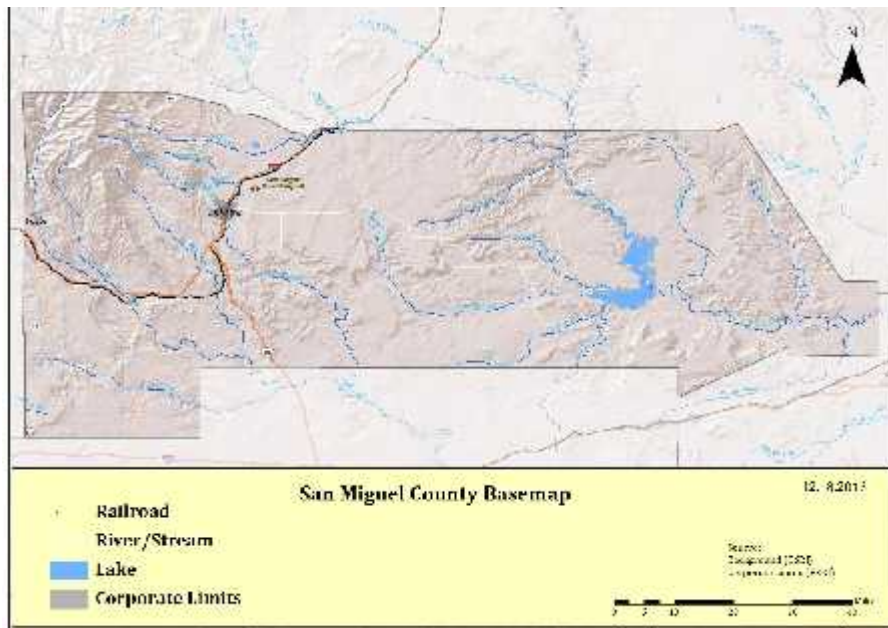
By the 1860's, Las Vegas had grown to over 1000 people including an influx of Jewish, French, Canadian, and European traders, trappers, and merchants. The plaza square shifted from residential to mercantile properties. Las Vegas became a leading commercial center in New Mexico. In 1879, the Atchison, Topeka and Santa Fe Railway reached Las Vegas. With six train stops a day, Las Vegas became so large that it rivaled Denver, Tucson, and El Paso in size. The town became a center of commerce drawing immigrant, settlers, and some of American history's most notorious desperados. East Las Vegas and the rail terminus was soon policed by the "Dodge City Gang" a

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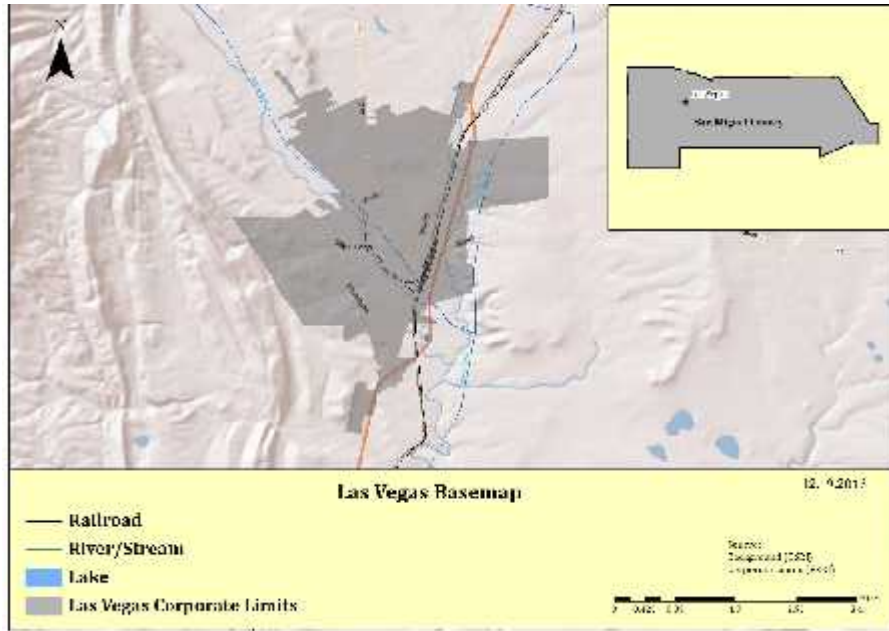
group comprised of a judge, a group of peace officers, and several known outlaws with ties to Dodge City, Kansas. Such notable and notorious characters as Hyman G. “Hoodoo Brown” Neill, Joe Carson, “Mysterious Dave” Mather, Doc Holliday, Big-Nose Kate, Jesse James, Billy the Kid, Bob Ford, and Wyatt Earp visited or made home of Las Vegas during the boomtown years. By 1898, the town’s people had reclaimed the lawless city and provided 21 Rough Riders (the first U.S. volunteer cavalry) to Teddy Roosevelt, most of whom were with him on the charge up San Juan Hill. The town became the home for Rough Rider reunions and a Rough Rider Memorial.

Settlement and activity in San Miguel County was at its high point during the 1930s to 1950s during which villages experienced maximum population growth (Forrest 1998). The County is now home to approximately 29,000 residents and over 900 buildings listed on the National Registry of Historic Places. The area is mostly home to ranchers, local business owners, academia staff and students, and commuters who work in the Santa Fe area. The Village of Pecos, rich in natural wilderness and a draw for eco-tourism, is growing as a bedroom community for Santa Fe commuters.

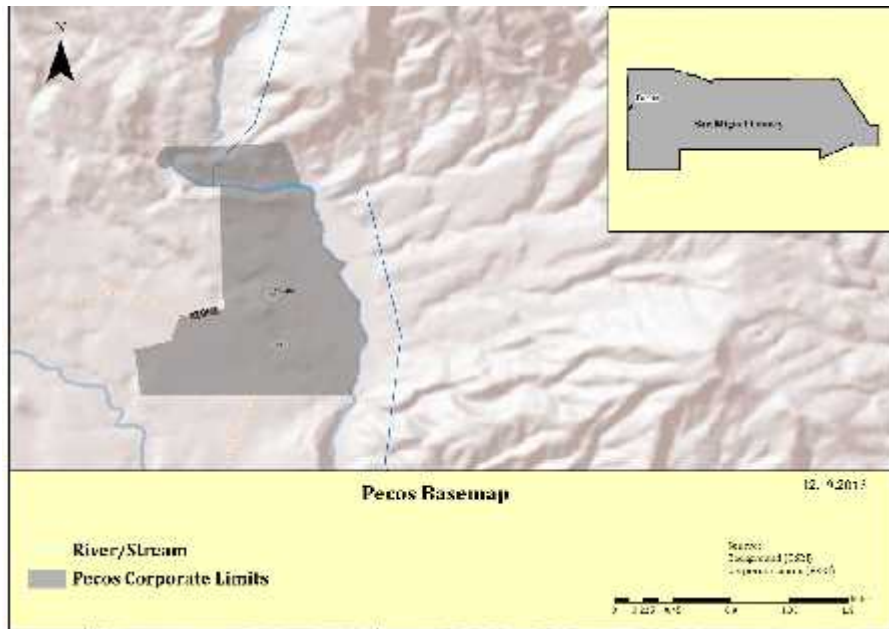
**Map 4.1-1**  
**San Miguel County**



**Map 4.1-2**  
**City of Las Vegas**



**Map 4.1-3**  
**Village of Pecos**



## 4.2 Topography, and Hydrology

San Miguel County is the ninth largest county in New Mexico with approximately four million acres (4,717 square miles)<sup>3</sup>. It is located at the interface between the southern margin of the southern Rocky Mountain physiographic province, the northern extent of the Sacramento Section of the Basin and Range physiographic province, and the southwestern boundary of the Raton Section of the Great Plains physiographic province. High mountain ranges separated by deep structural basins typify the Southern Rocky Mountain physiographic province, whereas high tablelands with broad, rolling summit plains and widely separated structural basins characterize the Sacramento Section. The Raton Section contains high piedmont plains, the remains of extensive basalt flows, and deep canyons of the Canadian and Cimarron river systems (Hawley 1986). The typical land cover types that occur in the general area include the Southern Rocky Mountain Piñon-Juniper Woodland, the Rocky Mountain Gambel's Oak-Mixed Montane Woodland, and the North American Warm Desert Lower Montane Riparian Woodland and Shrubland (Prior-Magee et al. 2007). The southern Rocky Mountain Piñon-Juniper ecological system occurs on dry mountains and foothills in southern Colorado and in mountains and plateaus of north-central New Mexico. The Rocky Mountain Gambel Oak-Mixed Montane Woodland occurs in the mountains, plateaus, and foothills in the southern Rocky Mountains. These shrublands are most commonly found along dry foothills, lower mountain slopes, and are often situated above Piñon-Juniper woodlands. The North American Warm Desert Lower Montane Riparian Woodland and Shrubland occurs in mountain canyons and valleys of southern Arizona, New Mexico, and adjacent Mexico and consists of mid- to low-elevation riparian corridors along perennial and seasonally intermittent streams. The vegetation is a mix of riparian woodlands and shrublands.

The major aquifer within the Las Vegas Plateau is the Cretaceous Dakota Sandstone. Depth to water is generally less than 250 ft. below land surface (bls). In the plains area, groundwater is derived primarily from the Triassic Chinle Formation and Santa Rosa Sandstone, at depths of about 100–300 ft. bls. San Miguel County is drained primarily by the Pecos and Canadian Rivers. The Pecos River and its major tributaries originate in the Sangre de Cristo Mountains, as do the headwaters of the Sapello River, which flows into the Mora River in Mora County to the north. The Mora River flows into the Canadian River south of the San Miguel–Mora County line. The principal tributaries of the Pecos River are, in downstream order, the Rio Mora (distinct from the Mora River), Bull Creek, Tecolote Creek, and the Gallinas River. The Gallinas River and Tecolote Creek drain to the east and southeast, cutting through a series of steep structural ridges in transition areas between the western mountains and the eastern plains. The valleys of these streams are generally narrow and confined. The Canadian River, in the eastern plains region, enters San Miguel County at the northern county border and flows in a southerly direction through the Canadian River canyon to Conchas Lake and then continues generally easterly below Conchas Lake to the eastern county line.<sup>4</sup>

There are three major lakes in San Miguel County: Lake Isabel, Conchas Lake on the Canadian River, and Storrie Lake on the Sapello River (New Mexico State Engineer Office, 1975; Daniel B. Stephens & Associates, Inc., 2005). Conchas Lake is a 25-mi-long water body with a surface area of about 6,419 acres and average storage of 61,532 acre-feet (acre-ft.) (Daniel B. Stephens & Associates, Inc., 2005) that is fed by the Canadian and Conchas Rivers; the reservoir supplies appropriated water to irrigated lands around Tucumcari, about 35 mi to the southeast (U.S. Bureau of Reclamation, 1979). Lake Isabel, averaging 530 acres in surface area and 6,500 acre-ft. of storage (Daniel B. Stephens &

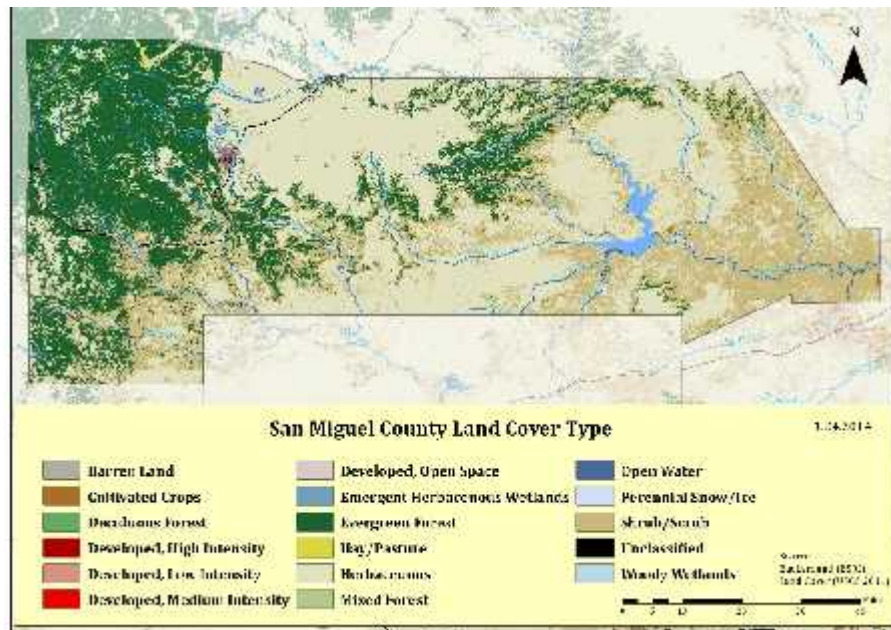
<sup>3</sup> Retrieved 10.28.13 <http://www.indexmundi.com/facts/united-states/quick-facts/new-mexico/land-area#chart>

<sup>4</sup> US Geological Survey, Scientific Investigations Report 2012–5238: *Characterization of the Hydrologic Resources of San Miguel County, New Mexico, and Identification of Hydrologic Data Gaps, 2011*



Associates, Inc., 2005), also supplies irrigation water. Storrie Lake, averaging 907 acres in surface area and 21,747 acre-ft. of storage (Daniel B. Stephens & Associates, Inc., 2005), supplies water to Las Vegas and acequias of the Las Vegas Acequia Association (Ebright, 2009). Additionally, twenty-two springs have been located in San Miguel County (Griggs and Hendrickson, 1951; White and Kues, 1992). Most are reported to yield less than 12 gallons per minute, with five of the springs reported to yield 40–150 gallons per minute and one reported to yield an anomalously high 400 gallons per minute. No other published sources updating spring yields reported by Griggs and Hendrickson (1951) were located.<sup>5</sup>

**Map 4.2-1  
San Miguel County Land Cover**



### 4.3 Population Overview

San Miguel County is a rural area in northeastern New Mexico (4,717 square miles with 6.2 persons/square mile<sup>6</sup>) located to the northeast of Santa Fe and southeast of Taos. The population is predominately of Hispanic origin (76.8 percent). Over half of the population speaks a language other than English at home (58.7 percent) but only one percent speak no English at all<sup>7</sup>. The population of San Miguel County, based on 2012 U.S. Census data estimates was 28,891.<sup>8</sup> The population in San Miguel County saw a 22 percent growth between the years of 1910 and 1940. The Second World War changed the community, and it marked the beginning of a population decline. After a peak population of 27,910 residents in 1940, the population began to decline through the 1970s. By 1990, the population had turned back around and increased by 17 percent since 1980 to 25,743 people.

<sup>5</sup> US Geological Survey, Scientific Investigations Report 2012–5238: *Characterization of the Hydrologic Resources of San Miguel County, New Mexico, and Identification of Hydrologic Data Gaps, 2011*

<sup>6</sup> U.S. Department of Commerce, U.S. Census Bureau. Retrieved 07.15.13 from <http://quickfacts.census.gov/qfd/states/35/35047.html>

<sup>7</sup> Retrieved 7.15.13 from [http://www.city-data.com/county/San\\_Miguel\\_County-NM.html](http://www.city-data.com/county/San_Miguel_County-NM.html)

<sup>8</sup> U.S Department of Commerce, US Census Bureau. Retrieved 7.15.13 <http://quickfacts.census.gov/qfd/states/35/35047.html>

The majority of San Miguel County’s population consists of individuals who are of Hispanic or Latino origin. In the 2010 US Census, 76.9 percent of residents identified themselves as Hispanic or Latino. Hispanic and Latino populations have both cultural and racial identification, and may be of any race. They are therefore included in the ethnic and applicable Census race categories in Table 4.3-1 for San Miguel County population statistics.<sup>9</sup>

**Table 4.3-1  
Racial and Ethnic Diversity in San Miguel County**

| Race/Ethnicity                            | Percent of County Population |
|---|------------------------------|
| Hispanic or Latino                        | 76.9%                        |
| Caucasian                                 | 92.4%                        |
| Caucasian (not Hispanic or Latino)        | 19.6%                        |
| African-American (not-Hispanic or Latino) | 1.7%                         |
| Native American or Native Alaskan         | 2.8%                         |
| Two or more races                         | 1.9%                         |
| Asian                                     | 1.0%                         |
| Native Hawaiian or other Pacific Islander | 0.2%                         |

Source: U.S. Department of Commerce, U.S. Census Bureau, 2010 Census data.

According to 2011 Census estimates, there are 15,762 housing units with a 67 percent ownership rate in the County. The median value of owner-occupied housing units is \$118,000. The County also has 12,010 households and averages 2.28 persons per household.

#### 4.4 Climate

Average maximum and minimum temperatures range from a high of 85° Fahrenheit (F) to a low of 16° F. Mean annual rainfall is 16 inches and mean annual total snowfall is 32 inches with an averaged 62 precipitation days per year.<sup>10</sup>

#### 4.5 Economy

According to the U.S. Census 2007-2011 American Community Survey, 2.1 percent of San Miguel County residents were in the labor force with 46.6 percent employed and 5.3 percent unemployed (Table 4.5-1). The percentage of people employed and in the labor force in the county was lower than those employed and in the labor force in the state (56.1 percent). The percentage of unemployed in the county is slightly higher than those unemployed within the state (5.0 percent).<sup>11</sup> San Miguel County has a median household income of \$32,332 where 26.2 percent of residents live below the poverty level.<sup>12</sup>

The three most common industries within the County include educational, health and social services which constitutes 33 percent of the labor force, retail trade which constitutes 13 percent of

<sup>9</sup> U.S. Department of Commerce, US Census Bureau. Retrieved 7.15.13 <http://quickfacts.census.gov/qfd/states/35/35047.html>

<sup>10</sup> Retrieved 7.15.13 from [http://www.bestplaces.net/climate/county/new\\_mexico/san\\_miguel](http://www.bestplaces.net/climate/county/new_mexico/san_miguel)

<sup>11</sup> U.S. Department of Commerce, U.S. Census Bureau. Retrieved 7.16.13 from [http://factfinder2.census.gov/bkml/table/1.0/en/ACS/11\\_5YR/DP03/0500000US35047%7C0400000US35](http://factfinder2.census.gov/bkml/table/1.0/en/ACS/11_5YR/DP03/0500000US35047%7C0400000US35)

<sup>12</sup> U.S. Department of Commerce, U.S. Census Bureau. Retrieved 7.16.13 from <http://quickfacts.census.gov/qfd/states/35/35047.html>

the labor force, and public administration that constitutes 10 percent of the labor force.<sup>13</sup> The County’s two major employers are the Las Vegas Medical Center and the New Mexico State Department of Transportation.<sup>14</sup> Other main industries include accommodation and food services, construction, professional, management, administration, and waste management services.

Another economic interest for San Miguel County is the entertainment industry. The communities’ unique culture, historic preservation, and climate provide favorable locations for filming movies and television programs. There have been at least 62 productions at least partly filmed in the County. Some of the more notable films include Easy Rider (1969), Red Dawn (1984), Wyatt Earp (1994), No Country for Old Men (2006), and True Grit (2010).<sup>15</sup>

**Table 4.5-1  
Employment and Income in San Miguel County**

| <b>Economic Status Indicator</b> | <b>State of New Mexico</b> | <b>San Miguel County</b> |
|----------------------------------|----------------------------|--------------------------|
| Population (2012 Estimate)       | 2,085,538                  | 28,891                   |
| Civilian Labor Force             | 974,512                    | 12,316                   |
| Employed                         | 886,857                    | 11,013                   |
| Unemployed                       | 78,901                     | 1,260                    |
| Armed Forces                     | 8,754                      | 43                       |
| Median Family Income             | \$53,956                   | \$41,309                 |
| Per-Capita Income                | \$23,537                   | \$19,130                 |
| Individuals Below Poverty Level  | 19.0%                      | 26.2%                    |
| Families Below Poverty Level     | 14.4%                      | 17.5%                    |

Source: U.S. Department of Commerce, U.S. Census Bureau, Census. 2007-2011 American Community Survey 5-year Estimates

## 4.6 Agriculture

Beef cattle ranching is the single largest private business, with an estimated 35,000 head of cattle in San Miguel County, ranking 11th in the state. There are 565 farms with an estimated 2,091,643 acres of farmland.<sup>16</sup> Table 4.6-1 provides more detail about agriculture in San Miguel County.

<sup>13</sup> Retrieved 07.17.13 from [http://www.city-data.com/county/San\\_Miguel\\_County-NM.html](http://www.city-data.com/county/San_Miguel_County-NM.html)

<sup>14</sup> New Mexico State University, San Miguel County Extension Office. Retrieved 07.15.13 from <http://sanmiguelextension.nmsu.edu/>

<sup>15</sup> Las Vegas Film Commission. 2013 Guide – Las Vegas & San Miguel County. Print.

<sup>16</sup> New Mexico State University, San Miguel County Extension Office. Retrieved 07.15.13 from <http://sanmiguelextension.nmsu.edu/>

**Table 4.6-1  
San Miguel County Agriculture**

| Agricultural Element                              | Size/Value |
|---|------------|
| Average size of farms                             | 3702 acres |
| Average value of products sold per farm           | \$21,731   |
| Average value of crops sold per acre              | \$264.18   |
| Average total production expenses per farm        | \$22,474   |
| Average value of machinery and equipment per farm | \$39,093   |
| Average age of principle farm operators           | 58 years   |

Source: City-Data, San Miguel County, New Mexico. Retrieved 07.17.13 from [http://www.city-data.com/county/San\\_Miguel\\_County-NM.html](http://www.city-data.com/county/San_Miguel_County-NM.html)

## 4.7 Historic, Cultural, and Ecological Interest

San Miguel County is home to 106 districts, sites and locations on the National Historic Register ranging from parts of the Santa Fe Trail, Glorieta Pass Battlefield, and Pecos National Historic Park, to railroad icons, merchant structures, and residential homes. The rich history of San Miguel County and its communities serves as a living testament to ancient native culture, 19<sup>th</sup> Century Mexican land grant settlements, and the industrialization of the Old West.

Local historic and cultural attractions include the Montezuma Castle, an homage to the railroad days that now serves as an international college, and the Rough Rider Museum which houses a collection of over 7,000 objects, photographs, and archival materials. The Museum’s collection includes items dating from as early as the 1300s.<sup>17</sup> Other attractions include the only surviving Carnegie Library in New Mexico, the Old Town Plaza Historic District, “The Well” known to be the oldest surviving well along the Santa Fe Trail, and a number of uniquely preserved Acequias.

The County hosts a number of ecological and eco-tourism assets. The Las Vegas National Wildlife Refuge provides 8,672 acres of native grasslands, croplands, marshes, ponds, timbered canyons, and streams as a habitat for over 270 species of birds. Other animal life includes mule deer, American pronghorn, wild turkey, and coyote. Amphibian, reptile, and insects are also found in abundance on the refuge. Eco-tourism activities include hiking the refuge, horseback riding, fishing in the Pecos Wilderness, canoeing on Storrie Lake, and snow skiing the slopes of the lower Rocky Mountains

## 4.8 Land Use and Development Trends

Land use patterns within the County include a mix of private, state, and federal property. The mesas and upland areas are predominately used for cattle grazing. The farming lands are located along the Gallinas and Pecos River valleys with development clustered in villages, towns, and cities. The County also provides large, open rangeland, and federally protected forest lands. Federal and state lands together make up 19 percent of the County’s land area. The remaining 81 percent is private land.<sup>18</sup> Table 4.8-1 outlines land use and ownership in the County.

<sup>17</sup> New Mexico State University, San Miguel County Extension Office. Retrieved 07.15.13 from <http://sanmiguelextension.nmsu.edu/>

<sup>18</sup> 2004-2014 San Miguel County Comprehensive Plan. Printed.

**Table 4.8-1  
San Miguel County Land Use and Ownership**

| <b>Land Use</b>                    | <b>Percentage</b> |
|------------------------------------|-------------------|
| Federal/State Protected Lands      | 19%               |
| Farm and Pasture Lands             | 2%                |
| Developed – Village and City Lands | 1%                |
| Ranch Lands                        | 78%               |
| <b>Land Ownership</b>              | <b>Percentage</b> |
| Federal                            | 13%               |
| State                              | 6%                |
| Native American                    | 0%                |
| Private                            | 81%               |

Source: 2004-2014 San Miguel County Comprehensive Plan. Printed.

Approximately half of the County’s population resides in the City of Las Vegas and nearby surrounding areas. Between 1990 and 2000, County areas outside of the City of Las Vegas grew nearly 40 percent, while city population remained stagnant (BBER 2010). Land ownership indicates that the private sector is largely in control, but the large lot and ranch sizes make governmental regulations more feasible (San Miguel County 2004). In more recent years, the county has experienced slower growth and land conversion from rural/wild to urban is not a current concern. However, future national economic recovery could result in increased growth.

Proximity to the job centers of Santa Fe and Albuquerque will likely mean future growth pressures. Water consumption will continually be an associated issue with growth. Continued low density growth in less developed areas will only exacerbate vulnerability to the hazards as described in later sections of this plan. According to a Las Vegas Land Use Focus Group presentation in 2010, 620 acres are projected to be needed for urban growth between 2010 and 2030. Renovation, revitalization, and infill within existing activity centers will be keys to alleviating some of these issues.

## **4.9 San Miguel County Hazard Exposure Profile**

San Miguel County has a total land area of 4,717 square miles, and a population of 28,891 according to U.S. Census. Table 4.9-1 summarizes the critical community infrastructure and facilities that are potentially at risk from disasters. Understanding the value of assets within the county will assist with determining the potential impacts of natural and human-caused disasters.

**Table 4.9-1  
San Miguel County Assets and Value**

| Facility                             | Number | Description   | Replacement Cost |
|--------------------------------------|--------|---|------------------|
| <b>Utility Infrastructure</b>        |        |   |                  |
| Power Plants                         | 1      | Public Service Company<br>NM Las Vegas Turbine  | \$105,600,000    |
| Natural Gas Utility Lines            | 4,028  | miles   | unavailable      |
| Public Water Supplies                | 9      | Dams/reservoirs   | unavailable      |
| Potable Water Pipeline               | 10,070 | miles   | unavailable      |
| Wastewater Treatment Plants          | 2      | City of Las Vegas; San<br>Miguel County<br>Co-Operation Break   | \$127,872,000    |
| Wastewater Pipeline                  | 6,042  | miles   | unavailable      |
| Sewage Treatment Sites               | 2      | City of Las Vegas and<br>Village of Pecos   | unavailable      |
| Dams                                 | 9      | Lake Isabel Dam, Storrie<br>Dam, Bradner Dam,<br>Peterson Dam, Aragon<br>Dam, Sink Hole Gap<br>Reservoir, Corralitas<br>Dam, Conchas Dam,<br>Pecos Arroyo<br>Watershed Site 1 | unavailable      |
| <b>Transportation Infrastructure</b> |        |   |                  |
| Roads/Streets                        | 434    | miles of major and<br>urban roadway   | \$2,735,606,000  |
| Bridges                              | 117    |   | \$105,938,000    |
| Railroad Lines                       | 132    | miles of railroad track   | \$117,672,00     |
| Railroad Facility                    | 1      | TNM & O, Las Vegas  | \$2,663,000      |
| Bus Facility                         | 1      | TNM & O, Las Vegas  | \$1,046,000      |
| Airport                              | 1      | Las Vegas Municipal<br>Airport  | \$10,651,000     |
| <b>Critical Community Facilities</b> |        |   |                  |
| Medical Facilities                   | 2      | Northeastern Regional<br>Hospital; Las Vegas<br>Medical Center  | \$20,160,000     |
| Schools                              | 26     |   | \$65,733,000     |
| City/County Facilities               |        | George Arellanes<br>Municipal Complex,<br>Intermodal Facility,<br>Museum, Utilities Dept.,<br>etc.  |                  |
| Radio Broadcast Facilities           | 6      | KFUN, KNMX, KEDP Ch<br>216, KLVF Ch 264,  | \$576,000        |

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| Facility                       | Number  | Description                               | Replacement Cost |
|--------------------------------|---------|---|------------------|
|                                |         | KBAC Ch 251, KMDZ Ch 244                  |                  |
| <b>Hazardous Materials</b>     |         |   |                  |
| Toxic Chemical Inventory Sites | unknown |   | N/A              |
| Superfund Sites                | unknown |   | N/A              |
| Nuclear Power Plants           | 0       | No operating nuclear power reactors in NM | N/A              |

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## 5. HAZARD PROFILES

This chapter describes the potential hazards that could affect San Miguel County. The MPG evaluated historical occurrences of each potential hazard, as well as the likelihood of other potential hazards to impact San Miguel County in the future. The following 18 hazards were selected for inclusion in the plan by the MPG:

- Dam Failure
- Drought
- Earthquake
- Expansive Soils
- Extreme Heat
- Flood
- Hailstorm
- Hazardous Materials Incidents
- High Wind
- Landslide
- Levee Failure
- Pandemic/Epidemic
- Pests
- Severe Winter Weather
- Terrorism
- Thunderstorm
- Tornado
- Wildfire

This Section profiles the 18 hazards listed above, including a description of the hazards, history of previous occurrences, location the hazard has occurred or is likely to occur, the extent and severity of the hazard, impact on life and property, and probability of future occurrences. The MPG discussed the county and participating jurisdiction’s vulnerability to each of the hazards profiled above. They evaluated the impacts to people, buildings, and infrastructure using the methodology described in Table 5-1.

**Table 5-1  
Hazard Ranking Methodology**

| Impacts to People     |  |
|-----------------------|--|
| Hazard                | Metric   |
| Low                   | 10% or less of people impacted   |
| Moderate              | 11% to 30% of people impacted  |
| High                  | 31% or more of people impacted   |
| Additional Parameters | Psychological and sociological impacts; “people” includes residents, tourists, visitors, and commuters to San Miguel County. |
| Impacts to Buildings  |  |
| Hazard                | Metric   |
| Low                   | 10% or less of buildings impacted, or limited to L5 facilities   |

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|                                  |   |
|----------------------------------|---|
| Moderate                         | 11% to 30% of buildings impacted, or limited to L4 and L5 facilities  |
| High                             | 31% or more of buildings impacted   |
| Additional Parameters            | Degree of structural damages, available mitigation measures, continuity of operations, and loss of function.    |
| <b>Impacts to Infrastructure</b> |   |
| <b>Hazard</b>                    | <b>Metric</b>   |
| Low                              | Loss of Function for 12-24 hours  |
| Moderate                         | Loss of Function for 24-72 hours  |
| High                             | Loss of Function for greater than 72 hours  |
| Additional Parameters            | Includes transportation, communications, electricity or gas for heat, water, sanitary sewer and roadway access. |

Each hazard was given a rank of High, Moderate, or Low for each of the three categories (potentially affecting people, buildings, and infrastructure). One point was given for each “low” ranking, two points for “moderate”, and 3 points for “high” and noted in Table 5-2.

**Table 5-2  
Hazard Risk Scoring**

| Rank     | Score |
|----------|-------|
| Low      | 1     |
| Moderate | 2     |
| High     | 3     |

From these rankings, a numeric value was calculated and an overall hazard ranking was assigned for each hazard in each jurisdiction. Table 5-3 summarizes the results from the group discussion.

**Table 5-3  
Hazard Impact Ranking**

| Jurisdiction       | People | Buildings | Infrastructure | Score | Overall Ranking |
|--------------------|--------|-----------|----------------|-------|-----------------|
| <b>Dam Failure</b> |        |           |                |       |                 |
| San Miguel County  | M      | H         | H              | 8     | High            |
| Las Vegas          | H      | H         | H              | 9     | High            |
| Village of Pecos   | M      | L         | H              | 6     | Moderate        |
| <b>Drought</b>     |        |           |                |       |                 |
| San Miguel County  | H      | L         | H              | 7     | High            |
| Las Vegas          | H      | L         | H              | 7     | High            |
| Village of Pecos   | H      | L         | H              | 7     | High            |
| <b>Earthquake</b>  |        |           |                |       |                 |
| San Miguel County  | L      | L         | L              | 3     | Low             |

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| Jurisdiction                        | People | Buildings | Infrastructure | Score | Overall Ranking |
|-------------------------------------|--------|-----------|----------------|-------|-----------------|
| Las Vegas                           | L      | L         | L              | 3     | Low             |
| Village of Pecos                    | L      | M         | H              | 6     | Moderate        |
| <b>Flood</b>                        |        |           |                |       |                 |
| San Miguel County                   | M      | M         | H              | 7     | High            |
| Las Vegas                           | M      | M         | H              | 7     | High            |
| Village of Pecos                    | H      | H         | H              | 9     | High            |
| <b>Expansive Soils</b>              |        |           |                |       |                 |
| San Miguel County                   | L      | L         | L              | 3     | Low             |
| Las Vegas                           | L      | L         | L              | 3     | Low             |
| Village of Pecos                    | L      | L         | L              | 3     | Low             |
| <b>Extreme Heat</b>                 |        |           |                |       |                 |
| San Miguel County                   | H      | L         | L              | 5     | Moderate        |
| Las Vegas                           | L      | L         | L              | 3     | Low             |
| Village of Pecos                    | L      | L         | L              | 3     | Low             |
| <b>Hailstorm</b>                    |        |           |                |       |                 |
| San Miguel County                   | H      | H         | M              | 8     | High            |
| Las Vegas                           | H      | H         | M              | 8     | High            |
| Village of Pecos                    | L      | M         | L              | 4     | Low             |
| <b>Hazardous Materials Incident</b> |        |           |                |       |                 |
| San Miguel County                   | M      | L         | M              | 5     | Moderate        |
| Las Vegas                           | M      | H         | M              | 7     | High            |
| Village of Pecos                    | H      | H         | H              | 9     | High            |
| <b>High Wind</b>                    |        |           |                |       |                 |
| San Miguel County                   | H      | M         | M              | 7     | High            |
| Las Vegas                           | H      | H         | H              | 9     | High            |
| Village of Pecos                    | H      | H         | H              | 9     | High            |
| <b>Landslide</b>                    |        |           |                |       |                 |
| San Miguel County                   | L      | L         | L              | 3     | Low             |
| Las Vegas                           | L      | L         | L              | 3     | Low             |
| Village of Pecos                    | L      | L         | L              | 3     | Low             |
| <b>Levee Failure</b>                |        |           |                |       |                 |
| San Miguel County                   | L      | L         | L              | 3     | Low             |
| Las Vegas                           | L      | L         | L              | 3     | Low             |

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| Jurisdiction                 | People | Buildings | Infrastructure | Score | Overall Ranking |
|------------------------------|--------|-----------|----------------|-------|-----------------|
| Village of Pecos             | L      | L         | L              | 3     | Low             |
| <b>Pests</b>                 |        |           |                |       |                 |
| San Miguel County            | L      | L         | L              | 3     | Low             |
| Las Vegas                    | L      | L         | L              | 3     | Low             |
| Village of Pecos             | L      | L         | L              | 3     | Low             |
| <b>Severe Winter Weather</b> |        |           |                |       |                 |
| San Miguel County            | H      | M         | H              | 8     | High            |
| Las Vegas                    | H      | M         | H              | 8     | High            |
| Village of Pecos             | H      | L         | H              | 7     | High            |
| <b>Terrorism</b>             |        |           |                |       |                 |
| San Miguel County            | L      | L         | L              | 3     | Low             |
| Las Vegas                    | M      | L         | M              | 5     | Moderate        |
| Village of Pecos             | L      | L         | L              | 3     | Low             |
| <b>Thunderstorm</b>          |        |           |                |       |                 |
| San Miguel County            | H      | M         | H              | 8     | High            |
| Las Vegas                    | H      | M         | H              | 8     | High            |
| Village of Pecos             | H      | H         | H              | 9     | High            |
| <b>Tornado</b>               |        |           |                |       |                 |
| San Miguel County            | M      | M         | M              | 6     | Moderate        |
| Las Vegas                    | H      | H         | H              | 9     | High            |
| Village of Pecos             | M      | M         | M              | 6     | Moderate        |
| <b>Wildfire</b>              |        |           |                |       |                 |
| San Miguel County            | H      | H         | H              | 9     | High            |
| Las Vegas                    | H      | L         | H              | 7     | High            |
| Village of Pecos             | H      | H         | H              | 9     | High            |
| <b>Pandemic/Epidemic</b>     |        |           |                |       |                 |
| San Miguel County            | M      | L         | H              | 7     | High            |
| Las Vegas                    | H      | L         | H              | 8     | High            |
| Village of Pecos             | H      | L         | H              | 8     | High            |

Probabilities of occurrence for the hazards are generally defined through annualization of events. Those probabilities are then further defined using the metrics in Table 5-4.

**Table 5-4  
Probability of Occurrence Methodology**

| Frequency     | Description   |
|---------------|---|
| Highly Likely | Nearly 100% probability in the next year  |
| Likely        | 10% - 100% probability in the next year or at least 1 chance over the next 10 years |
| Possible      | 1% - 10% probability or at least one chance in the next 100 years                   |
| Unlikely      | Less than 1% chance in the next 100 years.  |

## 5.1 Dam Failure

Based on the MPG’s collaborative assessment, evaluation, and ranking of each potential hazard within the county, the hazard of dam failure was ranked in terms impacts to people, buildings and infrastructure in order to determine the hazard priorities within the county. According to surveyed MPG responses, dam failure had high rankings for impacts to infrastructure in all three jurisdictions. Impacts to people and buildings were mixed among the jurisdictions as noted in Table 5-3. The overall dam failure hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - High
- Las Vegas – High
- Village of Pecos - Moderate

### 5.1.1 Description of the Hazard

Dams are defined by the National Dam Safety Act as an artificial barrier that impounds or diverts water and (1) is more than 6 feet high and stores 50 acre feet or more or (2) is 25 feet or more high and stores more than 15 acre feet. According to the Association of State Dam Safety Officials, dams are life-sustaining assets to people in all regions of the United States and are as important to the nation’s infrastructure as bridges, roads, and airports. Dams can serve several functions at the same time, including providing water supply for domestic, agricultural, industrial, and community use; flood control; recreation; and clean, renewable energy through hydropower<sup>19</sup>.

According to the American Society of Engineers, The nation’s dams are aging and the number of high-hazard dams is on the rise. Many of the nation’s dams were built as low-hazard dams protecting undeveloped agricultural land, but with an increasing population and greater development below dams, the overall number of high-hazard dams continues to increase, to nearly

<sup>19</sup> Association of State Dam Safety Officials. (2013). *Dams are a vital part of the national infrastructure*. Retrieved from <http://www.damsafety.org/news/?p=09a34183-4894-4781-9bfb-d4ce980d8cd1>

14,000 in 2012<sup>20</sup>, including 210 dams in the State of New Mexico<sup>21</sup>. Thus, greater attention to and investment in measures that reduce risks to public safety and economic assets is needed.

The consequences of a dam failure event can be catastrophic. Since 2007, there have been over 135 fatalities and more than \$2.6 billion in property damage in the United States from dam failures<sup>22</sup>. Dam failures can result from any one, or a combination of the following causes:

- Prolonged periods of rainfall and flooding;
- Inadequate spillway capacity, resulting in excess overtopping of the embankment;
- Internal erosion caused by embankment or foundation leakage or piping;
- Improper maintenance, including failure to remove trees, repair internal seepage problems, or maintain gates, valves, and other operational components;
- Improper design or use of improper construction materials;
- Failure of upstream dams in the same drainage basin;
- Landslides into reservoirs, which cause surges that result in overtopping;
- High winds, which can cause significant wave action and result in substantial erosion;
- Destructive acts of terrorists; and
- Earthquakes, which typically cause longitudinal cracks at the tops of the embankments, leading to structural failure<sup>23</sup>.

Dam hazard classifications vary between states, but generally include three classes based on estimated loss of life and downstream damage from a dam failure. The hazard potential classification is a rating for a dam based on the potential consequences of failure. The rating is based on loss of life and economic loss, and environmental damage that is likely to occur in the event of dam failure. No allowances for evacuation or other emergency actions by the population should be considered. The hazard potential classification is not a reflection of the condition of the dam. Refer to Table 5.1-1 and 5.1-2 for dam size and dam hazard classifications, which are described in 19.25.12.10 NMAC<sup>24</sup>.

**Table 5.1-1  
 Dam Size Classification**

| Size Classification | Storage (Acre-Ft.)   | Height (Ft.)   |
|---------------------|--|--|
| Small               | 50 acre-ft. or greater, but less than or equal to 1,000 acre-ft.       | 25 ft. or greater but less than or equal to 40 ft.     |
| Intermediate        | Greater than 1,000 acre-ft., but less than or equal to 50,000 acre-ft. | Greater than 40 ft., but less than or equal to 100 ft. |
| Large               | Greater than 50,000 acre-ft.   | Greater than 100 ft.                                   |

<sup>20</sup> American Society of Engineers. (2013). *2013 Report Card for America's Infrastructure*. Retrieved from <http://www.infrastructurereportcard.org/dams/>

<sup>21</sup> Department of Homeland Security and Emergency Management, (2010). *New Mexico Natural Hazard Mitigation Plan*

<sup>22</sup> Louisiana Department of Transportation and Development. (2007). *Louisiana Dam Safety Program*. Retrieved from [http://www.ltrc.lsu.edu/tec\\_07/presentations/Overview of LA Dam Safety Program.pdf](http://www.ltrc.lsu.edu/tec_07/presentations/Overview%20of%20LA%20Dam%20Safety%20Program.pdf)

<sup>23</sup> Ohio Emergency Management Agency, (2012). *State of Ohio Enhanced Hazard Mitigation Plan*

<sup>24</sup> New Mexico Register, Volume XVI, Number 6. March 31, 2005. PDF. <http://www.nmcpr.state.nm.us/nmregister/xvi/xvi06/19.25.12.pdf>

**Table 5.1-2  
 Dam Hazard Classification**

| Hazard Classification | Loss of Life                       | Economic Loss   |
|-----------------------|------------------------------------|---|
| Low                   | No probable loss of life.          | Low economic or environmental losses. Losses are principally limited to the dam owner’s property.   |
| Significant           | No probable loss of life.          | Cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas, but could be located in populated areas with significant infrastructure. |
| High                  | Probably cause loss of human life. | N/A   |

The state, local water associations, and other jurisdictions own the dams in the county. Dam owners are responsible for the safety, operations, and maintenance associated with their structure. The Dam Safety Bureau of the Office of the State Engineer inspects dams to verify they are operated and maintained in a safe condition. State Engineer Rules and Regulations require Emergency Action Plans for existing high and significant hazard potential dams. These plans must be prepared, maintained, and exercised for immediate defensive action to prevent or minimize property damage, injury, or loss of life due to an emergency-flooding situation. (19.25.12.18 NMAC).

**5.1.2 Significant Past Occurrences**

Storrie Lake Reservoir (intermediate size dam of 22,000 acre feet) provides water supply for domestic, agricultural, wildlife, and recreational/community use; in addition to flood control. The September 13, 2014 (DR-4152) flood event caused considerable damage to the headgates structure on the Storrie Project Water Users Association (SPWUA) main delivery canal to Storrie Lake Reservoir, off of the Gallinas River.



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The Storrie Project Water Users Association is a private non-profit association that serves 50 shareholders and currently stores over 50% of the water supply for the City of Las Vegas. The headgates control the water being diverted into the canal thus managing the amount of water that flows downstream into Las Vegas and the surrounding communities along the Gallinas River. The need to control the flow in the canal to facilitate the repair to the September 13, 2014 flood-caused breach prompted the use of heavy equipment to close the headgates, thus causing further damage to the gates and railing system. Preliminary estimates to replace the gates and upgrade the diversion structure are \$900,000.00.



**5.1.3 Location of Areas at Risk for Dam Failure**

The New Mexico Office of the State Engineer provided the following dam data for the State of New Mexico and San Miguel County (Table 5.1.3-3):

**Table 5.1.3-1  
New Mexico Dam Data**

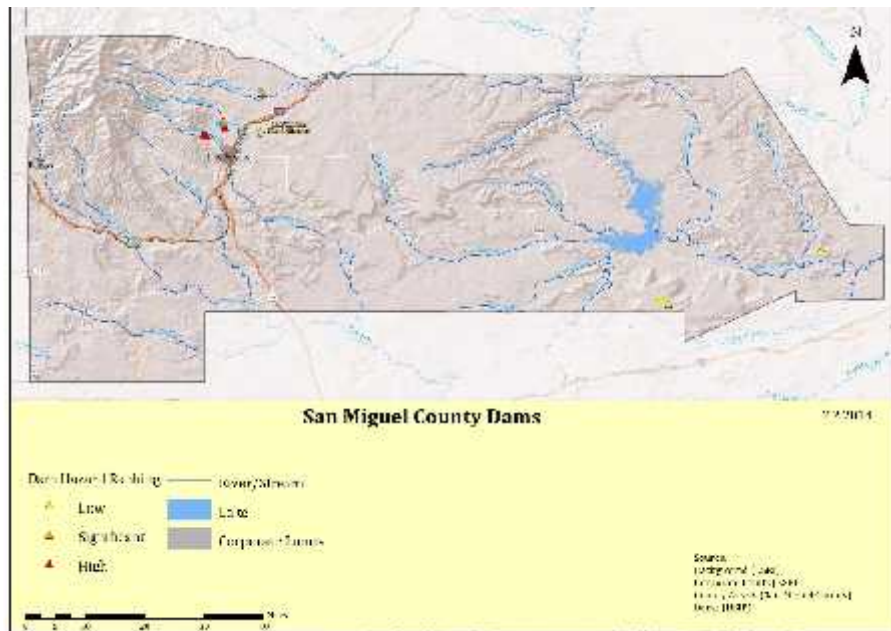
| Location and Description of Dams in New Mexico                     | Quantity        |
|--|-----------------|
| Dams in New Mexico   | 295             |
| OSE regulated high-hazard dams in New Mexico                       | 155             |
| OSE regulated significant-hazard dams in New Mexico                | 54              |
| Federal high-hazard dams in New Mexico                             | 35              |
| Federal significant-hazard dams in New Mexico                      | 9               |
| Non-jurisdictional high-hazard dams in New Mexico                  | 39              |
| Non-jurisdictional significant-hazard dams in New Mexico           | 24              |
| OSE regulated dams in San Miguel County                            | 8               |
| High-hazard dams in San Miguel County                              | 3               |
| Significant-hazard dams in San Miguel County                       | 1               |
| Non-compliant dams under 19.25.12 NMAC in San Miguel County        | 7               |
| Dams outside San Miguel County that could impact San Miguel County | None identified |

*Source: New Mexico Office of the State Engineer. Interview: Judy Leyba. October 18, 2013.*

Identified, regulated high, significant, and low hazard dams are shown in their location relative to the county jurisdictions in Map 5.1.3-1 on the following page:



**Map 5.1.3-1**  
**San Miguel County High, Significant, and Low Hazard Dams**



According to a 2011 report by the New Mexico Office of the State Engineer and recorded in a handout to the State Legislature, there are regulated two high hazard dams, one significant hazard dam, and four low hazard dams in the county with noted deficiencies<sup>25</sup>. Those dams, their conditions, and noted deficiencies are provided in Table 5.1.3-2:

<sup>25</sup> Office of the State Engineer, Deficient Dams 2011-07-01. Handout. July 1, 2011. Downloaded from <http://www.nmlegis.gov/lcs/handouts/Deficient%20Dams%202011-07-01.pdf>

**Table 5.1.3-2  
OSE Regulated Dams with Noted Deficiencies**

| <b>Regulated High Hazard Dams</b>        |   |                  |   |             |            |
|--|---|------------------|---|-------------|------------|
| <b>Dam Name</b>                          | <b>Owner</b>                                      | <b>Condition</b> | <b>Deficiency</b>   | <b>Cost</b> | <b>EAP</b> |
| Bradner Dam                              | Las Vegas   | Fair             | Spillway Capacity 37% of required flood, Woody Vegetation, Rodents, Erosion | \$3M        | Yes        |
| Peterson Dam                             | Las Vegas   | Fair             | Scour of downstream toe, Woody Veg, Seepage                                 | \$2M        | Yes        |
| <b>Regulated Significant Hazard Dams</b> |   |                  |   |             |            |
| <b>Dam Name</b>                          | <b>Owner</b>                                      | <b>Condition</b> | <b>Deficiency</b>   | <b>Cost</b> | <b>EAP</b> |
| Pecos Arroyo W.S. Site 1                 | Tierra Y Monte Soil & Water Conservation District | Fair             | Spillway Capacity 50% of required flood                                     | \$2.5M      | No         |
| <b>Regulated Low Hazard Dams</b>         |   |                  |   |             |            |
| <b>Dam Name</b>                          | <b>Owner</b>                                      | <b>Condition</b> | <b>Deficiency</b>   | <b>Cost</b> | <b>EAP</b> |
| Aragon Dam                               | T-4 Cattle Company                                | Fair             | Woody Veg, Erosion, Maintenance needed                                      | \$200K      | N/A        |
| Corralitas Dam                           | T-4 Cattle Company                                | Fair             | Woody Veg, Erosion, Maintenance needed                                      | \$200K      | N/A        |
| Lake Isabel Dam                          | K.W. Kirkpatrick                                  | Poor/Fair        | Spillway Capacity ~63% of required flood, Lack of design info               | \$300K      | N/A        |
| Sink Hole Gap Reservoir                  | Paul Blanchard                                    | Poor/Fair        | Spillway Capacity 38% of required flood, Lack of design info                | \$2.5M      | N/A        |

Source: Office of the State Engineer, Deficient Dams 2011-07-01

In San Miguel County, several dams' primary function is the storage of water supply for the downstream community. The Storrie Lake Reservoir also serves to provide additional flood control capacity by buffering the volume of water that the downstream channel must carry.

Catastrophic loss of high hazard dams would not only impact the people, buildings and infrastructure within the inundation area, but would also deplete the main drinking and sanitary water resource for the county. For that reason, the high hazard dams are profiled in Section 5.1.4 below as the primary mitigation concerns for this hazard.

Throughout the county there are smaller check-dams, dikes, and levees designed for flood control and irrigation purposes. These smaller dams include the following: Concepcion, Pueblo, Tecolotito, Garanbuio, Ribera, San Bacino, San Jose, Sena, Las Vegas Irrigation Project Diversion Dam/Historic site, Los Trigos, Lovato, Villanueva, Hormigoso Diversion, and San Augustin Dam. While these structures may also pose a danger to the community, they are not included in the scope of this plan. Future updates to the County Hazard Mitigation Plan may choose to include private and other local jurisdiction drainage control structures.

### 5.1.4 The Extent of Damage by Dam Failure

In order to determine the areas at risk and potential loss due to dam failure, the geographic extents of dam failure were identified through the local dam Emergency Action Plans (EAPs). The flood volumes were addressed, where data was available, using the Possible Maximum Flood (PMF) figures. These water volumes represent the statistical “worst-case-scenario” of a potential dam failure. However, the exact geographic extents and extent of damage would depend on the cause of the dam failure. Depending on the cause, there may be additional sedimentation and dam debris that are unpredictable and difficult to model. In other situations, the capacity of the reservoir may be exceeded causing overtopping failures that would have a much smaller impact than if the integrity of the structure was breached. The high hazard dams are highlighted below.

#### 5.1.4.1 Storrie Lake Dam

Based on data provided in the Storrie Lake Emergency Action Plan, the National Dam Inventory, as well as information provided during MPG meetings and local interviews, the following data describes the Storrie Lake Dam:

- Height: 80 feet
- Length: 1,490 feet
- Drainage Area: 7.0 square miles
- Storage: 45,000 acre-feet at crest elevation of 6614.0
- Built: 1921
- Material: Earth
- Hazard Classification: High
- Dam Owner: Storrie Project Water Users' Association
- River: Bonito Arroyo

The Storrie Lake EAP provides a dam breach inundation map that shows a downstream inundation area along the Sanguijuela Arroyo and Arroyo Pecos basins to the north of Las Vegas, and into the Gallinas River basin to the east and southeast of Las Vegas. Areas along Grand Avenue, Interstate 25, Harlan Road area, and northern Mills Avenue area in Las Vegas are in the inundation zones. The hospital is not defined within the inundation zone. The limits of the evacuation zones and potentially impacted areas are described below:

- Highway 518 closed southbound at Lake View Drive. Highway 518 northbound closed at Pork Chop Hill Road.
- Area directly southeast of Storrie Lake Dam along the Sanguijuela Arroyo.
- Areas along the Arroyo Pecos including areas east of Louis Road, Chico Drive, Calle El Dorado, West Drive, 7th Street, 4th Street, Pacific Street, and Grand Avenue.
- Interstate 25 closed from Exit 352 to Exit 343.
- Highway 250/Grand Avenue closed southbound at Airport Road. Grand Avenue closed northbound at Interstate 25 Exit 434 intersection.
- Highway 104 closed westbound at Highway 281 intersection.
- Areas along the Gallinas River within the flood boundaries.
- Areas along the Pecos River within the flood boundaries.<sup>26</sup>

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<sup>26</sup> Storrie Lake Dam Emergency Action Plan, 2009. Print.

Table 5.1.4.1-1 depicts the estimated inundation levels along the above listed basins:

**Table 5.1.4.1-1  
 Storrie Lake Dam Draft Inundation Model**

| Location              | Distance to Dam (mi) | Max Flow Rate (cfs) | Max Water Surface Elevation | Max Stage | Flood Wave Arrival Time (hr:min) | Time to Peak Flood Stage (hr:min) |
|-----------------------|----------------------|---------------------|-----------------------------|-----------|----------------------------------|-----------------------------------|
| Storrie Lake Dam      | 0.0                  | 276,951             | 6,606.93'                   | 67.0'     | 0:00                             | 0:30                              |
| Legion Drive          | 3.4                  | 194,544             | 6,486'                      | 29.0'     | 0:20                             | 1:31                              |
| Grand Avenue          | 3.4                  | 194,480             | 6,484'                      | 27.0'     | 0:20                             | 1:31                              |
| Interstate 25         | 4.4                  | 192,165             | 6,445'                      | 31.0'     | 0:21                             | 1:41                              |
| Highway 104           | 5.5                  | 182,269             | 6,419'                      | 31.0'     | 0:44                             | 2:00                              |
| Sewer Plant Road      | 7.5                  | 162,971             | 6,373'                      | 28.0'     | 1:26                             | 2:34                              |
| Agua Zarca Confluence | 10.6                 | 151,282             | 6,305'                      | 41.0'     | 2:30                             | 3:23                              |

Source: Storrie Lake Dam Emergency Action Plan, Dam Failure Inundation Map. June 2009

### 5.1.4.2 Bradner Dam

Based on data provided in the Bradner Dam Emergency Action Plan, the National Dam Inventory, as well as information provided during MPG meetings and local interviews, the following data describes the Bradner Dam:

- Height: 68 feet
- Length: 280 feet
- Drainage Area: .41 square miles
- Storage: 290 acre-feet at crest elevation of 6,777.0
- Built: 1950
- Material: Earth
- Hazard Classification: High
- Dam Owner: City of Las Vegas, NM
- River: Lime Canyon

The Bradner Dam EAP provides a dam breach inundation map that shows a downstream inundation area along the Gallinas River basin with an evacuation distance of ~1000' east and west of the river which runs just from the north and southerly through Las Vegas. Areas between State Route 65 and Castlevue Drive, between State Route 65 and 71, east of Hot Springs Boulevard and south of State Route 329, areas east of South Pacific Street and north of Hwy 85, and areas north of County Road 23 extended west are subject to evacuation. The hospital is not defined within the inundation zone. A major flood caused by a sudden breach of the dam could inundate multiple homes, multiple businesses, several highways and many road bridges across the Gallinas River which includes:

- State Highway 65
- El Llano Road
- El Camino Road

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- Cinder Road
- Mills Avenue
- National Avenue
- Prince Street
- US Highway 85
- County Road 23 <sup>27</sup>

Table 5.1.4.2-1 depicts the estimated inundation levels of Possible Maximum Flood along the above listed basin:

**Table 5.1.4.2-1  
Bradner Dam Draft Inundation Model**

| Location         | Distance to Dam (mi) | Max Flow Rate (cfs) | Max Water Surface Elevation | Max Stage | Flood Wave Arrival Time (hr:min) | Time to Peak Flood Stage (hr:min) |
|------------------|----------------------|---------------------|-----------------------------|-----------|----------------------------------|-----------------------------------|
| Cross Section 2  | .21                  | 33,952              | 6,649.0'                    | 12.9'     | 4:38                             | 5:02                              |
| Cross Section 3  | .57                  | 33,287              | 6,629.6'                    | 10.1'     | 4:44                             | 5:04                              |
| Cross Section 4  | 1.14                 | 29,112              | 6,607.4'                    | 8.3'      | 4:56                             | 5:08                              |
| Cross Section 5  | 1.50                 | 22,979              | 6,568.3'                    | 5.7'      | 5:08                             | 5:16                              |
| Cross Section 6  | 3.34                 | 15,395              | 6,500.8'                    | 5.0'      | 5:26                             | 5:33                              |
| Cross Section 7  | 4.16                 | 12,049              | 6,464.5'                    | 7.9'      | 5:38                             | 5:47                              |
| Cross Section 8  | 4.35                 | 11,866              | 6,454.7'                    | 6.4'      | 5:39                             | 5:49                              |
| Cross Section 9  | 5.10                 | 10,529              | 6,424.8'                    | 6.3'      | 5:50                             | 6:00                              |
| Cross Section 10 | 5.52                 | 9,537               | 6,406.4'                    | 6.7'      | 5:56                             | 6:07                              |
| Cross Section 11 | 5.72                 | 9,226               | 6,399.2'                    | 6.1'      | 6:05                             | 6:11                              |
| Cross Section 12 | 6.11                 | 8,770               | 6,380.8'                    | 6.0'      | 6:08                             | 6:18                              |
| Cross Section 13 | 7.48                 | 5,355               | 6,335.6'                    | 4.2'      | 6:39                             | 7:00                              |

Source: Bradner Dam Emergency Action Plan, Dam Failure Inundation Map. June 2009

### 5.1.4.3 Peterson Dam

Based on data provided in the Peterson Dam Emergency Action Plan, the National Dam Inventory, as well as information provided during MPG meetings and local interviews, the following data describes the Peterson Dam:

- Height: 50 feet
- Length: 210 feet
- Drainage Area: 2.06 square miles
- Storage: 211.1 acre-feet at crest elevation of 6786.0
- Built: 1911 (modified in 1983)
- Material: Concrete arch
- Hazard Classification: High
- Dam Owner: City of Las Vegas, NM
- River: Gallinas River

<sup>27</sup> Bradner Dam Emergency Action Plan, 2011. Print.

The Peterson Dam EAP provides a dam breach inundation map that shows a downstream inundation area along the Gallinas River basin to the north of Las Vegas, into and through Las Vegas. Areas between State Route 65 and Castlevue Drive, between State Route 65 and 71, east of Hot Springs Boulevard and south of State Route 329, areas east of South Pacific Street and north of Hwy 85, and areas north of County Road 23 extended west are subject to evacuation. The hospital is not defined within the inundation zone. A major flood caused by a sudden breach of the dam could inundate multiple homes, multiple businesses, several highways and many road bridges across the Gallinas River which includes:

- State Highway 65
- El Llano Road
- El Camino Road
- Cinder Road
- Mills Avenue
- National Avenue
- Prince Street
- US Highway 85
- County Road 23<sup>28</sup>

Table 5.1.4.3-1 depicts the estimated inundation levels of Possible Maximum Flood along the above listed basin:

**Table 5.1.4.3-1  
Peterson Dam Draft Inundation Model**

| Location         | Distance to Dam (mi) | Max Flow Rate (cfs) | Max Water Surface Elevation | Max Stage | Flood Wave Arrival Time (hr:min) | Time to Peak Flood Stage (hr:min) |
|------------------|----------------------|---------------------|-----------------------------|-----------|----------------------------------|-----------------------------------|
| Cross Section 2  | .69                  | 59,069              | 6,652.7'                    | 16.5'     | 2:22                             | 6:40                              |
| Cross Section 3  | 1.01                 | 56,377              | 6,632.1'                    | 12.6'     | 2:27                             | 6:43                              |
| Cross Section 4  | 1.58                 | 50,057              | 6,609.5'                    | 10.4'     | 2:40                             | 6:46                              |
| Cross Section 5  | 2.34                 | 44,546              | 6,570.1'                    | 10'9"     | 3:04                             | 6:52                              |
| Cross Section 6  | 3.79                 | 39,138              | 6,503.0'                    | 7.3'      | 3:43                             | 7:04                              |
| Cross Section 7  | 4.61                 | 36,264              | 6,468.0'                    | 11.4'     | 4:04                             | 7:12                              |
| Cross Section 8  | 4.80                 | 35,460              | 6,457.9'                    | 9.5'      | 4:08                             | 7:13                              |
| Cross Section 9  | 5.55                 | 33,563              | 6,427.5'                    | 9.0'      | 4:25                             | 7:20                              |
| Cross Section 10 | 5.97                 | 31,785              | 6,409.6'                    | 9.8'      | 4:34                             | 7:25                              |
| Cross Section 11 | 6.17                 | 30,649              | 6,402.5'                    | 9.3'      | 4:37                             | 7:30                              |
| Cross Section 12 | 6.55                 | 29,005              | 6,383.1'                    | 8.3'      | 4:48                             | 7:34                              |
| Cross Section 13 | 7.92                 | 20,240              | 6,340.4'                    | 9.0'      | 5:37                             | 8:04                              |

Source: Peterson Dam Emergency Action Plan, Dam Failure Inundation Map. June 2009

### 5.1.5 Probability of Future Events

Dam failure or levee breaches can occur with little warning. Intense storms may produce a flood in a few hours or even minutes for upstream locations. Flash floods occur within six hours of the

<sup>28</sup> Storrie Lake Dam Emergency Action Plan, 2009. Print.

beginning of heavy rainfall, and dam failure may occur within hours of the first signs of breaching. Other failures and breaches can take much longer to occur, from days to weeks, as a result of debris jams or the accumulation of melting snow. The probability of a dam failure is unlikely for most dams, typically less than a 500-year flood. However, the age and condition of the structure plays a role in determining the level of risk that each dam poses. As the dams in San Miguel County age and given seasonal flood conditions, there is inherently increasing probability for structural damage and failure.

Since there is no history of dam failure in the county and the State required EAPs do not publicly provide any risk of probable occurrence, this plan does not attempt to assess the risk of failure or probability of failure for each structure. The plan does provide information about the general condition of the dams and any known deficiencies as recorded by the State Office of Safety and Engineering. Specific details for any given high-hazard dam can be found in the specific dam's emergency plan.

## 5.2 Drought

Based on the MPG's collaborative assessment, evaluation, and ranking of each potential hazard within the county, drought was ranked in terms of frequency, duration, severity, and intensity in order to determine the hazard priorities within the county. According to surveyed MPG responses, drought had high rankings for impacts to people and infrastructure. The overall drought hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - High
- Las Vegas - High
- Village of Pecos - High

### 5.2.1 Description of the Hazard

Drought is a condition of climatic dryness that reduces soil moisture, water, or snow levels below the minimum necessary for sustaining plant, animal, and economic systems. Drought conditions are usually not uniform over the entire State of New Mexico. Local and regional differences in weather, soil condition, geology, vegetation, and human influence need to be considered when assessing the impact of drought on any particular location.

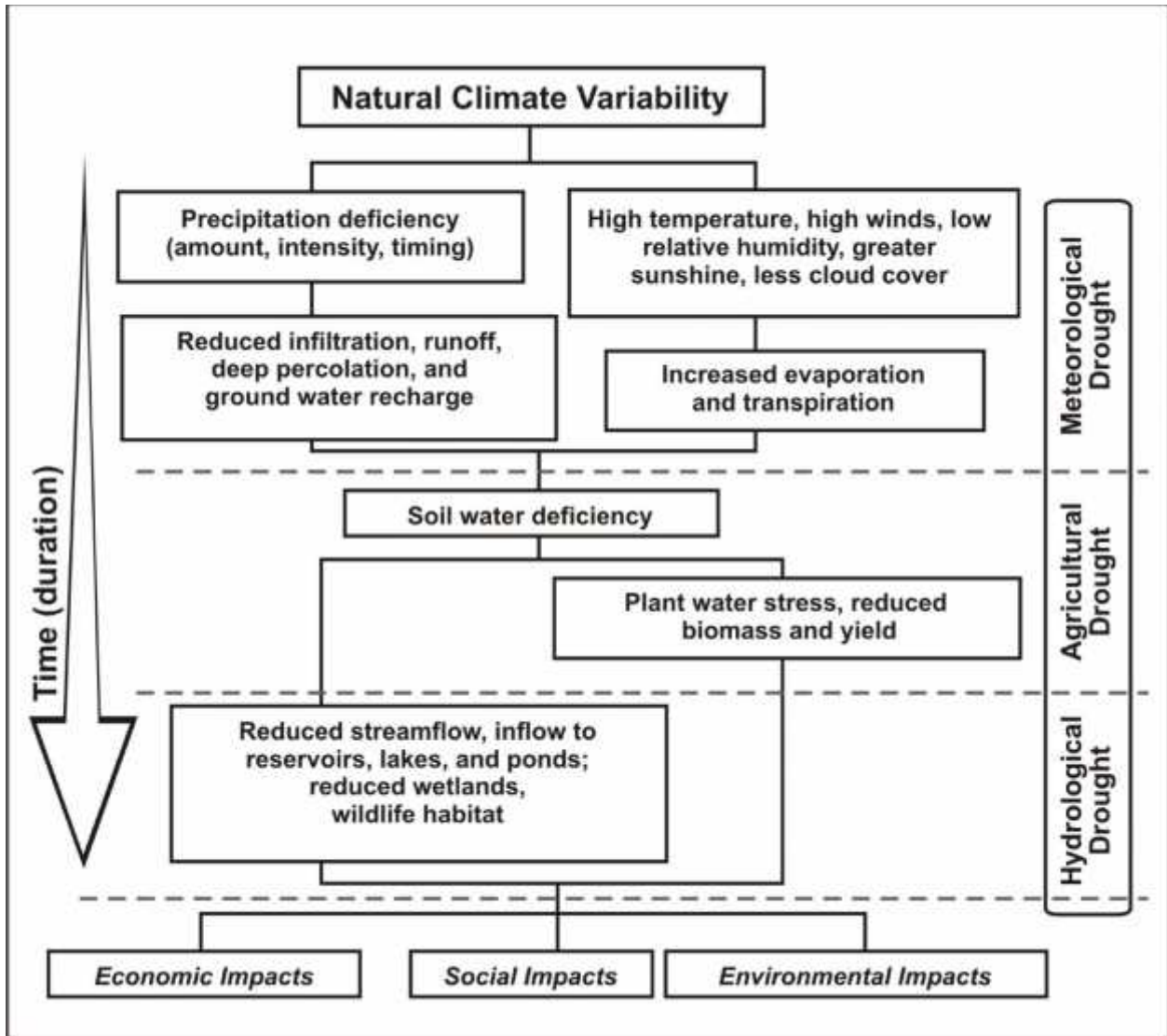
The most commonly used drought definitions are based on meteorological, agricultural, hydrological, and socio-economic effects.

- **Meteorological Drought:** Period of substantially diminished precipitation duration and/or intensity. The commonly used definition of meteorological drought is an interval of time, generally on the order of months or years, during which the actual moisture supply at a given place consistently falls below the climatically appropriate moisture supply.
- **Agricultural Drought:** Occurs when there is inadequate soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought usually occurs after or during meteorological drought, but before hydrological drought and can affect livestock and other dry-land agricultural operations.
- **Hydrological Drought:** Refers to deficiencies in surface and subsurface water supplies. It is measured as stream flow, snow pack, and as lake, reservoir, and groundwater levels. There is usually a delay between lack of rain or snow and less measurable water in streams,

lakes, and reservoirs. Therefore, hydrological measurements tend to lag behind other drought indicators.

- **Socio-Economic Drought:** Occurs when physical water shortages start to affect the health, well-being, and quality of life of the people, or when the drought starts to affect the supply and demand of an economic product<sup>29</sup>.

**Figure 5.2-1**  
**Causes and Impacts of Drought**



Source: National Drought Mitigation Center. (2013). Types of drought. Retrieved on 6.18.13 from <http://drought.unl.edu/DroughtBasics/TypesofDrought.aspx>

Although different types of drought may occur at the same time, they can also occur independently of one another. Drought differs from other natural hazards in three ways. First, the onset and end of a drought are difficult to determine due to the slow accumulation and lingering of effects of an event after its apparent end. Second, the lack of an exact and universally accepted definition adds

<sup>29</sup> New Mexico Department of Homeland Security and Emergency Management, (2010). *New Mexico Natural Hazard Mitigation Plan*



to the confusion of its existence and severity. Third, in contrast with other natural hazards, the impact of drought is less obvious and may be spread over a larger geographic area. These characteristics have hindered the preparation of drought contingency or mitigation plans by many governments<sup>30</sup>.

To help standardize the severity of drought events, W.C. Palmer developed an index in 1965 to measure the departure of the moisture supply. Palmer based his index on the supply-and-demand concept of the water balance equation, taking into account more than just the precipitation deficit at specific locations. The objective of the Palmer Drought Severity Index (PDSI), as this index is now called, was to provide measurements of moisture conditions that were standardized so that comparisons using the index could be made between locations and between months. The PDSI is used by the U.S. Department of Agriculture to determine allocations of grant emergency drought assistant.

The PDSI is most effective in determining long-term drought, over a period of several months, and is not as good with short-term forecasts, a period of weeks. It uses a zero classification as normal precipitation, and drought is shown in terms of minus numbers; for example, minus 2 is moderate drought, minus 3 is severe drought, and minus 4 is extreme drought (Refer to Table 5.2-1). The advantage of the PDSI is that it is standardized to local climate, so it can be applied to any part of the country to demonstrate relative drought or rainfall conditions<sup>31</sup>.

**Table 5.2.1-1  
 Palmer Drought Severity Index (PDSI)**

| <b>Palmer Classification</b> | <b>Precipitation</b> |
|------------------------------|----------------------|
| 4.0 or more                  | Extremely wet        |
| 3.0 to 3.99                  | Very wet             |
| 2.0 to 2.99                  | Moderately wet       |
| 1.0 to 1.99                  | Slightly wet         |
| 0.5 to 0.99                  | Incipient wet spell  |
| 0.49 to -0.49                | Near normal          |
| -0.5 to -0.99                | Incipient dry spell  |
| -1.0 to -1.99                | Mild drought         |
| -2.0 to -2.99                | Moderate drought     |
| -3.0 to -3.99                | Severe drought       |
| -4.0 or less                 | Extreme drought      |

Source: National Drought Mitigation Center. (2013). *Comparison of major drought indices: Palmer drought severity index*. Retrieved 06.18.13 from <http://drought.unl.edu/Planning/Monitoring/ComparisonofIndicesIntro/PDSI.aspx>

<sup>30</sup> New Mexico Department of Homeland Security and Emergency Management, (2010). *New Mexico Natural Hazard Mitigation Plan*

<sup>31</sup> National Drought Mitigation Center. (2013). *Comparison of major drought indices: Palmer Drought Severity Index*. Retrieved 06.18.13 from <http://drought.unl.edu/Planning/Monitoring/ComparisonofIndicesIntro/PDSI.aspx>

## 5.2.2 Significant Past Occurrences

Drought events in San Miguel County are documented as far back as the 1200s and may have led to the displacement of the Sedentary Pueblo Indians from the fertile valley of Las Vegas<sup>32</sup>. In the 20<sup>th</sup> century, San Miguel County has been impacted by several severe and prolonged drought events. According to NOAA's Historical Palmer Drought Indices, periods of long-term drought since 1950 have been documented in San Miguel County during 1950-1957, 1963, 1972, 1974, 1981, 1989, 1996, 2000, 2002, 2003, 2006, 2008-2009, and 2009-2013<sup>33</sup>.

San Miguel County has seen consistent drought conditions since the late 1990's. There are three state wide drought declarations in New Mexico: Executive Order 2003-019, 2006-012, & 2008-037. None of these orders have been rescinded.

San Miguel County most recently requested a state disaster declaration in 2011 due to drought conditions. During a period from 2010 to 2011, over 78 requests were filed for property tax reduction due to the lack of water. Several requests were approved and resulted in lower tax revenue in the County. The El Creston Mutual Water Association also requested a local declaration in 2011 due to 60 domestic wells drying up and affecting 300 County residences.

## 5.2.3 Location of Areas at Risk

Drought is monitored nation-wide by the National Drought Mitigation Center (NCDC). Indicators are used to describe broad scale drought conditions across the country. Indicators correspond to the intensity of the drought. As of January 28, 2014, San Miguel County was experiencing severe to extreme drought conditions throughout the County<sup>34</sup>. This status is demonstrated by Figure 5.2.3-1 on the following page.

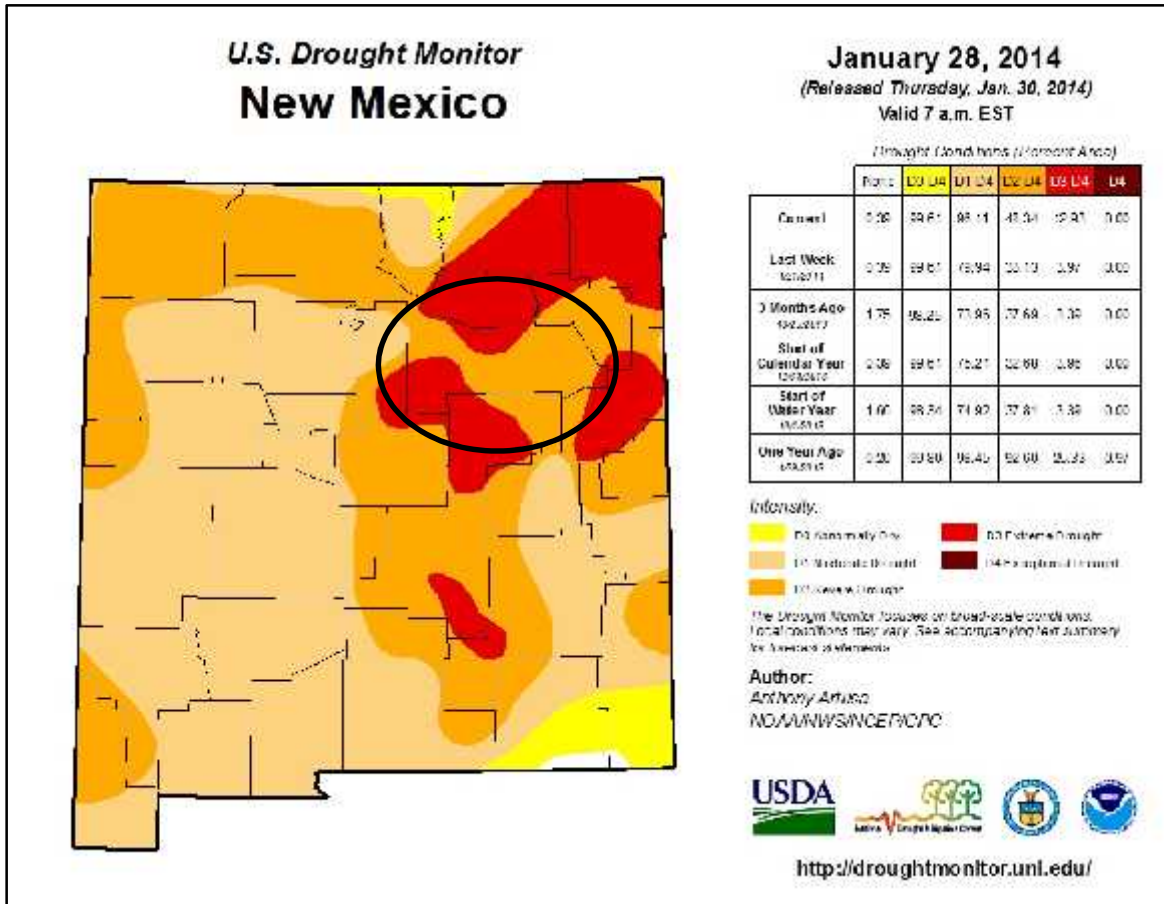
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<sup>32</sup> New Mexico Department of Tourism. (2013). *Northeast New Mexico*. Retrieved from <http://nenewmexico.com/towns-counties/san-miguel/las-Vegas.php>

<sup>33</sup> National Climatic Data Center. (2013). *Historical Palmer Drought Indices*. Retrieved on 6.18.13 from [http://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers.php?index=pmdi&month\[\]=5&beg\\_year=1963&end\\_year=2013&submitted=Submit](http://www.ncdc.noaa.gov/temp-and-precip/drought/historical-palmers.php?index=pmdi&month[]=5&beg_year=1963&end_year=2013&submitted=Submit)

<sup>34</sup> National Drought Mitigation Center. (June, 2013 11). *U.S. Drought Monitor, New Mexico*. Retrieved from [http://droughtmonitor.unl.edu/DM\\_state.htm?NM,W](http://droughtmonitor.unl.edu/DM_state.htm?NM,W)

**Figure 5.2.3-1  
U.S. Drought Monitor – New Mexico**



Source: National Drought Mitigation Center. (February 2, 2014). U.S. Drought Monitor, New Mexico. Retrieved from <http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?NM>

For San Miguel County, the City of Las Vegas, and the Village of Pecos, drought is not a localized hazard and has no defined boundaries or buffer zones. All areas and jurisdictions of San Miguel County are equally at risk and vulnerable to the impacts of drought. All areas have equally experienced drought and are therefore assessed equally for this hazard.

### 5.2.4 The Extent of Damage by Drought

In San Miguel County, every drought event has adversely impacted agriculture, especially in non-irrigated areas such as dry land farms and rangelands. Droughts impact individuals (farm owners, tenants, and farm laborers), the agricultural industry, other agriculture-related sectors, and other industries such as tourism and recreation<sup>35</sup>. Drought also increases the dangers of forest and wildland fires. Subsequent loss of forests and trees increases erosion, causing serious damage to aquatic life, irrigation, and power generation by heavy silting of streams, reservoirs, and rivers.

<sup>35</sup> New Mexico Department of Homeland Security and Emergency Management, (2010). *New Mexico Natural Hazard Mitigation Plan*

Given the history of drought in the County, the entire planning area can expect to see PDSI conditions as low as -4 (extreme drought).

## 5.2.5 Probability of Future Events

Drought is analyzed and determined over long periods of time. It is not an overnight, weekly, or a monthly event and it must be considered based on long periods of annualization. Given the fact that San Miguel county is currently in a period of severe to extreme drought, and that it has experienced 13 documented periods of drought since 1950 or at least one drought event every 4.8 years, the probability of occurrence is likely.

## 5.3 Earthquake

Based on the MPG's collaborative assessment, evaluation, and ranking of each potential hazard within the county, the hazard of earthquake was ranked in terms of people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, earthquake had low rankings for impacts to people countywide, but the Village of Pecos determined that impacts to buildings and infrastructure were moderate and high respectively. The overall earthquake hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - Low
- Las Vegas - Low
- Village of Pecos - Moderate

### 5.3.1 Description of the Hazard

An earthquake is caused by the breaking and shifting of rock beneath the Earth's surface. An earthquake is generated by rupture or sudden displacement along a geologic fault when it has been strained beyond its elastic strength. During this strain, the opposing sides of the fault are stressed until failure and displacement occur and the sides rebound back to an unstrained position. However, slow displacement without accompanying earthquakes has been observed along some faults. Ground shaking from earthquakes can collapse buildings and bridges; disrupt gas, electric, and phone service; and sometimes trigger landslides, avalanches, flash floods, and fires. Ground shaking is the result of seismic waves reaching the earth's surface.

Earthquake magnitude and intensity are measured by the Richter Scale and Mercalli Intensity Scale, respectively. The Richter Scale determines the magnitude of an earthquake from the logarithm of the amplitude of waves recorded by seismographs. The Richter Scale expresses an earthquake's magnitude in whole numbers and decimal fractions. For example, a magnitude 5.3 might be computed for a moderate earthquake, and a strong earthquake might be rated as magnitude 6.3. The Richter Scale is not used to express damage<sup>36</sup>. The Modified Mercalli Intensity Scale assigns values to a specific site after an earthquake event to describe observed effects and/or damage (i.e. earthquake's intensity)<sup>37</sup>. Refer to Tables 5.3.1-1 and 5.3.1-2 (on the following page) for the Richter and Modified Mercalli Intensity Scales.

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<sup>36</sup> USGS. (2013). *Earthquake glossary - Richter scale*. Retrieved on 6.20.13 from [http://earthquake.usgs.gov/learn/glossary/?term=Richter scale](http://earthquake.usgs.gov/learn/glossary/?term=Richter%20scale)

<sup>37</sup> USGS. (2013). *The Modified Mercalli Intensity Scale*. Retrieved on 6.20.13 from <http://earthquake.usgs.gov/learn/topics/mercalli.php>

**Table 5.3.1-1  
Richter Scale**

| <b>Value on Scale</b> | <b>Recording Classification</b> | <b>Numbers Per Year Worldwide</b>            |
|-----------------------|---------------------------------|--|
| Less than 2.0         | Micro Earthquake                | 130,000                                      |
| 2.0 – 3.9             | Minor                           | 13,000                                       |
| 4.0 – 4.9             | Light                           | 1,319  |
| 5.0 – 5.9             | Moderate                        | 134  |
| 6.0 – 6.9             | Strong                          | 15   |
| 7.0 – 7.9             | Major                           | 1  |
| 8.0 – 8.9             | Great                           | 1 per 10 years                               |
| More than 10          | Massive                         | Extremely Rare (Unknown/May not be possible) |

Source: USGS. (2013). Richter scale. Retrieved on 6.20.13 from <http://www.vulkaner.no/v/vulkinfo/ordbok/richter.html>

**Table 5.3.1-2  
Modified Mercalli Intensity Scale**

| <b>Mercalli Scale</b> | <b>Damage Description</b>  |
|-----------------------|--|
| I                     | Not felt except by a very few under especially favorable conditions. (Negligible)  |
| II                    | Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing. (Negligible)  |
| III                   | Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated. (Negligible)   |
| IV                    | Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motorcars rocked noticeably. (0.015g-0.02g)   |
| V                     | Felt by nearly everyone; many awakened. Some dishes, windows broken; cracked plaster in a few places; unstable objects overturned. Disturbances of trees, poles, and other objects sometimes noticed. Pendulum clocks may stop. (0.03g-0.04g)  |
| VI                    | Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster and damage chimneys. Damage slight. (0.06g-0.07g)  |
| VII                   | Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving cars. (0.10g-0.15g)  |
| VIII                  | Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving cars disturbed. (0.25g-0.30g) |
| IX                    | Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken. (0.50g-0.55g)   |
| X                     | Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed, slopped over banks. (More than 0.60g)   |
| XI                    | Few, if any (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.  |
| XII                   | Damage total. Waves seen on ground. Lines of sight and level are distorted. Objects thrown into the air.   |

Source: USGS. (2013). *The Modified Mercalli Intensity Scale*. Retrieved on 6.20.13 from <http://earthquake.usgs.gov/learn/topics/mercalli.php>

### 5.3.2 Significant Past Occurrences

The majority of New Mexico's population lives along the Rio Grande valley which is within the Rio Grande Rift, a region of tectonic, volcanic, and seismic activity extending from north-central Colorado south to Chihuahua, Mexico. Most of New Mexico's historical seismicity has been concentrated in the Rio Grande Valley between Socorro and Albuquerque. About half of the historical intense earthquake occurrences in the state were centered in this region. According to the NM Bureau of Geology and Mineral Resources, no earthquake larger than magnitude (M) 6.2 has occurred within the New Mexico portion of the rift since the State's first documented earthquake in 1849. The rate of earthquake activity in NM can be characterized as moderate. The Socorro area of NM has been the most seismically active portion of NM during the past 100 years and has the largest documented earthquakes in the state's history. The 1906 earthquakes near Socorro were reportedly felt as far away as the City of Las Vegas in San Miguel County. The 1918 documented M 5.25 earthquake near Cerrillos is the largest historic earthquake in the northern portion of the Rio Grande Rift within NM. There has been no history of earthquake epicenter activity within the county. The county-wide historical earthquake activity is significantly below the state average.

The 2010 New Mexico Hazard Mitigation Plan lists the 31 strongest earthquakes (M>4.5) in New Mexico between 1869 and 2006, the strongest being M 5.6 near Socorro in July and November of 1906. The closest earthquakes to San Miguel County are listed below.

#### San Miguel County

The 2010 New Mexico Hazard Mitigation Plan's list of 31 strongest earthquakes since 1869 include a 1918 M 5.5 in Cerrillos, a 1949 M 4.5 in Vaughn, and 2005 M 5 in Raton as the closest M>4.5 earthquakes to San Miguel County.

Between January 1, 1980 and May 19, 2013, there were 76 earthquakes that occurred within 100 miles of the county center. The four most recent earthquakes occurred over 90 miles from the county center. In 1995, there was a magnitude 3.8 earthquake that occurred 54 miles from the county center. In 1990, there was a magnitude 3.7 earthquake that occurred 70 miles from the County center.<sup>38</sup> The only reported earthquake damage in the County related to the 1918 M 5.5 Cerrillos earthquake. The damages are noted below for the City of Las Vegas.

#### City of Las Vegas

There have been no significant past occurrences of earthquakes within the City of Las Vegas. The closest earthquake occurrence within the last 100 years occurred approximately 85 miles southwest in Cerrillos, Santa Fe County. An earthquake with M 5.5 occurred on May 18, 1918 in Santa Fe County during which people were thrown off their feet, a break in the earth's surface was noted, and fallen plaster was reported.

#### Village of Pecos

There have been no significant past occurrences of earthquakes within the Village of Pecos. The 1918 Cerrillos earthquakes was the closest occurrence to the Village of Pecos, occurring approximately 43 miles southwest of the Village and caused no reported damage. A significant

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<sup>38</sup> Retrieved, July 10, 2013 from <http://earthquaketrack.com/us-nm-las-Vegas/recent>

earthquake with an M 4.8 occurred in the town of Dulce, New Mexico on January 22, 1966 which is located approximately 156 miles from the Village. The earthquake centered in Dulce affected about 39,000 square kilometers of northern New Mexico and southern Colorado.

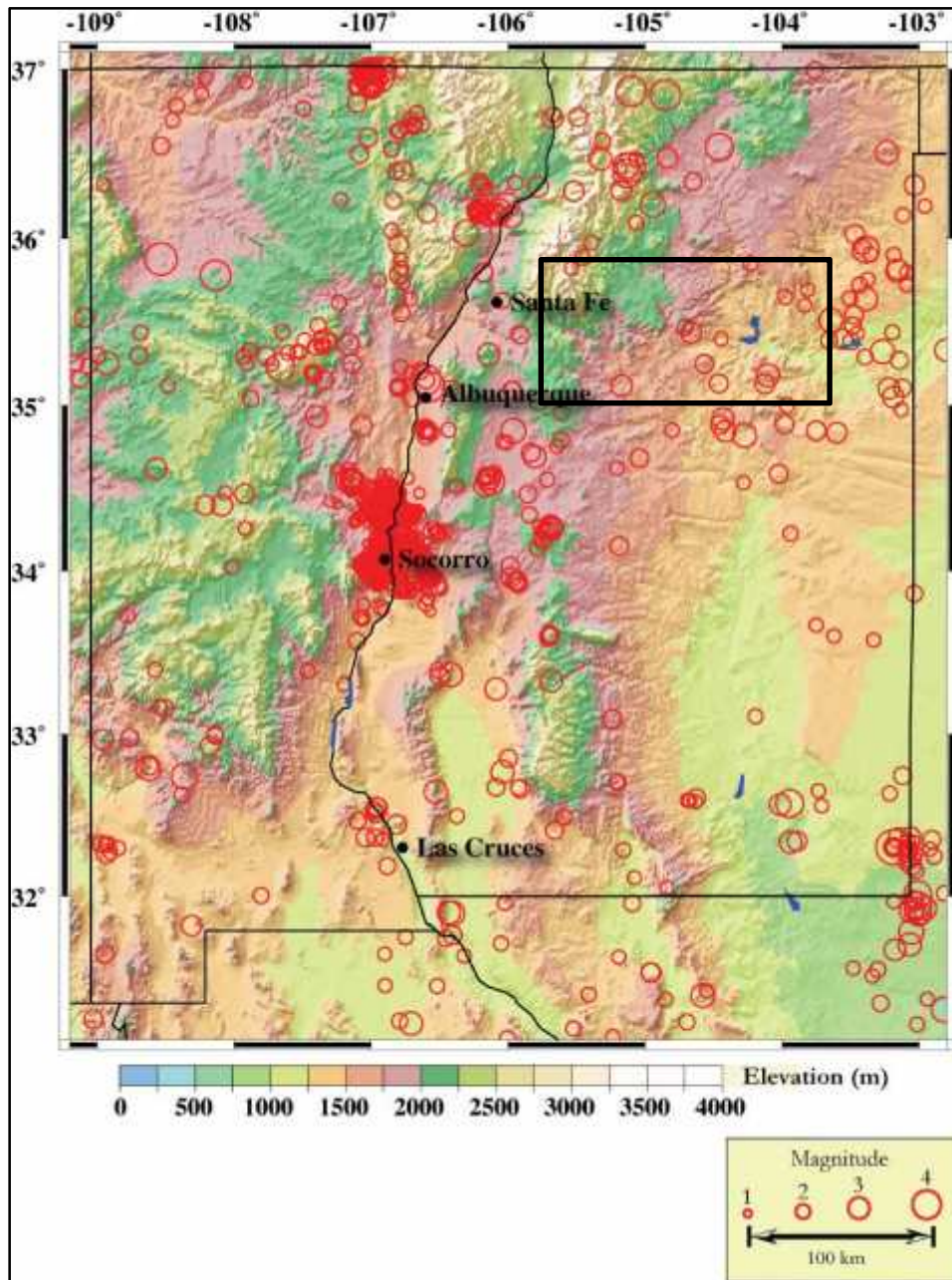
### **5.3.3 Location of Areas at Risk for Earthquake**

According to the U.S. Geological Survey (USGS) Earthquake Hazards Program, seismic activity in New Mexico primarily is concentrated along the Rio Grande Valley rift between Albuquerque and Socorro. San Miguel County historical earthquake activity is significantly below New Mexico state average. It is 91 percent lower than the overall U.S. average. There are two Quaternary Faults located in the county within the eastern foothills of the Sangre de Cristo Mountains, roughly running northeast from San Ignacio north to Rociada and slightly west of Fragoso Ridge. The other fault line crosses from Santa Fe County into the northwestern corner of San Miguel County for approximately three miles before entering Mora County.

Maps 5.3.3-1 through 5.3.3-3 on the following pages depict the locations, seismicity, and seismic hazard (factored a 2 percent in 50 years of Peak Ground Acceleration) of historical earthquake epicenters and relative magnitudes in New Mexico.

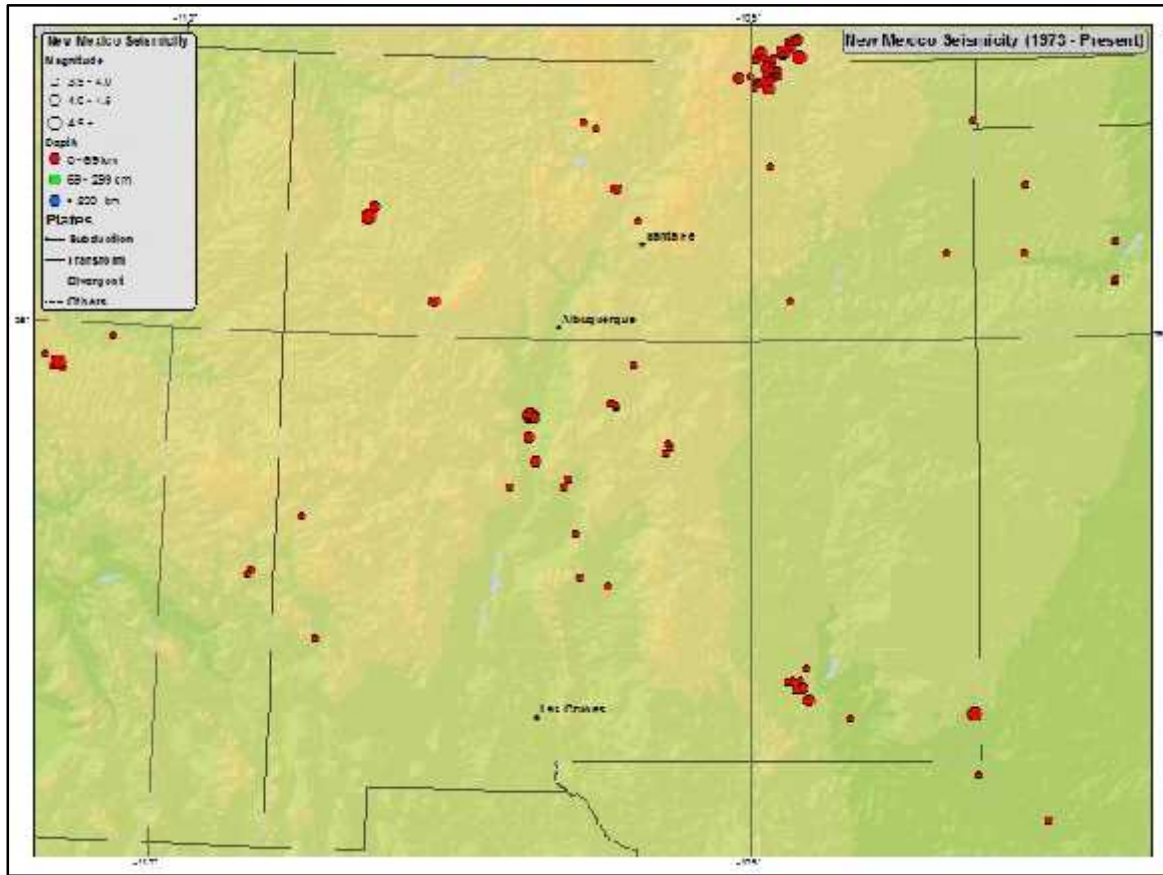


**Map 5.3.3-1**  
**New Mexico Earthquake History, 1962-2004**



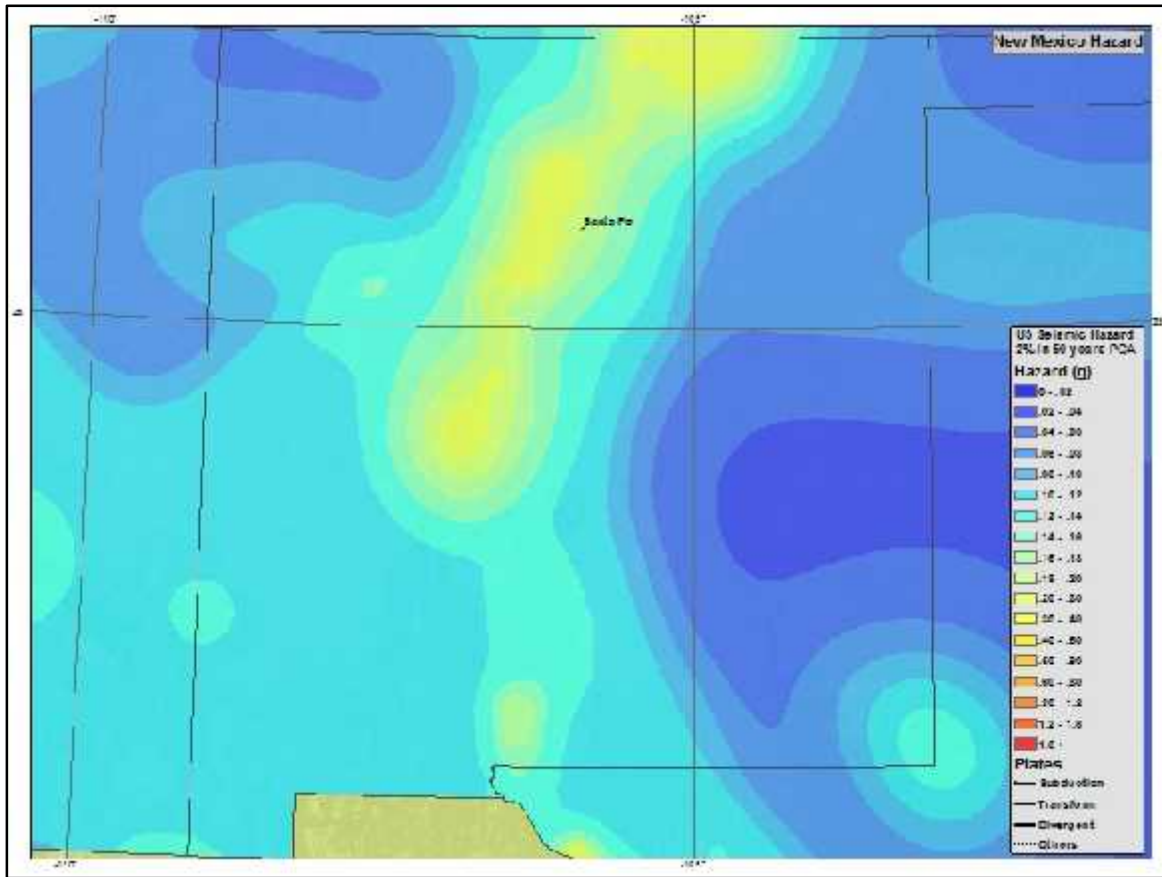
Source: 2010 New Mexico Hazard Mitigation Plan

Map 5.3.3-2  
New Mexico Seismicity, 1973-2013



Source: USGS. Downloaded, February 2, 2014 from [http://earthquake.usgs.gov/earthquakes/states/new\\_mexico/seismicity.php](http://earthquake.usgs.gov/earthquakes/states/new_mexico/seismicity.php)

**Map 5.3.3-3**  
**New Mexico Seismic Hazard (2% in 50 years PGA)**



Source: USGS. Downloaded February 2, 2014, [http://earthquake.usgs.gov/earthquakes/states/new\\_mexico/hazards.php](http://earthquake.usgs.gov/earthquakes/states/new_mexico/hazards.php)

### 5.3.4 The Extent of Damage by Earthquakes

The extent of damage by a potential earthquake event could include impacts to residential and commercial structures, power/gas and water service infrastructure, and the social impact of the loss of life and loss of critical services. New Mexico is ranked 23 of states by Annualized Earthquake Loss (AEL) at \$20.6 million dollars per year. The AEL predicts the average annual cost to the state due to earthquakes over time. New Mexico also ranks number 13 in terms of the Annualized Earthquake Loss Ratio (AELR). This indicates that while the dollar amounts of estimated losses are lower, the actual percentage of the building inventory that is damaged is higher relative to other states.<sup>39</sup>

USGS studies show the extent of earthquake damage over the next 50 years to be a Magnitude 5 or less on the Modified Mercalli Intensity Scale, meaning that worst case events would be felt by nearly everyone; many awakened. Some dishes and windows would be broken; there would be cracked plaster in a few places; unstable objects may be overturned. Disturbances of trees, poles, and other objects sometimes may be noticed. Pendulum clocks may stop

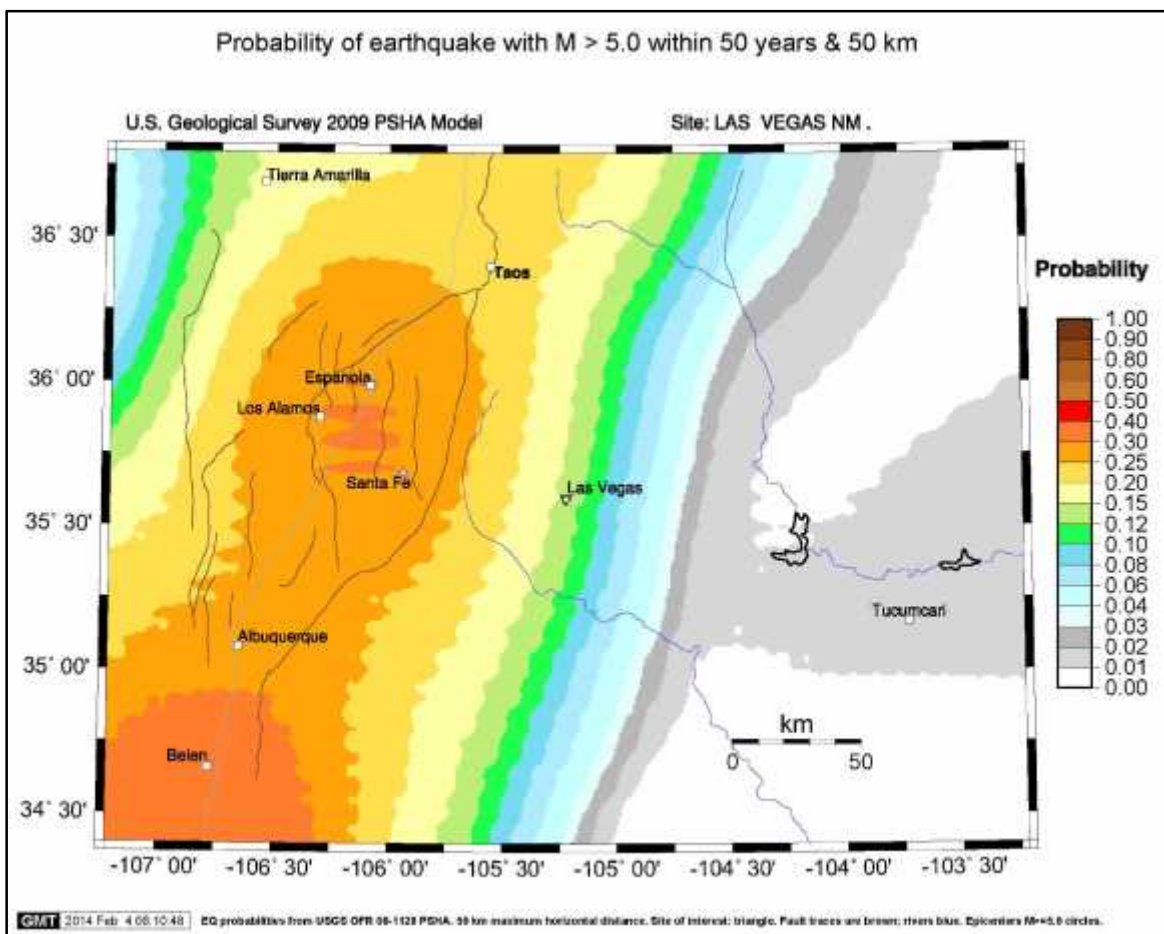
<sup>39</sup> FEMA 366. HAZUS MH Estimated Annualized Earthquake Losses for the United States. April 2008. Print.

### 5.3.5 Probability of Future Events

San Miguel County, the City of Las Vegas, and the Village of Pecos all fall into the same geographic region for impacts from earthquakes, and are assessed as such for this hazard. It would be unusual for one area of the county to be impacted by a significant earthquake while other areas remain unimpacted. For that reason, all jurisdictions are assessed equally for this hazard.

The 2010 New Mexico Hazard Mitigation Plan suggests that the greatest risk of earthquakes are along the Rio Grande Rift from Socorro through Albuquerque and northward toward Santa Fe. Based on those findings as referenced through known data from the USGS probabilistic seismic hazard assessment models (PSHA) and the infrequency and small magnitude of earthquake events in the region, the probability of future earthquake events in the county is unlikely. The USGS PSHA probability of a 5.0 or larger magnitude earthquake occurring within the County in the next 50 years is 0.04-0.25 (Figure 5.3.5-1). The county will remain aware of any future events and make the necessary adjustments to the Plan in the future if they are needed.

**Figure 5.3.5-1**  
**Probability of a 5.0 or Greater Magnitude Earthquake within 50 Years and 50 Km**



Source: USGS. Geologic Hazards Science Center, 2009 Earthquake Probability Mapping. Downloaded from: [http://geoinfo.nmt.edu/publications/periodicals/litegeology/24/lite-geo\\_24\\_2002.pdf](http://geoinfo.nmt.edu/publications/periodicals/litegeology/24/lite-geo_24_2002.pdf)



## 5.4 Expansive Soils

Based on the MPG's collaborative assessment, evaluation, and ranking of each potential hazard within the county, the expansive soils hazard was ranked in terms of impacts to people, building, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, expansive soils had low rankings for impacts in all three areas. The overall expansive soils hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - Low
- Las Vegas - Low
- Village of Pecos - Low

### 5.4.1 Description of the Hazard

Expansive soils are described as earth products that contain minerals capable of absorbing water (also known as adobe or clay). As the soils absorb water, they increase in volume. Several physical, chemical, and mineralogical soil properties influence shrink-swell behavior, with no one property accurately predicting shrink-swell potential for all soil types. Often most expansive soils are clayey with high liquid limits. Dry clayey soils with low moisture content (less than 15 percent) easily absorb water and swell. Most of the soil expansion occurs by the time the moisture content reaches 30 percent. In some cases, expansive soils can increase in volume by more than 10 percent. Conversely, expansive soils will shrink when they dry out. Fissures can develop in the soil causing deep cracks in the earth. As such, a clayey soil that maintains a 30 percent or greater moisture content is less likely to significantly change its volume as the moisture content increases. Hazard impacts would be more likely in expansive soils with moisture content fluctuations below 30 percent.

Changes in the volume and stability of the earth can put pressure on structures with enough force to create cracks in foundations. The same forces can cause buried pipes to bend, crack, and fail, and road surfaces to bulge or crack. As the soils dry out and shrink, the same buildings and infrastructure can lose support resulting in damaging subsidence.

### 5.4.2 Significant Past Occurrences

There are no recorded significant past occurrences for this hazard in San Miguel County, the City of Las Vegas, or the Village of Pecos, through structures in and around Pecos have reported damage from foundational shifts believed to be attributed to expansive soils.

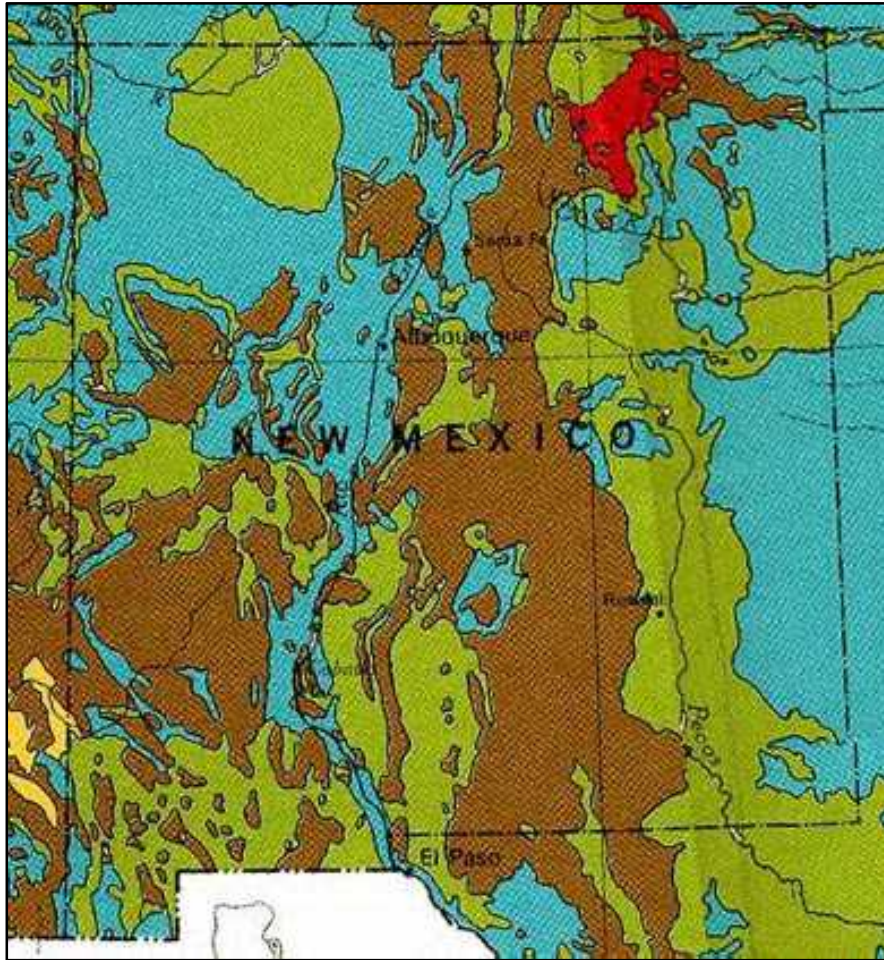
### 5.4.3 Location of Areas at Risk

Map 5.4.3-1 shows the areas of expansive soils in New Mexico. The red areas in the northeast portion of the state around Taos and Colfax Counties are areas that contain abundant clay with high swelling potential. The blue areas generally have less than 50 percent clay, yet also have high swelling potential. The green areas generally have less than 50 percent clay with slight to moderate swelling potential and the brown areas have little or no swelling clay.<sup>40</sup>

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<sup>40</sup> 2010 New Mexico Hazard Mitigation Plan; Fidelity Inspection and Consulting Services.

**Map 5.4.3-1**  
**Expansive Soils in New Mexico**



Source: Fidelity Inspection and Consulting Services, *Expansive Clay Soils*. Downloaded from <http://www.inspection1.com/types/soils/newmex.htm>

While damages due to expansive soils have occurred in New Mexico, the fact that the onset takes a very long time, damages are cumulative rather than instantaneous. In concert with the New Mexico Hazard Mitigation Plan, we will not profile this hazard further, unless and until future conditions or events justify it.

#### **5.4.4 The Extent of Damage**

No verified damages from this hazard have been reported. The participating jurisdictions may look into soil analysis in parts of the county where clays are more prevalent to determine potential risks and vulnerabilities, but until then, not enough data exists to further analyze this hazard.

#### **5.4.5 Probability of Future Events**

With no recorded history of occurrence or related loss from expansive soils in San Miguel County, probabilities cannot be quantified. In concordance with the 2010 New Mexico Hazard Mitigation

Plan and due to the unlikely probability and insignificant effects of expansive soils, the MPG has decided to not profile this hazard further. This hazard is omitted from further analysis in the plan. .

## 5.5 Extreme Heat

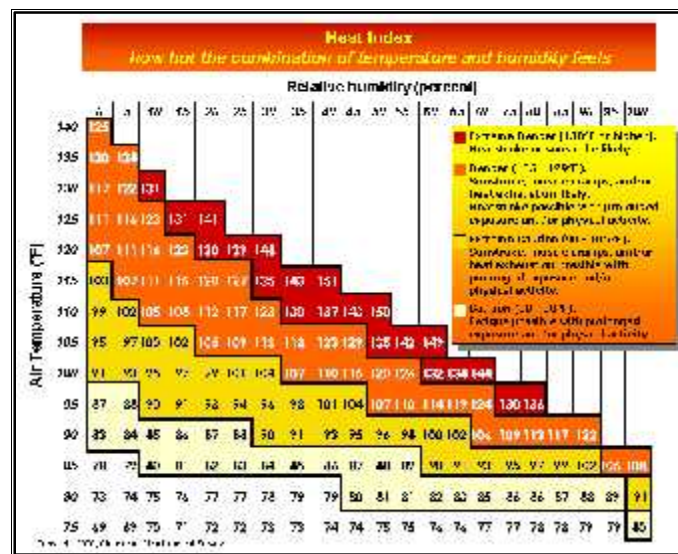
Based on the MPG’s collaborative assessment, evaluation, and ranking of each potential hazard within the county, the extreme heat hazard was ranked in terms of impacts to people, building, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, extreme heat had low rankings for impacts in all areas except the county, where impacts to people were regarded as high. The overall extreme heat hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - Moderate
- Las Vegas – Low
- Village of Pecos - Low

### 5.5.1 Description of the Hazard

Temperatures that are significantly above normal high summertime temperatures are considered extreme heat. There is no specific point when air temperatures are defined as significantly above normal. However, the National Weather Service will initiate alert procedures such as special weather statements when the heat index is expected to exceed 105°F-110°F (depending on local climate), for at least two consecutive days. The heat index is determined by combining the actual temperature and relative humidity. When humidity is low, the heat index may cause the air to feel cooler than the actual temperature. Conversely, high humidity coupled with high temperatures can cause as much as a 45 degree increased divergence between the actual temperature and the heat index. Figure 5.5.1-1 shows the combined effects of heat and humidity on populations, including the San Miguel County, the City of Las Vegas, and the Village of Pecos.

Figure 5.5.1-1  
 Heat Index



Source: Oklahoma Climatological Survey

The severity of extreme temperature events are measured by temperature, duration, and humidity. Most events are less than a week in duration. In the United States, periods of warmer than normal temperatures typically occur several times a summer. Extreme heat waves may occur about once every five years or so where maximum daily temperatures exceed 100°F for an extended period of time. The passing of a cold front usually moderates temperatures after a few days to a week.

The major human risks associated with extreme heat that pertain to its severity are described as follows:

- Heatstroke – A substantial rise in the core body temperature, often fatal.
- Heat Exhaustion – Fluid and electrolyte imbalance causing weakness or fatigue with a slight body temperature elevation.
- Heat Syncope – A circulatory instability response to heat that causes a sudden loss of consciousness.
- Heat Cramps – Muscular pain due to mild fluid and electrolyte imbalances.

### 5.5.2 Significant Past Occurrences

There are no NCDC database record of extreme heat in San Miguel County, the City of Las Vegas, or the Village of Pecos. The MPG recognizes that extreme heat events have occurred and were not captured on the NCDC database and dates could not be verified through the planning meetings.

### 5.5.3 Location of Areas at Risk for Extreme Heat

Extreme heat is relative to the area as it related to average high temperatures. San Miguel County is part of the high plains of northeastern New Mexico with a typically moderate climate through the summertime and occasional record heat. Extreme heat records are detailed below in red for each jurisdiction.

#### San Miguel County

Given the locations of the City of Las Vegas (central) and Village of Pecos (west), summer temperatures for the unincorporated areas of the county are recorded at the Conchas Dam to better reflect the variation in temperatures that can be expected across the county. For average and record temperatures in the central and west unincorporated, see the City of Las Vegas and Village of Pecos findings in the following related subsections.

**Table 5.5.3-1  
 Average and High Temperatures at Conchas Dam**

|                | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Average</b> | 54  | 58  | 65  | 73  | 82  | 91  | 95  | 92  | 85  | 75  | 63  | 53  |
| <b>Record</b>  | 80  | 82  | 91  | 97  | 106 | 114 | 107 | 107 | 104 | 97  | 86  | 78  |

Source: <http://www.weather.com/weather/wxclimatology/monthly/graph/USNM0075>



**City of Las Vegas**

The City of Las Vegas average and high temperatures are recorded below:

**Table 5.5.3-2  
 Average and High Temperatures, City of Las Vegas**

|                | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Average</b> | 49  | 52  | 59  | 67  | 75  | 83  | 85  | 83  | 78  | 68  | 58  | 49  |
| <b>Record</b>  | 72  | 74  | 80  | 86  | 98  | 98  | 107 | 95  | 98  | 87  | 81  | 74  |

Source: <http://www.weather.com/weather/wxclimatology/monthly/graph/USNM0170>

**Village of Pecos**

The Village of Pecos average and high temperatures are recorded below:

**Table 5.5.3-3  
 Average and High Temperatures, Village of Pecos**

|                | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Average</b> | 48  | 51  | 57  | 65  | 75  | 84  | 86  | 83  | 78  | 67  | 56  | 49  |
| <b>Record</b>  | 90  | 75  | 78  | 87  | 97  | 100 | 99  | 96  | 95  | 86  | 82  | 77  |

Source: <http://www.weather.com/weather/wxclimatology/monthly/graph/USNM0229>

**5.5.4 The Extent of Damage**

The extent of damages aren't easily measured for this hazard but generally only apply to people, and generally vulnerable populations including children and elderly. There have been no recorded extreme heat events in the NCDC database or through local data sets, and no injuries or loss of life have been attributed to extreme heat. That may be partly due to the efforts of the local emergency management office and public safety community who prepare for extreme weather events and set up cooling stations when temperatures hit dangerous levels.

The range of high temperatures across the County include:

- San Miguel County – West (near Pecos): 49° to 107°
- San Miguel County – Center(near Las Vegas): 49° to 107°
- San Miguel County – East (near Conchas Dam): 54° to 114°
- City of Las Vegas: 49° to 107°
- Village of Pecos: 49° to 107°

With the occasional possibility of temperatures rising to 100° in Pecos, to 107° in Las Vegas, and 114° in the County, the extent of damage could include any of the following health issues for people across the entire planning area:

- Heatstroke – A substantial rise in the core body temperature, often fatal.

- Heat Exhaustion – Fluid and electrolyte imbalance causing weakness or fatigue with a slight body temperature elevation.
- Heat Syncope – A circulatory instability response to heat that causes a sudden loss of consciousness.
- Heat Cramps – Muscular pain due to mild fluid and electrolyte imbalances.

### 5.5.5 Probability of Future Events

Though long-term forecasting of extreme high temperatures is not possible, the geographic location of the planning area makes recurring extreme heat events likely. According to available weather statistics, the following high temperature records were recorded:

- San Miguel County (at Conchas Dam): 114° F, June 1998
- City of Las Vegas: 107° F, July 2008
- Village of Pecos: 100° F, June 1994

There is not enough data to accurately annualize or quantify the probabilities of this hazard for any of the participating jurisdictions. However, the 2013 New Mexico SHMP reports 3 extreme heat events in the region (Preparedness Area 2) from January 1, 2006 to December 1, 2012, an event is possible with an annualized probability of 1.2%.<sup>41</sup>

## 5.6 Flood

Based on the MPG’s collaborative assessment, evaluation, and ranking of each potential hazard within the county, the hazard of flooding was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, flooding had moderate (people and buildings) and high (infrastructure) rankings for impacts in all areas except the Village of Pecos, where impacts to all three metrics were high. The overall flood hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - High
- Las Vegas – High
- Village of Pecos - High

### 5.6.1 Description of the Hazard

Flood is an overflow of an expanse of water that submerges land and is usually caused by thunderstorms that produce heavy amounts of rain or from snow melt in the spring. Floods are natural events that occur hundreds of times each year across the country, making it one of the most common hazard events. There are three basic sources of flooding events:

- **Riverine flooding** occurs when excess rainfall or snow melt causes a water body like a river to overflow its banks and move into the lowlands adjacent to the water body that are susceptible to recurring inundation (the floodplain). Although a natural occurrence, it is also a hazard in many areas – floodplains in the United States are home to over 9 million

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<sup>41</sup> State of New Mexico Hazard Mitigation Plan 2013. Extreme Heat, Pages 82-92. Print.

households, and floods cause millions of dollars in damage and kill an average of 150 people a year.

- **Closed-basin lake flooding** occurs when excess water accumulates in lakes with either no outlet or a relatively small one.
- **Flash flooding** occurs when a relatively impervious, sloped area receives a large amount of rainfall from slow-moving thunderstorms or chains of thunderstorms moving one after the other over the same area. The resulting run-off flows down any terrain feature that will act as a channel (rivers, gullies, roads) carrying with it any debris or loose soil in its path. Flash floods usually occur within 6 hours of heavy rainfall, and according to the National Weather Service, are usually more life threatening than other types of flooding. The majority of deaths from flash flooding occur when people become trapped in automobiles that stall while driving through flooded areas. Nearly half of all flood fatalities are vehicle-related. Several factors determine the severity of floods, including rainfall intensity (or other water source) and duration. A small amount of rain can also cause flooding in locations where the soil is saturated from a previous wet period or if the rain is concentrated in a low area of impermeable surfaces such as large parking lots, paved roadways, or other impervious developed areas.

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The Mitigation Division, a component of the Federal Emergency Management Agency (FEMA) manages the NFIP, and oversees the floodplain management and mapping components of the Program. The NFIP Community Rating System (CRS) was implemented in 1990 as a program to recognize and encourage community floodplain management activities that exceed minimum NFIP standards. The National Flood Insurance Reform Act of 1994 codified the CRS in the NFIP. Under the CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet the three goals of the CRS:

1. Reduce flood losses;
2. Facilitate accurate insurance rating; and
3. Promote the awareness of flood insurance.

The National Flood Insurance Program (NFIP) defines flood in the following way:

*A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of inland or tidal waters, from unusual and rapid accumulation or runoff of surface waters from any source, or from mudflow.*

FEMA identifies those areas that are more vulnerable to flooding by producing Flood Hazard Boundary Maps (FHBM), Flood Insurance Rate Maps (FIRM) or Digital Flood Insurance Rate Maps (DFIRM), and Flood Boundary and Floodway Maps (FBFM). Several areas of flood hazards are commonly identified on these maps. One of the areas identified in the Special Flood Hazard Area (SFHA) which is a high-risk area defined as any land that would be inundated by a flood having a one percent chance of occurrence in any given year (also known as the base flood). Flood zone designations relevant to San Miguel County are defined and described in Table 5.6.1-1. An example of a FIRM for San Miguel County is provided in Figure 5.6.1-1.

**Table 5.6.1-1  
Flood Zone Designations and Description**

| Zone Designation  | Percent Annual Chance of Flood | Description   |
|-------------------|--------------------------------|---|
| Zone A            | 1%                             | Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these areas.  |
| Zone AE           | 1%                             | Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. In most instances, base flood elevations derived from detailed analyses are shown at selected intervals within these zones.   |
| Zone AH           | 1%                             | Areas with a 1% annual chance of flooding where shallow flooding (usually areas of ponding) can occur with average depths between one and three feet.   |
| Zone AO           | 1%                             | Areas with a 1% annual chance of flooding, where shallow flooding average depths are between one and three feet.  |
| Zone X (shaded)   | 0.2%                           | Represents areas between the limits of the 1% annual chance flooding and 0.2% chance flooding.  |
| Zone X (unshaded) | Undetermined                   | Areas outside of the 1% annual chance floodplain and 0.2% annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than one (1) foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than one (1) square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevation or depths are shown within this zone. |

Source: FEMA and NFIP

**Figure 5.6.1-1  
FIRM Example for San Miguel County**



Alluvial fans and alluvial fan flood hazards exist in the county. Alluvial fan flood hazard characteristics include heavy sediment/debris loads and high velocity flows. Heavy sedimentation can impact the river flow behavior and cause flooding in different areas.

Sheet floods are typically experienced in developed urban environments with primarily impervious ground. Heavy rainfall does not have the opportunity to infiltrate into the ground, as in undeveloped areas. Flooding occurs when the drainage facilities cannot contain the volume of water, and low-lying areas become inundated.

Previous experiences of flooding can indicate that an area is flood-prone, meaning it is likely to flood in the future. However, the absence of previous floods in an area does not mean that it will not happen in the future. Changes in topography or land development can alter existing natural drainage paths and lead to flooding. High levels of rainfall, significant snow accumulation and related melt, and wildfire scarring can also cause unforeseen flooding conditions.

Flood studies use historical records to determine the probability of occurrence for different extents of flooding in identified floodplains. The probability of occurrence is expressed as the percentage chance that a flood of a specific extent will occur in any given year. The probability of occurrence in any given year is defined as follows:

- 10-year flood = 10% chance/year
- 50-year flood = 2% chance/year
- 100-year flood = 1% chance/year
- 500-year flood = 0.20% chance/year

Site-specific drainage and hydrology studies are the only methodology for predicting the extent or location of flash flooding that impacts the built environment. Therefore, this plan does not include maps depicting flash flood risk.

### **5.6.2 Significant Past Occurrences**

In the early 1900s, there was a major flood in Las Vegas. Historic records indicate that heavy rains, combined with deforestation in the surrounding mountains, contributed to particularly severe flood damage. There was heavy sedimentation that contaminated the city's water supply, and generally worsened the effects of the storm. This storm caused the most severe flooding on record for San Miguel County.

According to the National Weather Service, San Miguel County reported 15 floods between 1993 and 2013. Stakeholder interviews identified the following recent flooding in San Miguel County:

- 1995 and 1996 – two consecutive 100-year storms – Pajarito and Encino floods
- Drainage floods; flooding overflowed the Storrie Lake spillway due to insufficient capacity
- Regular flooding in downtown Las Vegas due to the backup at the railroad tracks
- Insufficient drainage capacity in the Gallinas River causes regular flooding in Las Vegas
- Roads near Pecos Independent School District have frequently washed-out during storm events; other road wash-outs impact school bus service
- El Valle area is highly prone to flooding

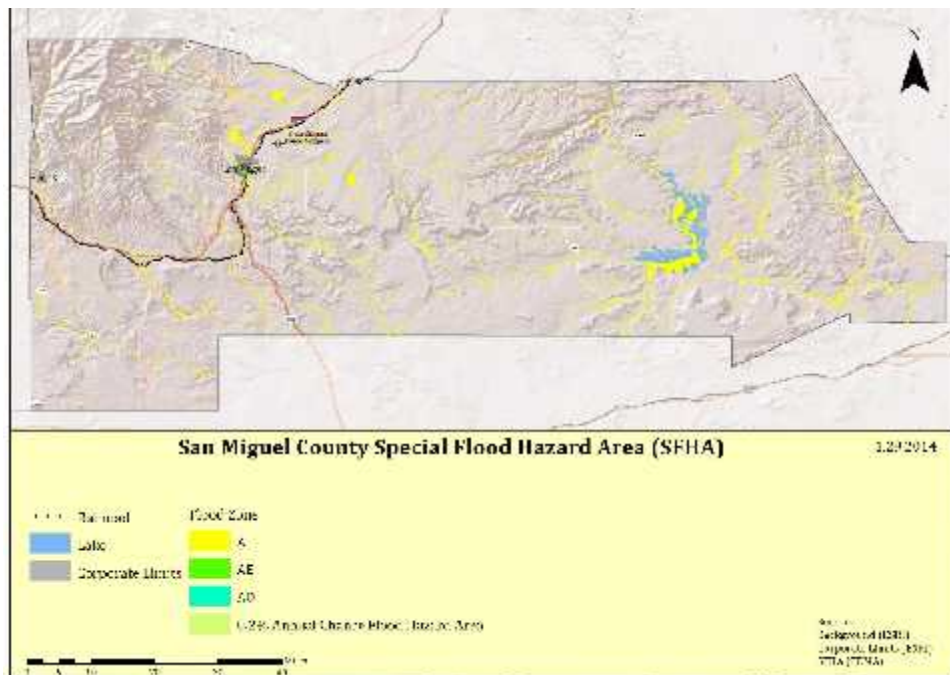
- 2013 floods included the Tres Lagunas Flood, Conchas Big Mesa Flood, Sabinoso Flood, and the San Rafael Flood.

### 5.6.3 Location of Areas at Risk for Flood

San Miguel County consists of five watersheds including the Rio Gallinas, Pecos River, Upper Canadian – Ute, Mora River, and Conchas watersheds. The Pecos River drains the western portion of the Sangre de Cristo Mountains. Adjacent and east is the Rio Gallinas watershed. This drains through the City of Las Vegas, and the area known as El Valle. All of the communities within El Valle are located within the Pecos River watershed and are situated within 0.5 mile to 1 mile from the Pecos River. The tributaries to the Pecos River within the study area include the following: El Rito Creek, Cow Creek, Arroyo Chamizal, Arroyo del Pueblo, Arroyo Begoso, Gonzales Arroyo, Cañon de la Presa, and Cañon de Peña.

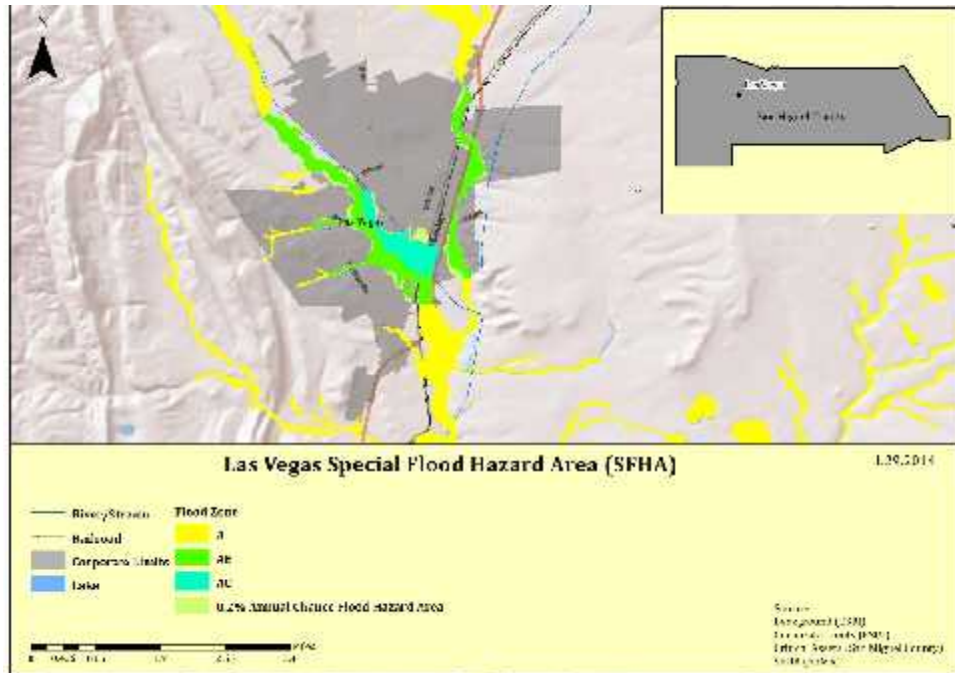
San Miguel County has areas of one percent and areas of .02% annual chance floodplain along the lakeshores, rivers, creeks, and arroyos. The City of Las Vegas has areas of one percent and areas of .02% annual chance floodplain primarily along the Gallinas Creek, Arroyo Pajarito, and Pecos Arroyo beds and adjacent low-lying areas that flank the eastern and western sides of the City.. The Village of Pecos has areas of one percent annual chance floodplain along the Pecos River bed that flanks the northwestern corner of the village, then crosses to create the eastern border of the Village. Maps 5.6.3-1 through 5.6.3-3 show the identified Special Hazard Flood Areas (SFHA) for San Miguel County, the City of Las Vegas, and the Village of Pecos. Additional and more specific flood map data can be found in the local Flood Insurance Rate Maps (FIRMs).

**Map 5.6.3-1  
San Miguel County SFHA**

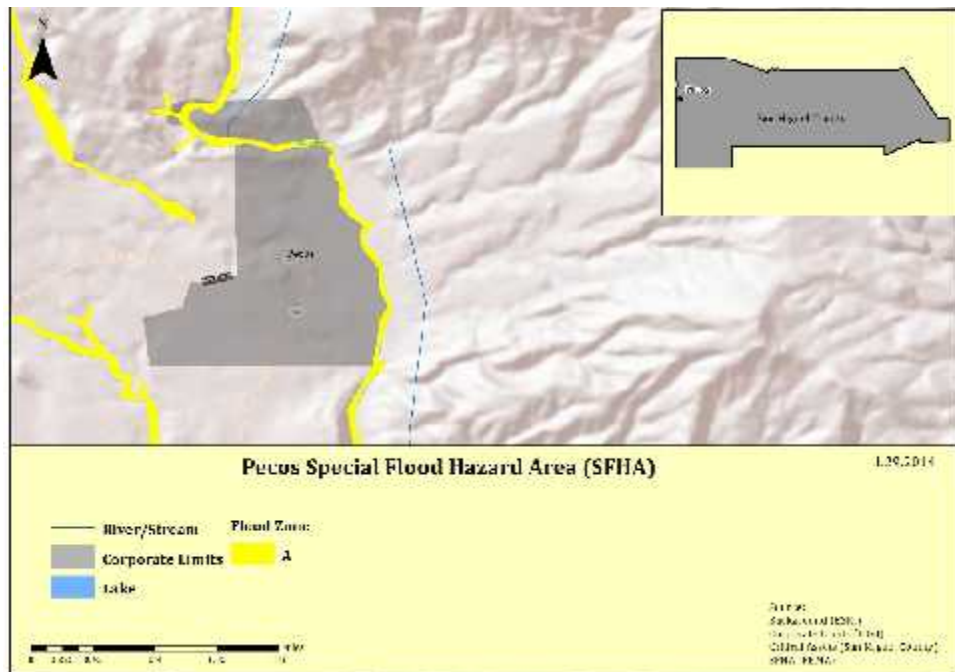




**Map 5.6.3-2  
 City of Las Vegas SFHA**



**Map 5.6.3-3  
 Village of Pecos SFHA**



San Miguel County participates in the NFIP and reports only limited loss through the program. Since January 1, 1978, there have been nine claims in the City of Loss Vegas and six claims in the

county totaling \$21,617.12.<sup>42</sup> There have been no claims in the Village of Pecos. It is important to note that the NFIP only reports covered flood losses, so the reports do not reflect uninsured or self-insured loss.

FEMA's Severe Repetitive Loss (SRL) Grant Program provides federal funding to assist states and communities in implementing mitigation measures to reduce or eliminate the long-term risk of flood damage to severe repetitive loss residential structures insured under the National Flood Insurance Program (NFIP). The primary objective of this repetitive loss properties strategy is to eliminate or reduce the damage to property and the disruption to life caused by repeated flooding.

FEMA's NFIP also supports and encourages participation in the Community Rating System (CRS), a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed minimum NFIP requirements.<sup>43</sup> Through this program, communities can reduce their flood insurance premiums through flood risk reduction under three primary goals:

- Reduce flood damage to insurable property,
- Strengthen and support the insurance aspects of the NFIP, and
- Encourage a comprehensive approach to floodplain management

The CRS is designed as a step improvement system which provides additional flood insurance premium reduction incentives for each class rating achieved. Only three New Mexico counties participate in the CRS: Bernalillo, Dona Ana, and San Juan. The municipalities within those counties are also participating members of the CRS. Of the three participating counties and their municipalities, the City of Las Cruces has a Class 6 rating, the lowest CRS class in the state.<sup>44</sup> CRS classes and their respective insurance premium incentives are listed in Table 5.6.3-1:

**Table 5.6.3-1  
 CRS Classes and Insurance Premium Discounts**

| Class  | Discount | Class | Discount |
|--|----------|-------|----------|
| 1  | 45%      | 6     | 20%      |
| 2  | 40%      | 7     | 15%      |
| 3  | 35%      | 8     | 10%      |
| 4  | 30%      | 9     | 5%       |
| 5  | 25%      | 10    | N/A      |
| Note: Discounts may vary by structure depending on the flood zone and class. See the CRS Manual for details. |          |       |          |

Source: NFIP CRS Coordinator's Manual

### 5.6.4 The Extent of Damage by Flood

Between January 1997 and December 2013, there were a total of 20 floods (3) and flash floods (17) reported to the NCDL with an estimated financial impact of \$2.123 million (averaging \$132,687.50/year). San Miguel County local records indicate that on average, \$150,000-\$350,000 is spent per year responding to flood damage. Flood response expenses include the cost of debris

<sup>42</sup> <http://bsa.nfipstat.fema.gov/reports/1040.htm#35>

<sup>43</sup> <http://www.fema.gov/national-flood-insurance-program-community-rating-system>

<sup>44</sup> [http://www.fema.gov/media-library-data/20130726-1651-20490-3916/\\_19\\_crs\\_may2013\\_3.14.13.pdf](http://www.fema.gov/media-library-data/20130726-1651-20490-3916/_19_crs_may2013_3.14.13.pdf)



removal and capital expenses to repair damaged infrastructure. Flood response efforts do not include evacuation efforts, street barricading/traffic control, any long-term solutions or emergency response efforts as these expenses are primarily operating expenses born by the local jurisdiction. The NCDC flood records are listed in Table 5.6.4-1:

**Table 5.6.4-1  
NCDC Flood Records for all of San Miguel County**

| Location               | Date       | Flood Type  | Death    | Injury   | PrD           | Crd          |
|------------------------|------------|-------------|----------|----------|---------------|--------------|
| Pecos                  | 6/7/1997   | Flash Flood | 0        | 0        | 80.00K        | 0.00K        |
| Trujillo               | 8/1/1997   | Flash Flood | 0        | 0        | 150.00K       | 0.00K        |
| Las Vegas              | 7/30/1998  | Flash Flood | 0        | 0        | 2.00K         | 0.00K        |
| Conchas Dam            | 8/19/1998  | Flash Flood | 0        | 0        | 0.00K         | 0.00K        |
| Pecos                  | 6/2/2000   | Flash Flood | 0        | 0        | 0.00K         | 0.00K        |
| Bell Ranch             | 6/5/2000   | Flash Flood | 0        | 0        | 10.00K        | 0.00K        |
| Romeroville            | 6/28/2000  | Flash Flood | 0        | 0        | 0.00K         | 0.00K        |
| Romeroville            | 10/23/2000 | Flash Flood | 0        | 0        | 0.00K         | 0.00K        |
| Chapelle               | 9/1/2005   | Flash Flood | 0        | 0        | 0.00K         | 0.00K        |
| Aurora                 | 7/27/2006  | Flash Flood | 0        | 0        | 0.00K         | 0.00K        |
| Ribera                 | 6/24/2010  | Flash Flood | 0        | 0        | 750.00K       | 0.00K        |
| El Porvenir            | 7/1/2010   | Flash Flood | 0        | 0        | 1.00K         | 0.00K        |
| Cowles                 | 7/6/2013   | Flash Flood | 0        | 0        | 0.00K         | 0.00K        |
| Cowles                 | 7/10/2013  | Flash Flood | 0        | 0        | 0.00K         | 0.00K        |
| Sanchez                | 8/4/2013   | Flash Flood | 0        | 0        | 95.00K        | 0.00K        |
| Sabinoso               | 8/8/2013   | Flash Flood | 0        | 0        | 10.00K        | 0.00K        |
| (LVS)Las Vegas Airport | 8/9/2013   | Flash Flood | 0        | 0        | 25.00K        | 0.00K        |
| <b>Subtotal:</b>       |            |             | <b>0</b> | <b>0</b> | <b>1.123M</b> | <b>0.00K</b> |
| Trementina             | 9/11/2013  | Flood       | 0        | 0        | 0.00K         | 0.00K        |
| (LVS)Las Vegas Airport | 9/13/2013  | Flood       | 0        | 0        | 1.000M        | 0.00K        |
| Pecos                  | 9/13/2013  | Flood       | 0        | 0        | 0.00K         | 0.00K        |
| <b>Subtotal:</b>       |            |             | <b>0</b> | <b>0</b> | <b>1.000M</b> | <b>0.00K</b> |
| <b>Total</b>           |            |             |          |          | <b>2.123M</b> | <b>0.00K</b> |

Source: National Climatic Data Center

The County frequently has to request FEMA funding for declared disaster areas due to flooding. Since annual flooding damages far exceed the county's operating budget for maintenance and repairs to county roads, the county is forced to declare an emergency disaster in order to help pay for the damages. Examples of emergencies and disasters due to flooding within the last ten years include the following:

- Resolution Number SMC-09-10-13, August 2013, to address the County of San Miguel and other eligible applicants that suffered severe damage. San Miguel County suffered damage

and loss to infrastructure (eroded roadways, removal of sub-base & base course and cutting of drainage ditches) which was caused by horrendous rains and flooding especially on August 8, 2013. Then on August 9, 2013, heavy rains created flooding in the Las Vegas Area which resulted in damage to a bridge on CR 23 creating safety issues for drivers.

- Resolution Number 08-13-13, July 2013, to address flood damages in the community of Big Mesa Subdivision, Conchas, New Mexico caused by severe rainfall.
- Executive Order 2010-025, June 2007, \$316,005.00 requested for equipment, materials, and labor costs to address flood damages in the communities of Chapelle, Bernal, Meyers, San Rafael, and Ojitos Frios which suffered damage to infrastructure including bridges, public roadways, and drainage structures caused by excessive rainfall.
- FEMA DR-1659-NM, June 2006, \$44,708.00 requested for road restoration of eroded ditches and road shoulders, equipment, materials, and labor costs to address flood damages on county roads
- Executive Order 2005-058, September 2005, \$750,000 in requested assistance for significant damage to county roads by flash floods for San Miguel, Socorro, Sierra, Cibola, Rio Arriba, and Guadalupe Counties.
- Executive Order 2005-025, June 2004, \$750,000.00 requested for culvert installation/replacements and equipment costs to address flood damages in the communities of Ojitos Frios, Las Dispensas, Pecos, and Lower Rociada
- Executive Order 2003-045, September 2003, where flash flooding caused significant damage to infrastructure and Community Ditch Associations in San Miguel County, Rio Arriba County, and the City of Elephant Butte in Sierra County. (No cost estimates available).

The number of labor-hours spent responding to flooding disaster events are included within each emergency declaration application the county submits to FEMA. There have been no documented deaths or injuries related to flooding in San Miguel County between the years of 1997 and 2013. Stakeholder interviews reported that the primary areas of concern are within the floodplains, especially within El Valle region. Existing building codes and drainage requirements are generally sufficient to protect structures that are outside of the floodplains and reported damages are generally limited to critical components of infrastructure including roadways, bridges, and drainage systems.

### 5.6.5 Probability of Future Events

Flooding is a natural hazard that cannot be prevented and is certain to occur at regular intervals across the planning area. The highest risk periods are during the summer monsoon season, and during the spring when snow-pack melts.

Statistical probability indicates that each year, there is a one percent chance of inundation of the 100-year floodplain. More commonly, the 10-year floodplain has a 10 percent chance of occurrence in any given year. However, flash floods are not reflected by the SFHA or the associated flood probabilities. The history of flood events in San Miguel County relates to an average of 1.6 reported events per year across the county, and as noted above, an estimated annual \$132,687.50 in loss primarily to critical infrastructure. Annualized flooding based on NCDC records for each jurisdiction are noted below:

- San Miguel County – 17 events equating to approximately one flood every 11 months making the probability of occurrence highly likely

- City of Las Vegas - 3 events equating to one flood every 5.33 years making the probability of occurrence likely
- Village of Pecos – 3 events equating to one flood every 5.33 years making the probability of occurrence likely

## 5.7 Hailstorm

Based on the MPG’s collaborative assessment, evaluation, and ranking of each potential hazard within the county, the hailstorm hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, hailstorms were viewed as a varied threat across the jurisdictions with higher expected impacts to people and buildings over infrastructure. The overall hailstorm hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - High
- Las Vegas – High
- Village of Pecos - Low

### 5.7.1 Description of the Hazard

Hailstorms are thunderstorm events that produce hail. Hail is a form of solid precipitation that consists of balls or irregular lumps of ice, individually called hail stones. Hail stones consist mostly of water ice and measure between 0.2 and 5.9 inches in diameter, with the larger stones originating from severe thunderstorms. Hail formation requires environments of strong, upward motion of air with the parent thunderstorm and lowered heights of the freezing level. Hail is most frequently formed in the interior of continents within the mid-latitudes of the Earth, and is generally confined to higher elevations within the tropics.

The Tornado and Storm Research Organization (TORRO) Hail Scale is used to measure the intensity of hail storms. The scale ranges from H0 to H10 with its increments of intensity or damage potential related to hail size (distribution and maximum), texture, numbers, fall speed, speed of storm translation, and strength of the accompanying wind<sup>45</sup>. Refer to Table 5.7.1-1 for the TORRO Hailstorm intensity scale and typical damage impacts by hailstorm severity.

**Table 5.7.1-1  
TORRO Hailstorm Intensity Scale**

| Intensity Scale | Intensity Category   | Typical Hail Diameter (millimeter) | Probable Kinetic Energy (J-m <sup>2</sup> ) | Typical Damage Impacts                         |
|-----------------|----------------------|------------------------------------|---|--|
| H0              | Hard Hail            | 5                                  | 0-20  | No damage                                      |
| H1              | Potentially Damaging | 5-15                               | >20   | Slight general damage to plants, crops         |
| H2              | Significant          | 10-20                              | >100  | Significant damage to fruit, crops, vegetation |

<sup>45</sup> TORRO. (2013). *Hail scale*. Retrieved from <http://www.torro.org.uk/site/hscale.php>

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|            |                  |        |      |  |
|------------|------------------|--------|------|--|
| <b>H3</b>  | Severe           | 20-30  | >300 | Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored  |
| <b>H4</b>  | Severe           | 25-40  | >500 | Widespread glass damage, vehicle bodywork damage   |
| <b>H5</b>  | Destructive      | 30-50  | >800 | Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries              |
| <b>H6</b>  | Destructive      | 40-60  | >800 | Bodywork of grounded aircraft dented, brick walls pitted   |
| <b>H7</b>  | Destructive      | 50-75  | >800 | Severe roof damage, risk of serious injuries   |
| <b>H8</b>  | Destructive      | 60-90  | >800 | (Severest recorded in the British Isles) Severe damage to aircraft bodywork                      |
| <b>H9</b>  | Super Hailstorms | 75-100 | >800 | Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open |
| <b>H10</b> | Super Hailstorms | >100   | >800 | Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open |

Source: TORRO. (2013). Hail scale. Retrieved from <http://www.torro.org.uk/site/hscale.php>

A more common hail scale is defined by the NOAA's Storm Prediction Center and references hail size by object as noted in Table 5.7.1-2.

**Table 5.7.1-2**  
**Traditional Object-to-Size Conversion Chart**  
**(with TORRO scale and impacts)**

| Hail Diameter (inches) | Hail Diameter (millimeter) | Object Size       | TORRO Intensity Scale | TORRO Scale Typical Damage Impacts  |
|------------------------|----------------------------|-------------------|-----------------------|---|
| .50                    | 13                         | Marble, Moth Ball | <b>H1</b>             | Slight general damage to plants, crops  |
| .75                    | 19                         | Penny             | <b>H2</b>             | Significant damage to fruit, crops, vegetation  |
| .88                    | 22                         | Nickel            | <b>H3</b>             | Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored |
| 1.00                   | 25                         | Quarter           | <b>H4</b>             | Widespread glass damage, vehicle bodywork damage  |
| 1.25                   | 32                         | Half Dollar       | <b>H5</b>             | Wholesale destruction of glass,   |

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| Hail Diameter (inches) | Hail Diameter (millimeter) | Object Size            | TORRO Intensity Scale | TORRO Scale Typical Damage Impacts   |
|------------------------|----------------------------|------------------------|-----------------------|--|
|                        |                            |                        |                       | damage to tiled roofs, significant risk of injuries  |
| 1.50                   | 38                         | Walnut, Ping Pong Ball | <b>H5</b>             | Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries              |
| 1.75                   | 44                         | Golf Ball              | <b>H6</b>             | Bodywork of grounded aircraft dented, brick walls pitted   |
| 2.00                   | 51                         | Hen Egg                | <b>H7</b>             | Severe roof damage, risk of serious injuries   |
| 2.50                   | 64                         | Tennis Ball            | <b>H8</b>             | Severe damage to aircraft bodywork   |
| 2.75                   | 70                         | Baseball               | <b>H8</b>             | Severe damage to aircraft bodywork   |
| 3.00                   | 76                         | Teacup                 | <b>H9</b>             | Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open |
| 4.00                   | 102                        | Grapefruit             |                       | Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open |
| 4.50                   | 114                        | Softball               |                       | Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open |

Source: NOAA Storm Prediction Center. <http://www.spc.noaa.gov/misc/tables/hailsiz.htm>

Hailstorms usually lasts an average of 10 to 20 minutes, but may last much longer in some storms. Evidence indicates that maximum hailstone size is the most important parameter relating to structural damage, especially towards the more severe end of the scale. Hail rarely causes notable physical damage to people, buildings, or infrastructure when it is smaller than the diameter of a quarter, but even small hail can cause crop damage. Golf ball size and larger hail can damage vehicles windows and rooftops, and can cause injury or death to humans and animals.

### **5.7.2 Significant Past Occurrences**

The largest recorded hail in San Miguel County was reported on June 26, 1982 as a 4.5” hail stone(s). No specific information is given for this event, but hail storms are common in New Mexico with recorded hail ranging from .75” to 4.5” with 171 recorded events since July, 1958. Of those events, 113 recorded hail of 1” or larger. There are no injury or death reports from any of these events, but an August 30, 1996 event recorded \$80,000 in property damage from hail and flash flooding in western San Miguel County and the City of Las Vegas.

On May 27, 2009, a hail storm moved into Las Vegas and dropped an estimated 4” of penny-sized hail on the city streets. No damages were reported in this event, but hail covered the ground and roads for nearly 45 minutes.<sup>46</sup>

### **5.7.3 Location of Areas at Risk**

The entire county, the City of Las Vegas, and the Village of Pecos are at equal risk to hail storms and damage. There are no hazard boundaries or identified hazard zones associated with hail. Most frequently, hail is only reported in populated areas, so determining the distribution of hail storms across a mostly rural and agricultural county is not possible.

### **5.7.4 The Extent of Damage**

According to The National Climatic Data Center, San Miguel County reported 100 hail events between January 1, 2003 and October 31, 2013, totaling \$80,000 in property and no crop damages.<sup>47</sup> Only two damage producing hail events occurred in San Miguel County over the last 6 decades. In 1995, one hail event caused \$10,000 in property damages, while another caused \$80,000 in property damages a year later.

Past occurrences of hailstorms have included 4.5” hailstones. The TORRO Index ranks this as a “Super Hailstorm” with an H10 intensity factor meaning that the entire planning area could expect to see extensive structural damage with a risk of severe or even fatal injuries to persons caught in the open.

### **5.7.5 Probability of Future Events**

According to the National Weather Service (NWS), oversized and severe hailstorms occur most frequently in May, followed by June, July, and April. The mid- and southwest portions of the U.S. are exposed to the highest average number of hail days. If the weather patterns over the past 10 years remain constant, San Miguel County can expect an annualized number of 10 hail events per year making the probability of occurrence highly likely.

## **5.8 Hazardous Materials Incidents**

Based on the MPG’s collaborative assessment, evaluation, and ranking of each potential hazard within the county, the hazardous materials hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county.

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<sup>46</sup> <http://www.johnfarley.com/chase52709.htm>

<sup>47</sup> <http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=35%2CNEW+MEXICO>

According to surveyed responses, the hazardous materials hazard was viewed as a varied threat across the jurisdictions with predominantly moderate to high expected impacts to people, buildings, and infrastructure. The overall hazardous materials hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - Moderate
- Las Vegas – High
- Village of Pecos - High

### 5.8.1 Description of the Hazard

Hazardous materials incidents are technological events that involve accidental or intentional releases of reportable quantities of chemical, biological, radiological, nuclear, and explosive materials as defined in 40 CFR 117.3 “Reportable Quantities of Hazardous Substances”.

Hazardous materials come in the form of explosives, flammable and combustible substances, toxic releases and waste materials. These substances are most often released as a result of transportation accidents or because of accidents in industrial facilities. Hazardous materials in their various forms can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property. Many products containing hazardous chemicals are used and stored in small quantities in homes and businesses. These consumer products are also shipped daily on the nation's highways, railroads, waterways, airways, and pipelines.

### 5.8.2 Significant Past Occurrences

There are 17 National Response Center reports for hazardous materials releases between January 1, 1991 and January 1, 2014. Table 5.8.2-1 lists the release reports.

**Table 5.8.2-1  
Hazardous Materials Release Records**

| <b>Date</b>      | <b>Location</b>   | <b>Type of Event</b>               | <b>Incident/Material Released</b>   |
|------------------|---|------------------------------------|---|
| May 02, 1991     | Forest roads 121, 305, and 555 (to include sections 34 and 35) near Pecos | Fixed                              | Received lab data that there were high levels of lead (20-15,000 ppm) in mine waste that was used as road surfacing material back in 1975 |
| July 12, 1991    | 727 Katherine St, Las Vegas   | Pipeline                           | Natural Gas   |
| January 22, 1994 | Pecos   | Responsible party is burning tires | Tires   |
| June 18, 1996    | 75 miles NW of Canon AFB, Tucumcari                                       | Aircraft crash                     | Naphthalene, Jet fuel JP-8  |

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| Date              | Location   | Type of Event | Incident/Material Released   |
|-------------------|--|---------------|--|
| October 14, 1997  | Milepost:11.59<br>Lisbon                                 | Railroad      | Tank car / a liquid cap came loose   |
| February 18, 1999 | Old Colonias Rd<br>Pecos                                 | Fixed         | People burning cable (plastics)  |
| May 18, 1999      | Mile marker 323, I-25 near Pecos                         | Mobile        | Saddle tanks on tractor trailer released oil, fuel: no. 2-d after accident involving two vehicles  |
| December 1, 1999  | Intersection I-25 and US Hwy 84 north bound              | Mobile        | Box van / truck involved in single truck accident / truck rolled overdue to unknown causes / isopropanol release from cargo / truck is hazmat carrier  |
| December 22, 1999 | Highway 84 at I-25<br>Las Vegas                          | Mobile        | A tractor trailer overturned in a single vehicle accident causing the release of an unlisted product   |
| September 6, 2000 | 2006 Hot Springs Blvd, Las Vegas                         | Mobile        | While installing a storm drain, a 1" service natural gas line was hit by a tractor operating a cutting torch; due to the mixture of the natural gas and the diesel fuel in the tractor's backhoe the backhoe exploded. |
| September 1, 2001 | Behind Casa De Jerela restaurant on County Rd 63, Pecos  | Fixed         | The caller discovered oil in a puddle near the location  |
| October 31, 2001  | Las Vegas waste transfer point adjacent to Interstate 25 | Mobile        | An unknown piece of radioactive equipment containing barium-133 was discovered in a trash truck at a landfill. The origin of the equipment is unknown at this time.  |
| March 4, 2003     | 1008 5th Street, Las Vegas                               | Fixed         | Caller stated that oil is being released on her private property. She stated that oil is being dumped on her lawn as   |



| Date             | Location                      | Type of Event | Incident/Material Released  |
|------------------|-------------------------------|---------------|---|
|                  |                               |               | well as thrown against her house. She does not know where this oil is coming from.                                    |
| April 10, 2004   | County Rd b41E, Ribera        | Fixed         | The material raw sewage is being illegally dumped into a hole on the property   |
| February 9, 2011 | 1925 Church Street, Las Vegas | Fixed         | Caller states that there was a fire at a private residence with a natural gas line due to unknown reasons.            |
| April 6, 2013    | Bradner Dam, Las Vegas        | Fixed         | A hydraulic cylinder had a release while boring a whole. 10 gallons of hydraulic oil released and impacted the water. |

Source: National Response Center

### 5.8.3 Location of Areas at Risk

The threat from the hazardous materials is primarily along transportation routes through the county. Facilities in proximity and generally downwind from major thoroughfares and railways are also vulnerable to this hazard.

The severity of this hazard can be minor incidents that would likely cause no damage or disruption to major transportation infrastructure closure and localized evacuations. Major incidents could have fatal and disastrous consequences. The severity of a hazardous materials release relates primarily to its impact on human safety and welfare and on the threat to the environment.

Threats to human safety and welfare includes poisoning of water or food sources and/or supply, presence of toxic fumes or explosive conditions, damage to personal property, temporary or extended evacuation of people, and interference with transportation and business operations in the affected area.

Threats to the environment include injury or loss of animals or plants or habitats that are of economic or ecological importance such as commercial, recreation, or subsistence fisheries (marine plants, crustaceans, shellfish, aquaculture facilities) or livestock, and bird rookeries. Other environmental impacts include ecological reserves, forests, parks, archaeological, and cultural sites, all of which are part of the economic base of San Miguel County, the City of Las Vegas, and the Village of Pecos.

### **5.8.4 The Extent of Damage**

Hazardous materials incidents refer to uncontrolled releases of hazardous materials through a transportation-related incident or at a fixed-site facility which poses a risk to the health, safety, property, and the environment. The most well-known example of a large-scale hazardous materials incident is that which occurred at the Union Carbide plant in Bhopal, India in 1984. This incident caused 2,500 deaths and injuries to many others. Although incidences of this scale are rare, smaller scale incidents—those requiring a response and evacuation or other protective measures are relatively common.

Depending on the severity of the incident, the potential impact to life and property is great across San Miguel County. Major roads and rail lines are in close proximity to significant critical facilities including hospitals, schools, and senior centers. A single upwind incident with a hazardous materials release could cause immediate health concerns until the hazard is mitigated.

Hazardous materials incidents are often dependent on external factors. An incident can be caused intentionally or accidentally, and may or may not involve human action. Incidents can be caused by inundation of flood waters, from high winds that damage structures or infrastructure, or from weather related hazards that create road and railway risks for hazardous materials carriers. Hazardous materials incidents can also be caused at fixed facilities when filling/emptying transportation containers or through unlawful practices. Vehicle accidents and train derailments may also result in hazardous materials releases.

### **5.8.5 Probability of Future Events**

Between 1991 and 2014, there were 17 NRC hazardous materials reports. The majority of the reported releases were related to transportation incidents and unlawful practices such as burning or dumping. Releases range from natural gas to sewage, and include one incident of mine tailing materials used for road surface that included high levels of lead. Incidents were generally determined to be accidental, some localized intentional releases were also reported. Considering that there were only 17 reported releases in 23 years and that quantities of materials released were generally small, the probability of a significant hazardous materials incident occurring on or near and affecting San Miguel County, the City of Las Vegas, and the Village of Pecos is likely and each jurisdiction is equally vulnerable to this hazard.

## **5.9 High Wind**

Based on the MPG's collaborative assessment, evaluation, and ranking of each potential hazard within the county, the high wind hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, the high wind hazard was viewed as a potentially high impact event in San Miguel County and Pecos. The City of Las Vegas viewed this hazard as a predominantly moderate threat. The overall high wind hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - High
- Las Vegas - High
- Village of Pecos - High

### 5.9.1 Description of the Hazard

Wind is defined as the motion of air relative to the earth’s surface. Severe high winds often result from thunderstorm inflow and outflow, downburst winds when storm clouds collapse, strong frontal systems, or high or low-pressure systems moving across a region. High winds are defined as winds with speeds reaching 50 miles per hour (mph) or greater that are either continuous or gusting. Dust storms are strong windstorms that fill the air with thick dust and that reduce visibility. Other common wind storms in San Miguel County include gap wind or canyon wind and mountain wave-induced winds. Gap wind or canyon wind occurs as the wind rushes over mountain passes in the ridgeline of a mountain chain with strongest speeds at narrow canyon openings. Mountain wave-induced winds occur when there is a change in atmospheric pressure, temperature, and height in a current of air caused by vertical displacement. For example, when wind blows over mountain ranges air masses are forced from low elevation to high elevation as it moves over the rising terrain. According to the 2010 New Mexico Natural Hazard Mitigation Plan, San Miguel County is located within Wind Zone II which denotes areas that can experience winds up to 160 mph. It also designates the central portion of San Miguel County as a Special Wind Region that should be examined for unusual wind conditions due to its mountainous terrain. Table 5.9.1-1 defines the winds zones.

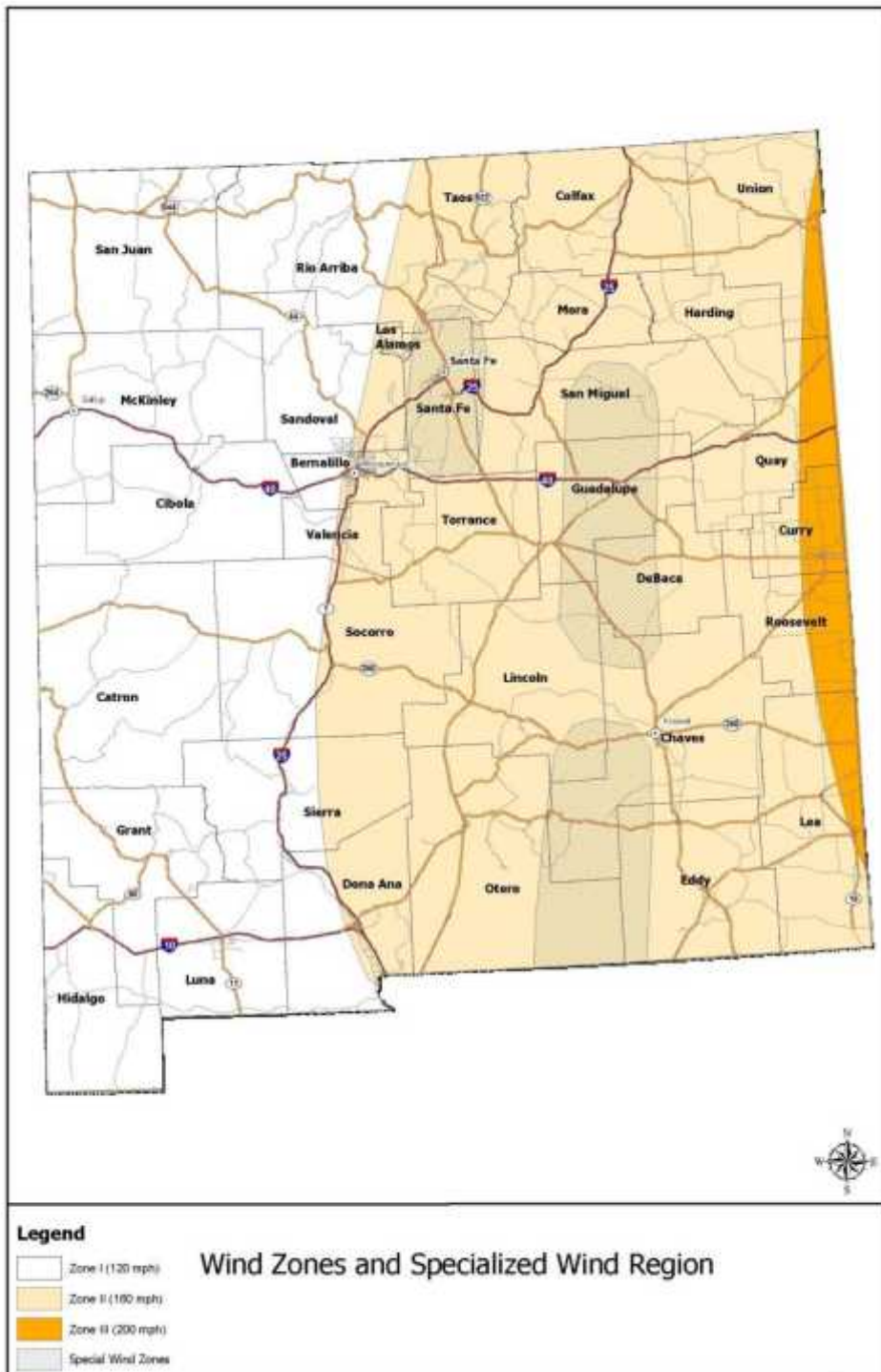
**Table 5.9.1-1  
 Wind Zones**

| Wind Zone                    | Wind Speed/Definition                                     |
|------------------------------|---|
| Zone I                       | 130 mph   |
| Zone II                      | 160 mph   |
| Zone III                     | 200 mph   |
| Zone IV                      | 250 mph   |
| Special Wind Region          | Areas that should be examined for unusual wind conditions |
| Hurricane Susceptible Region | Coastal areas that are susceptible to hurricane winds     |

Source: FEMA. <http://www.fema.gov/safe-rooms/wind-zones-united-states>

Map 5.9.1-1 on the following page shows the winds zones for the State of New Mexico including San Miguel County.

**Map 5.9.1-1  
New Mexico Wind Zones**



Source: 2010 New Mexico Hazard Mitigation Plan

### **5.9.2 Significant Past Occurrences**

Most of the wind and dust storms do not result in any damages or injuries but do have the potential to severely impact the existing infrastructure and the natural environment. High winds and the related dry air pressure systems reduce the opportunities for rain by preventing evaporated moisture from reaching the upper, cooler airs that allow for cloud formation. Dry high winds also increase surface evaporation, creating drier land conditions, and can divert wet weather systems away from the area. A query of the NOAA Satellite and Information Service, National Climatic Data Center (NCDC) and the 2010 New Mexico Hazard Mitigation Plan only revealed high wind incidents related to thunderstorm winds.

The NCDC has no records of high wind events that were not related to thunderstorms in San Miguel County, but there have been 19 NCDC recorded thunderstorm wind-related events across the county since 1966. The data related to these events do not specify whether the occurrences were recorded within municipal boundaries or in the unincorporated county. The county, the City of Las Vegas, and the Village of Pecos agree that these events can and do occur in all areas of the county. According to NCDC records, the strongest recorded thunderstorm wind event created 60mph winds in June 2001. No wind-related injuries or fatalities have been recorded anywhere in the planning area.

### **5.9.3 Location of Areas at Risk**

The State Plan identifies the fact that all areas of the state, including all areas of San Miguel County, are susceptible to high winds. The participating jurisdictions will continue to monitor for and track high wind events and their related damages to improve the available local data for this hazard.

### **5.9.4 The Extent of Damage**

While no damage has been reported due to a high wind event, the possibility of wind speeds up to 160 miles per hour poses a significant threat. Damage from winds at this velocity can range from large trees being blown down to structural failures of some buildings. Mobile homes are at a greater risk during high wind events. Communications infrastructure, such as telephone lines and power lines, may also fail as a result of this type of hazardous event.

### **5.9.5 Probability of Future Events**

High winds occur throughout the county, particularly during the windy spring season, but limited local data available only allows us to annualize thunderstorm-related wind events. There have been 19 such recorded events in the past 47 years, or approximately one event every 2.5 years, making the probability of occurrence likely. .

## **5.10 Landslide**

Based on the MPG's collaborative assessment, evaluation, and ranking of each potential hazard within the county, the landslide hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, the landslide hazard was viewed as a low hazard in San Miguel County, the City of Las

Vegas, and the Village of Pecos. The overall landslide hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - Low
- Las Vegas – Low
- Village of Pecos - Low

### 5.10.1 Description of the Hazard

Landslides are the downward and outward movement of slopes. Landslides include a wide range of ground movement, such as rock falls, deep failure of slopes, and shallow debris flows. Although gravity acting on and over steepened slopes is the primary reason for a landslide, landslides are often prompted by the occurrence of other disasters. Other contributing factors include the following:

- Erosion by rivers, glaciers, or ocean waves creating over-steepened slopes
- Rock and soil slopes weakened through saturation by snowmelt or heavy rains
- Earthquakes creating stresses that make weak slopes fail
- Earthquakes of magnitude 4.0 and greater shaking the ground
- Volcanic eruptions producing loose ash deposits, heavy rain, and debris flows
- Excess weight from accumulation of rain or snow, stockpiling of rock or ore, from waste piles, or from manmade structures stressing weak slopes
- Floods or long duration precipitation events creating saturated, unstable soils that are more susceptible to failure.

Landslides may happen when slope material becomes saturated with water causes a debris or mudflow. Ground is saturation also weakens soil and rock cohesion and friction between soil particles. Cohesion and friction affect the strength of the material in the slope and contribute to a slope's ability to resist down slope movement. Saturation also increases the weight of the slope materials and increases the gravitational force on the slope.

Undercutting of a slope reduces the slope's resistance to the force of gravity by removing much-needed support at the base of the slope. Alternating cycles of freeze and thaw can result in a slow, virtually imperceptible loosening of rock, thereby weakening the rock and making it susceptible to slope failure.

The resulting slurry of rock and mud can pick up trees, houses, and cars, and block bridges and tributaries, causing flooding along its path. Additionally, removal of vegetation can leave a slope much more susceptible to superficial landslides because of the loss of the stabilizing root systems.<sup>48</sup>

According to the USGS, there are four basic types of landslides: falls, topples, flows, and lateral shifts. These types of landslides are defined below:

- Falls: Falls are abrupt movements of masses of geologic materials, such as rocks and boulders that become detached from steep slopes or cliffs. Separation occurs along discontinuities such as fractures, joints, and bedding planes, and movement occurs by free-

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<sup>48</sup> 2010 New Mexico Hazard Mitigation Plan

fall, bouncing, and rolling. Falls are strongly influenced by gravity, mechanical weathering, and the presence of interstitial water.

- Topples: Toppling failures are distinguished by the forward rotation of a unit or units about some pivotal point, below or low in the unit, under the actions of gravity and forces exerted by adjacent units or by fluids in cracks
- Flows: There are five basic categories of flows that differ from one another in fundamental ways.
  - Debris flow: A debris flow is a form of rapid mass movement in which a combination of loose soil, rock, organic matter, air, and water mobilize as a slurry that flows downslope. Debris flows include <50 percent fines. Debris flows are commonly caused by intense surface-water flow, due to heavy precipitation or rapid snowmelt that erodes and mobilizes loose soil or rock on steep slopes. Debris flows also commonly mobilize from other types of landslides that occur on steep slopes, are nearly saturated, and consist of a large proportion of silt- and sand-sized material. Debris-flow source areas are often associated with steep gullies, and debris-flow deposits are usually indicated by the presence of debris fans at the mouths of gullies. Fires that denude slopes of vegetation intensify the susceptibility of slopes to debris flows.
  - Debris avalanche: This is a variety of very rapid to extremely rapid debris flow.
  - Earthflow: Earthflows have a characteristic "hourglass" shape. The slope material liquefies and runs out, forming a bowl or depression at the head. The flow itself is elongate and usually occurs in fine-grained materials or clay-bearing rocks on moderate slopes and under saturated conditions. However, dry flows of granular material are also possible.
  - Mudflow: A mudflow is an earthflow consisting of material that is wet enough to flow rapidly and that contains at least 50 percent sand-, silt-, and clay-sized particles. In some instances, for example in many newspaper reports, mudflows and debris flows are commonly referred to as "mudslides."
  - Creep: Creep is the imperceptibly slow, steady, downward movement of slope-forming soil or rock. Movement is caused by shear stress sufficient to produce permanent deformation, but too small to produce shear failure. There are generally three types of creep:
    - Seasonal - where movement is within the depth of soil affected by seasonal changes in soil moisture and soil temperature;
    - Continuous - where shear stress continuously exceeds the strength of the material;
    - Progressive - where slopes are reaching the point of failure as other types of mass movements. Creep is indicated by curved tree trunks, bent fences or retaining walls, tilted poles or fences, and small soil ripples or ridges.
- Lateral Spreads: Lateral spreads are distinctive because they usually occur on very gentle slopes or flat terrain. The dominant mode of movement is lateral extension accompanied by shear or tensile fractures. The failure is caused by liquefaction, the process whereby saturated, loose, cohesionless sediments (usually sands and silts) are transformed from a solid into a liquefied state. Failure is usually triggered by rapid ground motion, such as that experienced during an earthquake, but can also be artificially induced. When coherent material, either bedrock or soil, rests on materials that liquefy, the upper units may undergo fracturing and extension and then may subside, translate, rotate, disintegrate, or liquefy and flow. Lateral spreading in fine-grained materials on shallow slopes is usually progressive. The failure starts suddenly in a small area and spreads rapidly. Often the initial failure is a slump, but in some materials movement occurs for no apparent reason.

A combination of two or more of the above types is known as a complex landslide.<sup>49</sup>

Landslides can be classified by using the Alexander Scale shown in Table 5.10.1-1.

**Table 5.10.1-1  
Alexander Scale**

| Level | Damage            | Description  |
|-------|-------------------|--|
| 0     | None.             | Building is intact.  |
| 1     | Negligible.       | Hairline cracks in walls or structural members; no distortion of structure or detachment of external architectural details   |
| 2     | Light.            | Buildings continue to be habitable; repair not urgent. Settlement of foundations, distortion of structure, and inclination of walls are not sufficient to compromise overall stability.  |
| 3     | Moderate.         | Walls out of perpendicular by one or two degrees, or there has been substantial cracking in structural members, or the foundations have settled during differential subsidence of at least 15 cm; building requires evacuation and rapid attention to ensure its continued life.   |
| 4     | Serious.          | Walls out of perpendicular by several degrees; open cracks in walls; fracture of structural members; fragmentation of masonry; differential settlement of at least 25 cm compromising foundations; floors may be inclined by one or two degrees or ruined by heave. Internal partition walls will need to be replaced; door and window frames are too distorted to use; occupants must be evacuated and major repairs carried out.   |
| 5     | Very Serious.     | Walls out of plumb by five or six degrees; structure grossly distorted; differential settlement has seriously cracked floors and walls or caused major rotation or slewing of the building [wooden buildings are detached completely from their foundations]. Partition walls and brick infill will have at least partly collapsed; roofs may have partially collapsed; outhouses, porches, and patios may have been damaged more seriously than the principal structure itself. Occupants will need to be re-housed on a long-term basis, and rehabilitation of the building will probably not be feasible. |
| 6     | Partial Collapse. | Requires immediate evacuation of the occupants and cordoning of the site to prevent accidents with falling masonry.  |

Source: <http://www.es.mq.edu.au/NHRC/web/scales/scalespage14.htm>

<sup>49</sup> USGS. <http://pubs.usgs.gov/fs/2004/3072/fs-2004-3072.html>



### 5.10.2 Significant Past Occurrences

There have been no recorded significant past occurrences for this hazard in San Miguel County. The County, the City of Las Vegas, and the Village of Pecos recognize that landslides are possible and take mitigation actions where possible to reduce the risk.

### 5.10.3 Location of Areas at Risk

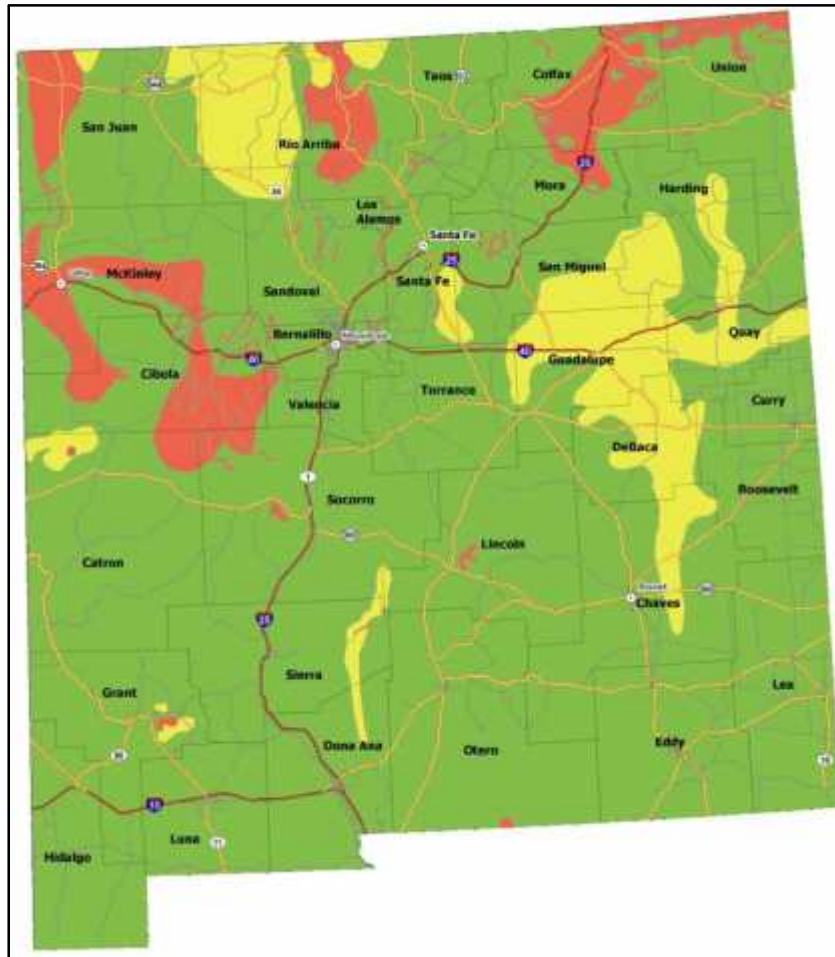
The USGS defines areas of risk based on the following percentage of land area:

**Table 5.10.3-1  
Landslide Risk Zones**

| <b>Risk Zone</b> | <b>Land Area</b>       |
|------------------|------------------------|
| Low:             | ≤ 1.5% of land area    |
| Moderate:        | 1.5% -15% of land area |
| High:            | ≥ 15% of land area.    |

The 2010 New Mexico Hazard Mitigation Plan recognizes that most of New Mexico is in a USGS National Landslide Hazard Program low risk zone (less than 1.5 percent of the land area is at risk), and San Miguel County is no exception. According to the USGS, areas of the County south and east of Las Vegas and Pecos are in a moderate risk zone, meaning 1.5 percent-15 percent of the land area is at risk of landslide. Map 5.10.3-1 outlines those areas in green for low risk, yellow for moderate risk, and red for high risk.

**Map 5.10.3-1**  
**Landslide Susceptible Areas in New Mexico**



Source: 2010 New Mexico Hazard Mitigation Plan

#### **5.10.4 The Extent of Damage**

There have been no recorded incidents of damage to people, buildings, or infrastructure as a result of landslides in San Miguel County, the City of Las Vegas, or the Village of Pecos.

#### **5.10.5 Probability of Future Events**

Since there is no recorded history of this hazard in San Miguel County and the participating jurisdictions, the probability of occurrence is unlikely.

### **5.11 Levee Failure**

Based on the MPG's collaborative assessment, evaluation, and ranking of each potential hazard within the county, the levee failure hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, the levee failure hazard was viewed as a low hazard in San Miguel County, the City of Las

Vegas, and the Village of Pecos. The overall levee failure hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - Low
- Las Vegas – Low
- Village of Pecos - Low

### **5.11.1 Description of the Hazard**

Levees and floodwalls are flood control barriers constructed of earth, concrete, or other materials. For the purposes of this plan, levees are distinguished from smaller flood barriers (such as berms) by their size and extent. Berms are barriers that only protect a small number of structures, or at times only a single structure. Levees and floodwalls are barriers that protect significant areas of residential, agricultural, commercial, or industrial development; at a minimum they protect a neighborhood or small community.

Levee failure involves the overtopping, breach, or collapse of the levee or floodwall. Such failure is especially destructive to nearby development during flood and tropical cyclone events. Levees can fail for any of the following three main reasons:

- **Overtopping:** When high river discharge leads to a river stage that is higher than the lowest point on a levee, the water will overtop the levee and start to flow onto the floodplain. Because the initial gradient from the river to flood plain is relatively high, the velocity of the water as it overtops the levee will also be high. High velocities can result in high rates of erosion. The levee that is initially overtopped may become scoured, creating a channel through the levee.
- **Undercutting and Slumping:** High river discharge causes increased velocities within the stream which in turn leads to higher rates of erosion along the inner walls of levees, undercutting and slumping the levee into the river. Heavy rainfall or seepage into the levee from the river can increase fluid pressure in the levee and lead to slumping on the inner or outer parts of the levee. If the slumps grow to the top of the levee, large sections of the levee may slump into the river or onto the floodplain and lower the elevation of the top of the levee, allowing it to be more easily overtopped.
- **Seepage and Piping:** Increasing water levels in the river will cause the water table in the levee to rise. This increases fluid pressure within the earth and may result in seepage (water being pushed through the levee to rise as springs on the surrounding flood plains). If a high flow rate develops due to increased fluid pressures, then a high velocity pathway to the flood plain may occur. This is known as piping. Piping erodes the material under the levee, undermining it and causing it to collapse and fail.

### **5.11.2 Significant Past Occurrences**

There is no history of past occurrences for this hazard in San Miguel County.

### **5.11.3 Location of Areas at Risk**

There are no identified areas of risk for this hazard at this time. The participating jurisdictions have considered levee protection from flood waters along rivers, arroyos, and acequias in the county. If

those levees are developed, the jurisdictions plan to develop risk assessments that address levee failure at that time.

#### **5.11.4 The Extent of Damage**

Extent of damage cannot be determined at this time as there are no significant levees in the county to manage waterways.

#### **5.11.5 Probability of Future Events**

The probability of future events is does not exist until such time as levees are built to protect developed lands from rising waters along the rivers, arroyos, and acequias, therefore this hazard is omitted from further assessment in the plan.

### **5.12 Pandemic/Epidemic**

Based on the MPG's collaborative assessment, evaluation, and ranking of each potential hazard within the county, the pandemic/epidemic hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, the pandemic/epidemic hazard was viewed as a low hazard in San Miguel County, the City of Las Vegas, and the Village of Pecos. The overall pandemic/epidemic hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - High
- Las Vegas - High
- Village of Pecos - High

#### **5.12.1 Description of the Hazard**

Infectious pathologies, also called communicable diseases or transmissible diseases due to their potential of transmission from one person or species to another by a replicating agent, are the cause of pandemic and epidemic emergencies. An infectious disease is a clinically evident illness resulting from the presence of pathogenic microbial agents, including pathogenic viruses, pathogenic bacteria, fungi, protozoa, multi-cellular parasites, and aberrant proteins known as prions.

Transmissible diseases which occur through contact with an ill person or their secretions, or objects touched by them, are especially infective, and are the most common types of pandemic and epidemic events. Infectious (communicable) diseases which usually require a more specialized route of infection, such as vector transmission, or blood or needle transmission, are usually not regarded as risk for this hazard.

Examples of communicable or infectious diseases include plague, malaria, tuberculosis, rabies, hepatitis B, influenza, HIV, and measles.

### 5.12.2 Significant Past Occurrences

The 2009 H1N1 virus outbreak caused 1,007 hospitalizations and 52 deaths across the state.<sup>50</sup> According to state public health records, San Miguel County reported one hospitalization and ordered 970 vaccines.<sup>51</sup>

In August of 2010, the county initiated and managed a Level 3 Pertussis Activation through sponsorship of the NM Department of Health. Though the health concerns and emergency were localized, the activation assisted local health services to manage and monitor the outbreak.

During a 2010-2012 period, San Miguel County recorded a death rate of 17.1 per 100,000 population for influenza and pneumonia. The county had the 13<sup>th</sup> highest rank in the state, but higher than the state average of 14.3 and the national average of 15.1 for the same period.<sup>52</sup>

San Miguel County and the State of New Mexico also have a history with the Hantavirus. Since this disease is not spread through human contact but through rodents, it will be addressed in the Pests hazard section (5.13).

### 5.12.3 Location of Areas at Risk

This hazard impacts people, rather than physical assets. Therefore, all populated areas of the county are at risk from the pandemic hazard. It is assumed that more densely populated areas such as the City of Las Vegas, the Village of Pecos, and unincorporated communities of the county are more likely to be exposed to this hazard. Conversely, more rural, isolated, and sparsely populated areas of the county are less likely to be at risk to the spread of communicable disease and pandemic.

There is not enough local data available to isolate the areas of risk by jurisdiction, so this hazard will be addressed for the entire county and its jurisdictions with the assumption that there is regular countywide human interaction.

### 5.12.4 The Extent of Damage

Communicable disease outbreaks and pandemic events will have the most immediate impact on life and health safety. The extent of the impact will be contingent on the type of infection or contagion, the severity of the outbreak, and the speed at which it is transmitted. Property and infrastructure could be affected if large portions of the population were affected and unable to perform maintenance and operations tasks. This would be particularly disruptive if those impacted were first responders, healthcare workers, educators, or other essential personnel.

The Center for Disease Control and Prevention (CDC) categorizes various diseases in levels of biohazard. In this scale, Level 1 equates to a minimal risk, and Level 4 describes extreme risk. Table 5.12.4-1 describes these levels, and provides examples of communicable diseases that would

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<sup>50</sup> <http://www.kdbc.com/news/new-mexico-analyzes-swine-flu>

<sup>51</sup> <http://www.nmt.edu/nmt-golfcourse/332-office-of-emergency-planning/office-of-emergency-planning/3566-nm-department-of-health-latest-release>

<sup>52</sup> <https://ibis.health.state.nm.us/community/highlight/profile/InfluenzaPneumoDeath.Cnty/GeoCnty/47.html>

typically fall in to these classifications, and the typical protections that would be necessary to prevent transmission of the disease.

**Table 5.12.4-1  
Biohazard Classification Levels**

| <b>Level</b>                   | <b>Examples</b>   | <b>Typical Protection to Prevent Transmission</b>  |
|--------------------------------|---|--|
| Biohazard Level I<br>(BSL-1)   | E. Coli<br>Canine Hepatitis<br>Chicken Pox  | Precautions are minimal, most likely involving gloves and some sort of facial protection. Usually, contaminated materials are left in open (but separately indicated) waste receptacles. Decontamination procedures for this level are similar in most respects to modern precautions against everyday viruses (i.e.: washing one's hands with anti-bacterial soap, washing all exposed surfaces of the lab with disinfectants, etc.). |
| Biohazard Level II<br>(BSL-2)  | Hepatitis A, B, C<br>Lyme disease<br>Salmonella<br>Mumps<br>Measles<br>Scrapie<br>Dengue Fever<br>HIV     | These bacteria and viruses cause mild disease in humans, or are difficult to contract via aerosol. Routine diagnostic work with clinical specimens can be done safely at BSL-2, using BSL- 2 practices and procedures.   |
| Biohazard Level III<br>(BSL-3) | Anthrax<br>West Nile Virus<br>SARS Virus<br>Smallpox<br>Tuberculosis<br>Typhus<br>Yellow Fever<br>Malaria | These bacteria and viruses cause severe to fatal disease in human, but vaccines or other treatments do exist to combat them. Laboratory personnel have specific training in handling pathogenic and potentially lethal agents, and are supervised by competent scientists who are experienced in working with these agents. This is considered a neutral or warm zone.   |

| Level                      | Examples  | Typical Protection to Prevent Transmission  |
|----------------------------|---|---|
| Biohazard Level IV (BSL-4) | H5N1 (Bird Flu)<br>Dengue Hemorrhagic Fever<br>Marburg Virus<br>Ebola Virus<br>Hantaviruses<br>Lassa Fever<br>Crimean-Congo Hemorrhagic Fever<br>Other Hemorrhagic Diseases | These viruses and bacteria cause severe to fatal disease in humans, for which vaccines or other treatments are <i>not</i> available. When dealing with biological hazards at this level the use of a Hazmat suit and a self-contained oxygen supply is mandatory. The entrance and exit of a BSL-4 lab will contain multiple showers, a vacuum room, an ultraviolet light room, autonomous detection system, and other safety precautions designed to destroy all traces of the biohazard. Multiple airlocks are employed and are electronically secured to prevent both doors opening at the same time. All air and water service going to and coming from a BSL- 4 lab will undergo similar decontamination procedures to eliminate the possibility of an accidental release. |

Source: Center for Disease Control and Prevention

### 5.12.5 Probability of Future Events

Based on the available data profiled in 5.12.2 *Significant Past Occurrences*, there have been many documented cases of the communicable disease hazard within San Miguel County and the probability of a future occurrence is likely.

## 5.13 Pests

Based on the MPG’s collaborative assessment, evaluation, and ranking of each potential hazard within the county, the pests hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, the pests hazard was viewed as a low hazard in San Miguel County, the City of Las Vegas, and the Village of Pecos. The overall pests hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - Low
- Las Vegas – Low
- Village of Pecos - Low

### 5.13.1 Description of the Hazard

Pests were defined by the MPG as pine beetles, feral hogs, mice, and mosquitos, but could include other pests that could plague the county, City of Las Vegas, and Village of Pecos and impact the people, buildings, and/or infrastructure of those jurisdictions. Pests may also impact the economy by damaging or destroying crops, livestock, or the growing eco-tourism sites in the planning area.

### **Pine Beetles**

Pests such as pine beetles are known to damage and destroy pine trees in the planning area. The mountain pine beetle is native to the forests of western North America. Periodic outbreaks of the insect can result in losses of millions of trees. Outbreaks develop irrespective of property lines, being equally evident in wilderness areas, mountain subdivisions and back yards. Even windbreak or landscape pines many miles from the mountains can succumb to beetles imported in infested firewood.

Mountain pine beetles develop in Ponderosa, Lodgepole, Scotch, and Limber pines. Bristlecone and Piñon pines are less commonly attacked. During early stages of an outbreak, attacks are limited largely to trees under stress from injury, site conditions, fire damage, overcrowding, root disease or old age. However, as beetle populations increase, beetle attacks may involve most large trees in the outbreak area.<sup>53</sup>

### **Feral Hogs**

Feral hogs present a pest problem in the county because of their ability and propensity to destroy agriculture (cultivated crops), harm livestock, spread disease to cattle, and create riparian issues.<sup>54</sup> Feral hogs are known to spread diseases like Swine Brucellosis which can be transmitted to humans causing flu-like symptoms and to cattle, causing false positive tests for Bovine Brucellosis; Pseudorabies which is a herpes virus that can be transmitted to cattle, sheep, and dogs; Tularemia (Rabbit Fever) which can be spread to humans; Salmonellosis, foot rot, intestinal bacteria, viruses, and parasites may also be transmitted through fecal material.<sup>55</sup>

### **Mice**

The primary concern with mice in San Miguel County is the spread of the Hantavirus, but statewide, the Plague has also been a concern. Mice are primary carriers (vectors) of both diseases. When contracted, the Hantavirus can cause Hantavirus Pulmonary Syndrome (HPS) with flu-like symptoms, coughing, and shortness of breath. Cases of HPS occur sporadically, usually in rural areas where forests, fields, and farms offer suitable habitat for the virus's rodent hosts. The mortality rate of HPS is 38 percent.<sup>56</sup>

The Plague is commonly transmitted through rodents and fleas. It is most often contracted through flea bites and handling infected animals. It can also be contracted by inhaling respiratory droplets after close contact with infected cats and humans. The Plague also presents flu-like symptoms and can spread throughout the body when left untreated. Between 1900 and 2010, there were 999 confirmed or probable human plague cases in the United States. There were 2 cases reported in the State of New Mexico in 2013. Since 1990, the mortality rate of the Plague has reduced to 11 percent.<sup>57</sup>

### **Mosquitos**

The County, City of Las Vegas, and the Village of Pecos shared concerns about mosquitos as pests because of mosquito-borne illnesses including Arboviral Encephalitides (Eastern/Western Encephalitides, West Nile Virus, etc.) in the planning area. Mosquitos may also carry such diseases

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<sup>53</sup> <http://www.ext.colostate.edu/pubs/insect/05528.html>

<sup>54</sup> Interviews with MPG, August 21, 2013.

<sup>55</sup> Texas A&M University. *Feral Hogs and Disease Concerns*. <http://feralhogs.tamu.edu/files/2011/08/Feral-Hogs-and-Disease-Concerns.pdf>

<sup>56</sup> Center for Disease Control. <http://www.cdc.gov/hantavirus/hps/symptoms.html>

<sup>57</sup> Center for Disease Control. <http://www.cdc.gov/plague/faq/>



as Malaria, Dengue Fever, and Yellow Fever. Between 1999 and 2012, there were 490 cases of West Nile Virus reported in New Mexico.<sup>58</sup>

### **5.13.2 Significant Past Occurrences**

Pine beetles and feral hogs have had ecological and agricultural impacts across San Miguel County, but there is not enough recorded data to provide specific loss information for this portion of the hazard.

There have been 624 confirmed cumulative cases of Hantavirus in the U.S., 92 of them in New Mexico which has the highest incidence of the disease in the country.<sup>59</sup> San Miguel County most recently reported two cases in 2007. New Mexico also had 2 cases of the Plague reported in 2013, but none in recent history in San Miguel County.

New Mexico has recorded 528 cases of West Nile Virus since 2003. Of them, only eight were recorded in San Miguel County.<sup>60</sup> At least one of those eight was fatal (2003).<sup>61</sup>

### **5.13.3 Location of Areas at Risk**

All of San Miguel County, the City of Las Vegas, and the Village of Pecos are considered equally vulnerable to the pests hazard as these pests have no threat boundaries.

Map 5.13.3-1 on the following page shows the number of confirmed, cumulative cases of Hantavirus by state.

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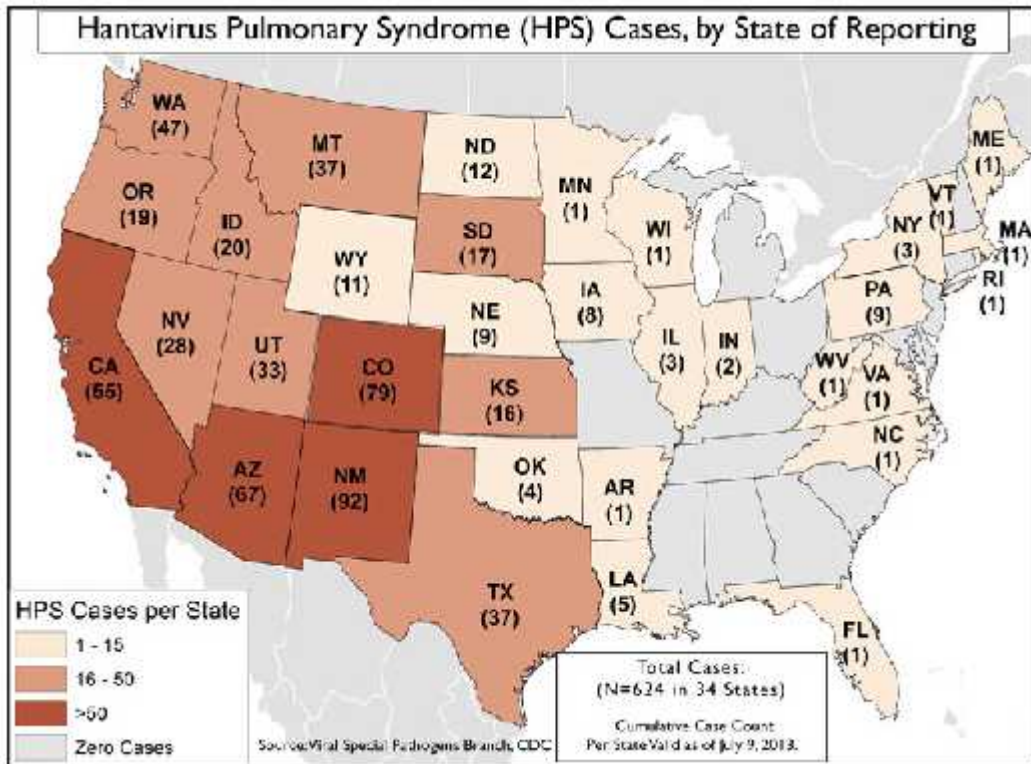
<sup>58</sup> Center for Disease Control. <http://www.cdc.gov/westnile/statsMaps/cumMapsData.html>  
<http://www.cdc.gov/westnile/statsMaps/cumMapsData.html>

<sup>59</sup> Center for Disease Control. <http://www.cdc.gov/hantavirus/surveillance/reporting-state.html>

<sup>60</sup> New Mexico Department of Health.  
[http://nmhealth.org/erd/healthdata/documents/WNV\\_Human\\_Cases\\_by\\_County\\_New\\_Mexico\\_2003\\_2013.pdf](http://nmhealth.org/erd/healthdata/documents/WNV_Human_Cases_by_County_New_Mexico_2003_2013.pdf)

<sup>61</sup> [http://amarillo.com/stories/2003/08/29/usn\\_sanmiguelwoman.shtml](http://amarillo.com/stories/2003/08/29/usn_sanmiguelwoman.shtml)

**Map 5.13.3-1**  
**Hantavirus in the United States**

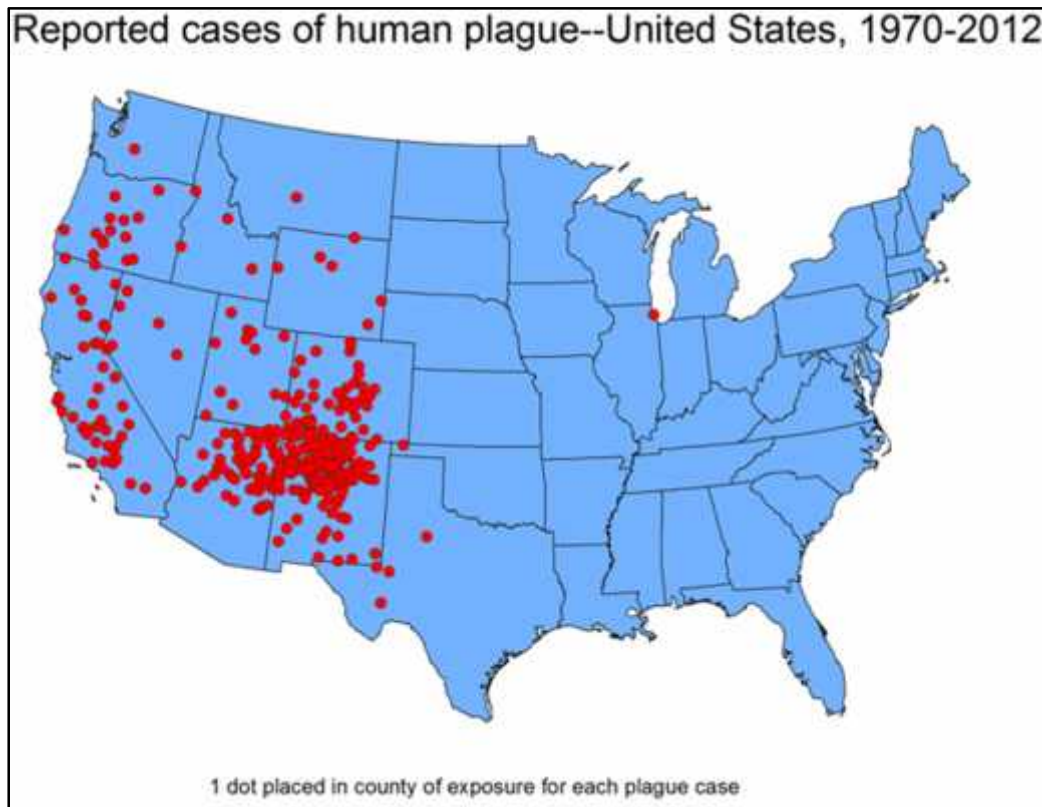


Source: Center for Disease Control. <http://www.cdc.gov/hantavirus/surveillance/reporting-state.html>

Map 5.13.3-2 on the following page shows the locations of recorded confirmed or probably cases of Plague in humans in the United States.<sup>62</sup>

<sup>62</sup> Center for Disease Control. <http://www.cdc.gov/plague/faq/>

**Map 5.13.3-2  
Plague in the United States**



Source: Center for Disease Control. <http://www.cdc.gov/plague/maps/index.html>

#### **5.13.4 The Extent of Damage by Pests**

There is not enough local data available to determine the extent of damages by pests across the planning area. The County, City of Las Vegas, and Village of Pecos will continue to monitor this hazard and track incidents at the local level should the hazards become a larger issue.

#### **5.13.5 Probability of Future Events**

There is not enough local statistical data to annualize the probability of future events with this hazard, but based national and state data, the entire planning area within San Miguel County can expect to see repeated occurrences of this hazard.

### **5.14 Severe Winter Storms**

Based on the MPG's collaborative assessment, evaluation, and ranking of each potential hazard within the county, the severe winter storms hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, the severe winter storms hazard was viewed as a high hazard in San Miguel County, the City of Las Vegas, and the Village of Pecos for impacts to people and infrastructure. Impacts to buildings were ranked moderate to low. The overall severe winter storms hazard rankings for the participating jurisdictions are:

- San Miguel County - High
- Las Vegas – High
- Village of Pecos - High

### 5.14.1 Description of the Hazard

Severe winter storm hazards include blizzards, heavy snow, ice storms, and extreme cold. Winter storms can also vary in size, strength, and duration. The National Weather Service (NWS) defines common winter storm hazards as follows:

- **Blizzard:** A blizzard means that the following conditions are expected to prevail for a period of 3 hours or longer:
  - Sustained wind or frequent gusts to 35 miles an hour or greater; and
  - Considerable falling and/or blowing snow (i.e., reducing visibility frequently to less than quarter mile)
- **Heavy Snow:** This generally means:
  - snowfall accumulating to 4" or more in depth in 12 hours or less; or
  - snowfall accumulating to 6" or more in depth in 24 hours or less
- **Ice Storm:** An ice storm is used to describe occasions when damaging accumulations of ice are expected during freezing rain situations. Significant accumulations of ice pull down trees and utility lines resulting in loss of power and communication. These accumulations of ice make walking and driving extremely dangerous. Significant ice accumulations are usually accumulations of a quarter inch or greater.
- **Extreme Cold:** Dangerously low temperatures for a prolonged period of time that can cause frostbite and hypothermia.

Heavy snow can immobilize a region and paralyze a city, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can also collapse roofs, and down trees and power-lines. The cost of snow removal, structural and infrastructural damage repair, and economic losses can have a significant impact on community assets.

Heavy accumulations of ice can bring-down trees, electrical wires, telephone poles and lines, and communication towers. Communications and electrical power can be disrupted for days or weeks until utility service crews can repair the damages. Accumulations of snow and ice can also cause extreme hazards to motorists, especially in communities that are not accustomed to driving in winter storm conditions or in areas with naturally treacherous mountain road conditions.

Winter storms that produce strong winds, creating blizzards, can reduce driver visibility, produce severe snow drifts, and develop dangerous wind chills, which can result in injuries and deaths. Strong winds associated with blizzards can also knock down trees, utility poles, and power lines.

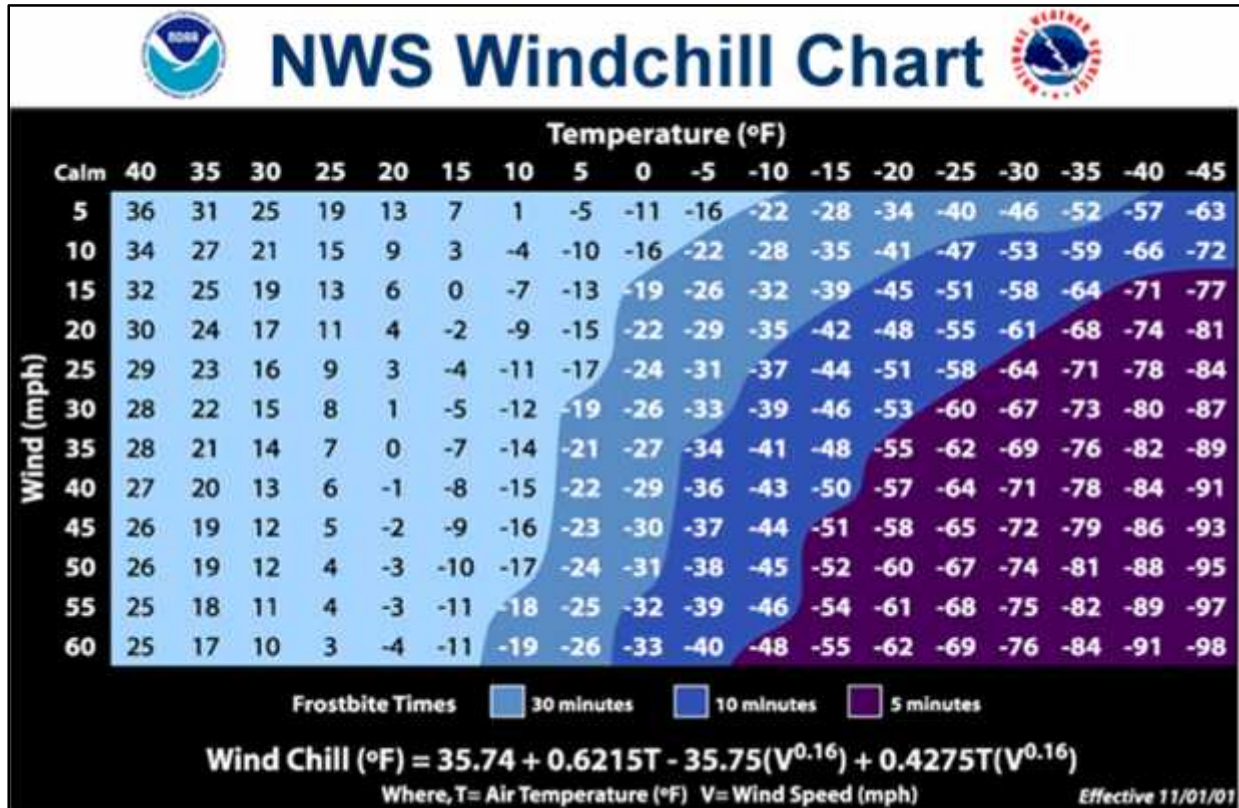
Extreme cold associated with severe winter storms can pose a significant risk to human life and livestock. According to the NWS Windchill Chart, frostbite can occur during low temperatures and high wind speeds (Figure 5.14,1-1). Frostbite is classified according to degree of severity:

- First degree frostbite affects the skin by making it appear yellow or white and may cause a burning sensation;
- Second degree frostbite develops after continued exposure, symptoms include the disappearance of pain, reddening, swelling, and blistering of the skin; and

- Third degree frostbite results in waxy, hard skin. It is during the third degree stage that the skin dies and edema may occur due to the lack of blood supply.

If not treated immediately, frostbite damage can become permanent, including nerve damage, discolored skin pigment, infection, and loss of extremities.

Figure 5.14.1-1  
NWS Windchill Chart



Source: National Weather Service

### 5.14.2 Significant Past Occurrences

The county faces recurring winter storm events that can be a serious emergency for residents, visitors, and travelers. Though there have only been two Major Disaster Declarations in the state for severe winter storms (December 1997 and February 2011)<sup>63</sup>, there have been four Disaster Relief Programs for snowstorms in San Miguel County. The limited amount of historical data for this hazard is not an indicator of events or impacts, but is an indicator of preparedness and effective local emergency management by all jurisdictions in the county.

Severe winter storms have many impacts across the county and its municipalities including causing residents and livestock to be stranded, hampering transportation service throughout the county, limiting propane deliveries, causing power outages, and affecting emergency response. Winter

<sup>63</sup> FEMA, [http://www.fema.gov/disasters?field\\_state\\_tid=62&field\\_disaster\\_type\\_term\\_tid=6843&field\\_disaster\\_declaration\\_type\\_value=DR&item\\_s\\_per\\_page=10](http://www.fema.gov/disasters?field_state_tid=62&field_disaster_type_term_tid=6843&field_disaster_declaration_type_value=DR&item_s_per_page=10)

storm events also create secondary impacts such as structure fires and structural damage to buildings due to high winds and heavy snowpack.

Snow storms that affect county infrastructure every winter season. The county has made four emergency declarations within the last ten years for disaster assistance on public roads throughout the county. These disaster assistance grants reimburse a portion of the costs through the FEMA Disaster Relief Program. Severe winter storm disaster assistance is utilized for heavy equipment and contractor costs to remove snow from local and regional roadways. The type of emergency relief requests, the requesting jurisdictions, and the total grant amount awarded by FEMA for disaster assistance since 2000 include the following (see Table 5.14.2-1):

**Table 5.14.2-1  
FEMA Disaster Relief Program for Snowstorms**

| <b>Executive Order</b> | <b>Date</b>   | <b>Program</b> | <b>Location</b>   | <b>Amount</b> |
|------------------------|---------------|----------------|-------------------|---------------|
| 01-10                  | December 2000 | Snow Removal   | San Miguel County | \$24,786.00   |
| 01-08                  | January 2001  | Snow Removal   | Las Vegas         | \$68,800.00   |
| 04-08                  | January 2001  | Snow Removal   | San Miguel County | \$72,746.00   |
| 05-016                 | March 2005    | Snow Removal   | Las Vegas         | \$38,498.00   |

Source: San Miguel County and City of Las Vegas OEM

The type of expenses these emergency relief grants cover include employee expenses, contractor expenses such as for concrete and gravel, equipment/vehicle breakdown expenses such as rental costs for motor graders and salt spreaders, and salt material expenses. The total amount of emergency assistance received in the last 10 years at the county level for snow removal is \$138,643.00 and the total amount of assistance received at the city level for snow removal is \$107,298.00. This amounts to a total of \$245,941.00 received within the entire county for emergency disaster relief associated with severe winter storms.

One of the most recent and significant winter storm events within the county is the 100-year winter storm event in 2006/2007 for which Governor Richardson declared a State of Emergency for the State on December 29, 2006 covering Bernalillo, Colfax, Guadalupe, Harding, Los Alamos, Mora, Quay, Santa Fe, Sandoval, San Miguel, Taos, Tarrant, and Union counties (NM Emergency Operations Center 2007). The Governor also requested the federal government declare an agricultural disaster in the State on January 3, 2007.

No casualties were reported within the county from this storm event, however; many livestock were stranded in rural areas for which New Mexico National Guard Blackhawks had to perform hay drop-missions. Stranded residents and pets on the Lower Colonias had to be extracted by the Bernalillo County Sheriff's helicopter and efforts to clear Rowe Mesa were undertaken. The Public Service Company of New Mexico (PNM) repaired all damages from the storm including electrical and gas outages from which many residents were left without gas and power for days.



The most recent storm event that occurred during the week of January 31, 2011 impacted the county due to utility vulnerabilities with the electricity grid and gas distribution, impacts to the water distribution system, sewer system, roadways and structures.<sup>64</sup>

During the January 2011 event, the storm hindered propane delivery efforts to residents running low on propane. The Mora-San Miguel Electric Cooperative experienced power outages throughout the county due to poles getting knocked down and ice forming on the lines.

The Village of Pecos experiences annual somewhat mild and intermittent snow storms but has historically been hit with heavy winter storms. The Village of Pecos typically experiences 10-15 power outages per year that are related to winter storms since the ice on the power lines weights them down and causes outages and business closures. These power outages do impact Pecos resident's heating supply; however, the majority of residents depend upon propane for heating for which there are 4-5 local propane suppliers. Pecos residents also use firewood as a back-up heating source. The Pecos Independent School District had to call 8 snow days in the winter of 2009. During the winter of 2012, Pecos firefighters responded to service calls to remove snow from heat vents at several homes in the area.<sup>65</sup>

### **5.14.3 Location of Areas at Risk for Severe Winter Storms**

County officials have determined through historic accounts that areas primarily west of Interstate 25 (I-25) are at the greatest risk for a severe winter weather storm. The area that lies to the east of I-25 and north of State Route 104 is considered the next highest priority and the region to the east of I-25 and south of State Highway 104 is considered the least at risk. Other areas at risk include north of Storrie Lake to the county line at La Jolla, south of Bernal and due west, State Road 3, and the Glorieta Pass north to Monroe. All of San Miguel County is at some risk to severe winter weather.

All of the city limits of Las Vegas are at risk, but the most vulnerable areas consist primarily of the main interstate and highway routes including I-25 and State Highway 104. As well, local routes throughout the city are in need of maintenance during and after severe winter storm events.

Rural communities, including the Village of Pecos, are at equal risk but tend to have higher vulnerability and impacts during severe winter storms due to their isolation from emergency response services, basic amenities, and from main power and heat utility sources. These rural communities are often the first areas to be affected by rolling gas and electric power outages. They are also more susceptible to isolation due to closed transportation systems.

### **5.14.4 The Extent of Damage by Severe Winter Storms**

The type of damage caused by severe winter storms includes displacement of residents and livestock, roadway closures, traffic accidents, power outages, and damage to building and infrastructure.

There hasn't been any record of injury or death directly related to severe winter weather in San Miguel County, the City of Las Vegas or the Village of Pecos. It is likely that weather-related

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<sup>64</sup> Provide by San Miguel County OEM

<sup>65</sup> Information provided by the Village of Pecos Fire Chief and Council members.

transportation accidents have caused injuries and possibly loss of life, but the data is not available to support.

According to the City of Las Vegas, salt runoff is the only identified direct impact of severe winter storms. The City of Las Vegas has noted issues due to the salt runoff flowing into their storm drain system. In recent years, the City of Las Vegas has moved accumulated snow to the largest park to melt, whereas in the past the New Mexico Environment Department (NMED) required the City of Las Vegas to install berms that would filter the runoff for street pollutants before it eventually flowed into the Gallinas River.

According to the Western Region Climate Center, the average daily snowfall for San Miguel County is at or less than one inch. Extreme daily snowfall can exceed ten inches between November and May meaning that the entire planning area can expect blizzard and/or heavy snow events during the winter months.<sup>66</sup>

#### **5.14.5 Probability of Future Events**

There have been four recorded events in the past 13 years causing some amount of severe winter weather in San Miguel County, the City of Las Vegas, and the Village of Pecos. The probability of future winter storm events is likely with expected impacts to residents, livestock, and infrastructure (primarily regional and local roadways).

### **5.15 Terrorism**

Based on the MPG's collaborative assessment, evaluation, and ranking of each potential hazard within the county, the terrorism hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, the terrorism hazard was viewed as a low hazard in San Miguel County and the Village of Pecos, while the City of Las Vegas viewed this hazard as a moderate threat. The overall terrorism hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - Low
- Las Vegas - Moderate
- Village of Pecos - Low

#### **5.15.1 Description of the Hazard**

Terrorism is defined as violence committed by groups in order to intimidate a population or government into granting their demands. 18 U.S.C. § 2331 defines "international terrorism" and "domestic terrorism" as follows:

"International terrorism" means activities with the following three characteristics:

- Involve violent acts or acts dangerous to human life that violate federal or state law;

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<sup>66</sup> <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm4856>



- Appear to be intended (i) to intimidate or coerce a civilian population; (ii) to influence the policy of a government by intimidation or coercion; or (iii) to affect the conduct of a government by mass destruction, assassination, or kidnapping; and
- Occur primarily outside the territorial jurisdiction of the U.S., or transcend national boundaries in terms of the means by which they are accomplished, the persons they appear intended to intimidate or coerce, or the locale in which their perpetrators operate or seek asylum.\*

"Domestic terrorism" means activities with the following three characteristics:

- Involve acts dangerous to human life that violate federal or state law;
- Appear to be intended (i) to intimidate or coerce a civilian population; (ii) to influence the policy of a government by intimidation or coercion; or (iii) to affect the conduct of a government by mass destruction, assassination, or kidnapping; and
- Occur primarily within the territorial jurisdiction of the U.S.

18 U.S.C. § 2332b defines the term "federal crime of terrorism" as an offense that:

- Is calculated to influence or affect the conduct of government by intimidation or coercion, or to retaliate against government conduct; and
- Is a violation of one of several listed statutes, including § 930(c) (relating to killing or attempted killing during an attack on a federal facility with a dangerous weapon); and § 1114 (relating to killing or attempted killing of officers and employees of the U.S.).<sup>67</sup>

Once thought to be a type of disaster event that did not happen on U.S. soil, the threat of terrorism has evolved into a main concern, with Americans now citing homeland security as a top priority. Whether setting off a nuclear attack, igniting a traditional or dirty bomb\*, poisoning water/food supplies, or attacking the public transportation system, terrorists are familiar with our nation's vulnerabilities, and will manipulate them to inflict fear on the psyche of the American people.

\*Note: A dirty bomb, or radiological dispersion device, is a bomb that combines conventional explosives, such as dynamite, with radioactive materials in the form of powder or pellets. The idea behind a dirty bomb is to blast radioactive material into the area around the explosion. This could possibly cause buildings and people to be exposed to radioactive material. The main purpose of a dirty bomb is to frighten people and make buildings or land unusable for a long period of time.

### 5.15.2 Significant Past Occurrences

There are no history of terrorism in San Miguel County or its jurisdictions.

### 5.15.3 Location of Areas at Risk for Terrorism

Areas in Miguel County that were identified as potential targets and risks are the three major higher education centers in the county. The City of Las Vegas is home to the New Mexico Highlands University with 2,416 students. The other identified areas of risk are the Armand Hammer United World College in Montezuma (unincorporated county) which brings students from all corners of

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<sup>67</sup> Federal Bureau of Investigations. <http://www.fbi.gov/about-us/investigate/terrorism/terrorism-definition>

the world together for academic education and interaction and Luna Community College located in the lower slopes of the Sangre de Cristo Mountain Range overlooking the City of Las Vegas.

According to a Washington Post Investigation entitled “*Top Secret America*”, New Mexico is one of 15 states and territories that the Department of Homeland Security and U.S. intelligence agencies assess as having no specific foreign or domestic terrorism threat; is one of 15 states that have had no terrorism convictions since 9/11, according to the Justice Department; and is one of 18 states that has no metropolitan area that has been designated by the federal government as “high-threat, high-density” with regard to acts of terrorism.<sup>68</sup>

#### **5.15.4 The Extent of Damage**

Depending on the method chosen, the impact of a terrorist act on life and property in San Miguel County, the City of Las Vegas, or the Village of Pecos could be devastating. People, property and infrastructure are all potentially at risk to devastating impacts. The entire planning area has become a popular area for tourism, outdoor adventures, and the film industry. The economic impacts to the jurisdictions could be catastrophic, depending on the severity of the attack, and the property and infrastructure that is damaged or destroyed.

#### **5.15.5 Probability of Future Events**

Given that there have been no recorded incidents of terrorism anywhere in the county, and that the Department of Homeland Security considers the entire state a relatively low risk for this hazard, the probability of experiencing a terrorist event in any of San Miguel County’s jurisdictions is unlikely.

### **5.16 Thunderstorm**

Based on the MPG’s collaborative assessment, evaluation, and ranking of each potential hazard within the county, the thunderstorm hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, the thunderstorm hazard was viewed as a moderate to high hazard in San Miguel County, the City of Las Vegas, and the Village of Pecos. The overall thunderstorm hazard rankings for the participating jurisdictions are listed below:

- San Miguel County - High
- Las Vegas - High
- Village of Pecos - High

#### **5.16.1 Description of the Hazard**

Thunderstorms are caused by an atmospheric imbalance from warm unstable air rising rapidly into the atmosphere. Strong winds, rain, and hail can accompany large thunderstorm systems. Lightning, which occurs during all thunderstorms, can strike anywhere. Generated by the buildup of charged ions in a thundercloud, the discharge of a lightning bolt interacts with the best conducting object or surface on the ground. The air channel of a lightning strike can reach temperatures higher than 50,000°F. The National Weather Service defines a severe thunderstorm

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<sup>68</sup> <http://projects.washingtonpost.com/top-secret-america/states/new-mexico/>

as a thunderstorm that produces  $\frac{3}{4}$  inch hail or larger in diameter and/or produces winds that equal or exceed 58 MPH

Thunderstorms are a unique threat because of their complex nature. Multiple hazards are present within a single system.

### **5.16.2 Significant Past Occurrences**

There have been 20 NCDC recorded thunderstorm and thunderstorm wind-related events across the county since 1966. The data related to these events do not specify whether the occurrences were recorded within municipal boundaries or in the unincorporated county. The county, the City of Las Vegas, and the Village of Pecos agree that these events can and do occur in all areas of the county. According to NCDC records, the strongest recorded thunderstorm wind event created 60mph winds in June 2001. No thunderstorm or thunderstorm wind-related injuries or fatalities have been recorded anywhere in the planning area.

In May 1993, a 58 year old male tourist was struck and killed by lightning while riding his bicycle at a resort 20 miles northwest of Las Vegas. This was the only NCDC recorded lightning event in all of San Miguel County.

### **5.16.3 Location of Areas at Risk**

Along the front range of the Rocky Mountains, thunderstorms frequently form as heated air near the ground flows upward toward higher terrain and mixes with cooler moist air. San Miguel County, including Pecos and Las Vegas, are situated on the lower eastern fringe of the Rocky Mountains and are subject to the impacts of thunderstorms. Since thunderstorms are not constrained to defined hazard area boundaries, and since thunderstorms develop and move with weather systems, all of San Miguel County, the City of Las Vegas, and the Village of Pecos are equally at risk.

### **5.16.4 The Extent of Damage**

Thunderstorms can create a variety of hazards which can damage buildings, infrastructure, and agriculture, and can injure or kill people and animals. Those products of thunderstorms include wind, lightning, hail, tornados, and flash flooding. This hazard section focuses on thunderstorm wind and lightning. The other thunderstorm related hazards are addressed in the hail, tornado, and flood hazard sections. The extent of thunderstorm wind damage and lightning-related impacts is minimal in the planning area, but it is understood that lightning can cause loss of life to humans and livestock, destroy property, damage infrastructure, and start wildfires (addressed separately).

The products of thunderstorms include wind, rain, hail and lightning. This plan profiles hailstorms separately in Section 5.7. Due to the limited impact of lightning, the County determined to exclude it as a product of thunderstorms. The extent of thunderstorm-related wind and rainfall are considered equal across all jurisdiction in the plan. They are:

- The average monthly rainfall across San Miguel County ranges from 0.5" in February to 3.5" in August. The extreme thunderstorm-related rainfall could be as much as 3.5" in a 90 minute period as recorded in Las Vegas on September 4, 2003.

- The average wind speed in San Miguel County ranges from 10.2 mph to 26.5 mph with the strongest average wind speed occurring in May. Thunderstorms winds may reach 70 mph as recorded at the Conchas Dam on June 7, 2001.

Thunderstorm winds in San Miguel County have been recorded up to 70 mph ranking it a “10” on the Beaufort Wind Scale. Based on that scale, the extent of damages can include trees being broken off or uprooted and structural damage likely in any portion of the planning area.

### **5.16.5 Probability of Future Events**

In all of San Miguel County, the City of Las Vegas, and the Village of Pecos, there has only been one recorded incident of life loss and no recorded property or infrastructure damages due to this hazard. There have been 20 recorded events countywide since 1966 meaning that only one storm is recorded every 2.35 years. The data suggests that the probability of hazard occurrence is likely.

## **5.17 Tornado**

Based on the MPG’s collaborative assessment, evaluation, and ranking of each potential hazard within the county, the tornado hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, the tornado hazard was viewed as a moderate hazard in San Miguel County and the Village of Pecos. The City of Las Vegas ranked this hazard as a high impact event to people, buildings and infrastructure. The overall tornado hazard rankings for the participating jurisdictions is listed below:

- San Miguel County - Moderate
- Las Vegas - High
- Village of Pecos - Moderate

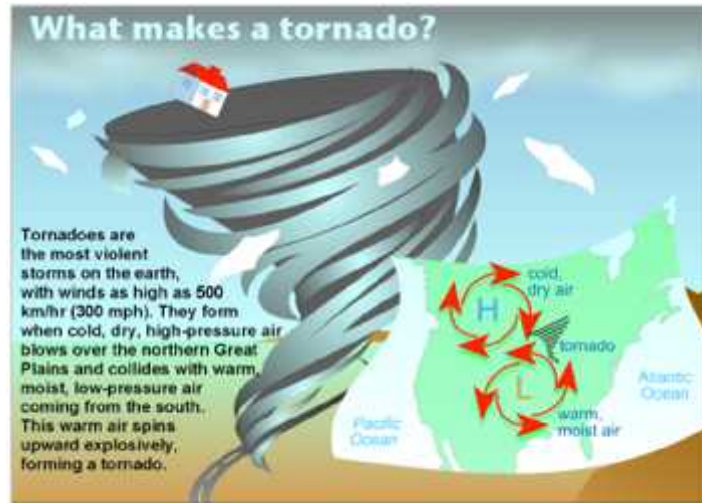
### **5.17.1 Description of the Hazard**

A tornado is a rapidly rotating vortex or funnel of air extending from a cumulonimbus cloud to the ground. It is usually spawned by a thunderstorm and produced when cool air overrides a layer of warm air, forcing the warm air to rise rapidly. Often, vortices remain suspended in the atmosphere as funnel clouds and never become tornados. However, when the lower tip of a vortex touches the ground, it becomes a tornado and can become a force of destruction. A visible condensation funnel does not need to reach to the ground for a tornado to be present; a debris cloud beneath a thunderstorm is all that is needed to confirm the presence of a tornado, even in the total absence of a condensation funnel (Refer to Figure 5.17.1-1)<sup>69</sup>.

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<sup>69</sup> Arkansas Department of Emergency Management, (2010). *All Hazard Mitigation Plan, State of Arkansas*

**Figure 5.17.1-1  
Precipitating Factors for Tornado Development**



Source: Reproduced with permission from George Tuggle, 2010

Tornados have been known to lift and move objects weighing more than 300 tons a distance of 30 ft, toss homes more than 300 ft from their foundations, and siphon millions of tons of water from water bodies. However, less spectacular damage is much more common to occur during a lower intensity tornado event. Houses and other obstructions in the path of the tornado's wind can cause the wind to change direction. This change in wind direction increases pressure on parts of an impacted building. The combination of increased pressures and fluctuating wind speeds creates stress on buildings that frequently cause connections between building components to fail (e.g., roof, siding, windows, etc.). Tornados also generate a tremendous amount of flying debris or "missiles," which often become airborne shrapnel that cause additional damage. If wind speeds are high enough, debris missiles can hit buildings with enough force to penetrate windows, roofs, and walls<sup>70</sup>.

Prior to 2007, tornado wind forces were measured and described according to the Fujita Scale, largely a residential structure damage scale (which tends to have much more standardized construction than commercial structures). The Fujita Scale was intended to describe the expected damage to well-built residential structures, but poorly built structures may suffer significant structural damage under lesser winds than the Fujita Scale would suggest.

In 2007, use of the Fujita Scale was discontinued and in its place, the Enhanced Fujita Scale is used. The Enhanced Fujita Scale retains the same basic design as its predecessor, but reflects a more refined assessment of tornado damage surveys, standardization, and damage consideration to a wider range of structure types. The Enhanced Fujita scale takes into account how most structures are designed, and is thought to be a much more accurate representation of the surface wind speeds for the most violent tornados. When referencing historic tornado events, it is important to note the date a tornado occurred as tornados which occurred prior to 2007 are classified by the old scale and will not be converted to the Enhanced Fujita Scale. Table 5.17.1-1 demonstrates the differences

<sup>70</sup> Arkansas Department of Emergency Management, (2010). *All hazard mitigation plan state of Arkansas*

of the Fujita Scale and Enhanced Fujita Scale. Figure 5.17.1-2 illustrates the Enhanced Fujita Scale's expected damage to occur given a specific intensity tornado.

**Table 5.17.1-1**  
**Differences of Fujita Scale and Enhanced Fujita Scale**

| Fujita Scale    |             | Enhanced Fujita Scale<br>*In use since 2007 |                 |
|-----------------|-------------|---|-----------------|
| Intensity Scale | Wind Speed  | Intensity Scale                             | Wind Speed      |
| F-0             | 40-72 mph   | EF-0  | 65-85 mph winds |
| F-1             | 73-112 mph  | EF-1  | 86-110 mph      |
| F-2             | 113-157 mph | EF-2  | 111-135 mph     |
| F-3             | 158-157 mph | EF-3  | 136-165 mph     |
| F-4             | 207-260 mph | EF-4  | 166-200 mph     |
| F-5             | 261-318 mph | EF-5  | >200 mph        |

**Figure 5.17.1-2**  
**Enhanced Fujita Scale Expected Damage by Tornado Wind Speeds**

| EF Rating   | Wind Speeds | Expected Damage  |
|-------------|-------------|--|
| <b>EF-0</b> | 65-85 mph   | 'Minor' damage: shingles blown off or parts of a roof peeled off, damage to gutters/siding, branches broken off trees, shallow rooted trees toppled.    |
| <b>EF-1</b> | 86-110 mph  | 'Moderate' damage: more significant roof damage, windows broken, exterior doors damaged or lost, mobile homes overturned or badly damaged.   |
| <b>EF-2</b> | 111-135 mph | 'Considerable' damage: roofs torn off well constructed homes, homes shifted off their foundation, mobile homes completely destroyed, large trees snapped or uprooted, cars can be tossed.    |
| <b>EF-3</b> | 136-165 mph | 'Severe' damage: entire stories of well constructed homes destroyed, significant damage done to large buildings, homes with weak foundations can be blown away, trees begin to lose their bark.    |
| <b>EF-4</b> | 166-200 mph | 'Extreme' damage: Well constructed homes are leveled, cars are thrown significant distances, top story exterior walls of masonry buildings would likely collapse.    |
| <b>EF-5</b> | > 200 mph   | 'Massive/incredible' damage: Well constructed homes are swept away, steel-reinforced concrete structures are critically damaged, high-rise buildings sustain severe structural damage, trees are usually completely debarked, stripped of branches and snapped.  |

Source: NOAA. (2013). Explanation of EF-scale ratings. Retrieved on 6.19.13 from [http://www.srh.noaa.gov/hun/?n=efscale\\_explanation](http://www.srh.noaa.gov/hun/?n=efscale_explanation)



### 5.17.2 Significant Past Occurrences

The NCDC shows 13 recorded tornado events since 1957 in San Miguel County. The majority of those tornados had a Fajita scale of F0 which resulted in minor property damage. The strongest recorded tornado was an F2 on June 27, 2992 with a length of 0.8 miles and a width of 73 yards. This tornado caused an estimated \$25,000 in damages. The largest tornado recorded was an F0 on May 23, 1959. It was a 400 yard wide, one mile long track. Local officials and homefacts.com report a most recent (and 14<sup>th</sup> recorded) tornado on October 12, 2012 that touched down just north of Pecos.<sup>71</sup> That event caused roof damage to one structure (Picture 5.17.2-1). No deaths or injuries have occurred as a result of and tornados in San Miguel County.

**Picture 5.17.2-1**  
**Pecos Valley Area Tornado. October 12, 2012**



### 5.17.3 Location of Areas at Risk

Along the front range of the Rocky Mountains, thunderstorms frequently form as air near the ground flows upward toward higher terrain. New Mexico lies along the southwestern edge of the nation's maximum frequency belt for tornados which is referred to as the "tornado alley", extending from the Great Plains through the central portion of the United States. There have been 541 recorded tornadoes in New Mexico since 1950. Those storms caused five deaths and 155 injuries.

Given the available data and hazard history, all areas of San Miguel County, the City of Las Vegas, and the Village of Pecos are equally at risk for tornados. While tornados typically form less frequently over mountainous or hilly terrain, even those areas are still at risk. Based on historic

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<sup>71</sup> <http://www.homefacts.com/tornadoes/New-Mexico/San-Miguel-County/Las-Vegas.html>

events, the risk to tornadoes is generally limited to EF0-EF2 storms, but F3 storms have been recorded in New Mexico and are possible in the planning area of San Miguel County.<sup>72</sup>

Map 5.17.3-1 on the following page shows the distribution of the 541 historical tornado events in New Mexico between 1950 and 2012.

**Map 5.17.3-1**  
**New Mexico Historic Tornadoes 1950-2012**



Source: <http://www.tornadohistoryproject.com/tornado/New-Mexico/map>

#### 5.17.4 The Extent of Damage

While little damage has been reported due to a tornado event, the possibility of a tornado with speeds up to 165 (EF3) miles per hour poses a dangerous threat. Damage from winds at this speed can range from large trees being blown down to structural failures. Mobile homes are at a greater risk during tornado and other wind-related events. Communications and utility infrastructure, such as telephone lines, cell towers, and power lines, may fail as a result of this type of hazardous event. However, historical events have only caused \$77,000 in damages in the county since 1957.

#### 5.17.5 Probability of Future Events

While tornadoes are not common events, it is inevitable that there will be a tornado event within San Miguel County. By annualizing the 14 recorded events since 1957, it can be assumed that the county will only experience a tornado every 4.3 years, giving this hazard a likely probability of occurrence during the 5 year planning cycle of this plan.

<sup>72</sup> <http://www.tornadohistoryproject.com/tornado/New-Mexico/map>



## 5.18 Wildfire

Based on the MPG's collaborative assessment, evaluation, and ranking of each potential hazard within the county, the wildfire hazard was ranked in terms of impacts to people, buildings, and infrastructure in order to determine the hazard priorities within the county. According to surveyed responses, the wildfire hazard was viewed as a high hazard in San Miguel County, the City of Las Vegas, and the Village of Pecos. The overall wildfire hazard rankings for the participating jurisdictions is listed below:

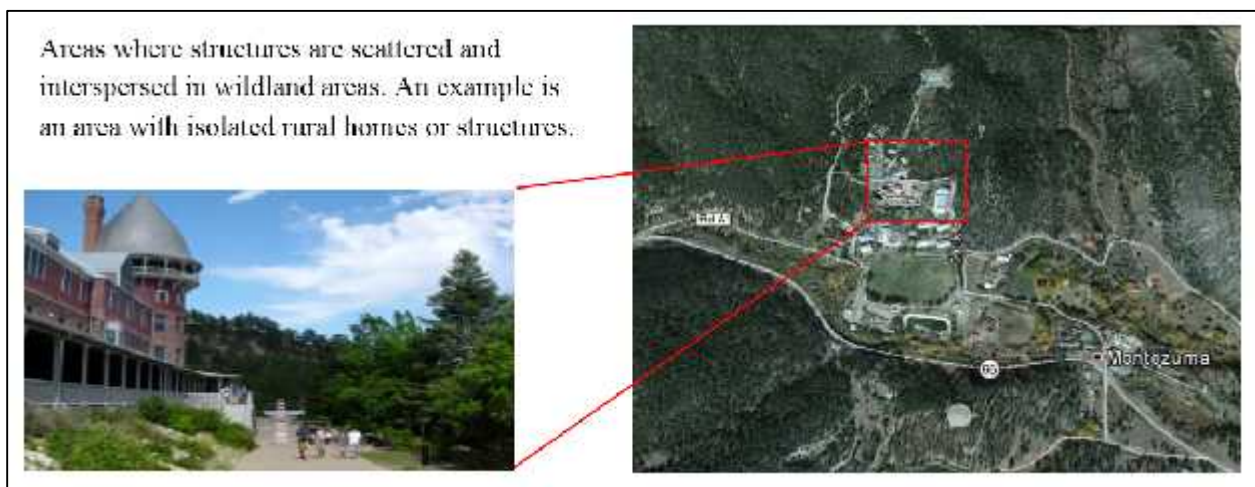
- San Miguel County - High
- Las Vegas – High
- Village of Pecos - High

### 5.18.1 Description of the Hazard

A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. Wildfires often begin unnoticed and spread quickly and are usually signaled by dense smoke that fills the area for miles around. Naturally occurring and non-native species of brush, marshes, grasslands, forests, or field lands fuel wildfires. A wildland fire is a wildfire in an area in which development is essentially nonexistent, except for roads, railroads, power lines, and similar facilities. A wildland-Urban Interface (WUI) fire is a wildfire in a geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels. Areas with a large amount of wooded, brush and grassy areas are at highest risk of wildfires.

There are three categories of WUI, including boundary, intermix, and island (Refer to Figures 5.18.1-1 to 5.18.1-3). Depending on the present conditions, any of these areas may be at risk from wildfire. A wildfire risk assessment can determine the level of risk for given area by measuring fuel sources in proximity to community assets<sup>73</sup>.

**Figure 5.18.1-1**  
**Example of Wildland-Urban Intermix Zone**



Source: Google. (Designer). (2013, June 18). Google Earth [Web Map].

<sup>73</sup> Florida Department of Agriculture and Consumer Services, Division of Forestry, (2010). *Wildfire risk reduction in Florida*

**Figure 5.18.1-2**  
**Example of Wildland-Urban Island Zone**



Source: Google. (Designer). (2013, June 18). Google Earth [Web Map].

**Figure 5.18.1-3**  
**Example of Wildland-Urban Boundary Zone**



Source: Google. (Designer). (2013, June 18). Google Earth [Web Map].

Wildfire behavior is based on three primary factors: fuel, topography, and weather. The type, and amount of fuel, as well as its burning qualities and level of moisture affect wildfire potential and behavior. Table 5.18.1-1 shows the effect of different fuel characteristics on fire behavior. Topography also is important because it affects the movement of air (and thus the fire) over the ground surface. The slope and shape of terrain can change the rate of speed at which the fire travels. Weather affects the probability of wildfire and has a significant effect on its behavior.

Temperature, humidity and wind (both short and long term) affect the severity and duration of wildfires.<sup>74</sup>

**Table 5.18.1-1**  
**Characteristics of Fuels Related to Fire Behavior**

| Fuel Characteristics  | Relationship to Fire Behavior   |
|---|---|
| Height of surface fuel (fuel depth) and total available fuel (fuel load)                    | If fuel depth and load are heavy, flames will be longer and more heat will be released. As fuel depth and load are reduced, the flame length and heat are reduced   |
| Fuel loading by fuel size class (size classes range from fine to large fuels)               | Fine fuels (e.g., pine needles) ignite more readily and burn more quickly. Larger fuels (e.g., branches) burn more slowly but generate more heat energy and can be difficult to extinguish  |
| Compactness of fuels  | Fuels that are tightly compacted will not burn as well. Fuels that are loosely compacted will burn better. Fuels that are very loose (e.g., sparse tree branches) may not be able to burn unless a nearby fire heats them   |
| Vertical continuity of fuels (presence or absence of vertical fuels, called "ladder fuels") | Vertically continuous fuels, such as vines or understory trees, can carry fire into the canopy (crowns of trees). Breaks in vertical continuity can prevent wildfire from getting into the canopy   |
| Dead-to-live fuels ratio  | Although some of Arkansas's live fuels are very volatile, they generally only ignite and burn once they are heated by burning dead fuels. If the ratio of dead fuels to live fuels is high (as after a drought or killing frost), the fire behavior is more intense |

Source: Florida Department of Agriculture and Consumer Services, Division of Forestry, (2010). *Wildfire Risk Reduction in Florida*

Fire hazards may be expressed in a variety of measurements as noted below:

**Relative Humidity (RH):** The ratio of the amount of moisture in the air to the amount of moisture necessary to saturate the air at the same temperature and pressure. Relative humidity is expressed in percent. RH is measured directly by automated weather stations or manually by wet and dry bulb readings taken with a psychrometer and applying the National Weather Service, psychrometric tables applicable to the elevations where the reading were taken.

**Fuel Moisture:** Fuel moistures are measured for live Herbaceous (annual and perennial), Woody (shrubs, branches and foliage) fuels, and Dry (dead) fuels. These are calculated values representing approximate moisture content of the fuel. Fuel moisture levels are measured in 1, 10, 100 and 100-hour increments.

**The Lower Atmosphere Stability Index or Haines Index:** Computed from the morning (12 Zulu) soundings from Radiosonde Observation (RAOB) stations across North America. The index is composed of a stability term and a moisture term. The stability term is derived from the temperature difference at two atmosphere levels. The moisture term is derived from the dew point

<sup>74</sup> Florida Department of Agriculture and Consumer Services, Division of Forestry, (2010). *Wildfire Risk Reduction in Florida*

depression at a single atmosphere level. This index has been shown to correlate with large fire growth on initiating and existing fires where surface winds do not dominate fire behavior. Haines Indexes range from 2 to 6 for indicating potential for large fire growth:

- 2 Very Low Potential (Moist Stable Lower Atmosphere)
- 3 Very Low Potential
- 4 Low Potential
- 5 Moderate Potential
- 6 High Potential (Dry Unstable Lower Atmosphere)

**Keetch-Byram Drought Index (KBDI):** Measures the effects of seasonal drought on fire potential. The actual numeric value of the index is an estimate of the amount of precipitation (in 100ths of inches) needed to bring soil back to saturation (a value of 0 being saturated). The index deals with the top 8 inches of soil profile so the maximum KBDI value is 800 (8 inches), the amount of precipitation needed to bring the soil back to saturation. The index's relationship to fire is that as the index values increase, the vegetation is subjected to greater stress because of moisture deficiency. At higher values, living plants die and become fuel, and the duff/litter layer becomes more susceptible to fire:

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

**The Energy Release Component (ERC):** the estimated potential available energy released per unit area in the flaming front of a fire. The day-to-day variations of the ERC are caused by changes in the moisture contents of the various fuel classes, including the 1,000-hour time lag class. The ERC is derived from predictions of the rate of heat release per unit area during flaming combustion and the duration of flaming.

**The Ignition Component:** a number that relates the probability that a fire will result if a firebrand is introduced into a fine fuel complex. The ignition component can range from zero, when conditions are cool and damp, to 100 on days when the weather is dry and windy. Theoretically, on a day when the ignition component registers a 60 approximately 60 percent of all firebrands that encounter wildland fuels will require suppression action.

**The Spread Component:** a numerical value derived from a mathematical model that integrates the effects of wind and slope with fuel bed and fuel particle properties to compute the forward rate of spread at the head of the fire. Output is in units of feet per minute. A Spread Component of 31 indicates a worst-case, forward rate of spread of approximately 31 feet per minute. The inputs required in to calculate the SC are wind speed, slope, fine fuel moisture (including the effects of green herbaceous plants), and the moisture content of the foliage and twigs of living, woody plants.



Since the characteristics through which the fire is burning are so basic in determining the forward rate of spread of the fire front, a unique SC table is required for each fuel type.<sup>75</sup>

The International Fire Code Institute susceptibility index combines slope and fuel levels:

**Table 5.18.1-2  
Wildfire Susceptibility Matrix**

| <b>FEMA/IFCI Wildfire Susceptibility Matrix</b> |  |              |            |                          |              |            |                         |              |            |
|---|--|--------------|------------|--------------------------|--------------|------------|-------------------------|--------------|------------|
| <b>Fuel Class</b>                               | <b>Critical Fire Weather Frequency</b> |              |            |                          |              |            |                         |              |            |
|   | <b>&lt;1 day per year</b>              |              |            | <b>2-7 days per year</b> |              |            | <b>8+ days per year</b> |              |            |
|   | <b>Slope %</b>                         |              |            | <b>Slope %</b>           |              |            | <b>Slope %</b>          |              |            |
|   | <b>&lt;40</b>                          | <b>41-40</b> | <b>61+</b> | <b>&lt;40</b>            | <b>41-40</b> | <b>61+</b> | <b>&lt;40</b>           | <b>41-40</b> | <b>61+</b> |
| Light   | M                                      | M            | M          | M                        | M            | M          | M                       | M            | H          |
| Medium  | M                                      | M            | H          | H                        | H            | H          | E                       | E            | E          |
| Heavy   | H                                      | H            | H          | H                        | E            | E          | E                       | E            | E          |

Note: M = Medium, H = High, E = Extreme.

Source: International Fire Code Institute, January 2000

These indicators are all taken into account when determining the fire danger for a specific area and they can change daily, which is why the Fire Danger Rating System was created. It is a method of conveying in a simple way the relative danger level to the public.

**Table 5.18.1-3  
Fire Danger Rating System**

| <b>Rating</b>  | <b>Basic Description</b>                         | <b>Detailed Description</b>  |
|--|--|--|
| <b>CLASS 1: Low Danger (L)<br/>COLOR CODE: Green</b>     | Fires not easily started                         | Fuels do not ignite readily from small firebrands. Fires in open or cured grassland may burn freely a few hours after rain, but wood fires spread slowly by creeping or smoldering and burn in irregular fingers. There is little danger of spotting.  |
| <b>CLASS 2: Moderate Danger (M)<br/>COLOR CODE: Blue</b> | Fires start easily and spread at a moderate rate | Fires can start from most accidental causes. Fires in open cured grassland will burn briskly and spread rapidly on windy days. Woods fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel – especially draped fuel -- may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy. |

<sup>75</sup> Source: [http://www.nps.gov/nifc/public/pub\\_und\\_understandingfire.cfm](http://www.nps.gov/nifc/public/pub_und_understandingfire.cfm)

| Rating   | Basic Description  | Detailed Description  |
|--|--|---|
| <p><b>CLASS 3: High Danger (H)</b><br/><b>COLOR CODE: Yellow</b></p>       | <p>Fires start easily and spread at a rapid rate</p>                           | <p>All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High intensity burning may develop on slopes or in concentrations of fine fuel. Fires may become serious and their control difficult, unless they are hit hard and fast while small.</p>  |
| <p><b>CLASS 4: Very High Danger (VH)</b><br/><b>COLOR CODE: Orange</b></p> | <p>Fires start very easily and spread at a very fast rate</p>                  | <p>Fires start easily from all causes and immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high-intensity characteristics - such as long-distance spotting - and fire whirlwinds, when they burn into heavier fuels. Direct attack at the head of such fires is rarely possible after they have been burning more than a few minutes.</p>   |
| <p><b>CLASS 5: Extreme (E)</b><br/><b>COLOR CODE: Red</b></p>              | <p>Fire situation is explosive and can result in extensive property damage</p> | <p>Fires under extreme conditions start quickly, spread furiously and burn intensely. All fires are potentially serious. Development into high-intensity burning will usually be faster and occur from smaller fires than in the Very High Danger class (4). Direct attack is rarely possible and may be dangerous, except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions, the only effective and safe control action is on the flanks, until the weather changes or the fuel supply lessens.</p> |

Source: USFS via <http://www.wfas.net/content/view/34/51/>

### 5.18.2 Significant Past Occurrences

San Miguel County has experienced a large number of wildfires. San Miguel County Fire Departments respond to an average of 38 wildfire incidents per year, while the U.S. Forest Service (USFS) responds to approximately 12 per year within the Pecos/Las Vegas Ranger District. There were a total of 457 wildfires that burned 25,476 acres in New Mexico in 2012. Of them, human

causes were responsible for 263 fires that burned 20,403 acres. San Miguel County experienced 34 fires that burned 637.48 acres in the same year.<sup>76</sup>

According to the Community Wildfire Protection Plan (CWPP) prepared for San Miguel County in 2008, during the ten year period of 1986-2006, the cause of fires within the county consisted of primarily lightning (77 percent), campfire (10 percent), arson (3 percent), and miscellaneous causes (10 percent). The CWPP also reported that for the period 1986-2006, the size class of wildfires consisted of 42 percent wildfires under 1/4 acre and 94 percent of wildfires less than 10 acres.

Specific notable historic events are described below:

**Jaroso:** The most recent notable wildfire in San Miguel County was the Jaroso fire that started on June 10, 2013 approximately 8 miles south of Truchas and burned 11,149 acres. Fuel loads consisted of mixed conifer, heavy dead and down fuels with pockets of bug-killed trees, and 1,300 acres of downed timber caused by a wind event six years ago.<sup>77</sup>

**Tres Lagunas:** The Tres Lagunas fire burned 10,219 acres along the Pecos ridge (approximately 10 miles north of Pecos). The fire started on May 30, 2013 as a result of a downed power line. The fire loads were a dense mix of conifers and pine, mixed brush and Aspen, compounded by heavy downed fuels within the 2000 Viveash Fire scar (outlined below).<sup>78</sup>

**Tecolote:** The Tecolote Fire of 2010 (was located approximately 15 miles west northwest of Las Vegas, NM at the specific location of Tecolote Creek approximately 5 miles northwest of Cabo Lucero in the Santa Fe National Forest. This fire burned a total of 820 acres encompassing lands from Pecos to Tecolote. In order to respond to the catastrophic wildfire, the City of Las Vegas issued Executive Order 2010-05 for the Tecolote Fire in 2010 which was the only emergency-related City Executive Order issued between 2008 and 2010. The Executive Order 2010-05 established that the city supports assisting San Miguel County and/or the USFS during wildfire emergencies. As well, this also gave the City of Las Vegas administration the authority to extend their resources in order to protect the city's watershed in the case of wildfire.

**Trampas:** The 2002 5,800 acre Las Trampas Fire impacted wilderness lands near Las Trampas and threatened the Pecos Watershed. The Las Trampas Fire ultimately caused vehicles to become trapped in the canyon due to the roads being washed out.<sup>79</sup>

**Viveash:** The 2000 Viveash Fire was located primarily within the Cow Creek watershed in the Santa Fe National Forest north and west of the very high risk rated community of Bull Creek near Pecos. Other adjacent watersheds affected by the Viveash Fire included the following: Upper Cow, Elk, Upper Gallinas, Soldier, Middle Cow, Upper Bull, Oaha, Chaprito, Manzanares, Tijeras and Lower Cow (Figure 5-1). The El Valle Water Alliance reported that the 2000 Viveash Fire impacted Cow Creek east of Pecos in the Cow Creek/Bull Creek area. Of most significant concern were the water quality impacts of this 28,348 acre fire on the Gallinas Watershed that supplies the City of Las Vegas

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<sup>76</sup> <http://www.emnrd.state.nm.us/SFD/FireMgt/Historical.html>

<sup>77</sup> <http://inciweb.nwcg.gov/incident/3416/>

<sup>78</sup> <http://inciweb.nwcg.gov/incident/3401/>

<sup>79</sup> Western Institute for Study of the Environment, 2010

municipal water supply. The Viveash Fire has also negatively impacted the fish and beaver habitat of Cow Creek and watersheds further downstream.

Other notable fires in San Miguel County include Hartman (2009) 475 acres, Soldier (2009) 100 acres, Ortiz (2009) 20 acres, Dalton Fire (2002) 804 acres, and Roybal (2002) 850 acres.

### **5.18.3 Location of Areas at Risk**

The two primary watersheds located within the county are the Gallinas Municipal Watershed and the Pecos Watershed both located in the Pecos/Las Vegas Ranger District of the Santa Fe National Forest. The Gallinas Watershed is of high importance because the City of Las Vegas and the surrounding villages depend on Gallinas Creek for their main water supply and because the Gallinas Creek feeds the Peterson, Bradner, and Storrie Lake reservoirs. The Gallinas Watershed consists of 84-square miles and 20,600 acres of wilderness that includes a mix of national forest, private, and public lands. The different habitats represented within the Gallinas watershed include approximately 2,400 acres of ponderosa pine forest, 10,800 acres of mixed conifer forest, 5,700 acres of spruce-fir forest, and 1,700 acres of aspen and oak forest.

The major sub-watersheds located within the county include the Upper Gallinas River (18,529 acres), Upper Tecolote Creek (1,458 acres), Cow Creek-Pecos River (621 acres), Pecos River Headwaters (10 acres), and Manuelitas Creek (8 acres). The ponderosa pine and mixed conifer forests within these watersheds have changed drastically over the last century. The Forest Service's aggressive suppression of wildfires throughout the 1900s resulted in the elimination of beneficial low-intensity surface fires. These low-intensity surface fires play a key role in keeping the ponderosa pine and mixed conifer forests healthy. The forests within these watersheds have not experienced major fires for over a century except in 2000 when the Viveash Fire burned approximately 3,000 acres of the Gallinas Watershed. Of the total acreage burned, about 820 acres were considered high severity and the rest of the acreage was considered low severity or unburned.

Scientific research continues to show that ponderosa pine forests are more susceptible to high-severity crown fires due to past fire suppression and that these type of forests used to contain large ponderosa stands. Low-intensity surface fires thin out the smallest pine and fir trees and seldom kill the large and mature pine trees, the fires keep forest canopies open and encourage grass and shrub growth. Due to approximately a century of fire suppression within the Gallinas watershed the modified forest structure is more likely to result in high-intensity and high-severity wildfires. The majority of the ponderosa pine trees are small (less than 16 inches in diameter), the stands are dense averaging 700 to 1000 trees per acre, and many of the trees are so crowded that their growth is suppressed.



**Figure 5.18.3-1**  
**Top 10 Counties in New Mexico Ranked by Wildland Fire Risk**

| Top 10 Counties in New Mexico Ranked by Existing Risk  |            |                   |                     |                   |       |                |
|--|------------|-------------------|---------------------|-------------------|-------|----------------|
| Counties are ranked by the number of square miles of developed and in the wildland interface |            |                   |                     |                   |       |                |
| County and State   |            | Developed sq. mi. | Undeveloped sq. mi. | Percent Developed | Homes | % Second Homes |
| Otero County   | New Mexico | 28.5              | 37.2                | 43.0%             | 3,746 | 51.0%          |
| Taos County  | New Mexico | 18.3              | 51.7                | 26.0%             | 3,374 | 46.0%          |
| Lincoln County   | New Mexico | 14.7              | 22.7                | 39.0%             | 5,175 | 49.0%          |
| San Miguel County  | New Mexico | 10.6              | 52.4                | 17.0%             | 1,452 | 35.0%          |
| Sandoval County  | New Mexico | 10.0              | 31.0                | 21.0%             | 1,082 | 42.0%          |
| Santa Fe County  | New Mexico | 6.2               | 10.5                | 37.0%             | 1,865 | 10.0%          |
| Rio Arriba County  | New Mexico | 6.0               | 67.0                | 8.0%              | 1,483 | 15.0%          |
| Bernalillo County  | New Mexico | 5.2               | 5.2                 | 50.0%             | 1,836 | 6.0%           |
| Caron County   | New Mexico | 4.1               | 28.6                | 13.0%             | 111   | 30.0%          |
| Grant County   | New Mexico | 2.6               | 26.5                | 9.0%              | 577   | 14.0%          |

Source: <http://headwaterseconomics.org/pubs/wildfire/nm.php>

The San Miguel County Community Wildfire Protection Plan identifies the locations in the county that are at risk to wildfire. The relative hazard rankings for communities in the planning area are:

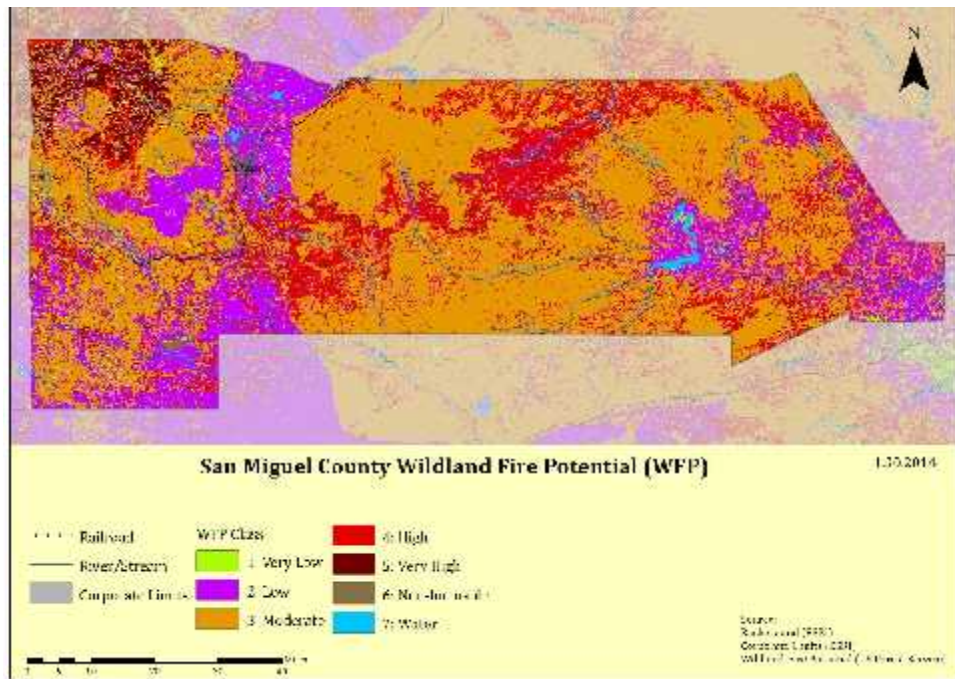
- San Miguel County – West: High to Extreme
- San Miguel County – Center: High to Very High
- San Miguel County – East: Low to High
- City of Las Vegas: Moderate to High
- Village of Pecos: High to Extreme<sup>80</sup>

Wildfires can occur anywhere that burnable vegetation exists. The US Forest Service has a new product available, called the Wildland Fire Potential assessment. This product provides an overview assessment of the areas within a defined area that have the potential to experience wildland fire. Maps 5.18.3-1 through 5.18.3-3 on the following pages depict the Wildfire potential risk areas for the county, the City of Las Vegas, and the Village of Pecos.

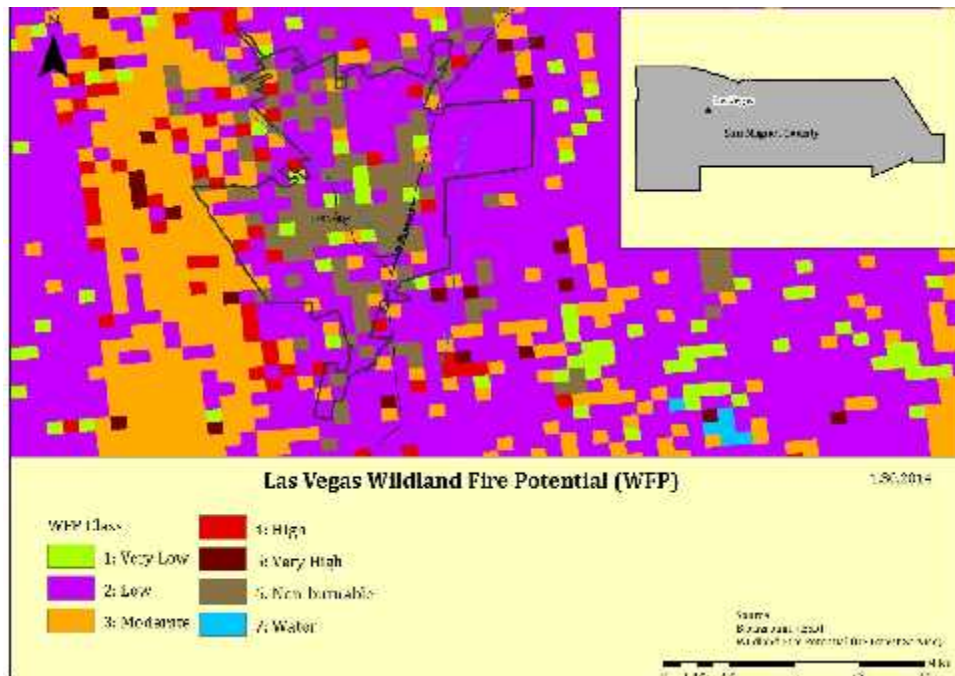
Note that the areas designated as “non-burnable” in the figure below are predominantly either developed or agricultural land, and that they are subject to other types of fire. By definition of the US Forest Service, however, they are outside of the wildland fire potential area.

<sup>80</sup> San Miguel County Community Wildfire Protection Plan, Table 2. Relative Hazard Rankings for Communities in the Study area. Page 8. Print.

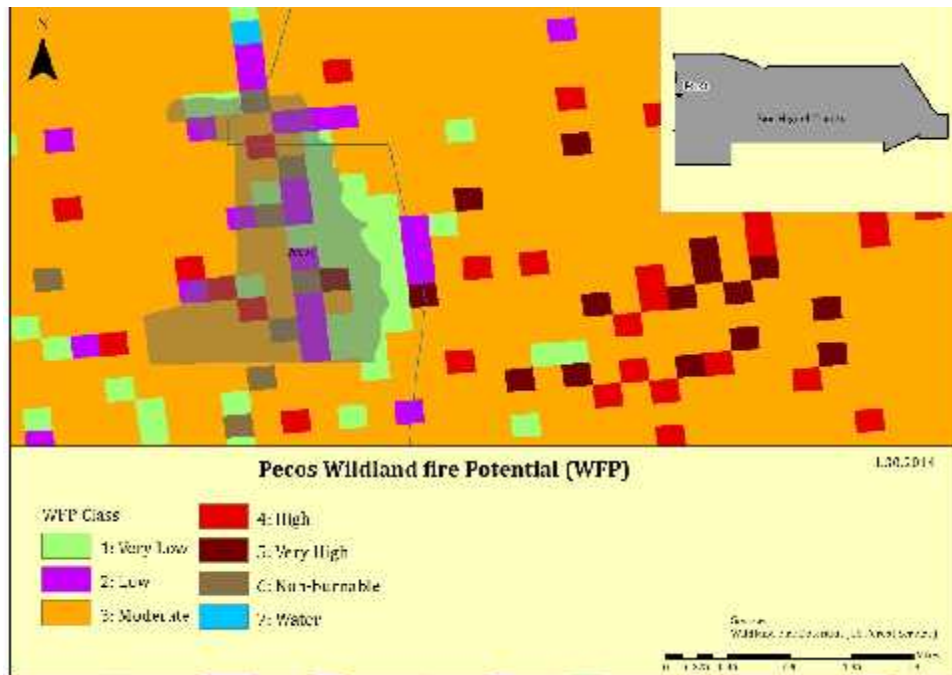
**Map 5.18.3-1  
 San Miguel County Wildfire Potential**



**Map 5.18.3-2  
 Las Vegas Wildfire Potential**



**Map 5.18.3-3  
 Village of Pecos Wildfire Potential**



To respond to the vulnerability of this hazard, the county prepared a Community Wildfire Protection Plan (CWPP) in 2008. The plan meets all of the criteria set forth by the Healthy Forest Reforestation Act, and was adopted by the New Mexico Fire Planning Task Force. The San Miguel County CWPP can be accessed on the EMNRD website at: <http://www.emnrd.state.nm.us/FD/FireMgt/cwpps.htm>.

The 2013 New Mexico Communities at Risk Assessment Plan lists the following San Miguel Communities fire ratings. Only the Sabinoso community was listed with a low rating.<sup>81</sup>

**Table 5.18.3-1  
 2013 Relative Hazard Rankings for Communities in San Miguel County**

| Community at Risk            | Rating |
|------------------------------|--------|
| Bernal / Tecolote / Lagunita | H      |
| Bull Creek                   | H      |
| Colonias, Upper / Lower      | H      |
| Conchas Lake                 | M      |
| Cowles                       | H      |
| Dalton Canyon                | H      |
| El Porvenir                  | H      |
| Gallinas                     | H      |
| Gonzales Ranch               | H      |
| Grass Mountain               | H      |
| Hidden Valley                | H      |

<sup>81</sup> [http://www.emnrd.state.nm.us/SFD/FireMgt/documents/2013\\_CAR\\_PlanRevisionfinal.pdf](http://www.emnrd.state.nm.us/SFD/FireMgt/documents/2013_CAR_PlanRevisionfinal.pdf)

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Hazard Profiles

| Community at Risk             | Rating |
|-------------------------------|--------|
| Highway 84                    | H      |
| Las Vegas, North and West     | H      |
| Las Vegas, Southeast          | M      |
| Lower Pecos Canyon            | H      |
| Mineral Hill                  | H      |
| Montezuma                     | H      |
| Pecos/East Pecos              | H      |
| Pendaries                     | H      |
| Rociada Valleys               | H      |
| Romeroville/ Ojitos Frios     | H      |
| Sabinoso                      | L      |
| San Ignacio/Las Tusas         | H      |
| Sapella/Tierra Monte          | H      |
| Ticolotito                    | H      |
| Terrero                       | H      |
| Trementina/Variadero          | M      |
| Tres Lagunas                  | H      |
| Trujillo                      | H      |
| Upper Gallinas                | H      |
| Villanueva/Pecos River Valley | H      |
| Windsor Creek/Holy Ghost      | H      |

Source: 2013 New Mexico Communities at Risk Assessment Plan

**Table 5.18.3-2**  
**2008 CWPP Hazard Ratings for San Miguel County Communities**

| Number | Community                | Rank      | Score |
|--------|--------------------------|-----------|-------|
| 1      | Dalton Canyon            | Extreme   | 12    |
| 2      | Grass Mountain           | Extreme   | 14    |
| 3      | Windsor Creek/Holy Ghost | Very High | 17    |
| 4      | Montezuma                | Very High | 17    |
| 5      | Cowles                   | Very High | 18    |
| 6      | Terrero/Tres Lagunas     | Very High | 18    |
| 7      | Bull Creek               | Very High | 18    |
| 8      | Upper/Lower Colonias     | Very High | 18    |
| 9      | Pendaries                | Very High | 19    |
| 10     | Hidden Valley            | High      | 21    |
| 11     | Pecos/East Pecos         | High      | 21    |
| 12     | Upper Gallinas           | High      | 21    |
| 13     | Mineral Hill             | High      | 21    |
| 14     | San Ignacio/Las Tusas    | High      | 21    |
| 15     | Highway 84               | High      | 22    |
| 16     | Romeroville/Ojitos Frios | High      | 22    |
| 17     | Rociada Valleys          | High      | 23    |
| 18     | El Porvenir              | High      | 23    |
| 19     | Lower Pecos Canyon       | High      | 24    |

| Number | Community                | Rank     | Score |
|--------|--------------------------|----------|-------|
| 20     | Sapello/Tierra Monte     | High     | 24    |
| 21     | Bernal/Tecolote/Lagunita | High     | 26    |
| 22     | North and West Las Vegas | High     | 26    |
| 23     | Gallinas                 | High     | 26    |
| 24     | Trujillo                 | High     | 28    |
| 25     | Gonzales Ranch           | High     | 28    |
| 26     | Pecos River Valley       | High     | 28    |
| 27     | Tecolotito               | High     | 28    |
| 28     | Southeast Las Vegas      | Moderate | 31    |
| 29     | Conchas Lake             | Moderate | 32    |
| 30     | Trementina/Variadero     | Moderate | 35    |
| 31     | Sabinoso                 | Low      | 40    |

Source: San Miguel County, New Mexico, Wildland Urban Interface Community Wildfire Protection Plan, 2008.

Note: Communities in the San Miguel Community Wildfire Protection Plan with a ranking of extreme, very high or high should be considered as ranking high for the purpose of conforming to the reporting requirements for the New Mexico Fire Planning Task Force.

#### 5.18.4 The Extent of Damage

State expenditures on wildfires within San Miguel County were approximately \$254,000 per year for the last 10 years. The NMEMNRD provides the county with \$5,000 per year for their operating budget. That money is used for equipment, maintenance, and training to all volunteer county fire departments. Within the region’s watersheds, there have been ten fires that within the last 10 years that have threatened critical infrastructure. Those fires are listed in Table 5.18.4-1:

**Table 5.18.4-1  
San Miguel County Wildfire History**

| Fire              | Date | Acres Burned |
|-------------------|------|--------------|
| Tres Lagunas Fire | 2013 | 10,210       |
| Jaroso Fire       | 2013 | 11,120       |
| Tecolote Fire     | 2010 | 820          |
| Hartman Fire      | 2009 | 475          |
| Soldier Fire      | 2009 | 100          |
| Ortiz Fire        | 2009 | 20           |
| Las Trampas Fire  | 2002 | 5,800        |
| Dalton Fire       | 2002 | 15,400       |
| Roybal Fire       | 2002 | 850          |
| Viveash Fire      | 2000 | 28,348       |

The Viveash Fire of May 29, 2000 is an example of what can happen in the watershed after a large, high-severity wildfire. After burning for four months (fire out September 30, 2000), it had burned 28,348 acres in the Cow Creek drainage and was located west of the Gallinas watershed. Despite the small amount of acreage burned within the Gallinas watershed (820 acres), the effects were



significant in terms of the City of Las Vegas' drinking water supply. It also negatively affected the fish and beaver habitat of Cow Creek. The Viveash Fire resulted in sediment and ash being carried approximately 22 miles downstream to the City's municipal water treatment facility. This led to a public health and safety impact on water quality of the Las Vegas municipal water supply. USFS response to this fire cost approximately \$12 million.

The Dalton Fire ignited on May 6, 2002 and burned until May 31, 2002, impacting 804 total acres with a total cost of \$2,904,220. This fire threatened the Santa Fe Watershed.

The Tecolote Fire ignited on June 11, 2010 due to lightening and impacted a total of 820 acres. This fire threatened the Gallinas watershed, the City of Las Vegas drinking water supply, and caused health implications for the elderly and respiratory patients due to the smoke. The fire cost a total of \$5.5 million.

No lives were lost in these fires and no significant property damage was reported.

#### **5.18.5 Probability of Future Events**

There have been 10 major wildfires in the past 13 years, or 0.77 major fires per year, and 34 wildfires in 2012 in San Miguel County. The frequency of fire and the related impacts to vital resources such as water supply contamination and flooding make this hazard a highly likely probability of occurrence and impact to all of San Miguel County, including the incorporated jurisdictions of the City of Las Vegas and the Village of Pecos.

## 6. VULNERABILITY ASSESSMENT

### 6.1 Interim Final Rule for Assessing Vulnerability

**Requirement §201.6(c)(2)(ii)(A):** *The plan **should** describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.*

**Requirement §201.6(c)(2)(ii)(B):** *[The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate.*

**Requirement §201.6(c)(2)(ii)(C):** *[The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.*

**Requirement §201.6(c)(2)(iii):** *For multi-jurisdictional plans, the risk assessment **must** assess each jurisdiction's risks where they vary from the risks facing the entire planning area.*

### 6.2 Introduction and Methodology

This chapter reviews the county's assets at risk, as well as vulnerability to each hazard where data is available. For each assessed hazard, the county addressed the impact that each hazard could potentially have on the jurisdiction. Effort was made to evaluate current structures, infrastructure, and critical facilities at risk, as well as future projects that are planned. Where data was available, the county evaluated potential dollar losses to vulnerable structures. Within this chapter is a vulnerability assessment for each participating jurisdiction identified in this Plan. The Plan evaluates risk and assets for the San Miguel County, the City of Las Vegas, and the Village of Pecos.

Where data was available, the hazards profiled in Chapter 5, *Hazard Profiles* were quantitatively ranked by the severity and likelihood of occurrence. All hazards also received a qualitative analysis as provided in Chapter 5. Where quantitative data is not available, qualitative responses were used to identify the vulnerability to the hazards.

The MPG utilized Risk Analysis Worksheets to determine the frequency, severity, risk class, seasonal patterns, probable duration, speed of onset, and noted risks identified with each hazard. The methodologies are provided below:

**FREQUENCY:** How often is this hazard likely to develop in your jurisdiction?

| Frequency     | Description   |
|---------------|---|
| Highly Likely | Nearly 100% probability in the next year  |
| Likely        | 10% - 100% probability in the next year or at least 1 chance over the next 10 years |
| Possible      | 1% - 10% probability or at least one chance in the next 100 years                   |
| Unlikely      | Less than 1% chance in the next 100 years.  |

**SEVERITY:** What is the expected extent of damage caused by this type of hazard?

| Severity     | Description                                |
|--------------|--|
| Catastrophic | More than 50% of the jurisdiction affected |
| Critical     | 25% - 50% of the jurisdiction affected     |
| Limited      | 10% - 25% of the jurisdiction affected     |
| Negligible   | Less than 10% of the jurisdiction affected |

**RISK CLASS:** What is the classification of the overall risk posed to the jurisdiction?

|               | Negligible | Limited | Critical | Catastrophic |
|---------------|------------|---------|----------|--------------|
| Highly Likely | C          | B       | A        | A            |
| Likely        | C          | C       | B        | A            |
| Possible      | D          | C       | B        | B            |
| Unlikely      | D          | D       | C        | C            |

**SEASONAL PATTERN:** When will hazard most likely occur?

**PROBABLE DURATION:** How long would this type of event typically impact the jurisdiction?

**SPEED OF ONSET:** How much advance warning does the jurisdiction typically have prior to onset of this type of event?

**RISKS:** What types of impacts does this hazard typically cause to the jurisdiction?

The following table provides a summary of the risk assessment findings. Hazards ranked in Class A and B, and where data is available, are included in this Vulnerability Assessment.

**Table 6.2-1  
 Summary of Hazard Mitigation Plan Risk Assessment Data**

| Hazard          | Ranking   | Disposition in the 2014 Vulnerability Assessment |
|-----------------|---|--|
| Dam Failure     | Frequency: Possible<br>Severity: Limited<br>Risk Class: C       | Excluded   |
| Drought         | Frequency: Highly Likely<br>Severity: Critical<br>Risk Class: A | Included   |
| Earthquake      | Frequency: Possible<br>Severity: Negligible<br>Risk Class: D    | Excluded   |
| Expansive Soils | Frequency: Likely<br>Severity: Limited                          | Excluded   |



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| Hazard                        | Ranking   | Disposition in the 2014 Vulnerability Assessment |
|-------------------------------|---|--|
|                               | Risk Class: C   |  |
| Extreme Heat                  | Frequency: Likely<br>Severity: Critical<br>Risk Class: B            | Included   |
| Flood                         | Frequency: Likely<br>Severity: Critical<br>Risk Class: B            | Included   |
| Hailstorm                     | Frequency: Highly Likely<br>Severity: Critical<br>Risk Class: A     | Included   |
| Hazardous Materials Incidents | Frequency: Likely<br>Severity: Limited<br>Risk Class: C             | Excluded   |
| High Wind                     | Frequency: Highly Likely<br>Severity: Catastrophic<br>Risk Class: A | Included   |
| Landslide                     | Frequency: Possible<br>Severity: Limited<br>Risk Class: C           | Excluded   |
| Levee Failure                 | Frequency: Possible<br>Severity: Negligible<br>Risk Class: D        | Excluded   |
| Pests                         | Frequency: Possible<br>Severity: Negligible<br>Risk Class: D        | Excluded   |
| Severe Winter Weather         | Frequency: Likely<br>Severity: Catastrophic<br>Risk Class: A        | Included   |
| Terrorism                     | Frequency: Unlikely<br>Severity: Negligible<br>Risk Class: D        | Excluded   |
| Thunderstorm                  | Frequency: Highly Likely<br>Severity: catastrophic<br>Risk Class: A | Included   |
| Tornado                       | Frequency: Likely<br>Severity: Limited<br>Risk Class: C             | Excluded   |
| Wildfire                      | Frequency: Highly Likely<br>Severity: Critical<br>Risk Class: A     | Included   |

### 6.3 San Miguel County Vulnerability

San Miguel County is 4,715.82 square miles of land, 19.84 square miles of water, and averages 6.2 persons per square mile. The 2012 Census population estimate was 28,891. The average home value for San Miguel County is \$115,400, which is lower than the state average of \$161,500 and the national average of \$181,400<sup>82</sup>. Single family housing units account for 57 percent of all housing units. Mobile homes make up another 34 percent and multi-family units account for the remaining 9 percent.<sup>83</sup>

For essential facilities, there are 2 hospitals facilities in the county, the Alta Vista Regional Hospital in Las Vegas and the Pecos Valley Medical Center in Pecos. The Alta Vista Regional Hospital has 54 beds and 25 healthcare professionals on staff<sup>84</sup>. The Pecos Valley Medical Center is a clinic that provides ALS emergency care, medical, dental, and behavioral health services. There are 25 schools, 14 fire stations, 2 police stations and no dedicated emergency operation centers.

#### 6.3.1 County Building Stock Vulnerability

There are estimated 15,154 buildings in the county, with a total replacement value for the structures of \$1.65 billion. Approximately 95.8 percent of the buildings, and 83.5 percent of the building value, are associated with residential housing. The remainder consists of commercial, industrial, agricultural, religious, government, and education building uses. The total residential building value for the county is estimated to be \$1.38 billion, and the non-residential building value is approximately \$272. million.

**Table 6.3.1-1  
Building Exposure by Occupancy Type for San Miguel County**

| <b>Building Type</b> | <b>Total Building Value</b> | <b>Percentage of Building Stock</b> |
|----------------------|-----------------------------|-------------------------------------|
| Residential          | \$1,376,710,000             | 83%                                 |
| Commercial           | \$187,980,000               | 11%                                 |
| Industrial           | \$15,377,000                | >1%                                 |
| Agricultural         | \$2,962,000                 | >1%                                 |
| Religious/Non-profit | \$15,248,000                | >1%                                 |
| Government           | \$25,112,000                | 2%                                  |
| Education            | \$30,349,000                | 2%                                  |
| <b>TOTAL</b>         | <b>\$1,653,738,000</b>      | <b>100.0%</b>                       |

Critical assets in San Miguel County include are listed in Table 6.3.1-2.

<sup>82</sup> <http://www.usa.com/san-miguel-county-nm.htm>

<sup>83</sup> Bureau of Business and Economic Research. *An Assessment of the San Miguel County Economy*. 2010. Print

<sup>84</sup> Alta Vista Regional Hospital. <http://www.altavistaregionalhospital.com/alta-vista-regional-hospital/aboutus.aspx>

**Table 6.3.1-2  
 San Miguel County Critical Assets**

| <b>Asset Name</b>                       | <b>Asset Use /Function</b>                | <b>Address</b>         | <b>Insured Or Estimated Value</b> |
|---|---|------------------------|-----------------------------------|
| San Miguel County Administration        | San Miguel County Administration Building | 500 W. National Avenue | \$3,715,000                       |
| 4 <sup>th</sup> Judicial District       | District Attorney's Building              | 1800 New Mexico Avenue | \$1,693,000                       |
| 4 <sup>th</sup> Judicial District Court | District Courthouse                       | 496 W. National Avenue | \$4,255,000                       |
| San Miguel Detention Center             | Adult Detention Center Building           | 20 Mineral Hill Route  | \$5,421,000                       |
| San Miguel Detention Center             | Adult Detention Center Annex              | 20 Mineral Hill Route  | \$155,000                         |
| San Miguel Detention Center             | Maintenance Trailer                       | 20 Mineral Hill Route  | \$32,000                          |
| San Miguel Detention Center             | Storage Shed                              | 20 Mineral Hill Route  | \$3,000                           |
| San Miguel Road Shop                    | Road Shop Building                        | 1224 Railroad Avenue   | \$149,000                         |
| San Miguel Road Shop                    | Public Works Office Building              | 1224 Railroad Avenue   | \$188,000                         |
| San Miguel Fairgrounds                  | Indoor Exhibits Building                  | Rodeo Grounds Road     | \$107,000                         |
| San Miguel Fairgrounds                  | Pole Barn Building                        | Rodeo Grounds Road     | \$114,000                         |
| San Miguel Fairgrounds                  | Show Building                             | Rodeo Grounds Road     | \$15,000                          |
| San Miguel Fairgrounds                  | Show Building 2                           | Rodeo Grounds Road     | \$27,000                          |
| San Miguel Fairgrounds                  | Animal Pens 1                             | Rodeo Grounds Road     | \$85,000                          |
| San Miguel Fairgrounds                  | Clay Mobile Home                          | Rodeo Grounds Road     | \$86,000                          |
| San Miguel Fairgrounds                  | Show Building 4                           | Rodeo Grounds Road     | \$45,000                          |
| Ribera Housing Complex                  | Housing Unit 1                            | County Road 3          | \$97,000                          |
| Ribera Housing Complex                  | Housing Unit 2                            | County Road 3          | \$97,000                          |
| Ribera Housing Complex                  | Housing Unit 3                            | County Road 3          | \$105,000                         |
| Ribera Housing Complex                  | Housing Unit 4                            | County Road 3          | \$105,000                         |
| Ribera Housing Complex                  | Housing Unit 5                            | County Road 3          | \$105,000                         |
| Ribera Housing Complex                  | Housing Unit 6                            | County Road 3          | \$105,000                         |
| Ribera Housing Complex                  | Housing Unit 7                            | County Road 3          | \$158,000                         |
| Ribera Housing Complex                  | Housing Unit 8                            | County Road 3          | \$158,000                         |
| Ribera Housing Complex                  | Housing Unit 9                            | County Road 3          | \$158,000                         |
| Ribera Housing Complex                  | Housing Unit 10                           | County Road 3          | \$158,000                         |
| Ribera Housing Complex                  | Housing Unit 11                           | County Road 3          | \$158,000                         |
| Ribera Housing Complex                  | Housing Unit 12                           | County Road 3          | \$158,000                         |
| Ribera Housing Complex                  | Housing Unit 13                           | County Road 3          | \$158,000                         |
| Ribera Housing Complex                  | Housing Unit 14                           | County Road 3          | \$158,000                         |
| Ribera Housing Complex                  | Housing Unit 15                           | County Road 3          | \$158,000                         |

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| Asset Name                          | Asset Use /Function              | Address                  | Insured Or Estimated Value |
|-------------------------------------|----------------------------------|--------------------------|----------------------------|
| Ribera Housing Complex              | Housing Unit 16                  | County Road 3            | \$158,000                  |
| Ribera Housing Complex              | Housing Unit 17                  | County Road 3            | \$158,000                  |
| Ribera Housing Complex              | Housing Unit 18                  | County Road 3            | \$158,000                  |
| Ribera Housing Complex              | Housing Unit 19                  | County Road 3            | \$158,000                  |
| Ribera Housing Complex              | Housing Unit 20                  | County Road 3            | \$87,000                   |
| Ribera Housing Complex              | Pump House                       | County Road 3            | \$17,000                   |
| Ribera Housing Complex              | Water Tank                       | County Road 3            | \$105,000                  |
| Cabo Lucero Fire Station            | Cabo Lucero Fire Station         | 900 Ridgecrest Road      | \$272,000                  |
| Conchas Dam Southside Substation    | Office Trailer                   | 101 Mica Road            | \$79,000                   |
| Conchas Dam Southside Substation    | Conchas Dam Southside Substation | 101 Mica Road            | \$301,000                  |
| El Pueblo Fire Station              | El Pueblo Fire Station           | 77 Gonzales Ranch Road   | \$157,000                  |
| Gallinas Fire Station               | Gallinas Fire Station            | 3195 Hot Springs         | \$320,000                  |
| Ilfeld Volunteer Fire/Rescue        | Ilfeld Volunteer Fire/Rescue     | 87 Entrada De San Ysidro | \$234,000                  |
| Pecos Canyon Volunteer Fire         | Volunteer Fire/Rescue Building   | 1076 Nm 63               | \$249,000                  |
| Rowe Volunteer Fire Department      | Rowe Volunteer Fire Department   | 75 Hwy 63                | \$69,000                   |
| Sapello-Rociada Volunteer Fire Dept | Sapello-Rociada Substation       | 349 Rociada Highway      | \$117,000                  |
| Sapello-Rociada Volunteer Fire Dept | Water Tank 1                     | 400 Rociada Highway      | \$29,000                   |
| Sapello-Rociada Volunteer Fire Dept | Water Tank 2                     | 400 Rociada Highway      | \$29,000                   |
| Sapello-Rociada Volunteer Fire Dept | Water Tank 3                     | 400 Rociada Highway      | \$29,000                   |
| Sapello-Rociada Volunteer Fire Dept | Water Tank                       | 349 Rociada Highway      | \$110,000                  |
| Sheridan Volunteer Fire Station     | Sheridan Volunteer Fire Dept     | 15 Ositos Frios Road     | \$205,000                  |
| Tecolote Volunteer Fire Dept        | Tecolote Volunteer Fire Dept     | 2 Tecolote Plaza         | \$157,000                  |
| Tecolote Volunteer Fire Dept        | Water Tank 1                     | 2 Tecolote Plaza         | \$70,000                   |
| Tecolote Volunteer Fire Dept        | Water Tank 2                     | 2 Tecolote Plaza         | \$46,000                   |
| Trementina Volunteer Fire Dept      | Trementina Volunteer Fire Dept   | Nm 419                   | \$235,000                  |

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| Asset Name                               | Asset Use /Function                | Address               | Insured Or Estimated Value |
|--|------------------------------------|-----------------------|----------------------------|
| Trementina Volunteer Fire Dept           | Storage Shed                       | Nm 419                | \$2,000                    |
| Trementina Volunteer Fire Dept           | Water Tank                         | Nm 419                | \$45,000                   |
| Public Health Building                   | Public Health Building             | 18 Gallegos Road      | \$1,128,000                |
| Public Health Building                   | Extension Building                 | 18 Gallegos Road      | \$161,000                  |
| Conchas Dam South Main Station           | Conchas Dam South Main Station     | Big Mesa Avenue       | \$521,000                  |
| New Rowe Volunteer Fire Station          | New Rowe Volunteer Fire Station    | Ilfeld Frontage Road  | \$242,000                  |
| Pecos Ambulance Service Building         | Pecos Ambulance Service Building   | State Highway 50      | \$208,000                  |
| Apache Tower                             | Apache Tower Equipment Storage     | 129 Apache Mesa Road  | \$47,000                   |
| Trujillo Tower                           | Trujillo Tower Equipment Storage   | 3182 Nm Highway 104   | \$47,000                   |
| La Placita Volunteer Fire Dept.          | Las Placitas Fire Station          | HC Box 43             | \$192,000                  |
| La Placita Volunteer Fire Dept.          | Water Tank 1                       | HC Box 43             | \$47,000                   |
| La Placita Volunteer Fire Dept.          | Storage Container                  | HC Box 43             | \$3,000                    |
| La Placita Volunteer Fire Dept.          | Water Tank 2                       | HC Box 43             | \$27,000                   |
| La Placita Volunteer Fire Dept.          | Water Tank 3                       | HC Box 43             | \$27,000                   |
| Ribera/San Miguel Del Vado               | El Centro Family Health Building   | San Miguel Del Vado   | \$292,000                  |
| Ribera/San Miguel Del Vado               | Old Health Building                | San Miguel Del Vado   | \$263,000                  |
| San Jose Community Center                | San Jose Community Center Building | San Jose              | \$185,000                  |
| Camp Luna Solid Waste Convenience Center | Camp Luna Convenience Center       | 711 Maximillano Drive | \$4,000                    |
| Kearny Solid Waste Convenience Center    | Kearny Convenience Center          | 38 Nm Highway 283     | \$4,000                    |
| Sapello Solid Waste Convenience Center   | Sapello Convenience Center         | 26 County Road A1     | \$4,000                    |
| Rociada Solid Waste Convenience Center   | Rociada Convenience Center         | 356 Nm Highway 105    | \$4,000                    |

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| Asset Name                                | Asset Use /Function            | Address                     | Insured Or Estimated Value |
|---|--------------------------------|-----------------------------|----------------------------|
| Bernal Solid Waste Convenience Center     | Bernal Convenience Center      | 447 County Road B26a        | \$4,000                    |
| Pecos Solid Waste Convenience Center      | Pecos Convenience Center       | 38 County Road B52          | \$5,000                    |
| Ilfeld Solid Waste Convenience Center     | Ilfeld Convenience Center      | 4 Big Chief Road            | \$4,000                    |
| San Miguel Solid Waste Convenience Center | San Miguel Convenience Center  | 280 Nm Highway 3            | \$4,000                    |
| Villanueva Solid Waste Convenience Center | Villanueva Convenience Center  | 15 Dodge Drive              | \$4,000                    |
| San Miguel County Annex Building          | Office Building                | 518 Valencia Street         | \$311,000                  |
| Public Works                              | Public Works Office            | Airport Road 250 NW Highway | \$470,000                  |
| Public Works                              | Solid Waste Building           | Airport Road 250 NW Highway | \$818,000                  |
| Public Works                              | Shop Building                  | Airport Road 250 NW Highway | \$827,000                  |
| Public Works                              | Pump Building                  | Airport Road 250 NW Highway | \$65,000                   |
| Public Works                              | Water Tank                     | Airport Road 250 NW Highway | \$225,000                  |
| Public Works                              | Portable Office Rm 103         | Airport Road 250 NW Highway | \$76,000                   |
| Public Works                              | Portable Office Rm             | Airport Road 250 NW Highway | \$76,000                   |
| Villanueva Substation Building            | Villanueva Substation Building | 61 Valley Loop              | \$289,000                  |
| Manuelitas Fire Department                | Manuelitas Fire Department     | 400 Sapello Hwy             | \$228,000                  |
| <b>Total:</b>                             |                                |                             | \$25,112,000               |

### 6.3.2 City of Las Vegas Building Stock Vulnerability

The total residential building value for the City of Las Vegas is \$174,836,000. This accounts for 72 percent of the total building value within the city. Commercial buildings account for approximately 20 percent of building value, and educational structures account for 5 percent of total building value. Industrial buildings are two percent, and agricultural, religions/nonprofit, and governmental buildings each account for less than one percent.

**Table 6.3.2-1**  
**Building Exposure by Occupancy Type for the City of Las Vegas**

| <b>Building Type</b> | <b>Total Building Value</b> | <b>Percentage of Building Stock</b> |
|----------------------|-----------------------------|-------------------------------------|
| Residential          | \$174,836,000               | 65%                                 |
| Commercial           | \$49,365,000                | 18%                                 |
| Industrial           | \$3,999,000                 | 1%                                  |
| Agricultural         | \$458,000                   | >1%                                 |
| Religious/Non-profit | \$610,000                   | >1%                                 |
| Government           | \$32,900,000                | 12%                                 |
| Education            | \$11,280,000                | 4%                                  |
| <b>TOTAL</b>         | <b>\$273,448,000</b>        | <b>100.0%</b>                       |

Critical Assets in the City of Las Vegas include are listed in Table 6.3.2-2.

**Table 6.3.2-2**  
**City of Las Vegas Critical Assets**

| <b>Asset Name</b>                                   | <b>Asset Use /Function</b> | <b>Address</b>      | <b>Insured or Estimated Value</b> |
|---|----------------------------|---------------------|-----------------------------------|
| George Arellanes Municipal Offices                  | 1700 N. Grand Ave          | Las Vegas, NM 87701 | \$1,200,000                       |
| City of Las Vegas Municipal Court                   | 727 Grand Ave.             | Las Vegas, NM 87701 | \$800,000                         |
| City of Las Vegas Police Department                 | 318 Moreno St.             | Las Vegas, NM 87701 | \$1,400,000                       |
| City of Las Vegas Water Treatment Plant             | 381 NM Hwy 65              | Montezuma NM 87731  | \$5,200,000                       |
| City of Las Vegas Public Works Department           | 905 12th St.               | Las Vegas, NM 87701 | \$1,600,000                       |
| City of Las Vegas Waste Water Treatment Plant       | 272 Frontage Rd.           | Las Vegas, NM 87701 | \$5,800,000                       |
| City of Las Vegas Solid Waste Transfer Station      | 32 Airport Rd.             | Las Vegas, NM 87701 | \$1,400,000                       |
| E Romero Fire Department                            | 1901 New Mexico Ave.       | Las Vegas, NM 87701 | \$1,800,000                       |
| Harold Ledoux Fire Station                          | 604 Legion Dr.             | Las Vegas, NM 87701 | \$1,400,000                       |
| City of Las Vegas Municipal Airport                 | 910 Airport Rd.            | Las Vegas, NM 87701 | \$2,300,000                       |
| City of Las Vegas Housing Authority                 | 2400 Sagebrush Dr.         | Las Vegas, NM 87701 | \$400,000                         |
| Meadow City Transportation                          | 500 Railroad Ave.          | Las Vegas, NM 87701 | \$1,100,000                       |
| City of Las Vegas Abe Montoya Recreation Department | 1751 N. Grand Ave.         | Las Vegas, NM 87701 | \$2,100,000                       |
| Carnegie Public Library                             | 500 National Ave.          | Las Vegas, NM 87701 | \$1,500,000                       |
| Rough Rider Museum                                  | 727 Grand Ave.             | Las Vegas, NM 87701 | \$900,000                         |

| Asset Name                      | Asset Use /Function | Address             | Insured or Estimated Value |
|---------------------------------|---------------------|---------------------|----------------------------|
| Pecos Senior Citizens Center    | 76 Camino Real      | Pecos NM 87552      | \$1,600,000                |
| Ribera Senior Citizen Center    | State Hwy 3         | Ribera NM 87560     | \$400,000                  |
| Las Vegas Senior Citizen Center | 500 Sabino Street   | Las Vegas, NM 87701 | \$2,000,000                |
| <b>Total:</b>                   |                     |                     | <b>\$32,900,000</b>        |

### 6.3.3 Village of Pecos Building Stock Vulnerability

The total residential building value for the Village of Pecos is \$96,723,000. This accounts for 98 percent of the total building value within the area. Commercial buildings account for approximately one percent of building value. Industrial, agricultural, religions/non-profit, governmental, and educational buildings each account for less than one percent of the total building value for the region.

**Table 6.3.3-1  
 Building Exposure by Occupancy Type for the Village of Pecos**

| Building Type        | Total Building Value | Percentage of Building Stock |
|----------------------|----------------------|------------------------------|
| Residential          | \$96,723,000         | 84%                          |
| Commercial           | \$950,000            | >1%                          |
| Industrial           | \$10,560,000         | 9%                           |
| Agricultural         | \$0                  | 0%                           |
| Religious/Non-profit | \$0                  | 0%                           |
| Government           | \$5,500,000          | 5%                           |
| Education            | \$741,000            | >1%                          |
| <b>TOTAL</b>         | <b>\$114,500,000</b> | <b>100.0%</b>                |

Critical Assets in the Village of Pecos include are listed in Table 6.3.3-2.



**Table 6.3.3-2  
 Village of Pecos Critical Assets**

| <b>Asset Name</b>                                | <b>Asset Use /Function</b>                             | <b>Address</b>       | <b>Insured or Estimated Value</b> |
|--|--|----------------------|-----------------------------------|
| Wastewater Treatment Plant                       | Sanitary Sewer Services                                | Camino Laguna        | \$7,500,000                       |
| Drinking Water Distribution System               | Drinking Water Services                                | Various streets      | \$3,000,000                       |
| Village of Pecos Office Complex and Fire Station | Village Administrative Offices and Fire Department     | 92 South Main Street | \$1,500,000                       |
| Miscellaneous Assets and Equipment               | Land, Buildings, Machinery, Equipment, Furniture, etc. | Various locations    | \$4,000,000                       |
| <b>Total:</b>                                    |  |                      | <b>\$16,000,000</b>               |

## 6.4 Drought

### 6.4.1 Summary of Vulnerability

Though there are obvious vulnerabilities for people and animals that will result from a prolonged drought, the most common impacts are generally felt in the area’s economy. This is particularly true in areas whose economies are connected to agriculture, such as San Miguel County, the City of Las Vegas and the Village of Pecos. Agricultural losses from drought can be staggering, and can be in the billions of dollars. Shortages as a result of drought can have far-reaching consequences, given the centralized food system that currently exists in modern society.

As water becomes more and more precious, the value of that water will increase, resulting in issues of supply and demand. The decrease in availability of this necessary resource can result in significant societal disruption, which can worsen as the resource becomes more and more precious.

San Miguel’s economy is heavily reliant on agriculture – the vast majority of privately-owned land is ranch/farmland. The participating municipalities rely on the agricultural economy and eco-tourism. Areas in and around the Village of Pecos are also becoming bedroom communities for commuters to Santa Fe. Drought impacts on drinking water have reduced growth in areas where agriculture is not the primary source of income or water use.

Because of this, San Miguel County and the participating jurisdictions have seen a reduction in population as people move to areas where water resources are more readily and consistently available. The county and municipalities have identified mitigation actions that can improve and protect the precious water sources within the county just to meet normal demands.

## **6.4.2 Estimate of Potential Losses – Qualitative Analysis**

In the course of updating this Plan, the MPG completed a qualitative risk assessment exercise. This exercise asked the representatives from each participating jurisdiction to rank the hazards in the Plan according to their potential to impact to their particular jurisdiction and specifically addressed in Chapter 5. Those impacts for this hazard were ranked high by San Miguel County, the City of Las Vegas, and the Village of Pecos.

## **6.4.3 Estimate of Potential Losses – Quantitative Analysis**

Drought is a non-spatial hazard that can and does affect the entire county, including the City of Las Vegas and the Village of Pecos. Hazards associated with extreme heat can result in losses throughout the planning area.

Given that the entire state of New Mexico is experiencing a significant dry cycle, and that this cycle has been evolving for decades, and that scientists do not anticipate that this cycle will end in the near future, the MPG showed significant concern for this hazard. It was the decision of the Steering Committee that this hazard presents a significant threat to the planning area, and is likely to be a significant threat for the foreseeable future.

Quantifiable data is not currently available for this hazard to determine vulnerability to the people, critical assets, and infrastructure in San Miguel County, the City of Las Vegas, and the Village of Pecos.

## **6.4.4 Identified Data Limitations**

Data that could be collected prior to the next update in order to develop a quantitative risk assessment includes:

- Data regarding the volume of water required to maintain and support municipal and agricultural operations;
- Data regarding expected/planned changes in development;
- Data regarding projected population changes; and
- Estimates of potential increases in operating costs that would result from a lack of water.

## **6.5 Extreme Heat**

### **6.5.1 Summary of Vulnerability**

People, animals, and vegetation are the primary countywide assets that are vulnerable to the impacts associated with extreme heat, though buildings and infrastructure can be subject to damage from this hazard. Attempts to counteract the effects of extreme heat on the population can draw unexpected use of power and water infrastructure that could result in service interruptions and outages. People and livestock can be injured, crops can be damaged, and all are at risk of death by prolonged exposure to extreme heat.

### **6.5.2 Estimate of Potential Losses – Qualitative Analysis**

In the course of updating this Plan, the MPG completed a qualitative risk assessment exercise. This exercise asked the representatives from each participating jurisdiction to rank the hazards in the Plan according to their potential to impact to their particular jurisdiction and specifically addressed in Chapter 5. Those impacts for this hazard were ranked moderate by San Miguel County, and low by the City of Las Vegas and Village of Pecos.

### **6.5.3 Estimate of Potential Losses – Quantitative Analysis**

Extreme heat is a non-spatial hazard that can affect the entire county, including the City of Las Vegas and the Village of Pecos. Hazards associated with extreme heat can result in losses throughout the planning area.

Quantifiable data is not currently available for this hazard to determine vulnerability to the people, critical assets, and infrastructure in San Miguel County, the City of Las Vegas, and the Village of Pecos, but given the 28,891 population (2012 Census), we can determine that if one percent of the population suffered injury or death as a result of this hazard, 288 people would be impacted. If one percent of the vulnerable populations (people under the age of 5 or over the age of 65) suffered injury or death as a result of extreme heat, 64 people would be impacted.

### **6.5.4 Identified Data Limitations**

Data that could be collected prior to the next update in order to develop a more detailed quantitative risk assessment includes:

- Data regarding building construction (materials, roof types, wind ratings, etc.);
- Building valuations for all assets within San Miguel County, the City of Las Vegas, and the Village of Pecos;
- Data regarding expected/projected changes in development;
- Data regarding projected population changes; and
- Data regarding the location of vulnerable populations that may require services or special attention during thunderstorm events.

## **6.6 Flood**

### **6.6.1 Summary of Vulnerability**

Flooding affects people and property in a variety of ways – from forced evacuations to property damage to transportation interruptions to service disruptions, there is almost no facet of modern society that cannot be impacted by flooding.

Along riverbeds and arroyos, areas of the County lie within an identified floodplains and critical infrastructure has seen damage primarily in the county and the City of Las Vegas. The state of New Mexico reports 6 flood-related losses for a total of \$14,962 in San Miguel County, and 9

flood-related NFIP losses for a total of \$7,454 in the City of Las Vegas since 1978<sup>85</sup>, but records show that there have been no reported NFIP repetitive loss flood claims in any jurisdiction within the county. The flood risk is significant throughout the county due to monsoons, flash flooding, snow melt, and related floodwater runoff sure to wildfire scarring. The vulnerability to this hazard must be considered when any future development is planned.

San Miguel County, the City of Las Vegas, and the Village of Pecos are members in good standing with the NFIP program and hold a Community Rating System class 10 rating.

### **6.6.2 Estimate of Potential Losses – Qualitative Analysis**

In the course of updating this Plan, the MPG completed a qualitative risk assessment exercise. This exercise asked the representatives from each participating jurisdiction to rank the hazards in the Plan according to their potential to impact to their particular jurisdiction and specifically addressed in Chapter 5. Those impacts for this hazard were ranked high by San Miguel County, the City of Las Vegas, and the Village of Pecos.

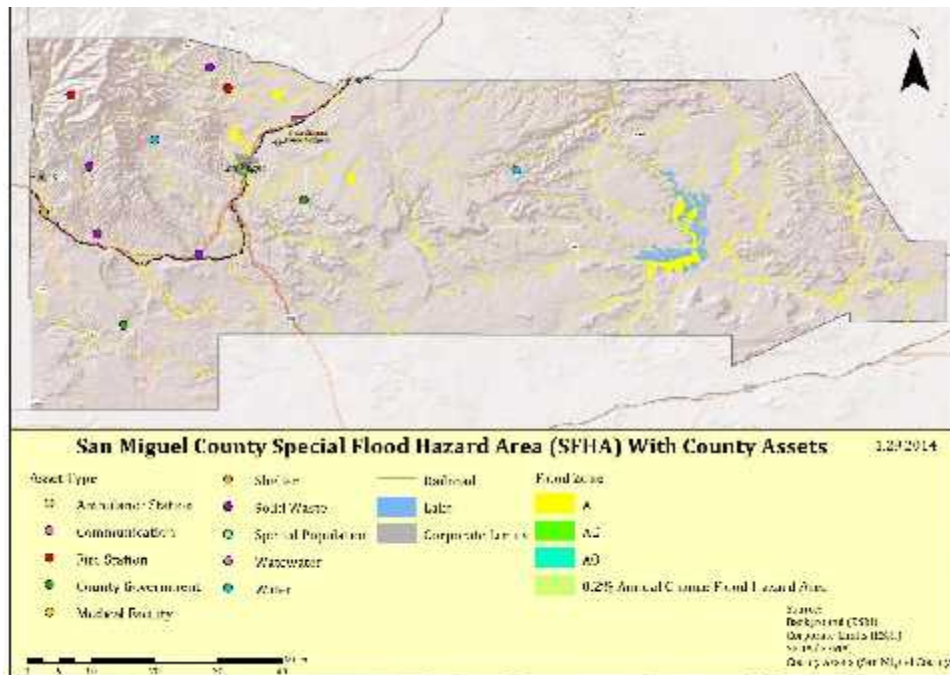
### **6.6.3 Estimate of Potential Losses – Quantitative Analysis**

All jurisdictions in the county have floodplains. Maps 6.6.3-1 through 6.6.3-2 illustrate the locations and boundaries of the one percent annual chance floodplain. Critical assets for the city have been overlaid onto the hazard boundary maps.

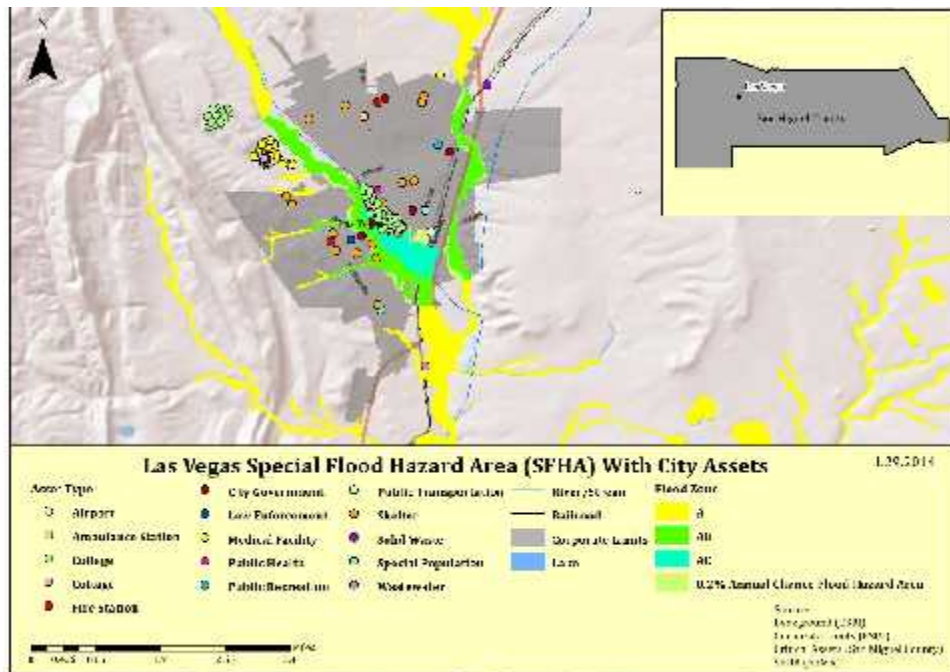
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<sup>85</sup> FEMA NFIP Statistics, 11.30.13. <http://bsa.nfipstat.fema.gov/reports/1040.htm#35>

**Map 6.6.3-1**  
**Special Flood Hazard Areas and San Miguel Critical Assets**



**Map 6.6.3-2**  
**Special Flood Hazard Areas and Las Vegas Critical Assets**



**Map 6.6.3-3  
Special Flood Hazard Areas and Pecos Critical Assets**



There are 19 critical assets within the SFHA in San Miguel County and the City of Las Vegas. Of those, 15 are education facilities, two of which are also designated shelters. No Pecos assets lie within the floodplain.

Most of the county and municipal critical facilities identified by each jurisdiction are outside the SFHA, but may still be at risk to flooding due to changing weather conditions, changing water flow patterns due to wildfire scarring and seasonal snow melt.

Residential structures, and the people that live in them, are also at significant risk from flooding in San Miguel County, the City of Las Vegas, and the Village of Pecos. Local records show that 682 structures lie within an identified flood hazard area. Using the census median home value of \$115,400, this indicates an impact with a ten percent loss of homes in the SHFA would cost property owners and insurance companies at least \$7.8 million.

#### 6.6.4 Identified Data Limitations

Data that could be collected through local planning, assessor, and floodplain manager's offices prior to the next update in order to develop a more detailed quantitative risk assessment includes:

- Data regarding building construction (materials, location of utilities and connections);
- Building valuations for all assets within the county and municipal boundaries;
- Data regarding expected/projected changes in development;
- Data regarding projected population changes; and
- Data regarding the first floor elevation of all buildings within the county and municipalities, as well as the elevation of all critical assets and infrastructure.

## **6.7 Hailstorm**

### **6.7.1 Summary of Vulnerability**

People, structures, agriculture, and assets are all vulnerable to the impacts associated with hailstorms. Infrastructure can be damaged or destroyed by hail, which can result in service interruptions and outages. Structures can be damaged hail and thus be useless to humans for protection from the elements. People can also be injured or killed if exposed to hailstorms.

Those who reside in mobile homes, RVs, or other lightweight housing are more vulnerable than those who reside in traditional construction, as these lightweight types of structures generally fail in the face of significant hailstorm events much sooner than their heavier counterparts.

### **6.7.2 Estimate of Potential Losses – Qualitative Analysis**

In the course of updating this Plan, the MPG completed a qualitative risk assessment exercise. This exercise asked the representatives from each participating jurisdiction to rank the hazards in the Plan according to their potential to impact to their particular jurisdiction and specifically addressed in Chapter 5. Those impacts for this hazard were ranked high by San Miguel County and the City of Las Vegas. The Village of Pecos ranked this hazard as a low risk event.

### **6.7.3 Estimate of Potential Losses – Quantitative Analysis**

Hailstorms are a non-spatial hazard that can and do affect the entire county, including the City of Las Vegas and the Village of Pecos. Hazards associated with hailstorms can result in losses throughout the planning area.

All structures within the county and participating jurisdictions are at risk from hailstorms. According to the 2012 Census estimate, there are 15,592 housing units in the county. The median value of these structures is \$115,400, according to the Census. This equates to residential assets of approximately \$1.79 billion. If ten percent of these residential assets received ten percent damage by a hailstorm, this would result in losses of \$17.9 million.

In addition, all identified critical assets within the planning area have the potential to be damaged or destroyed by hailstorms. These assets have a combined estimated value of at least \$63,512,000 and a ten percent loss to ten percent of the assets across the planning area would represent a \$630,000 impact to local governments.

### **6.7.4 Identified Data Limitations**

Data that could be collected prior to the next update in order to develop a more detailed quantitative risk assessment includes:

- Data regarding building construction (materials, roof types, wind ratings, etc.);
- Building valuations for all assets within San Miguel County, the City of Las Vegas, and the Village of Pecos;
- Data regarding expected/projected changes in development;
- Data regarding projected population changes; and

- Data regarding the location of vulnerable populations that may require services or special attention during thunderstorm events.

## **6.8 High Wind**

### **6.8.1 Summary of Vulnerability**

People, structures, and assets are all vulnerable to the impacts associated with high winds. Infrastructure can be damaged or destroyed resulting in service interruptions and outages. Structures can be damaged or destroyed by wind, which can then lead to injuries and death of those within failing structures or who are exposed to flying debris. High winds can also cause significant trouble for motorists.

Those who reside in mobile homes, RVs, or other lightweight housing are more vulnerable than those who reside in traditional construction, as these lightweight types of structures generally fail in the face of high wind events much sooner than their heavier counterparts.

### **6.8.2 Estimate of Potential Losses – Qualitative Analysis**

In the course of updating this Plan, the MPG completed a qualitative risk assessment exercise. This exercise asked the representatives from each participating jurisdiction to rank the hazards in the Plan according to their potential to impact to their particular jurisdiction and specifically addressed in Chapter 5. Those impacts for this hazard were ranked high by San Miguel County, the City of Las Vegas, and the Village of Pecos.

### **6.8.3 Estimate of Potential Losses – Quantitative Analysis**

High winds are a non-spatial hazard that can and do affect the entire county, including the City of Las Vegas and the Village of Pecos. Hazards associated with high winds can result in losses throughout the planning area.

All structures within the county and participating jurisdictions are at risk from exposure to high winds. According to the 2012 Census estimate, there are 15,592 housing units in the county. The median value of these structures is \$115,400, according to the Census. This equates to residential assets of approximately \$1.79 billion. If ten percent of these residential assets were destroyed by high wind events, this would result in losses of \$179 million.

In addition, all identified critical assets within the planning area have the potential to be damaged or destroyed by high winds. These assets have a combined estimated value of at least \$63,512,000 and a ten percent loss across the planning area would represent a \$6.3 million impact to local governments.

### **6.8.4 Identified Data Limitations**

Data that could be collected prior to the next update in order to develop a more detailed quantitative risk assessment includes:

- Data regarding building construction (materials, roof types, wind ratings, etc.);



- Building valuations for all assets within San Miguel County, the City of Las Vegas, and the Village of Pecos;
- Data regarding expected/projected changes in development;
- Data regarding projected population changes; and
- Data regarding the location of vulnerable populations that may require services or special attention during thunderstorm events.

## **6.9 Severe Winter Storm**

### **6.9.1 Summary of Vulnerability**

People, structures, and critical infrastructure are all vulnerable to the impacts associated with severe winter storms. Infrastructure can be damaged or destroyed by wind or ice, which can result in service interruptions and outages. Structures can be damaged or destroyed by wind, ice, or snow weight, and thus be useless to humans for protection from the elements. People can be injured or killed by transportation accidents (resulting from icy roadways) or extreme cold.

The majority of the vulnerability related to severe winter storms is related to either transportation accidents or to utility failures. Utility failure results in disruption to electrical service, water, and natural gas, which results in loss of heat to structures. Limited transportation access can limit residential propane service deliveries and ability of police, fire, and emergency medical services to render aid when needed.

Transportation-related accidents can occur when roadways and bridges become impacted and ice over, which results in loss of vehicular control and subsequent accidents. In addition, some portions of the population are more at risk to the effects of extreme cold. The very young and the elderly are generally more vulnerable to the effects of extreme cold, and are more likely to suffer illness or death as a result. This is especially true if exposure is extended for a period of time.

### **6.9.2 Estimate of Potential Losses – Qualitative Analysis**

In the course of updating this Plan, the MPG completed a qualitative risk assessment exercise. This exercise asked the representatives from each participating jurisdiction to rank the hazards in the Plan according to their potential to impact to their particular jurisdiction and specifically addressed in Chapter 5. Those impacts for this hazard were ranked high by San Miguel County, the City of Las Vegas, and the Village of Pecos.

### **6.9.3 Estimate of Potential Losses – Quantitative Analysis**

Severe winter storms are a non-spatial hazard that can and do affect the entire county, including the City of Las Vegas and the Village of Pecos. Each of the hazards associated with severe winter storms can result in losses throughout the planning area.

All structures within the county and participating jurisdictions are at risk from severe winter storms. According to the 2012 Census estimate, there are 15,592 housing units in the county. The median value of these structures is \$115,400, according to the Census. This equates to

residential assets of approximately \$1.79 billion. If ten percent of these residential assets received ten percent damage by a severe winter storms, this would result in losses of \$17.9 million.

In addition, all identified critical assets within the planning area have the potential to be damaged or destroyed by severe winter storms. These assets have a combined estimated value of at least \$63,512,000 and a ten percent loss to ten percent of the assets across the planning area would represent a \$630,000 impact to local governments.

Finally, the 28,891 residents of San Miguel County, the City of Las Vegas, and the Village of Pecos are all at risk from the severe winter storm hazard. As previously stated, those most at risk from the extreme heat hazard are the very young and the elderly. These two groups account for 5.3 percent (children under 5) and almost 16.7 percent (those over 65) of the total county population. Combined, these two groups account for more than 22 percent of the population, a total of 6,356 people. If one percent of the vulnerable population suffered injury or death as a result of this hazard, 64 people would be impacted.

#### **6.9.4 Identified Data Limitations**

Data that could be collected prior to the next update in order to develop a more detailed quantitative risk assessment includes:

- Data regarding building construction (materials, roof types, wind ratings, etc.);
- Building valuations for all assets within the planning area;
- Data regarding expected/projected changes in development;
- Data regarding projected population changes; and
- Data regarding the location of vulnerable populations that may require services or special attention during severe winter storm events.

### **6.10 Thunderstorm**

#### **6.10.1 Summary of Vulnerability**

People, structures, and assets are all vulnerable to the impacts associated with thunderstorms. Infrastructure can be damaged or destroyed by hail, wind, lightning, or tornadoes, which can result in service interruptions and outages. Structures can be damaged or destroyed by wind, lightning, or tornadoes, and thus be useless to humans for protection from the elements. People can be injured or killed by wind, tornadoes, lightning, and hail.

Those who reside in mobile homes, RVs, or other lightweight housing are more vulnerable than those who reside in traditional construction, as these lightweight types of structures generally fail in the face of thunderstorm events much sooner than their heavier counterparts.

#### **6.10.2 Estimate of Potential Losses - Qualitative Analysis**

In the course of updating this Plan, the MPG completed a qualitative risk assessment exercise. This exercise asked the representatives from each participating jurisdiction to rank the hazards in the Plan according to their potential to impact to their particular jurisdiction and specifically

addressed in Chapter 5. Those impacts for this hazard were ranked high by San Miguel County, the City of Las Vegas, and the Village of Pecos.

### **6.10.3 Estimate of Potential Losses – Quantitative Analysis**

Thunderstorms are a non-spatial hazard that can and do affect the entire county, including the City of Las Vegas and the Village of Pecos. Hazards associated with thunderstorms can result in losses throughout the planning area.

All structures within the county and participating jurisdictions are at risk from thunderstorms. According to the 2012 Census estimate, there are 15,592 housing units in the county. The median value of these structures is \$115,400, according to the Census. This equates to residential assets of approximately \$1.79 billion. If ten percent of these residential assets were damaged by a severe summer storm, this would result in losses of \$179 million.

In addition, all identified critical assets within the planning area have the potential to be damaged or destroyed by thunderstorms. These assets have a combined estimated value of at least \$63,512,000 and a ten percent loss across the planning area would represent a \$6.3 million impact to local governments.

### **6.10.4 Identified Data Limitations**

Data that could be collected prior to the next update in order to develop a more detailed quantitative risk assessment includes:

- Data regarding building construction (materials, roof types, wind ratings, etc.);
- Building valuations for all assets within San Miguel County, the City of Las Vegas, and the Village of Pecos;
- Data regarding expected/projected changes in development;
- Data regarding projected population changes; and
- Data regarding the location of vulnerable populations that may require services or special attention during thunderstorm events.

## **6.11 Wildfire**

### **6.11.1 Summary of Vulnerability**

Wildfire has the potential to devastate communities in the planning area. All people and assets within the county are vulnerable to the direct and indirect impacts of wildfire.

Wildfires can result in fatalities and injuries, property damage or destruction, the interruption of services, transportation disruptions, environmental damage, and economic losses.

The ability to suppress and fight a wildfire is contingent on having the necessary training, personnel, and equipment to bring the fire under control and to extinguish it. If one of these areas is lacking or is unavailable, the community can suffer extensive losses as a result of wildfire.

*2014 San Miguel County Hazard Mitigation Plan  
Vulnerability Assessment*

San Miguel County has experienced significant losses as a result of wildfire. Forested lands in the county provide protection from flood, land and mudslides, snow drift and shift, high winds, as well as provide for the economic draw of eco-tourism. The impacts of wildfire in the county have historically created problems beyond the loss of forest land and improved properties, often requiring significant state and federal support to manage both the wildfires and subsequent problems that arise including significant flooding.

San Miguel County was rated as “High Risk” in the 2009 New Mexico Communities at Risk Assessment Plan, EMNRD. To respond to this hazard, the county prepared a Community Wildfire Protection Plan (CWPP) in 2008. The plan meets all of the criteria set forth by the Healthy Forest Reforestation Act, and was adopted by the New Mexico Fire Planning Task Force.

Critical existing fire facilities within the county include twelve active fire stations, four active substations with ten more currently being planned throughout the county. There are also two active fire stations in the City of Las Vegas. The County’s Fire Division Fire Chief oversees all of the volunteer fire districts. Wildfires consist of approximately 90 percent of fire responses at the county fire districts with infrequent occurrence of structure fires responses.

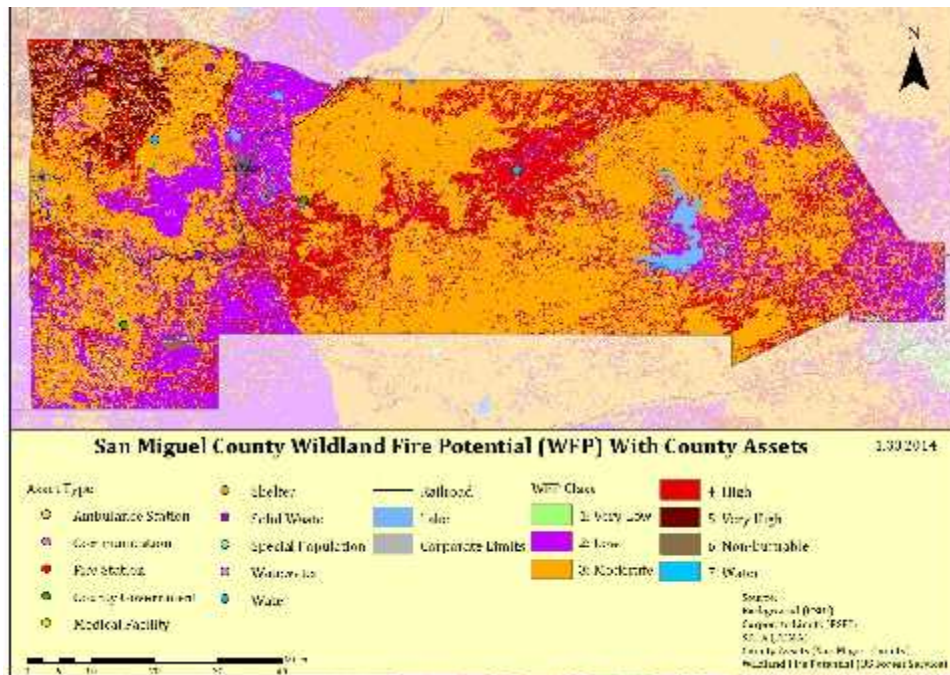
### **6.11.2 Estimate of Potential Losses – Qualitative Analysis**

In the course of updating this Plan, the MPG completed a qualitative risk assessment exercise. This exercise asked the representatives from each participating jurisdiction to rank the hazards in the Plan according to their potential to impact to their particular jurisdiction and specifically addressed in Chapter 5. Those impacts for this hazard were ranked high by San Miguel County, the City of Las Vegas, and the Village of Pecos.

### **6.11.3 Estimate of Potential Losses – Quantitative Analysis**

Identified critical assets within the US Forest Service’s Wildland Fire Potential areas have the potential to be lost to wildfire. Those assets have been mapped onto the latest available wildfire risk maps according to jurisdiction. Maps and Tables 6.11.3-1 through 6.11.3.-3 show the locations and types of vulnerably assets.

**Map 6.11.3-1  
 San Miguel County Critical Asset Wildfire Vulnerability**

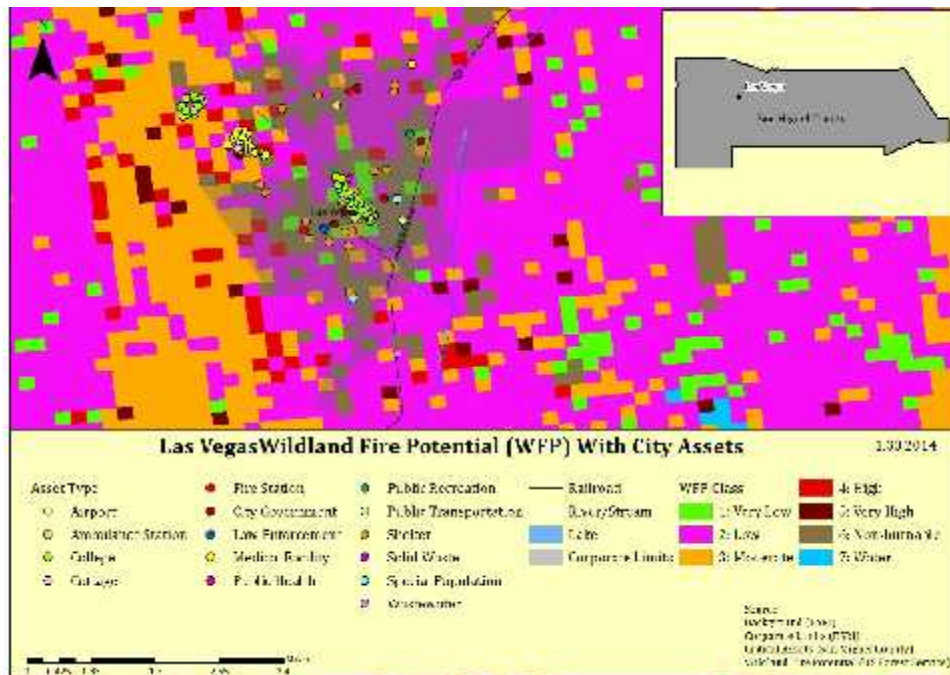


**Table 6.11.3-1  
 San Miguel County Critical Asset Wildfire Vulnerability**

| Asset                          | Vulnerability |
|--------------------------------|---------------|
| Trementina Volunteer Fire Dept | High          |
| Storage Shed                   | High          |
| Water Tank                     | High          |
| Sapello Convenience Center     | High          |
| Manuelitas Fire Department     | High          |
| Volunteer Fire/Rescue Building | Very High     |
| Sapello-Rociada Substation     | Very High     |
| Water Tank 1                   | Very High     |
| Water Tank 2                   | Very High     |
| Water Tank 3                   | Very High     |
| Water Tank                     | Very High     |

Given the total asset value of the county, a wildfire impacting one percent of the total identified total building stock would result in an estimated \$16,537,380 loss.

**Map 6.11.3-2  
 Las Vegas Critical Asset Wildfire Vulnerability**

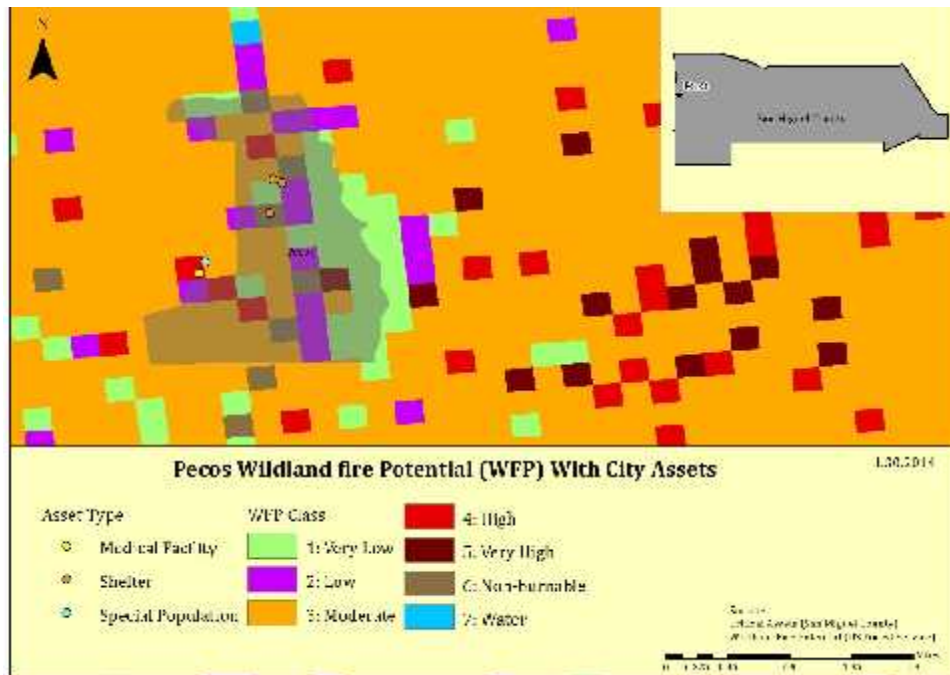


**Table 6.11.3-2  
 Las Vegas Critical Asset Wildfire Vulnerability**

| Asset                        | Vulnerability |
|------------------------------|---------------|
| Medical Facility House #317  | High          |
| Medical Facility House #318  | High          |
| Medical Facility House # 319 | High          |
| Medical Facility House #320  | High          |
| Medical Facility House # 322 | High          |
| Industrial Trades Workshop   | High          |
| Memorial Middle School       | High          |

Given the total asset value of the City of Las Vegas, a wildfire impacting one percent of the total identified properties would result in an estimated \$2,734,480 loss.

**Map 6.11.3-3**  
**Village of Pecos Critical Asset Wildfire Vulnerability**



**Table 6.11.3-3**  
**Village of Pecos Critical Asset Wildfire Vulnerability**

| Asset                       | Vulnerability |
|-----------------------------|---------------|
| Pecos Valley Medical Center | High          |

Given the total asset value of the Village of Pecos, a wildfire impacting one percent of the total identified properties would result in an estimated \$1,145,000 loss.

**6.11.4 Identified Data Limitations**

Data that could be collected prior to the next update in order to develop a more detailed quantitative risk assessment includes:

- Data regarding building construction types and age;
- Building valuations for all assets within the county and municipal limits;
- Data regarding expected/project changes in development in all jurisdictions;
- Data regarding projected population changes.

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## 7. CAPABILITY ASSESSMENT

### 7.1 Interim Final Rule for Assessing Capability

**Requirement §201.6(c)(2)(ii)(C):** *[The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.*

**Requirement §201.6(c)(3)(ii):** *A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008 **must** also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.*

### 7.2 Overview and Purpose of Capability Assessment

The purpose of conducting a capability assessment is to determine the ability of San Miguel County and its municipalities to implement a mitigation strategy.<sup>86</sup> As with any planning process, it is important to determine what actions are feasible based on an understanding of those departments tasked with their implementation. More specifically, the capability assessment helps to determine what mitigation actions are practical and likely to be implemented over time given the fiscal, technical, administrative and political framework of the community. It also provides an opportunity to assess existing plans, policies and processes in place. A careful analysis was conducted to detect any existing gaps, shortfalls or weaknesses within existing government activities that could exacerbate community vulnerability. The assessment also highlights positive measures already in place, which should continue to be supported and through future mitigation efforts.

### 7.3 Methodology

The Disaster Mitigation Act of 2000 requires that local governments review and incorporate, if appropriate, existing plans, studies, reports and technical information into their hazard mitigation plans. Witt O'Brien's worked closely with the MPG to distribute a detailed *Local Capability Assessment Survey* to participating jurisdictions. A copy of the surveys can be found in Appendix H. The survey asked several detailed questions about existing local plans, policies, programs, and ordinances that contribute to and/or hinder that community's ability to implement hazard mitigation actions. In addition, the *Local Capability Assessment Survey* addressed each jurisdiction's administrative, technical, financial, education and outreach, and political capabilities, and included a jurisdictional self-assessment. The survey results provided an inventory of existing local plans, policies, programs and ordinances.

An inventory and analysis of previously implemented mitigation actions is also included as part of the capability assessment. This information provides a county-wide perspective of the efforts taken to reduce the effect of natural, technological and human-caused hazards on the planning area and

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<sup>86</sup> While the Interim 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, we believe that it is a critical step to develop a mitigation strategy that meets the needs of each jurisdiction while taking into account their own unique abilities. However, 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)).

provides insight into the effectiveness of those efforts. Documenting past mitigation measures can also serve to help assess the degree to which local governments are willing to adopt future mitigation actions.

## 7.4 Federal and State Regulations, Plans, and Funding Sources

### 7.4.1 Summary of Regulations, Plans and Funding Sources

This section, including Table 7.4.1-1, provides summary information regarding selected federal and state regulations, plans, and sources of funding that are relevant to mitigation projects and activities.

**Table 7.4.1-1  
Summary of Selected State and Federal Regulations, Programs, and Funding Sources  
Relevant to Natural Hazard Mitigation**

| Title  | Program Type      | Administered By | Eligible Recipient |                |
|--|-------------------|-----------------|--------------------|----------------|
|  |                   |                 | County             | Municipalities |
| FEMA Public Assistance (PA)  | Funding (Federal) | NMDHSEM, FEMA   | X                  | X              |
| FEMA Hazard Mitigation Grant Program (HMGP)                                | Funding (Federal) | NMDHSEM, FEMA   | X                  | X              |
| FEMA Pre-Disaster Mitigation (PDM)   | Funding (Federal) | NMDHSEM, FEMA   | X                  | X              |
| FEMA/National Flood Insurance Program (NFIP) Repetitive Flood Claims (RFC) | Funding (Federal) | NMDHSEM, FEMA   | X                  | X              |
| FEMA/NFIP Severe Repetitive Loss (SRL)                                     | Funding (Federal) | NMDHSEM, FEMA   | X                  | X              |
| FEMA/NFIP Flood Mitigation Assistance (FMA)                                | Funding (Federal) | NMDHSEM, FEMA   | X                  | X              |
| Housing and Urban Development Community Development Block Grants (CDBG)    | Funding (Federal) | NMDHSEM, FEMA   | X                  | X              |

For many federal grants, the non-federal share can be borne by the state as *grantee*, the recipient community as *sub-grantee* or in some cases, the property owner who benefits from the project. In the case of property acquisitions intended to remove properties that experience repetitive flood losses, the non-federal share is typically covered by the property owner, who accepts the federal share of 75 percent and documents the lost equity as the non-federal share. This can serve as a disincentive to participation.

## 7.4.2 Implications of NMDHSEM Capabilities on Local Hazard Mitigation Efforts

State capabilities for hazard mitigation have an impact on the efficacy of local planning and implementation. The NMDHSEM Mitigation Unit provides plan development assistance to local jurisdictions upon request. Providing planning assistance is a daily affair as much of it is done via telephone calls and emails. The Mitigation Unit offers planning and project support, and coordinates and administers statewide floodplain management. The Mitigation Unit assists local governments with the identification and promotion of structural and non-structural mitigation practices. Unit personnel provide technical assistance from assisting with the identification of viable projects that will alleviate future damages, through providing oversight of the development of a project application ensuring compliance with program policy and professional design standards, to conducting site visits during construction to ensure all approved project plans are being followed through a final project inspection.<sup>87</sup> NMDHSEM also manages, supports, and provides training in floodplain management with the support of the New Mexico Floodplain Managers Association and the Silver Jackets New Mexico, a collaboration between the US Army Corps of Engineers, FEMA Region VI, and NMDHSEM to raise awareness of flood risks in NM Tribal communities.

NMDHSEM coordinates with FEMA on two earthquake assistance programs. In 2009, the Earthquake Hazards Reduction State Assistance Program awarded funds to develop EQ awareness through workshops in Spanish Language. Terramotos-NM has been initiated by following the lead of seismic experts at New Mexico Seismology Observation Center who suggested DHSEM provide outreach to a vulnerable population. In 2010, the *Earthquake Hazards Reduction State Assistance Program (EHR SAP)* awarded funding in order to support students at New Mexico Tech who developed an earthquake model. The students worked with county emergency managers along the Rio Grande Rift to GPS essential facilities – the Civil Engineering/Geology/Architecture students completed FEMA’s Rapid Visual Screening of Buildings for Potential Seismic Hazards and provided an evaluation of seismic risk. The results were visually represented on a digital and hard-copy maps for county use.<sup>88</sup> The resulting documents, *Evaluating the Seismic Preparedness of New Mexico*<sup>89</sup> and *Assessing the Seismic Preparedness of New Mexico*<sup>90</sup> included San Miguel County and were used as part of the earthquake hazard assessment. Both documents can be accessed through the NMDHSEM website.

## 7.5 Capability Assessment for the Planning Area

The County and each municipality was asked to self-assess their capabilities, which are described in this section. Conclusions are presented, including a discussion of the approach used to develop meaningful mitigation strategies based on the capability and risk assessment findings.

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<sup>87</sup> <http://www.nmdhsem.org/Mitigation.aspx>

<sup>88</sup> <http://www.nmdhsem.org/Mitigation.aspx>

<sup>89</sup> <http://www.nmdhsem.org/uploads/files/Brochure.pdf>

<sup>90</sup> <http://www.nmdhsem.org/uploads/files/Preparedness/Mitigation/2010%20Earthquake%20State%20Assistance%20Grant%20-%20Entire%20report.pdf>

### 7.5.1 Planning and Regulatory Capabilities

Hazard mitigation is widely recognized as one of the four primary pillars of emergency management. Other pillars include preparedness, response and recovery. In reality, each pillar is interconnected with hazard mitigation as Figure 7.5.1-1 suggests.

**Figure 7.5.1-1  
Hazard Mitigation and the 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 *Local Capability Assessment Survey* asks several questions across a range of emergency management plans in order to assess the jurisdiction's administrative, technical, and financial capabilities. The types of plans and regulatory capabilities are described below.

**Comprehensive Plan:** A comprehensive plan establishes the overall vision for a community and helps to guide municipal decision-making. Comprehensive planning is a continuous process to guide the development, redevelopment and investment of resources into a neighborhood, community, or county to promote an enhanced quality of life, infrastructure, and land use. Planning also helps economic development by facilitating a coordinated approach to needed investments and policies.<sup>91</sup>

In New Mexico, local comprehensive planning is supported by the New Mexico Department of Finance and Administration, Community Development Bureau, and offers funding, training, and technical assistance in community planning and development. The Community Development Bureau also administers the Community Development Block Grant (CDBG) program for the state.

<sup>91</sup> New Mexico Department of Finance and Administration. Retrieved 10.30.13 from [http://nmdfa.state.nm.us/Community\\_Planning\\_Home.aspx](http://nmdfa.state.nm.us/Community_Planning_Home.aspx)

**Open Space Management Plan:** An open space management plan establishes the process, standards, guidelines, and conditions for long-term open space conservation and management of the sensitive species and habitats within the planning area. It provides concepts and procedures to maintain and natural and archeological resources, opportunities for outdoor education, places for recreation. The open space management plan also defines the edges of the urban environment.

**Natural Resources Protection Plan:** Natural resources protection plans may be tied to local ordinances and larger comprehensive plans. They are generally designed to protect mature and young woodlands, steep slopes, natural water bodies (ponds and lakes), streams, rivers, shoreline buffers, and may elaborate on floodplain protection in concert with a floodplain management plan.

**Capital Improvements Plan:** A capital improvements plan guides the scheduling of spending on public improvements. A capital improvements plan can serve as an important mechanism to guide future development away from identified hazard areas. Limiting public spending in hazardous areas is one of the most effective long-term mitigation actions available to local governments.

**Economic Development Plan:** The purpose of the economic development plan is to allow public support of economic projects to foster, promote and enhance local economic development efforts while continuing to protect against the unauthorized use of public money and other public resources. Furthermore, the plan may allow contingencies, protocol, or procedures for local governments to enter into one or more joint powers agreements with other local governments to plan and support regional economic development projects.<sup>92</sup>

**Historic Preservation Plan:** A historic preservation plan is intended to preserve historic structures or districts within a community. An often overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards to include the identification of the most effective way to reduce future damages.<sup>93</sup> This may involve retrofitting or relocation techniques that account for the need to protect buildings that do not meet current building standards or are within a historic district that cannot easily be relocated out of harm's way.

**Farmland Preservation Plan:** A key response to farmland loss has been the use of agricultural conservation easements. Efforts have been advanced by the federal Farm and Ranch Lands Protection Program (FRPP), which provides matching funds to state and local Purchase of Agricultural Conservation Easement (PACE) programs, land trusts and tribal governments to buy conservation easements on farm and ranch land. Farmland preservation plans help keep land use designated for agriculture, improve agricultural viability, encourage on-farm conservation, and help farmers gain access to land.<sup>94,95</sup>

**Emergency Operations Plan:** An emergency operations plan outlines the responsibilities of those responding to an emergency or disaster and the means by which resources are deployed. It focuses on the measures that are essential for protecting the public including warning, emergency public information, evacuation, and sheltering. The emergency operations plan established lines of authority and organizational relationships, shows how all actions will be coordinated, describes how people and property will be protected in emergencies and disasters, identifies personnel,

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<sup>92</sup> City of Las Vegas Economic Development Plan, §33-3

<sup>93</sup> See *Protecting the Past from Natural Disasters*. 1989. Nelson, Carl. National Trust for Historic Preservation: Washington, D.C.

<sup>94</sup> Retrieved 10.30.13. <http://www.farmland.org/programs/protection/default.asp>

<sup>95</sup> American Farmland Trust, *Impacts of the Federal Farm and Ranch Lands Protection Programs: An Assessment Based on Interviews with Participating Landowners*. June 2013. Print

equipment, facilities, supplies, and other resources available for use during response and recovery operations, and identifies steps to address mitigation concerns during response and recovery activities.

**Disaster Recovery Plan:** A disaster recovery plan serves to guide the physical, social, environmental and economic recovery of a community, including the physical reconstruction process following a disaster.

**Evacuation Plan:** Evacuation plans are designed procedures for quick and rapid movement of people away from a given threat (i.e. floods, tornados, fire). Evacuation plans may include voluntary and mandatory community evacuation considerations for large, community-wide hazards, or planning for smaller evacuation procedures to address localized incidents for an identified building or facility. Evacuation plans may include registration, transportation, sheltering, and/or feeding elements.

**Floodplain Management Plan:** Floodplain management is the operation of a community program of corrective and preventative measures for reducing flood damage. These measures take a variety of forms and generally include requirements for zoning, subdivision or building, and special-purpose floodplain ordinances. The general purpose of a floodplain management plan is to protect people and property from potential flood damages while maintaining good standing with FEMA's NFIP and CRS programs. Plans are also used to educate residents about the hazards of flooding, to suggest loss reduction measures, and to raise awareness of the beneficial functions of the floodplain.

**Continuity of Operation Plan:** A continuity of operations plan establishes a clear chain of command, line of succession, and plans for backup or alternate emergency facilities in case of an extreme emergency or disaster where normal operations or authorities are compromised. Continuity of operations plans help to maintain emergency and/or expedite normal government operations.

**Transportation Plan:** A transportation plan identifies the means to gauge transportation demands and the options to meet those needs, while considering the social, economic and environmental characteristics of the area. The development of transportation networks can significantly impact the amount, type and location of future growth. As a result, transportation planning can have a dramatic impact on future hazard vulnerability.

**Stormwater Management Plan:** A stormwater management plan is designed to address flooding associated with storm water 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.

**Community Wildfire Protection Plan:** The community wildfire protection plans are developed in concert and under guidelines of the federal Healthy Forest Restoration Act of 2003. The purpose of the plan generally includes promoting firefighter and public safety, identifying community risk, reducing fuel hazards, fire prevention programs and activities, and improving fire department response capacity.

**Zoning Ordinances:** Zoning represents the means by which land use is controlled by local governments. As part of a community's police power, zoning is used to protect the public health,

safety and welfare. A zoning ordinance is the mechanism through which zoning is typically implemented. Since zoning regulations enable municipal governments to limit the type and density of development, it can serve as a powerful tool when applied in identified hazard areas.

**Subdivision Ordinances:** A subdivision ordinance is intended to regulate the development of housing, commercial, industrial or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future development. Subdivision design that accounts for natural hazards can dramatically reduce the exposure of future development.<sup>96</sup>

**Fire and Building Codes, Permitting and Inspections:** Building codes regulate construction standards. Decisions regarding the adoption of building codes, the type of permitting process required both before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk faced by a community.

**Floodplain ordinance/NFIP participation:** Local floodplain regulations are tools used by counties and municipalities to regulate the type of construction that occurs in the floodplain. If a community is an NFIP participant, a Flood Ordinance or Court Order is in place.

Tables 7.5.1-1 and 7.5.1-2 provide a jurisdictional overview of the plans and codes/ordinances in place, followed by summary statistics of the *Local Capability Assessment Surveys*.

**Table 7.5.1-1  
 Capability Assessment Findings - Plans**

| Jurisdiction      | Comprehensive/Master Plan | Open Space Management Plan | Natural Resources Protection Plan | Capital Improvements Plan | Economic Development Plan | Historic Preservation Plan | Farmland Preservation Plan | Local Emergency Operations Plan | Disaster Recovery Plan | Evacuation Plan | Floodplain Management Plan | Continuity of Operations Plan | Transportation Plan | Stormwater Management Plan | Community Wildfire Protection Plan | Other plans |
|-------------------|---------------------------|----------------------------|-----------------------------------|---------------------------|---------------------------|----------------------------|----------------------------|---------------------------------|------------------------|-----------------|----------------------------|-------------------------------|---------------------|----------------------------|------------------------------------|-------------|
| San Miguel County | X                         |                            |                                   | X                         | X                         |                            |                            | X                               |                        |                 | X                          | X                             |                     | X                          | X                                  |             |
| City of Las Vegas | X                         |                            |                                   | X                         | X                         |                            |                            | X                               |                        |                 | X                          | X                             | X                   |                            |                                    |             |
| Village of Pecos  |                           |                            |                                   | X                         |                           |                            |                            | X                               | X                      | X               |                            | X                             |                     |                            |                                    |             |

<sup>96</sup> For additional information regarding the use of subdivision regulations in reducing flood hazard risk, see *Subdivision Design in Flood Hazard Areas*. 1997. Morris, Marya. Planning Advisory Service Report Number 473. American Planning Association: Washington, D.C.

**Table 7.5.1-2  
 Capability Assessment Findings – Codes and Ordinances**

| Jurisdiction      | Fire Codes | Fire Department ISO Rating | Building Code | Bldg Code Effectiveness Grading Schedule | Site Plan Review Requirements | Zoning Regulations/Ordinance | Subdivision Regulations/Ordinance | Floodplain Regulations/Ordinance | Stormwater Regulations/Ordinance | Steep Slope Regulations/Ordinance | Wildfire Regulations/Ordinance | Other Regulations/Ordinance | NFIP/CRS/FIRMS | Land Acquisition Programs | FireWise Community | Storm Ready Community | Other |
|-------------------|------------|----------------------------|---------------|--|-------------------------------|------------------------------|-----------------------------------|----------------------------------|----------------------------------|-----------------------------------|--------------------------------|-----------------------------|----------------|---------------------------|--------------------|-----------------------|-------|
| San Miguel County | X          | 10/6                       | X             |  |                               | X                            | X                                 | X                                |                                  |                                   | X                              |                             | X              |                           |                    |                       |       |
| City of Las Vegas | X          | 5                          | X             |  | X                             |                              |                                   | X                                |                                  |                                   |                                |                             | X              |                           |                    |                       |       |
| Village of Pecos  | X          | 6/9                        | X             |  | X                             |                              |                                   |                                  |                                  |                                   |                                |                             |                |                           | X                  |                       |       |

Self-assessments planning and regulatory capability for San Miguel County, the City of Las Vegas, and the Village of Pecos showed the following degrees of capability:

- San Miguel County – Moderate
  - Funding sources need to be identified to develop and enhance these plans and ordinances
- City of Las Vegas – High
  - The City needs to work on implementation of the designated plans
- Village of Pecos – Moderate
  - The Village of Pecos needs to implement plans that address hazards that pose the greatest risk. Plans should be updated periodically to ensure applicable risks are addressed in terms of reduced risk.

*Recommendations:* Ongoing and continued involvement at all levels of the mitigation planning effort and increased outreach to municipalities in the future will enhance the participants' ability to successfully integrate the mitigation plan in their community's other planning efforts to reduce or eliminate losses to life and property by natural disasters.



### 7.5.2 Administrative and Technical Capability

Administrative and technical capability can be defined as possessing the skills and tools needed to improve decision-making, including the development of sound mitigation actions. Technical capability can be measured across three primary elements: 1) geographic information systems (GIS) and database management; 2) grants management; 3) hazard mitigation planning, 4) and warning systems and services. Measuring the degree to which each element is found in the planning area was conducted using the *Local Capability Assessment Survey* and through discussions with county and municipal staff.

Table 7.5.2-1 on the following page provides a jurisdictional overview of the administrative and technical capabilities in place, followed by summary statistics of the *Local Capability Assessment Surveys*.

**Table 7.5.2-1  
 Capability Assessment Findings – Administrative and Technical**

| Jurisdiction      | Planning Commission | Mitigation Planning Committee | Risk Reduction Maintenance Programs | Mutual Aid Agreements | Chief Building Official | Floodplain Administrator/Manager | Emergency Manager | Community Planner | Civil Engineer | GIS Analyst/Tech/Coordinator | Land Surveyors | Grants writers/Managers |
|-------------------|---------------------|-------------------------------|-------------------------------------|-----------------------|-------------------------|----------------------------------|-------------------|-------------------|----------------|------------------------------|----------------|-------------------------|
| San Miguel County | X                   | X                             | X                                   | X                     |                         | X                                | X                 | X                 |                | X                            |                | X                       |
| City of Las Vegas |                     | X                             | X                                   |                       | X                       | X                                | X                 | X                 |                |                              |                |                         |
| Village of Pecos  |                     |                               |                                     | X                     |                         |                                  |                   |                   |                |                              |                |                         |

Self-assessments for administrative and technical capability for San Miguel County, the City of Las Vegas, and the Village of Pecos showed the following degrees of capability:

- San Miguel County - Limited
  - There is a need to identify a county wide emergency operation center and alert notification system. Staffing increase is needed to allow for data collection & processing of hazards and to be able to research for additional funding sources toward better grant writing applications for funding.

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- City of Las Vegas - High
- Village of Pecos - Limited
  - All architectural, engineering, and other technical capabilities are contracted out as the Village of Pecos staff does not have the capability to address technical issues.

*Recommendations:* The original results of the technical capability assessment highlighted a belief among those who filled out the survey that the existing capability could be improved. Continued focus on technical capabilities should be maintained and improved. Continued sharing of resources could significantly increase the level of technical capability to analyze natural hazards and continue develop meaningful actions to reduce their impact.

### 7.5.3 Financial Capability

The ability to take action is often closely associated with the amount of money available to implement policies and projects.<sup>97</sup> This may take the form of grants received or state and locally based revenue. The costs associated with policy and project implementation vary widely. In some cases, policies are tied primarily to staff costs associated with the creation and monitoring of a given program. In other cases, money is linked to an actual project, like the acquisition of flood-prone homes, which can require a substantial commitment from local, state and federal funding sources.

Table 7.5.3-1 provides a jurisdictional overview of the administrative and technical capabilities in place, followed by summary statistics of the *Local Capability Assessment Surveys*.

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<sup>97</sup> Gaining access to federal, state or other sources of funding is often an overriding factor driving the development of hazard mitigation plans. However, an important objective of local governments seeking a more sustainable future is the concept of self-reliance. Over time, counties and municipalities should seek the means to become less dependent on federal assistance, developing a more diversified approach that assesses the availability of federal, state and locally generated funding to implement mitigation actions. Additional assistance may be available from the business and corporate sector as well as certain non-profit groups. This should be coupled with an attempt to identify mitigation measures that cost little or no money, yet may compliment the larger array of actions identified in the Plan.

**Table 7.5.3-1  
 Capability Assessment Findings – Financial Capability**

| Jurisdiction         | Capital improvement programming/<br>project funding | Authority to levy taxes for specific<br>purposes | Fees for water, sewer, gas, or electric<br>services | Impact fees for new development | Stormwater utility fees | Incur debt through general obligation<br>bonds and/or special tax bonds | Incur debt through private activities | Community Development Block Grant<br>(CDBG) | Special purpose taxes | Other federal funding programs | State funding programs |
|----------------------|---|--|---|---------------------------------|-------------------------|---|---------------------------------------|---|-----------------------|--------------------------------|------------------------|
| San Miguel<br>County | X   | X  |   |                                 |                         |   |                                       | X   |                       | X                              | X                      |
| City of Las<br>Vegas | X   |  | X   |                                 |                         |   |                                       | X   |                       | X                              |                        |
| Village of<br>Pecos  | X   | X  | X   |                                 |                         | X   |                                       | X   |                       | X                              |                        |

Self-assessments for fiscal capability for San Miguel County, the City of Las Vegas, and the Village of Pecos showed the following degrees of capability:

- San Miguel County – Limited
  - There is more need toward awareness for specific projects and their purpose to obtain funding sources available in an attempt to focus on mitigation.
- City of Las Vegas – High
- Village of Pecos – Limited
  - The Village of Pecos is availing itself to future funding opportunities

*Recommendations:* The factors used in the self-assessment of local capability should be used as a general guide to help craft mitigation actions that are achievable. When considering the effect of financial capability on the implementation of policies and projects, jurisdictions should ask several questions:

- Does the action require a monetary commitment or staff resources;
- Can jurisdictions combine resources with other counties or municipalities to address identified problems; and
- Is the jurisdiction willing to commit local revenue on a sustained or one time basis?

### 7.5.4 Community Resiliency Capability

Community resiliency is often identified, defined, and improved through community education and outreach programs. Resiliency may include school programs, community special interest groups, ongoing public service announcements, public-private partnerships, and government led community safety certification programs. Community education and outreach programs are often some of the least expensive mitigation activities providing the greatest reach to the community.

Table 7.5.4-1 on the following page provides a jurisdictional overview of the administrative and technical capabilities in place, followed by summary statistics of the *Local Capability Assessment Surveys*.

**Table 7.5.4-1  
 Capability Assessment Findings – Community Resiliency Capability**

| Jurisdiction      | Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. | Ongoing public education or information program | Natural disaster or safety related school programs | StormReady certification | FireWise Communities certification | Public-private partnership initiatives addressing disaster-related issues | Other |
|-------------------|---|---|--|--------------------------|------------------------------------|---|-------|
| San Miguel County | X   | X   |  |                          |                                    | X   |       |
| City of Las Vegas | X   | X   |  |                          |                                    | X   |       |
| Village of Pecos  | X   |   |  |                          |                                    |   |       |

Self-assessments for community political capability for San Miguel County, the City of Las Vegas, and the Village of Pecos showed the following degrees of capability:

- San Miguel County – Moderate
  - The County would like to see a staff position be dedicated to community out-reach to be able to improve in these areas.
- City of Las Vegas – High
- Village of Pecos – Limited

- The Village would consider implementing specific programs that are applicable to the geographic and demographic characteristics of the local environment.

*Recommendations:* Typically, larger municipalities and more urban areas/counties wield more political capital than municipalities and rural areas/counties. Continued awareness and promotion through education efforts regarding the importance and cost effectiveness of mitigation may be beneficial in creating a political atmosphere where regulations and ordinance designed to protect life and the loss of property is more accepted.

### 7.5.5 Community Political Capability

One of the most difficult and sensitive capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects designed to reduce the impact of future events. Despite this, the ability of a jurisdiction to enact policies to mitigate against hazards is essential in reducing risks from those hazards, however often the climate is not conducive, the fiscal capability is absent, and the expertise to create the policy is not present, or a combination of those factors and others prevent enactment.

Local political capabilities were assessed for willingness to adopt programs or policies. The assessment used a sliding scale from zero (0) to five (5), zero being unwilling and five being very willing. Table 7.5.5-1 provides a jurisdictional overview of the local political capabilities in place, followed by summary statistics of the *Local Capability Assessment Surveys*.

**Table 7.5.5-1  
 Capability Assessment Findings – Local Political Capability**

| Jurisdiction      | Unwilling | Somewhat unwilling | Very willing |
|-------------------|-----------|--------------------|--------------|
| San Miguel County |           | 3                  |              |
| City of Las Vegas |           |                    | 5            |
| Village of Pecos  |           | 3                  |              |

Self-assessments for community political capability for San Miguel County, the City of Las Vegas, and the Village of Pecos showed the following degrees of capability:

- San Miguel County – Limited
- City of Las Vegas – High
- Village of Pecos – Limited

*Recommendations:* Typically, larger municipalities and more urban areas/counties wield more political capital than municipalities and rural areas/counties. Continued awareness and promotion through education efforts regarding the importance and cost effectiveness of mitigation may be beneficial in creating a political atmosphere where regulations and ordinance designed to protect life and the loss of property is more accepted.

## 7.6 Hazard Mitigation Programs and Projects

The success of future mitigation efforts in a community can be gauged by past efforts. Previously implemented mitigation measures indicate that there is, or has been in the past, some political desire to reduce the effects of natural, technological, or human-caused hazards on the community. Past success of these projects can also be influential in building support for new mitigation efforts. For the Plan, all identified hazards are addressed in the document, but it remains understood that only natural hazards are eligible for FEMA mitigation program funding.

### Hazard Mitigation Grant Program Projects

The Federal Emergency Management Agency’s Hazard Mitigation Grant Program (HMGP) provides competitive funding to states and local governments for the implementation of long-term hazard mitigation measures following a presidential disaster declaration. Grants are awarded to permanently reduce or eliminate future damages and losses from natural hazards. Each jurisdiction completing the capability assessment survey was asked for information regarding their HMGP projects. The information was collected, and the results are listed in Table 7.6-1.

**Table 7.6-1  
 HMGP Projects in San Miguel County**

| Jurisdiction      | HMGP Project Description   | Status                      |
|-------------------|--|-----------------------------|
| San Miguel County | LPDM-PL-06-NM-2010-001 for the San Miguel County Hazard Mitigation Plan in the amount of \$130,718.22 (Feds-\$98,038.22/County-\$32,680.00). There is \$336,663.60 remaining in the fund and projects for that funding will be identified through the mitigation planning process. | Currently under development |

The following tables provide information on local building and fire codes within the County. Where available, the date and type of codes in use has been listed.

**Table 7.6-2  
 Fire Codes and ISO Ratings in the Planning Area**

| Jurisdiction      | Locally Adopted Fire Codes | Current State Fire Code | ISO Rating |
|-------------------|----------------------------|-------------------------|------------|
| San Miguel County | None                       | 10.25.10 NMAC           | 6/10       |
| City of Las Vegas | None                       | 10.25.10 NMAC           | 5          |
| Village of Pecos  | None                       | 10.25.10 NMAC           | 6/9        |

**Table 7.6-3  
 Building Codes in the Planning Area**

| Jurisdiction      | Adopted Building Codes | Current Building Code (Type and Date) |
|-------------------|------------------------|---------------------------------------|
| San Miguel County | None                   | N/A                                   |
| City of Las Vegas | Yes                    | 2009                                  |
| Village of Pecos  | State Code             | 14.7 MNAC – Building Codes, 2103      |

**Floodplain Management Programs in San Miguel County**

Sound floodplain management involves a series of programs designed to reduce flood-related damages. Programs such as the National Flood Insurance Program (NFIP), the Community Rating System (CRS), and the Flood Mitigation Assistance (FMA) program provide the framework needed to implement a successful floodplain management program. The NFIP contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Each county or municipality in the NFIP has adopted a Local Flood Damage Prevention Ordinance, which requires jurisdictions to follow established minimum building standards in the floodplain. Another key service provided by the NFIP is the mapping of identified flood hazard areas. Flood Insurance Rate Maps (FIRMs) and Digital Flood Insurance Rate Maps (DFIRMs) are used to assess flood hazard risk and set flood insurance rates. The maps also provide an important tool to educate residents, government officials, and the business community about the likelihood of flooding in their community. Table 7.6-4 shows a summary of flood insured properties by jurisdiction. According to local and state records, there have been no recorded NFIP insurance claims in San Miguel County, the City of Las Vegas, or the Village of Pecos.

**Table 7.6-4  
 Summary of NFIP Policies by County and Municipality in the Planning Area  
 (As June 30, 2013)**

| Community Name    | Policies In-force | Insurance In-force | Written Premium In-force |
|-------------------|-------------------|--------------------|--------------------------|
| San Miguel County | 36                | \$7,061,200        | \$71,621                 |
| City of Las Vegas | 100               | \$13,458,300       | \$90,714                 |
| Village of Pecos  | 0                 | N/A                | N/A                      |

Source: FEMA Community Information Service (CIS)

Table 7.6-5 provides details of each participating jurisdiction’s FIRM effective dates and date of entry into the National Flood Insurance Program. Unless listed below, all participating jurisdictions are members of the NFIP in good standing, as of the development of this Plan. This means that they currently meet all requirements of membership in the NFIP, including adoption and enforcement of a flood damage prevention ordinance.

As of May 2012, 99 communities in the State of New Mexico participate in the NFIP. All jurisdictions in San Miguel County are part of that program. Of the top 50 communities (in terms of total flood insurance policies held by residents, only 11 in the state participate in the Community Rating

System. Currently, none of the jurisdictions in this plan are participating members of the Community Rating Service (CRS).<sup>98</sup>

**Table 7.6-5  
 Floodplain Management Program Participation Information for the Planning Area**

| Jurisdiction      | Initial FHBM* Identified | Initial FIRM** Identified | Current Effective Map Date | Program Entry Date |
|-------------------|--------------------------|---------------------------|----------------------------|--------------------|
| San Miguel County | 08/16/1977               | 10/01/1995                | 12/03/2010                 | 10/01/1995         |
| City of Las Vegas | 06/28/1974               | 04/19/1983                | 12/03/2010                 | 09/18/1986         |
| Village of Pecos  | 06/27/1975               | 12/03/2010                | 12/03/2010                 | 06/27/1976         |

Source: FEMA Community Status Book Report <http://www.fema.gov/cis/NM.pdf>

\*Flood Hazard Boundary Map

\*\*Flood Insurance Rate Map

### Community Assistance Visits

State and federal floodplain management officials occasionally perform Community Assistance Visits (CAVs). A CAV is performed to review the local floodplain management program and note any deficiencies. San Miguel County officials sent a letter to FEMA requesting information on CAVs conducted over the past 15 years for the participating jurisdictions. FEMA responded that they could not provide this information because of limited manpower and because community files are purged on a regular basis.

San Miguel County had their first scheduled CAV visit for November 2013. The results of the visit were not available during the planning period of this hazard mitigation plan.

## 7.7 Summary and Conclusions

The capability of the County and local governments varies greatly, but a goals toward overall higher capability are evident. One of the most significant survey findings is the existence of several planning programs and tools already in use across the planning area. However, many of the processes and tools do not incorporate hazard mitigation practices. Combining the findings in this Plan with local community development plans and ordinances will improve mitigation practices throughout the planning area. The maintained use of the following Mitigation Action Plan will also provide the vehicle to continued and improved mitigation capabilities. This will include a continued educational effort to clearly articulate the benefits of participating in and sustaining the mitigation planning process through the Plan Implementation and Maintenance program.

<sup>98</sup> Flood Insurance Policies and Community Rating System Participation, State of New Mexico. Print.



## 8. MITIGATION ACTION PLAN

### 8.1 Interim Final Rule for Mitigation Action Plans

**Requirement §201.6(c)(3):** *[The plan shall include the following] a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools. This section shall include:*

**Requirement §201.6(c)(3)(i):** *A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

**Requirement §201.6(c)(3)(ii):** *A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008 must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.*

**Requirement: §201.6(c)(3)(iii):** *An action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*

**Requirement §201.6(c)(3)(iv):** *For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.*

The purpose of this section is to describe San Miguel County mitigation program goals and objectives.

### 8.2 Mitigation Action Planning Methodology

The MPG has identified and prioritized goals, objectives, and actions based on hazard-specific information provided in this Plan. The methodology to determine priorities was based upon a consensus of the MPG. Factors considered included benefit-cost effectiveness, and technical feasibility.

In order to evaluate potential actions, the participating jurisdiction representatives utilized the FEMA recommended mitigation planning criteria, which provides a systematic approach weighing the pros and cons of potential mitigation actions. The criteria encompasses evaluation of the following:

- **Life Safety** - How effectively will the action protect lives and prevent 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** - Does the public support the mitigation action? Is there the political will to support it?
- **Legal** - Does the community have the authority to implement the action?

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- **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 who 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?

Each of the mitigation actions was evaluated on the above-listed criteria and rated as follows:

- 0 = Not likely
- 1 = Neutral
- 2 = Likely

The overall score across all metrics was tallied and given a priority based on the following scoring matrix:

- <8 = Low
- 8-12 = Moderate
- >13 = High

The complete methodology and prioritization worksheets are provided in Appendix G.

### **8.3 Mitigation Goals and Objectives**

The San Miguel County Comprehensive Plan vision was reviewed to understand the county's priorities. The vision, listed below, emphasizes cultural and environmental preservation while utilizing those assets to enhance economic development efforts.

San Miguel County Comprehensive Plan Community Vision:

- To create a better quality of life for citizens.
- Better jobs to retain children in the community.
- Planned, focused "Smart" growth principles.
- Include all of the stakeholders in the decision-making process.
- Create an integrated plan for the future.
- Cultural heritage preservation.

Based on that vision, the MPG decided on the following mitigation action goals and objectives:

1. Reduce vulnerability of the entire range of populations of citizens including vulnerable populations.

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- *Objective 1.1—Promote partnerships between jurisdictions to encourage and facilitate coordination of planning and development initiatives, particularly on developments of multi-jurisdictional impact*
  - *Objective 1.2—Create, implement and improve systems that provide warning and inter-jurisdictional emergency communications*
  - *Objective 1.3—Enhance the local governments’ ability to notify the public at risk and provide emergency instruction during a disaster*
2. Reduce vulnerability of property damage, public and private, including all educational institutions & facilities.
- *Objective 2.1—Increase the county and municipal control over development, especially in high hazard areas*
  - *Objective 2.2—Implement programs that seek to remove residential structures from high hazard areas*
  - *Objective 2.3—Implement projects that involve the construction of structures designed to reduce the impact of a hazard, such as dams, floodwalls, retaining walls, safe rooms, etc., or such structural modifications as the elevation or relocation of bridges, the anchoring of manufactured housing, or a retrofit of an existing building*
3. Reduce vulnerability of major infrastructure.
- *Objective 3.1—Ensure that infrastructure, equipment and support systems are maintained and/or upgraded to support emergency services response and recovery operations*
  - *Objective 3.2—Promotion of partnerships between jurisdictions is an excellent idea as potential funding opportunities could be enhanced. The private non-profit SPWUA is limited in capital improvement project funds and would not be able to finance the improvements to the headgates within their budget.*
  - *Objective 3.3—Improve overhead utility line networks to reduce vulnerability to direct and indirect impacts by hazard events*
4. Improve emergency response capabilities through process and communication efficiencies.
- *Objective 4.1—Ensure that emergency services organizations are prepared and have the capability to detect and promptly respond to emergency situations.*
  - *Objective 4.2—Maximize intergovernmental coordination on the effective use of emergency response resources during response, including vital communications between multiple agencies in emergency situations*
  - *Objective 4.3—Increase emergency capacities to properly equip emergency shelters in order to improve emergency response and large-scale evacuations*
5. Protect historic building stock.
- *Objective 5.1—Reduce the vulnerability of historic facilities that are important to the community*
  - *Objective 5.2—Strive to involve the private sector, local historians, and local and state historic preservation entities in participating in mitigation planning efforts*
6. Educate the populace about potential hazards and how to prepare for a hazardous event.
- *Objective 6.1—Develop outreach programs focused on increasing public education to increase awareness of hazards and their associated risks*
  - *Objective 6.2—Develop outreach programs focused on increasing participation in mitigation programs by business, industry, institutions and community groups*

1 **8.4 Mitigation Actions**

2 Tables 8.4-1 through 8.4-3 on the following pages list the mitigation actions for San Miguel County,  
3 the City of Las Vegas, and the Village of Pecos. In compliance with recognized mitigation planning  
4 standards, each community has identified and prioritized at least 2 mitigation actions per identified  
5 hazard. Actions are listed in order High, Moderate, and Low priority

6 Each mitigation actions identifies the hazard it addresses, status of the project, responsibly party,  
7 target completion date, estimated cost, potential funding sources, action priority, benefit-cost, and  
8 technical feasibility.

**Table 8.4-1  
San Miguel County Mitigation Actions**

| Goal/<br>Objective<br>/ Action<br>ID  | Hazard(s)<br>Addressed   | Jurisdiction         | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s) | Priority |
|---|--|----------------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| <b>Conduct field testing &amp; sampling of surface and sub-surface water sources</b>  |  |                      |   |                      |   |                              |                   |                                   |          |
| 1.1.1   | Drought  | San Miguel<br>County | N/A   | New                  | San Miguel<br>County                        | 24 months                    | \$500,000         | HMGP, USGA,<br>LOCAL              | H        |
| <i>Benefit-Cost:</i> Regional & County-wide mitigation project that benefits all jurisdictions in the identifying of locations for additional water sources   |  |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> This project requires the collaboration of multi-jurisdictions and needs to be identified within the regional water plans   |  |                      |   |                      |   |                              |                   |                                   |          |
| <b>Well exploration to identify potable water supplies</b>  |  |                      |   |                      |   |                              |                   |                                   |          |
| 1.1.2   | Drought  | San Miguel<br>County | N/A   | New                  | San Miguel<br>County                        | 36 months                    | \$1,000,000       | HMGP, USGA,<br>LOCAL              | H        |
| <i>Benefit-Cost:</i> This is a need to improve on identifying additional water sources for the health, safety and well-being of the citizens county-wide  |  |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> This will depend on identified site locations and water users rights  |  |                      |   |                      |   |                              |                   |                                   |          |
| <b>Develop water storage/hydrant systems in for raw, drinking and effluent water.</b>   |  |                      |   |                      |   |                              |                   |                                   |          |
| 1.1.5   | Drought, Flood,<br>Wildfire                                      | San Miguel<br>County | N/A   | New                  | SMC/CLV/Pecos<br>Fire & Public<br>Works     | 36 months                    | \$900,000         | HMP, Fire<br>Funds,               | H        |
| <i>Benefit-Cost:</i> Increase the water storage capabilities toward fire suppression, irrigation and drinking water for citizens  |  |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Cost will need to be a collaborative effort with local jurisdictions and private non-profit organizations possible hydrologic & environmental studies required                |  |                      |   |                      |   |                              |                   |                                   |          |
| <b>Construct a tower and transponder to have the ability to receive NOAA weather alert notification and purchase NOAA radios for public facilities and vulnerable populations to receive these messages</b> |  |                      |   |                      |   |                              |                   |                                   |          |
| 1.2.2   | High Wind,<br>Thunderstorm,<br>Severe Winter<br>Weather, Tornado | San Miguel<br>County | N/A   | New                  | SMC/LV OEM &<br>NOAA                        | 24 months                    | \$300,000         | HMGP, NOAA,<br>LOCAL              | H        |
| <i>Benefit-Cost:</i> Project is to obtain an early warning weather system county-wide   |  |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Costs should be through NOAA but budget restraints require local jurisdictions support  |  |                      |   |                      |   |                              |                   |                                   |          |
| <b>Implement a county-wide mass notification/emergency messaging system to provide a centralized notification system</b>  |  |                      |   |                      |   |                              |                   |                                   |          |

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|--|---|----------------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 1.2.3  | Dam Failure,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials, High<br>Wind, Flood,<br>Landslide, Pandemic<br>/ Epidemic, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire                 | San Miguel<br>County | N/A   | New                  | SMC/LV OEM                                  | 12 months                    | \$36,000          | HMP, SHSGP,<br>LOCAL              | H        |
| <p><i>Benefit-Cost:</i> This system is a county-wide benefit. This project will allow immediate notice to citizens as well as regional contacts toward early warning messages toward all hazard events</p> |   |                      |   |                      |   |                              |                   |                                   |          |
| <p><i>Technical Feasibility:</i> The initial cost is minimal but will require local jurisdictions to support on-going maintenance</p>  |   |                      |   |                      |   |                              |                   |                                   |          |
| <p><b>Design &amp; develop an OEM web-site that provides drop down links toward mitigation/preparedness/response/recovery and identify funding sources toward hailstorm mitigation programs</b></p>        |   |                      |   |                      |   |                              |                   |                                   |          |
| 1.3.1  | Dam Failure,<br>Drought, Extreme<br>Heat, Hailstorm,<br>Hazardous<br>Materials, High<br>Wind, Flood,<br>Landslide, Pandemic<br>/ Epidemic, Pests,<br>Severe Winter<br>Weather, Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | New and<br>Existing                           | New                  | SMC/LV OEM                                  | 24 months                    | \$5,000           | HMGP, LOCAL                       | H        |
| <p><i>Benefit-Cost:</i> This will be an accessible web-site to anyone that will want to obtain information toward this hazard, and additional outreach information</p>                                     |   |                      |   |                      |   |                              |                   |                                   |          |
| <p><i>Technical Feasibility:</i> Cost and outreach will need to be supported by local jurisdictions toward the set-up of the initial web-site design and will require minimal maintenance and cost</p>     |   |                      |   |                      |   |                              |                   |                                   |          |
| <p><b>Create a centralized GIS/Data System to be able to obtain/compile/disseminate information for all hazard events (mapping, assessments, cost analysis, etc.)</b></p>                                  |   |                      |   |                      |   |                              |                   |                                   |          |

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|--|---|----------------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 1.3.2  | Dam Failure,<br>Drought, Extreme<br>Heat, Hailstorm,<br>Hazardous<br>Materials, High<br>Wind, Flood,<br>Landslide, Pandemic<br>/ Epidemic, Pests,<br>Severe Winter<br>Weather, Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | N/A   | New                  | SMC Internet<br>Technology<br>Division      | 18 months                    | \$60,000          | HMP, LOCAL                        | H        |
| <i>Benefit-Cost:</i> The ability to obtain data in a centralized location for the prevention, protection, response, mitigation, and recovery toward all hazard events  |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Will require the enhancement of an existing system with hardware and software that needs support by local jurisdictions  |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Identify flood prone areas in the county and design effective water drainage systems to minimize flooding</b>   |   |                      |   |                      |   |                              |                   |                                   |          |
| 2.2.1  | Flood   | San Miguel<br>County | New and<br>Existing                           | New                  | SMC Public<br>Works                         | 36 months                    | \$2,000,000       | HMGP, LOCAL                       | H        |
| <i>Benefit-Cost:</i> Minimize disaster recovery assistance request, property damage, reoccurring damages, and minimize manpower usage  |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> This will require, engineer designing, possible permitting requirements by supporting jurisdictions  |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Re-design and construction of the diversion gates to handle increase water flows during floods or heavy rains</b>   |   |                      |   |                      |   |                              |                   |                                   |          |
| 2.3.1  | Dam Failure,<br>Flood   | San Miguel<br>County | N/A   | New                  | Storrie Water<br>users association          | 36 months                    | \$9000,000        | HMGP, LOCAL                       | H        |
| <i>Benefit-Cost:</i> minimizes the flood waters that effect the public infrastructure, residences and business districts of the City of Las Vegas  |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The installation of remotely manageable, automated Langemann (or comparable) headgates would eliminate the safety concerns associated with the current antiquated, original headgates. |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Identify, design, &amp; construct a levee control system within the county river basins to lower the water flows during a dam failure</b>   |   |                      |   |                      |   |                              |                   |                                   |          |
| 2.3.2  | Dam Failure,<br>Flood   | San Miguel<br>County | N/A   | New                  | San Miguel<br>County                        | 36 months                    | \$3,000,000       | HMGP, LOCAL                       | H        |
| <i>Benefit-Cost:</i> Mitigation project to attempt to slow flash flooding waters toward the safety of life and property to the City of Las Vegas   |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> As long as there is identified County property along the river channel or easement rights are available  |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Improve and protect existing culverts, arroyos, and acequias, and install new culverts within the county as needed to reduce flooding county-wide</b>   |   |                      |   |                      |   |                              |                   |                                   |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed  | Jurisdiction         | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department             | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)                                      | Priority |
|--|---|----------------------|---|----------------------|---|------------------------------|-------------------|--|----------|
| 2.3.7  | Flooding  | San Miguel<br>County | Existing                                      | Not<br>started       | Public Works,<br>PNP Community<br>Ditches &<br>Acequias | 2014-2019                    | \$250,000         | Mitigation<br>grant funding<br>from DR 1435<br>and external<br>sources | H        |
| <i>Benefit-Cost:</i> Conduct inspection on existing areas and improve with maintenance and hardening of existing systems county-wide   |   |                      |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Cost will need to be a collaborative effort with local jurisdictions and private non-profit organizations possible hydrologic & environmental studies required |   |                      |   |                      |   |                              |                   |  |          |
| <b>Install a generator at each of the Fire and Police Stations to reduce vulnerability to power-outages during hazard events.</b>  |   |                      |   |                      |   |                              |                   |  |          |
| 3.1.5  | Dam Failure,<br>Earthquake, Flood,<br>Extreme Heat, High<br>Wind, Landslide,,<br>Severe Winter<br>Weather, Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | Existing                                      | Not<br>started       | SMC/CLV/ Pecos<br>Fire                                  | 24-36<br>months              | \$1,350,000       | HMGP, Fire<br>Funds,   | H        |
| <i>Benefit-Cost:</i> Mitigation project to allow for Continuity of operations during all hazard events   |   |                      |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> The cost of electrical installation and equipment would need to be supported by local jurisdictions and first responders                                       |   |                      |   |                      |   |                              |                   |  |          |
| <b>Research vulnerable infrastructure and harden/improve water/sewer sanitation services in identified areas</b>   |   |                      |   |                      |   |                              |                   |  |          |
| 3.1.7  | Pandemic/<br>Epidemic   | San Miguel<br>County | N/A   | Not<br>started       | Alta Vista<br>Regional<br>Hospital                      | 24-36<br>months              | \$1,000.000       | DOH/HMPG/<br>SHSGP/LOCAL   | H        |
| <i>Benefit-Cost:</i> Mitigation project to be able to continue services for patients in need of medical services and continuity of business  |   |                      |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> The local jurisdiction will be required to work with private sector on this project  |   |                      |   |                      |   |                              |                   |  |          |
| <b>Research funding opportunities and garner support for repair to the reservoir seepage area.</b>   |   |                      |   |                      |   |                              |                   |  |          |
| 3.2.3  | Flooding, Dam<br>failure  | San Miguel<br>County | N/A   | Not<br>started       | SMC & CLV   | 6-12 months                  | N/A               | N/A  | H        |
| <i>Benefit-Cost:</i> Minimal to no cost project and county & city wide benefit to obtain assistance  |   |                      |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Local jurisdictions will need to support this program  |   |                      |   |                      |   |                              |                   |  |          |
| <b>Gallinas Fuels Reduction project</b>  |   |                      |   |                      |   |                              |                   |  |          |
| 4.1.1  | Wildfire  | San Miguel<br>County | N/A   | Ongoing              | Forestry  | 2014-2019                    | \$1,000,000       | US Forest,<br>USDA,HMP<br>,Local                                       | H        |



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|---|---|----------------------|---|----------------------|---|------------------------------|-------------------|---|----------|
| <i>Benefit-Cost:</i> Mitigation project to conduct fuel treatment toward wildfire safety and water conservation   |   |                      |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Costs will be associated with support from federal, state, and local agencies to include the private sector   |   |                      |   |                      |   |                              |                   |   |          |
| <b>Develop emergency evacuation and sheltering plans</b>  |   |                      |   |                      |   |                              |                   |   |          |
| 4.1.3   | Terrorism                                 | San Miguel<br>County | N/A   | Not<br>started       | SMC/LV OEM                                  | 24 months                    | \$50,000          | HMPG/SHSGP/<br>LOCAL                              | H        |
| <i>Benefit-Cost:</i> Allow first responders the ability to assist communities during all hazard events  |   |                      |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Will require researching and identifying areas within a 4700 square mile area with 514 miles of roads.  |   |                      |   |                      |   |                              |                   |   |          |
| <b>Identify critical infrastructure facilities to install generator hook-ups and purchase mobile generators to use in power outages</b>   |   |                      |   |                      |   |                              |                   |   |          |
| 4.2.2   | Severe Winter<br>Weather                  | San Miguel<br>County | Existing                                      | New                  | All jurisdictions                           | 24 months                    | \$600,000         | HMGP, EMPG  | H        |
| <i>Benefit-Cost:</i> The need to provide services through the Continuity of operations/ Continuity of Government  |   |                      |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Will require electrical designing of facilities' and purchase of equipment supported by local jurisdictions   |   |                      |   |                      |   |                              |                   |   |          |
| <b>Identify senior centers, community centers, and schools throughout the county that can be used for heating/cooling stations and install generator hook ups, towable generators and electric A/C &amp; heating combination systems</b>  |   |                      |   |                      |   |                              |                   |   |          |
| 4.3.1   | Extreme Heat,<br>Severe Winter<br>Weather | San Miguel<br>County | Existing                                      | New                  | SMC/LV OEM                                  | 24 months                    | \$500,000         | HMGP, LOCAL                                       | H        |
| <i>Benefit-Cost:</i> This is a county-wide project that benefits toward citizens safety, health and well-being. This will ensure citizens have a location to remain either warm or cool in extreme events   |   |                      |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> The cost of electrical installation and equipment would need to be supported by local jurisdictions   |   |                      |   |                      |   |                              |                   |   |          |
| <b>Research and implement localized drainage projects in the repetitive loss areas to reduce flood potential and impacts.</b>   |   |                      |   |                      |   |                              |                   |   |          |
| 5.2.1   | Flood                                     | San Miguel<br>County | Existing                                      | Not<br>started       | SMC,CLV, PECOS                              | 12-36<br>MONTHS              | \$200,000         | General<br>revenue /<br>External<br>sources, HMGP | H        |
| <i>Benefit-Cost:</i> Reduce the risk to communities living in the area: Reduce the cost of repetitive loss to structures in SFHA  |   |                      |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Identify and prioritize special projects for regional drainage projects for legislative funding   |   |                      |   |                      |   |                              |                   |   |          |
| <b>Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding potential mitigation measures using the local newspaper, utility bill inserts, inserts in the phone book, county websites, and educational programs for school age children or "how to" classes in retrofitting by local merchants. Integrate "Disaster Resistance Education" into the public school curriculum.</b> |   |                      |   |                      |   |                              |                   |   |          |

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|---|---|----------------------|---|----------------------|---|------------------------------|-------------------|---|----------|
| 6.1.4   | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide,<br>Pandemic/Epidemic<br>, Pests, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | N/A   | On-going             | SMC/LV OEM  | 12-24<br>months              | \$30,000          | General<br>revenue /<br>External<br>sources, HMGP | H        |
| <i>Benefit-Cost:</i> Obtain educational materials and develop outreach programs toward all hazard events  |   |                      |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> The cost and outreach will need to be supported by local jurisdictions  |   |                      |   |                      |   |                              |                   |   |          |
| <b>Develop, deliver, and maintain FireWise programs in the county.</b>  |   |                      |   |                      |   |                              |                   |   |          |
| 6.2.1   | Wildfire  | San Miguel<br>County | New and<br>Existing                           | Ongoing              | Forestry  | 6 months/on<br>going         | \$10,000          | US<br>Forest, State<br>Fire, Local Fire           | H        |
| <i>Benefit-Cost:</i> Help communities county-wide benefit toward organizing and finding direction for their wildfire safety efforts and fuel mitigation |   |                      |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> The cost and outreach is covered by US Forestry and local first responders depending on community participation           |   |                      |   |                      |   |                              |                   |   |          |
| <b>Conduct a more in depth hazard analysis for wildfires and their effects on residences, infrastructure, water supplies, and the economy.</b>          |   |                      |   |                      |   |                              |                   |   |          |
| 1.1.6   | Wildfire, Drought   | San Miguel<br>County | N/A   | Not<br>started       | SMC/CLV/ Pecos<br>Fire  | 12-24<br>months              | \$25,000          | HMGP, Fire<br>Funds,                              | M        |
| <i>Benefit-Cost:</i> Up-date the current CWPP to include the infrastructures, water supplies and economic impact toward wildfires                       |   |                      |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> cost and outreach is covered by fire funds and supported by local jurisdictions   |   |                      |   |                      |   |                              |                   |   |          |
| <b>Join the Community Rating System (CRS) and pursue opportunities to improve CRS ratings</b>   |   |                      |   |                      |   |                              |                   |   |          |
| 1.1.7   | Flood   | San Miguel<br>County | New and<br>Existing                           | Not<br>started       | SMC/LV/Pecos<br>Planning &<br>zoning,<br>Community<br>Development | 12-24<br>months              | NONE              | HMPG/LOCAL  | M        |

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|--|---|----------------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| <i>Benefit-Cost:</i> County-wide project which benefits property owners in lowering insurance rates  |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Local jurisdictions need to support the program and continue to participate  |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Install flashing roadside emergency notification signs to advise of an emergency, web announcement, &amp; AM Radio Broadcast with additional instructions</b>   |   |                      |   |                      |   |                              |                   |                                   |          |
| 1.2.1  | Hazardous<br>Materials  | San Miguel<br>County | N/A   | New                  | SMC/LV OEM                                  | 24 months                    | \$200,000         | HMGP,HMEP,<br>LOCAL               | M        |
| <i>Benefit-Cost:</i> This is a county-wide project which will allow for an early warning system toward life safety issues in all-hazard events   |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Will need to install signs along major state and public roadways, that integrated with existing Highway advisory system and supported by local jurisdictions   |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Research and identify public warning systems that use redundant means of contact to reach stakeholders and the community to deliver and receive information regarding hazards, threats, impacts, and damage. Purchase, install, and implement the warning system.</b> |   |                      |   |                      |   |                              |                   |                                   |          |
| 1.2.4  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide,<br>Pandemic/Epidemic<br>, Pests, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | N/A   | Not<br>started       | SMCLV OEM                                   | 12-18<br>months              | NONE              | HMPG. LOCAL                       | M        |
| <i>Benefit-Cost:</i> This system is a county-wide benefit. This project will allow immediate notice to citizens as well as regional contacts toward early warning messages toward all hazard events  |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Minimal to no cost to local jurisdictions toward researching and identifying potential solutions   |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Research the feasibility and benefits of becoming a NOAA StormReady Community</b>   |   |                      |   |                      |   |                              |                   |                                   |          |
| 1.2.5  | Flood, Hailstorm,<br>High Winds,<br>Thunderstorm,<br>Tornado,   | San Miguel<br>County | New and<br>Existing                           | Not<br>started       | SMC/LV OEM                                  | 6-12 months                  | NONE              | NOAA/LOCAL                        | M        |

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|--|--|-------------------|---|----------------------|---|------------------------------|-------------------|--|----------|
| <i>Benefit-Cost:</i> Assist communities and NOAA with up-date weather related data toward all hazard events.   |  |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Cost and outreach is covered by NOAA and minimal costs to local jurisdictions, but support is needed   |  |                   |   |                      |   |                              |                   |  |          |
| <b>Install outdoor early warning systems at local parks, athletic fields, and on educational institution campuses</b>  |  |                   |   |                      |   |                              |                   |  |          |
| 1.3.3  | Dam Failure, Flood, Hailstorm, Hazardous Materials Incidents, High Wind, Landslide, Terrorism, Thunderstorm, Tornado, Wildfire | San Miguel County | N/A   | Not started          | SMC/LV OEM                                  | 36 months                    | \$200,000         | General revenue / External sources, HMGP | M        |
| <i>Benefit-Cost:</i> This project is an early warning system that benefits the communities county-wide to ensure an early warning system toward all hazard events  |  |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> The cost and outreach will need to be conducted by local jurisdictions and first responders  |  |                   |   |                      |   |                              |                   |  |          |
| <b>Work with the state and USDA NRCS to install additional high-elevation SNOTEL stations in the Sangre de Cristo Mountains and Glorieta Mesa</b>  |  |                   |   |                      |   |                              |                   |  |          |
| 1.3.4  | Drought  | San Miguel County | N/A   | Not started          | SMCLV OEM                                   | 24-36 months                 | \$50,000          | HMPG/USDA/ NRCS/USGS                     | M        |
| <i>Benefit-Cost:</i> Installation SNOTEL stations will assist in flood control, and retention measures in the county. It will help to reduce flood impacts and improve overall water resource management in drought conditions.                    |  |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Installation of SNOTEL stations will require coordination, maintenance, and management agreements with the state and USDA NRCS.  |  |                   |   |                      |   |                              |                   |  |          |
| <b>Work with USGS to install continuous monitoring stream gages on Tecolote Creek, the Conchas River (above the lake), the Canadian River, the Pecos River, and the Gallinas River 1000' south of the diversion gate.</b>                          |  |                   |   |                      |   |                              |                   |  |          |
| 1.3.5  | Drought  | San Miguel County | N/A   | Not Started          | SMC/CLV/ Pecos, watershed associations      | 24 months                    | \$50,000          | USGS, Local                              | M        |
| <i>Benefit-Cost:</i> Installation of stream gauges will assist in water management, flood control, and retention measures in the county. It will help to reduce flood impacts and improve overall water resource management in drought conditions. |  |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Installation of stream gauges will require coordination, maintenance, and management agreements with USGS.   |  |                   |   |                      |   |                              |                   |  |          |
| <b>Develop local building ordinances that require 1'-2' of freeboard in designated flood zones.</b>  |  |                   |   |                      |   |                              |                   |  |          |
| 2.1.4  | Flood  | San Miguel County | New   | Not Started          | SMC,CLV, PECOS                              | 12-24 MONTHS                 | \$5000            | County, City Funds                       | M        |
| <i>Benefit-Cost:</i> Reduce the cost of repetitive loss to structures in SFHA: Reduce the risk to communities living in the area   |  |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Local jurisdictions will need to support this program to adopt and modify the Floodplain Ordinance that exceeds current local requirements.  |  |                   |   |                      |   |                              |                   |  |          |

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|---|---|-------------------|---|----------------------|---|------------------------------|-------------------|--|----------|
| <b>Improve on state building codes through local modifications that meet or exceed state and national models by ordinance, which would result in additional techniques to harden structures.</b>  |   |                   |   |                      |   |                              |                   |  |          |
| 2.1.5   | Earthquake, Flood, Extreme Heat, Hailstorm, High Wind, Severe Winter Weather, Thunderstorm, Tornado, Wildfire | San Miguel County | New   | Not started          | SMC Planning & Zoning Division              | 24-36 months                 | \$75,000.00       | General revenue / External sources, HMGP | M        |
| <i>Benefit-Cost:</i> To develop a county-wide enforceable building code that enhance structural safety county-wide in order to minimize property damage   |   |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> No cost for jurisdictions to have an ordinance developed in the county toward exceeding current building code requirements  |   |                   |   |                      |   |                              |                   |  |          |
| <b>Improve state fire codes through local modifications that meet or exceed state and national models by ordinance, which would result in additional techniques to harden structures.</b>   |   |                   |   |                      |   |                              |                   |  |          |
| 2.1.6   | Dam Failure, Earthquake, Flood, High Wind, Landslide, Severe Winter Weather, Thunderstorm, Tornado, Wildfire  | San Miguel County | New   | Not started          | SMC Fire Division                           | 12-24 months                 | none              | HMGP, Fire Funds,                        | M        |
| <i>Benefit-Cost:</i> Minimal cost and county wide benefit. This project will conform with the current CWPP recommendations  |   |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> The cost, outreach, and implementation will come from the county Fire Division with support of local first responders   |   |                   |   |                      |   |                              |                   |  |          |
| <b>Pursue elevation/acquisition/flood proofing projects and structural solutions to flooding using available grant funding for the repetitive loss structures in the county and municipalities. Annually review and correct the Repetitive Loss List by submitting correction worksheets to FEMA.</b> |   |                   |   |                      |   |                              |                   |  |          |
| 2.2.2   | Flood   | San Miguel County | Existing                                      | Not started          | SMC,CLV, PECOS                              | 12-24 MONTHS                 | \$100,000         | General revenue / External sources, HMGP | M        |
| <i>Benefit-Cost:</i> Reduce the risk to communities living in the area: Establish beneficial living environment for improved health, safety and general welfare of the residents.   |   |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Maintain development review and regulate all development in San Miguel County through Local, State and Federal Government Divisions to meet NFIP policies.  |   |                   |   |                      |   |                              |                   |  |          |
| <b>Require the use of hail resistant material in future county-funded construction projects</b>   |   |                   |   |                      |   |                              |                   |  |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed                 | Jurisdiction         | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department                           | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s) | Priority |
|--|--|----------------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 2.3.3  | Hailstorm                              | San Miguel<br>County | New and<br>Existing                           | New                  | SMC Planning &<br>Zoning  | 12 months                    | NONE              | LOCAL, NMCID                      | M        |
| <i>Benefit-Cost:</i> To develop a county-wide enforceable building code that enhance structural safety county-wide in order to minimize property damage                    |  |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> No cost for county to have a proper ordinance, regulation developed in the county building code requirements                                 |  |                      |   |                      |   |                              |                   |                                   |          |
| <b>Identify critical infrastructure where safe rooms can be constructed for protection/safety of building occupants within the facility</b>                                |  |                      |   |                      |   |                              |                   |                                   |          |
| 2.3.4  | High Wind,<br>Thunderstorm,<br>Tornado | San Miguel<br>County | New and<br>Existing                           | New                  | Local<br>jurisdictions,<br>hospitals<br>,schools, higher<br>education | 24 months                    | \$600,000         | HMGP, EMPG                        | M        |
| <i>Benefit-Cost:</i> Provide a safe and secure environment for identified critical infrastructures and for those that are occupying the structures                         |  |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Federal regulations requirements are involved, Wind, debris impact ,designs, permitting & Code compliance by local jurisdictions             |  |                      |   |                      |   |                              |                   |                                   |          |
| <b>Conduct a study to identify landslide areas within the county and install rock netting toward protection measures at the identified sites</b>                           |  |                      |   |                      |   |                              |                   |                                   |          |
| 2.3.5  | Landslide                              | San Miguel<br>County | N/A   | New                  | SMC/Pecos<br>Public Works &<br>NMDOT                                  | 24 months                    | \$500,000         | HMGP, DOT, LOC<br>AL              | M        |
| <i>Benefit-Cost:</i> Quantitatively estimate the risk from potential landslides along transportation corridors.  |  |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Reduce the risk to communities living in the area, or to the population passing the area along transportation lines of local jurisdictions   |  |                      |   |                      |   |                              |                   |                                   |          |
| <b>Harden the bay doors of the fire stations to reduce vulnerability to wind-related events.</b>   |  |                      |   |                      |   |                              |                   |                                   |          |
| 3.1.4  | High Wind,<br>Thunderstorm,<br>Tornado | San Miguel<br>County | Existing                                      | Not<br>started       | SMC/CLV/Pecos<br>Fire Agencies  | 24-36<br>months              | \$500,000         | HMGP, Fire<br>Funds,              | M        |
| <i>Benefit-Cost:</i> Mitigation project that would assist in minimizing infrastructure damage and provide more safety  |  |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> This project will have to be supported by local departments county-wide  |  |                      |   |                      |   |                              |                   |                                   |          |
| <b>Conduct a seismic study of all critical infrastructure within the county to identify the effects of an earthquake on existing facilities</b>                            |  |                      |   |                      |   |                              |                   |                                   |          |
| 3.2.1  | Earthquake                             | San Miguel<br>County | Existing                                      | New                  | SMC/LV OEM  | 24 months                    | \$75,000          | HMGP, LOCAL,                      | M        |
| <i>Benefit-Cost:</i> obtain data that identifies, inventories and prioritizes structures that could be seismically hazardous and ability for continuity of government      |  |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Seismic studies will identify the risk areas and vulnerable assets within the hazard areas where further mitigation actions may be required. |  |                      |   |                      |   |                              |                   |                                   |          |
| <b>Identify funding streams and resources for technical assistance to scope bridge repair or reinforcement projects on identified vulnerable bridges</b>                   |  |                      |   |                      |   |                              |                   |                                   |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed  | Jurisdiction         | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s) | Priority |
|--|---|----------------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 3.2.4  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Hazardous<br>Materials Incidents,<br>Landslide, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | Existing                                      | Not<br>started       | SMC/CLV/Pecos<br>Public Works               | 12-24<br>months              | none              | HMPG/DOT/<br>LOCAL                | M        |
| <i>Benefit-Cost:</i> Project is a county-wide benefit toward identifying reduction of property losses  |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> the cost and outreach is covered by the county but will need local jurisdiction support  |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Conduct engineering studies on hardening, retrofitting, or rebuilding vulnerable bridges.</b>   |   |                      |   |                      |   |                              |                   |                                   |          |
| 3.2.5  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Hazardous<br>Materials Incidents,<br>Landslide, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | Existing                                      | Not<br>started       | SMC/CLV/Pecos<br>Public Works               | 24-36<br>months              | \$200,000         | HMPG/DOT/<br>LOCAL                | M        |
| <i>Benefit-Cost:</i> Project will assist communities with identifying bridges within transportation routes toward addressing safety & reduce property loss                 |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> jurisdictions maybe required to have water flow and environmental studies conducted  |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Harden, retrofit, or replace vulnerable, unsafe bridges that are used by heavy equipment to access areas vulnerable to wildfire, snowfall, landslide, and flooding.</b> |   |                      |   |                      |   |                              |                   |                                   |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed  | Jurisdiction         | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s) | Priority |
|--|---|----------------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 3.2.6  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Hazardous<br>Materials Incidents,<br>Landslide, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | Existing                                      | Not<br>started       | SMC/CLV/Pecos<br>Public Works               | 24-36<br>months              | \$3,000,000       | HMPG/DOT/LO<br>CAL                | M        |
| <i>Benefit-Cost:</i> Conduct inspection on existing areas and improve with maintenance and hardening of existing systems county-wide   |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Cost will need to be a collaborative effort with local jurisdictions and private non-profit organizations possible hydrologic & environmental studies required |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Install and maintain ITAC channels in public safety radios to improve inter-operability with Santa Fe County</b>  |   |                      |   |                      |   |                              |                   |                                   |          |
| 4.2.1  | Wildfire  | San Miguel<br>County | N/A   | Existing             | NMDHSOEM,<br>SMC, Santa Fe<br>County        | 12-24<br>months              | \$30,000          | SHSGP, HMGP,<br>State, Local      | M        |
| <i>Benefit-Cost:</i> Minimal cost to the first responder agencies with benefits of multi-jurisdictional communication during large events like wildfire.                                     |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> As long as existing radios support the frequencies and there is radio channel space available, this action is easily attainable.                               |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Encourage churches and community groups to assist vulnerable persons in the event of power loss and to develop an emergency plan.</b>   |   |                      |   |                      |   |                              |                   |                                   |          |
| 4.3.2  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat, High<br>Wind, Landslide,<br>Severe Winter<br>Weather, Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire          | San Miguel<br>County | N/A   | Not<br>started       | SMC/LV OEM                                  | 6-12 months                  | \$10,000          | SHSGP,HMPG                        | M        |
| <i>Benefit-Cost:</i> Assist vulnerable population county-wide during all hazard events   |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The cost and outreach is covered by Emergency Management and local churches  |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Respect the Rio: a public education campaign where rangers visit campgrounds to teach visitors about water quality hazards, and appropriate use of sites near streams</b>                 |   |                      |   |                      |   |                              |                   |                                   |          |



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| Goal/<br>Objective<br>/ Action<br>ID  | Hazard(s)<br>Addressed  | Jurisdiction         | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department  | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)                 | Priority |
|---|---|----------------------|---|----------------------|--|------------------------------|-------------------|---|----------|
| 6.1.2   | Wildfire, Drought   | San Miguel<br>County | N/A   | Ongoing              | US Forestry                                  | 2014                         | \$20,000          | EPA, US Forest                                    | M        |
| <i>Benefit-Cost:</i> Annual mitigation project with minimal cost and county-wide benefit. This project will help ensure campers utilize approved areas and reduce the risk of causing (or being vulnerable to) natural hazard events. |   |                      |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> The cost and outreach is covered by US Forestry and supported by local jurisdictions.   |   |                      |   |                      |  |                              |                   |   |          |
| <b>Develop and distribute public awareness information regarding potential mitigation measures using various means to reach adults, children, visitors, and vulnerable populations.</b>   |   |                      |   |                      |  |                              |                   |   |          |
| 6.1.5   | Pandemic/<br>Epidemic, Pests,<br>Severe Winter<br>Weather,<br>Thunderstorm, | San Miguel<br>County | N/A   | Not<br>started       | SMC/CLV/Pecos<br>Hospitals, clinics<br>& OEM | 12-24<br>months              | \$40,000          | DOH/HMPG/<br>SHSGP/LOCAL                          | M        |
| <i>Benefit-Cost:</i> Citizens county-wide will benefit with outreach on protection, and mitigation toward all hazard events   |   |                      |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> Cost and outreach will need to be supported by local jurisdictions toward the implementing a public awareness campaign  |   |                      |   |                      |  |                              |                   |   |          |
| <b>Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).</b>  |   |                      |   |                      |  |                              |                   |   |          |
| 6.2.2   | Flood   | San Miguel<br>County | New and<br>Existing                           | Not<br>started       | SMC/CLV/Pecos<br>Flood Plain<br>Managers     | 6-12 months                  | \$10,000          | General<br>revenue /<br>External<br>sources, HMGP | M        |
| <i>Benefit-Cost:</i> Develop educational resources and materials toward public awareness and benefits toward obtaining flood insurance  |   |                      |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> Cost will be to develop public outreach county-wide and needs to be supported by local jurisdictions.   |   |                      |   |                      |  |                              |                   |   |          |
| <b>Review and develop the current building codes to include mitigation for seismic shaking in future construction</b>   |   |                      |   |                      |  |                              |                   |   |          |
| 2.1.1   | Earthquake  | San Miguel<br>County | New and<br>Existing                           | New                  | SMC Planning &<br>Zoning                     | 18 month                     | \$50,000          | HMGP, LOCAL                                       | L        |
| <i>Benefit-Cost:</i> To develop a county-wide enforceable building code that enhance structural safety county-wide  |   |                      |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> Will require a code enforcement personnel to identify, process and enforce adopted regulations  |   |                      |   |                      |  |                              |                   |   |          |
| <b>Identify funding sources to develop zoning regulations and ordinances to reduce loss from identified hazards.</b>  |   |                      |   |                      |  |                              |                   |   |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed   | Jurisdiction         | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)                    | Priority |
|--|--|----------------------|---|----------------------|---|------------------------------|-------------------|--|----------|
| 2.1.7  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide, Severe<br>Winter Weather,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | New   | Not<br>started       | SMC Planning &<br>zoning office             | 6-12 months                  | none              | General<br>revenue /<br>External<br>sources, HMGP    | L        |
| <i>Benefit-Cost:</i> Project is a county-wide benefit toward identifying reduction of property losses  |  |                      |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> The cost and outreach is covered by the county but will need local jurisdiction support                                      |  |                      |   |                      |   |                              |                   |  |          |
| <b>Develop and implement zoning regulations and ordinances to reduce loss from identified hazards.</b>   |  |                      |   |                      |   |                              |                   |  |          |
| 2.1.8  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide, Severe<br>Winter Weather,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | New   | Not<br>started       | SMC Planning &<br>zoning office             | 6-12 months                  | \$75,000          | General<br>revenue /<br>External<br>sources, HMGP    | L        |
| <i>Benefit-Cost:</i> Develop a county-wide zoning regulation to minimize property loss county-wide   |  |                      |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Local jurisdictions will need to obtain specialized assistance toward zoning requirements as it relates to all hazard events |  |                      |   |                      |   |                              |                   |  |          |
| <b>Research and study the feasibility of developing and implementing an environmental protection ordinance</b>   |  |                      |   |                      |   |                              |                   |  |          |
| 2.1.9  | Flood  | San Miguel<br>County | New and<br>existing                           | Not<br>started       | SMC/CLV/ Pecos<br>P &Z or OEM               | 12-24<br>months              | none              | EPA/HMGP/<br>LOCAL/Higher<br>Education<br>institutes | L        |

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| Goal/<br>Objective<br>/ Action<br>ID  | Hazard(s)<br>Addressed   | Jurisdiction      | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)        | Priority |
|---|--|-------------------|---|----------------------|---|------------------------------|-------------------|--|----------|
| <i>Benefit-Cost:</i> Evaluate the community's capacity for additional development given environmental protection priorities.  |  |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Will require citizen support and participation as well as technical support from a professional environmental consultant  |  |                   |   |                      |   |                              |                   |  |          |
| <b>Construct snow fences along major utilized highways in the county to minimize snow drifts and build up on roadways</b>   |  |                   |   |                      |   |                              |                   |  |          |
| 2.3.6   | Severe Winter Weather  | San Miguel County | N/A   | New                  | State and SMC transportation departments    | 36 months                    | \$2,000,000       | HMGP, DOT, LOCAL                         | L        |
| <i>Benefit-Cost:</i> Snow fences reduce the impacts to roadways and the related effort to maintain thoroughfares during and immediately after significant snowfall events.  |  |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Snow fences will reduce the amount of time, labor, and equipment required to open and maintain major roadways during and after significant snowfall events. It may also reduce risks of traffic accidents caused by snow drifts and blowing snow on roadways. |  |                   |   |                      |   |                              |                   |  |          |
| <b>The Upper Pecos Watershed Association is completing a NEPA analysis for "roadside thinning" within the Pecos Canyon</b>  |  |                   |   |                      |   |                              |                   |  |          |
| 3.1.1   | Wildfire   | San Miguel County | N/A   | Ongoing              | Upper Pecos Watershed Association           | 2014-2019                    | \$360,000         | US Forest, HMP, LOCAL                    | L        |
| <i>Benefit-Cost:</i> Tree thinning reduces the impact of downed trees on local infrastructure that provide access and power to the community. It also reduces the risk of wildfire caused by trees falling on overhead power lines in the canyon.   |  |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Tree thinning improves the overall health of trees and forested areas and reduces the risk of wildfire caused by trees falling on overhead power lines.   |  |                   |   |                      |   |                              |                   |  |          |
| <b>Research and meet with State Plant Pest and Disease Agencies such as USDA/APHIS to identify mitigation projects in this area</b>   |  |                   |   |                      |   |                              |                   |  |          |
| 3.2.2   | Pandemic/Epidemic Pests  | San Miguel County | N/A   | New                  | SMC/LV OEM & USDA/APHIS                     | 12 months                    | None              | LOCAL                                    | L        |
| <i>Benefit-Cost:</i> Minimal cost and county-wide benefits. This project will help citizens with potential threats to agriculture and plant disease events  |  |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Outreach is covered by local and state organizations  |  |                   |   |                      |   |                              |                   |  |          |
| <b>Encourage new development areas to install underground utilities, which would help reduce the chances of power outages.</b>  |  |                   |   |                      |   |                              |                   |  |          |
| 3.3.1   | Hailstorm, High Wind, Severe Winter Weather, Thunderstorm, Tornado, Wildfire | San Miguel County | New   | Not started          | SMC/CLV/Pecos/Electrical Coops              | 6-12 months                  | none              | General revenue / External sources, HMGP | L        |
| <i>Benefit-Cost:</i> Minimal cost and is a county-wide benefit that would assist citizens during all hazard related events toward health & safety   |  |                   |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> This project will need support from local jurisdictions, private sector and coops county wide   |  |                   |   |                      |   |                              |                   |  |          |
| <b>Travel Management Plan was approved in 2013. A map that depicts where camping is permitted will be issued annually.</b>  |  |                   |   |                      |   |                              |                   |  |          |
| 6.1.1   | Wildfire   | San Miguel County | N/A   | Ongoing              | US Forestry                                 | 2013-on going                | \$50,000          | US Forest                                | L        |

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|--|---|----------------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| <i>Benefit-Cost:</i> Annual mitigation project with minimal cost and county-wide benefit. This project will help ensure campers utilize approved areas and reduce the risk of causing (or being vulnerable to) wildfire. |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The cost and outreach is covered by US Forestry and supported by local jurisdictions.  |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Create a public awareness program to promote "See Something, Say Something" in conjunction with New Mexico Department of Homeland Security</b>  |   |                      |   |                      |   |                              |                   |                                   |          |
| 6.1.3  | Terrorism   | San Miguel<br>County | N/A   | New                  | SMC/LV OEM &<br>NMDHSEM                     | 12 months                    | \$30,000          | HMGP, LETPG,<br>LOCAL             | L        |
| <i>Benefit-Cost:</i> This program allows citizens to report suspicious activities quickly to the proper authorizes in order to investigate suspicious activities   |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The cost and outreach is to implement an on-going federal program with a local public awareness campaign supported by local jurisdictions  |   |                      |   |                      |   |                              |                   |                                   |          |
| <b>Identify funding sources to create a staff community outreach position to enhance mitigation and emergency preparedness in the community</b>  |   |                      |   |                      |   |                              |                   |                                   |          |
| 6.2.3  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide,<br>Pandemic/Epidemic<br>, Pests, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | San Miguel<br>County | N/A   | Not<br>started       | SMC/LV OEM                                  | 24-36<br>months              | \$45,000          | General<br>revenue/<br>EMPG,HMPG  | L        |
| <i>Benefit-Cost:</i> Position would assist in conducting mitigation and public outreach on a consistent bases  |   |                      |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Funding support would need to be assisted through federal grants   |   |                      |   |                      |   |                              |                   |                                   |          |

**Table 8.4-2  
City of Las Vegas Mitigation Actions**

| Goal/<br>Objective<br>/ Action<br>ID  | Hazard(s)<br>Addressed      | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department      | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s) | Priority |
|---|-----------------------------|--------------|---|----------------------|--|------------------------------|-------------------|-----------------------------------|----------|
| <b>Conduct field testing &amp; sampling of surface and sub-surface water sources</b>  |                             |              |   |                      |  |                              |                   |                                   |          |
| 1.1.1   | Drought                     | Las Vegas    | N/A   | New                  | San Miguel<br>County                             | 24 months                    | \$500,000         | HMGP, USGA,<br>LOCAL              | H        |
| <i>Benefit-Cost:</i> Regional & County-wide mitigation project that benefits all jurisdictions in the identifying of locations for additional water sources   |                             |              |   |                      |  |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> This project requires the collaboration of multi-jurisdictions and needs to be identified within the regional water plans   |                             |              |   |                      |  |                              |                   |                                   |          |
| <b>Well exploration to identify potable water supplies</b>  |                             |              |   |                      |  |                              |                   |                                   |          |
| 1.1.2   | Drought                     | Las Vegas    | N/A   | New                  | San Miguel<br>County                             | 36 months                    | \$1,000,000       | HMGP, USGA,<br>LOCAL              | H        |
| <i>Benefit-Cost:</i> This is a need to improve on identifying additional water sources for the health, safety and well-being of the citizens county-wide  |                             |              |   |                      |  |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> This will depend on identified site locations and water users rights  |                             |              |   |                      |  |                              |                   |                                   |          |
| <b>Increase aquifer storage and recovery</b>  |                             |              |   |                      |  |                              |                   |                                   |          |
| 1.1.3   | Drought                     | Las Vegas    | N/A   | New                  | City of Las Vegas,<br>San Miguel<br>County       | 60 months                    | \$1,500,000       | HMGP, USGA,<br>LOCAL              | H        |
| <i>Benefit-Cost:</i> This is a need to improve water resources for the health, safety and well-being of the citizens, and to retain economic drivers, such as residences, business, and higher education.   |                             |              |   |                      |  |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Water retention and conservations studies may determine the feasibility of this action.   |                             |              |   |                      |  |                              |                   |                                   |          |
| <b>Enlarge reservoir</b>  |                             |              |   |                      |  |                              |                   |                                   |          |
| 1.1.4   | Drought                     | Las Vegas    | Existing                                      | New                  | City of Las Vegas,<br>San Miguel<br>County       | 60 months                    | \$2,000,000       | HMGP, USGA,<br>LOCAL              | H        |
| <i>Benefit-Cost:</i> Significant drought and municipal water resources are causing populations to move out of the county, reducing the tax base, economic drivers, and local business. Increasing water resource capabilities will help maintain and improve the population and economic bases. |                             |              |   |                      |  |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> This project requires the collaboration of multi-jurisdictions and needs to be identified within the regional water plans.  |                             |              |   |                      |  |                              |                   |                                   |          |
| <b>Develop water storage/hydrant systems in for raw, drinking and effluent water.</b>   |                             |              |   |                      |  |                              |                   |                                   |          |
| 1.1.5   | Drought, Flood,<br>Wildfire | Las Vegas    | N/A   | New                  | SMC/LAS<br>VEGAS/Pecos<br>Fire & Public<br>Works | 36 months                    | \$900,000         | HMP, Fire<br>Funds,               | H        |
| <i>Benefit-Cost:</i> Increase the water storage capabilities toward fire suppression, irrigation and drinking water for citizens  |                             |              |   |                      |  |                              |                   |                                   |          |

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|---|--|--------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| <i>Technical Feasibility:</i> Cost will need to be a collaborative effort with local jurisdictions and private non-profit organizations possible hydrologic & environmental studies required                |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Install flashing roadside emergency notification signs to advise of an emergency, web announcement, &amp; AM Radio Broadcast with additional instructions</b>  |  |              |   |                      |   |                              |                   |                                   |          |
| 1.2.1   | Hazardous<br>Materials   | Las Vegas    | N/A   | New                  | SMC/LV OEM                                  | 24 months                    | \$200,000         | HMGP, HMEP,<br>LOCAL              | H        |
| <i>Benefit-Cost:</i> This is a county-wide project which will allow for an early warning system toward life safety issues in all-hazard events  |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Will need to install signs along major state and public roadways, that integrated with existing Highway advisory system and supported by local jurisdictions                  |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Construct a tower and transponder to have the ability to receive NOAA weather alert notification and purchase NOAA radios for public facilities and vulnerable populations to receive these messages</b> |  |              |   |                      |   |                              |                   |                                   |          |
| 1.2.2   | High Wind,<br>Thunderstorm,<br>Severe Winter<br>Weather, Tornado   | Las Vegas    | N/A   | New                  | SMC/LV OEM &<br>NOAA                        | 24 months                    | \$300,000         | HMGP, NOAA,<br>LOCAL              | H        |
| <i>Benefit-Cost:</i> Project is to obtain an early warning weather system county-wide   |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Costs should be through NOAA but budget restraints require local jurisdictions support  |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Implement a county-wide mass notification/emergency messaging system to provide a centralized notification system</b>  |  |              |   |                      |   |                              |                   |                                   |          |
| 1.2.3   | Dam Failure,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials, High<br>Wind, Flood,<br>Landslide,<br>Pandemic /<br>Epidemic, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | N/A   | New                  | SMC/LV OEM                                  | 12 months                    | \$36,000          | HMP, SHSGP,<br>LOCAL              | H        |
| <i>Benefit-Cost:</i> This system is a county-wide benefit. This project will allow immediate notice to citizens as well as regional contacts toward early warning messages toward all hazard events         |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The initial cost is minimal but will require local jurisdictions to support on-going maintenance  |  |              |   |                      |   |                              |                   |                                   |          |

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|--|---|--------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| <b>Research and identify public warning systems that use redundant means of contact to reach stakeholders and the community to deliver and receive information regarding hazards, threats, impacts, and damage. Purchase, install, and implement the warning system.</b> |   |              |   |                      |   |                              |                   |                                   |          |
| 1.2.4  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide,<br>Pandemic/Epidemic<br>, Pests, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | N/A   | Not<br>started       | SMLAS VEGAS<br>OEM                          | 12-18<br>months              | NONE              | HMPG. LOCAL                       | H        |
| <i>Benefit-Cost:</i> This system is a county-wide benefit. This project will allow immediate notice to citizens as well as regional contacts toward early warning messages toward all hazard events  |   |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Minimal to no cost to local jurisdictions toward researching and identifying potential solutions   |   |              |   |                      |   |                              |                   |                                   |          |
| <b>Design &amp; develop an OEM web-site that provides drop down links toward mitigation/preparedness/response/recovery and identify funding sources toward hailstorm mitigation programs</b>   |   |              |   |                      |   |                              |                   |                                   |          |
| 1.3.1  | Dam Failure,<br>Drought, Extreme<br>Heat, Hailstorm,<br>Hazardous<br>Materials, High<br>Wind, Flood,<br>Landslide,<br>Pandemic /<br>Epidemic, Pests,<br>Severe Winter<br>Weather, Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire                            | Las Vegas    | New and<br>Existing                           | New                  | SMC/LV OEM                                  | 24 months                    | \$5,000           | HMGP, LOCAL                       | H        |

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|--|--|--------------|---|----------------------|---|------------------------------|-------------------|---|----------|
| <i>Benefit-Cost:</i> This will be an accessible web-site to anyone that will want to obtain information toward this hazard, and additional outreach information  |  |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Cost and outreach will need to be supported by local jurisdictions toward the set-up of the initial web-site design and will require minimal maintenance and cost  |  |              |   |                      |   |                              |                   |   |          |
| <b>Create a centralized GIS/Data System to be able to obtain/compile/disseminate information for all hazard events (mapping, assessments, cost analysis, etc.)</b>   |  |              |   |                      |   |                              |                   |   |          |
| 1.3.2  | Dam Failure, Drought, Extreme Heat, Hailstorm, Hazardous Materials, High Wind, Flood, Landslide, Pandemic / Epidemic, Pests, Severe Winter Weather, Terrorism, Thunderstorm, Tornado, Wildfire | Las Vegas    | N/A   | New                  | SMC Internet Technology Division            | 18 months                    | \$60,000          | HMP, LOCAL                                  | H        |
| <i>Benefit-Cost:</i> The ability to obtain data in a centralized location for the prevention, protection, response, mitigation, and recovery toward all hazard events  |  |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Will require the enhancement of an existing system with hardware and software that needs support by local jurisdictions  |  |              |   |                      |   |                              |                   |   |          |
| <b>Work with USGS to install continuous monitoring stream gauges on Tecolote Creek, the Conchas River (above the lake), the Canadian River, the Pecos River, and the Gallinas River 1000' south of the diversion gate.</b>                         |  |              |   |                      |   |                              |                   |   |          |
| 1.3.5  | Drought  | Las Vegas    | N/A   | Not Started          | SMC/CLV/ Pecos, watershed associations      | 24 months                    | \$50,000          | USGS, Local                                 | H        |
| <i>Benefit-Cost:</i> Installation of stream gauges will assist in water management, flood control, and retention measures in the county. It will help to reduce flood impacts and improve overall water resource management in drought conditions. |  |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Installation of stream gauges will require coordination, maintenance, and management agreements with USGS.   |  |              |   |                      |   |                              |                   |   |          |
| <b>Research and study the feasibility of developing and implementing an environmental protection ordinance</b>   |  |              |   |                      |   |                              |                   |   |          |
| 2.1.9  | Flood  | Las Vegas    | New and existing                              | Not started          | SMC/CLV/ Pecos P & Z or OEM                 | 12-24 months                 | none              | EPA/HMGP/ LOCAL/Higher Education institutes | H        |
| <i>Benefit-Cost:</i> Evaluate the community's capacity for additional development given environmental protection priorities.   |  |              |   |                      |   |                              |                   |   |          |



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|---|------------------------|--------------|---|----------------------|--|------------------------------|-------------------|--|----------|
| <i>Technical Feasibility:</i> Will require citizen support and participation as well as technical support from a professional environmental consultant  |                        |              |   |                      |  |                              |                   |  |          |
| <b>Identify flood prone areas in the county and design effective water drainage systems to minimize flooding</b>  |                        |              |   |                      |  |                              |                   |  |          |
| 2.2.1   | Flood                  | Las Vegas    | New and Existing                              | New                  | SMC Public Works                               | 36 months                    | \$2,000,000       | HMGP, LOCAL  | H        |
| <i>Benefit-Cost:</i> Minimize disaster recovery assistance request, property damage, reoccurring damages, and minimize manpower usage   |                        |              |   |                      |  |                              |                   |  |          |
| <i>Technical Feasibility:</i> This will require, engineer designing, possible permitting requirements by supporting jurisdictions   |                        |              |   |                      |  |                              |                   |  |          |
| <b>Pursue elevation/acquisition/flood proofing projects and structural solutions to flooding using available grant funding for the repetitive loss structures in the county and municipalities. Annually review and correct the Repetitive Loss List by submitting correction worksheets to FEMA.</b> |                        |              |   |                      |  |                              |                   |  |          |
| 2.2.2   | Flood                  | Las Vegas    | Existing                                      | Not started          | SMC,LAS VEGAS, PECOS                           | 12-24 MONTHS                 | \$100,000         | General revenue / External sources, HMGP                   | H        |
| <i>Benefit-Cost:</i> Reduce the risk to communities living in the area: Establish beneficial living environment for improved health, safety and general welfare of the residents.   |                        |              |   |                      |  |                              |                   |  |          |
| <i>Technical Feasibility:</i> Maintain development review and regulate all development in San Miguel County through Local, State and Federal Government Divisions to meet NFIP policies.  |                        |              |   |                      |  |                              |                   |  |          |
| <b>Improve and protect existing culverts, arroyos, and acequias, and install new culverts within the county as needed to reduce flooding county-wide</b>  |                        |              |   |                      |  |                              |                   |  |          |
| 2.3.7   | Flooding               | Las Vegas    | Existing                                      | Not started          | Public Works, PNP Community Ditches & Acequias | 2014-2019                    | \$250,000         | Mitigation grant funding from DR 1435 and external sources | H        |
| <i>Benefit-Cost:</i> Conduct inspection on existing areas and improve with maintenance and hardening of existing systems county-wide  |                        |              |   |                      |  |                              |                   |  |          |
| <i>Technical Feasibility:</i> Cost will need to be a collaborative effort with local jurisdictions and private non-profit organizations possible hydrologic & environmental studies required  |                        |              |   |                      |  |                              |                   |  |          |
| <b>Rehabilitate old wells</b>   |                        |              |   |                      |  |                              |                   |  |          |
| 3.1.2   | Drought                | Las Vegas    | N/A   | Existing             | Las Vegas Public Works                         | 48 months                    | \$500,000         | HMGP, Local  | H        |
| <i>Benefit-Cost:</i> Rehabilitation of existing wells will help manage water resources and distribution while reducing environmental and economic impacts of locating and drilling new well sites.  |                        |              |   |                      |  |                              |                   |  |          |
| <i>Technical Feasibility:</i> Feasibility studies will determine whether old, existing wells can be rehabilitated, and the potential positive impact to water resource availability in the county.  |                        |              |   |                      |  |                              |                   |  |          |
| <b>Install a generator at each of the Fire and Police Stations to reduce vulnerability to power-outages during hazard events.</b>   |                        |              |   |                      |  |                              |                   |  |          |

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|--|--|--------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 3.1.5  | Dam Failure,<br>Earthquake, Flood,<br>Extreme Heat, High<br>Wind, Landslide,<br>Severe Winter<br>Weather, Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | Existing                                      | Not<br>started       | SMC/LAS<br>VEGAS/ Pecos<br>Fire             | 24-36<br>months              | \$1,350,000       | HMGP, Fire<br>Funds,              | H        |
| <i>Benefit-Cost:</i> Mitigation project to allow for Continuity of operations during all hazard events   |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The cost of electrical installation and equipment would need to be supported by local jurisdictions and first responders   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Research vulnerable infrastructure and harden/improve water/sewer sanitation services in identified areas</b>   |  |              |   |                      |   |                              |                   |                                   |          |
| 3.1.7  | Pandemic/<br>Epidemic  | Las Vegas    | N/A   | Not<br>started       | Alta Vista<br>Regional<br>Hospital          | 24-36<br>months              | \$1,000.000       | DOH/HMPG/<br>SHSGP/LOCAL          | H        |
| <i>Benefit-Cost:</i> Mitigation project to be able to continue services for patients in need of medical services and continuity of business  |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The local jurisdiction will be required to work with private sector on this project  |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Conduct a seismic study of all critical infrastructure within the county to identify the effects of an earthquake on existing facilities</b>  |  |              |   |                      |   |                              |                   |                                   |          |
| 3.2.1  | Earthquake   | Las Vegas    | Existing                                      | New                  | SMC/LV OEM                                  | 24 months                    | \$75,000          | HMGP, LOCAL,                      | H        |
| <i>Benefit-Cost:</i> obtain data that identifies, inventories and prioritizes structures that could be seismically hazardous and ability for continuity of government                          |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Seismic studies will identify the risk areas and vulnerable assets within the hazard areas where further mitigation actions may be required.                     |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Research funding opportunities and garner support for repair to the reservoir seepage area.</b>   |  |              |   |                      |   |                              |                   |                                   |          |
| 3.2.3  | Flooding, Dam<br>failure   | Las Vegas    | N/A   | Not<br>started       | SMC & LAS<br>VEGAS                          | 6-12 months                  | N/A               | N/A                               | H        |
| <i>Benefit-Cost:</i> Minimal to no cost project and county & city wide benefit to obtain assistance  |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Local jurisdictions will need to support this program  |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Historical tree thinning project on City of Las Vegas land that produced 200 to 300 cords of free firewood for residents.</b>   |  |              |   |                      |   |                              |                   |                                   |          |
| 4.1.2  | Severe Winter<br>Weather   | Las Vegas    | N/A   | Ongoing              | City of Las Vegas                           | Ongoing                      | \$25,000          | Local                             | H        |
| <i>Benefit-Cost:</i> Tree thinning reduces the impact of downed trees on local infrastructure that provide access and power to the community.  |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The city has conducted this action previously. Recurring, intermittent tree thinning will keep trees healthy and manageable during severe winter weather events. |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Develop emergency evacuation and sheltering plans</b>   |  |              |   |                      |   |                              |                   |                                   |          |

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|--|---|--------------|---|----------------------|--|------------------------------|-------------------|---|----------|
| 4.1.3  | Terrorism                                 | Las Vegas    | N/A   | Not<br>started       | SMC/LV OEM                                     | 24 months                    | \$50,000          | HMPG/SHSGP/<br>LOCAL                              | H        |
| <i>Benefit-Cost:</i> Allow first responders the ability to assist communities during all hazard events   |   |              |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> Will require researching and identifying areas within a 4700 square mile area with 514 miles of roads.   |   |              |   |                      |  |                              |                   |   |          |
| <b>Identify critical infrastructure facilities to install generator hook-ups and purchase mobile generators to use in power outages</b>  |   |              |   |                      |  |                              |                   |   |          |
| 4.2.2  | Severe Winter<br>Weather                  | Las Vegas    | Existing                                      | New                  | All jurisdictions                              | 24 months                    | \$600,000         | HMGP, EMPG  | H        |
| <i>Benefit-Cost:</i> The need to provide services through the Continuity of operations/ Continuity of Government   |   |              |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> Will require electrical designing of facilities' and purchase of equipment supported by local jurisdictions  |   |              |   |                      |  |                              |                   |   |          |
| <b>Identify senior centers, community centers, and schools throughout the county that can be used for heating/cooling stations and install generator hook ups, towable generators and electric A/C &amp; heating combination systems</b> |   |              |   |                      |  |                              |                   |   |          |
| 4.3.1  | Extreme Heat,<br>Severe Winter<br>Weather | Las Vegas    | Existing                                      | New                  | SMC/LV OEM                                     | 24 months                    | \$500,000         | HMGP, LOCAL                                       | H        |
| <i>Benefit-Cost:</i> This is a county-wide project that benefits toward citizens safety, health and well-being. This will ensure citizens have a location to remain either warm or cool in extreme events                                |   |              |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> The cost of electrical installation and equipment would need to be supported by local jurisdictions  |   |              |   |                      |  |                              |                   |   |          |
| <b>Conduct a geological study on local structures; strengthen historic structures/chimneys in the Cat D seismic zone.</b>  |   |              |   |                      |  |                              |                   |   |          |
| 5.1.1  | Earthquake                                | Las Vegas    | Existing                                      | New                  | SMC/LV<br>OEM/Higher<br>Education<br>Institute | 24 months                    | \$75,000          | HMPG, NPS,<br>USDA,LOCAL                          | H        |
| <i>Benefit-Cost:</i> Identify essential facilities and evaluate structural performance in a seismic event  |   |              |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> This project will require a structural specialist that can properly analyze and process data & follow historic preservation requirements   |   |              |   |                      |  |                              |                   |   |          |
| <b>Research and implement localized drainage projects in the repetitive loss areas to reduce flood potential and impacts.</b>  |   |              |   |                      |  |                              |                   |   |          |
| 5.2.1  | Flood                                     | Las Vegas    | Existing                                      | Not<br>started       | SMC,LAS VEGAS,<br>PECOS                        | 12-36<br>MONTHS              | \$200,000         | General<br>revenue /<br>External<br>sources, HMGP | H        |
| <i>Benefit-Cost:</i> Reduce the risk to communities living in the area: Reduce the cost of repetitive loss to structures in SFHA   |   |              |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> Identify and prioritize special projects for regional drainage projects for legislative funding  |   |              |   |                      |  |                              |                   |   |          |
| <b>Create a public awareness program to promote "See Something, Say Something" in conjunction with New Mexico Department of Homeland Security</b>  |   |              |   |                      |  |                              |                   |   |          |

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|---|---|--------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 6.1.3   | Terrorism   | Las Vegas    | N/A   | New                  | SMC/LV OEM &<br>NMDHSEM   | 12 months                    | \$30,000          | HMGP, LETPG,<br>LOCAL             | H        |
| <i>Benefit-Cost:</i> This program allows citizens to report suspicious activities quickly to the proper authorities in order to investigate suspicious activities                       |   |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The cost and outreach is to implement an on-going federal program with a local public awareness campaign supported by local jurisdictions                 |   |              |   |                      |   |                              |                   |                                   |          |
| <b>Develop and distribute public awareness information regarding potential mitigation measures using various means to reach adults, children, visitors, and vulnerable populations.</b> |   |              |   |                      |   |                              |                   |                                   |          |
| 6.1.5   | Pandemic/<br>Epidemic, Pests,<br>Severe Winter<br>Weather,<br>Thunderstorm, | Las Vegas    | N/A   | Not<br>started       | SMC/LAS<br>VEGAS/Pecos<br>Hospitals, clinics<br>& OEM             | 12-24<br>months              | \$40,000          | DOH/HMPG/<br>SHSGP/LOCAL          | H        |
| <i>Benefit-Cost:</i> Citizens county-wide will benefit with outreach on protection, and mitigation toward all hazard events   |   |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Cost and outreach will need to be supported by local jurisdictions toward the implementing a public awareness campaign                                    |   |              |   |                      |   |                              |                   |                                   |          |
| <b>Conduct a more in depth hazard analysis for wildfires and their effects on residences, infrastructure, water supplies, and the economy.</b>  |   |              |   |                      |   |                              |                   |                                   |          |
| 1.1.6   | Wildfire, Drought   | Las Vegas    | N/A   | Not<br>started       | SMC/LAS<br>VEGAS/ Pecos<br>Fire                                   | 12-24<br>months              | \$25,000          | HMGP, Fire<br>Funds,              | M        |
| <i>Benefit-Cost:</i> Up-date the current CWPP to include the infrastructures, water supplies and economic impact toward wildfires   |   |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> cost and outreach is covered by fire funds and supported by local jurisdictions   |   |              |   |                      |   |                              |                   |                                   |          |
| <b>Join the Community Rating System (CRS) and pursue opportunities to improve CRS ratings</b>   |   |              |   |                      |   |                              |                   |                                   |          |
| 1.1.7   | Flood   | Las Vegas    | New and<br>Existing                           | Not<br>started       | SMC/LV/Pecos<br>Planning &<br>zoning,<br>Community<br>Development | 12-24<br>months              | NONE              | HMPG/LOCAL                        | M        |
| <i>Benefit-Cost:</i> County-wide project which benefits property owners in lowering insurance rates   |   |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Local jurisdictions need to support the program and continue to participate   |   |              |   |                      |   |                              |                   |                                   |          |
| <b>Research the feasibility and benefits of becoming a NOAA StormReady Community</b>  |   |              |   |                      |   |                              |                   |                                   |          |
| 1.2.5   | Flood, Hailstorm,<br>High Winds,<br>Thunderstorm,<br>Tornado,               | Las Vegas    | New and<br>Existing                           | Not<br>started       | SMC/LV OEM  | 6-12 months                  | NONE              | NOAA/LOCAL                        | M        |
| <i>Benefit-Cost:</i> Assist communities and NOAA with up-date weather related data toward all hazard events.  |   |              |   |                      |   |                              |                   |                                   |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed   | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)                 | Priority |
|--|--|--------------|---|----------------------|---|------------------------------|-------------------|---|----------|
| <i>Technical Feasibility:</i> Cost and outreach is covered by NOAA and minimal costs to local jurisdictions, but support is needed   |  |              |   |                      |   |                              |                   |   |          |
| <b>Install outdoor early warning systems at local parks, athletic fields, and on educational institution campuses</b>  |  |              |   |                      |   |                              |                   |   |          |
| 1.3.3  | Dam Failure, Flood,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | N/A   | Not<br>started       | SMC/LV OEM                                  | 36 months                    | \$200,000         | General<br>revenue /<br>External<br>sources, HMGP | M        |
| <i>Benefit-Cost:</i> This project is an early warning system that benefits the communities county-wide to ensure an early warning system toward all hazard events                                |  |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> The cost and outreach will need to be conducted by local jurisdictions and first responders  |  |              |   |                      |   |                              |                   |   |          |
| <b>Review and develop the current building codes to include mitigation for seismic shaking in future construction</b>  |  |              |   |                      |   |                              |                   |   |          |
| 2.1.1  | Earthquake   | Las Vegas    | New and<br>Existing                           | New                  | SMC Planning &<br>Zoning                    | 18 month                     | \$50,000          | HMGP, LOCAL                                       | M        |
| <i>Benefit-Cost:</i> To develop a county-wide enforceable building code that enhance structural safety county-wide   |  |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Will require a code enforcement personnel to identify, process and enforce adopted regulations   |  |              |   |                      |   |                              |                   |   |          |
| <b>Improve on state building codes through local modifications that meet or exceed state and national models by ordinance, which would result in additional techniques to harden structures.</b> |  |              |   |                      |   |                              |                   |   |          |
| 2.1.5  | Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm, High<br>Wind, Severe<br>Winter Weather,<br>Thunderstorm,<br>Tornado, Wildfire                        | Las Vegas    | New   | Not<br>started       | SMC Planning &<br>Zoning Division           | 24-36<br>months              | \$75,000.00       | General<br>revenue /<br>External<br>sources, HMGP | M        |
| <i>Benefit-Cost:</i> To develop a county-wide enforceable building code that enhance structural safety county-wide in order to minimize property damage  |  |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> No cost for jurisdictions to have an ordinance developed in the county toward exceeding current building code requirements   |  |              |   |                      |   |                              |                   |   |          |
| <b>Identify funding sources to develop zoning regulations and ordinances to reduce loss from identified hazards.</b>   |  |              |   |                      |   |                              |                   |   |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed   | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)                 | Priority |
|--|--|--------------|---|----------------------|---|------------------------------|-------------------|---|----------|
| 2.1.7  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide, Severe<br>Winter Weather,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | New   | Not<br>started       | SMC Planning &<br>zoning office             | 6-12 months                  | none              | General<br>revenue /<br>External<br>sources, HMGP | M        |
| <i>Benefit-Cost:</i> Project is a county-wide benefit toward identifying reduction of property losses  |  |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> The cost and outreach is covered by the county but will need local jurisdiction support                                      |  |              |   |                      |   |                              |                   |   |          |
| <b>Develop and implement zoning regulations and ordinances to reduce loss from identified hazards.</b>   |  |              |   |                      |   |                              |                   |   |          |
| 2.1.8  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide, Severe<br>Winter Weather,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | New   | Not<br>started       | SMC Planning &<br>zoning office             | 6-12 months                  | \$75,000          | General<br>revenue /<br>External<br>sources, HMGP | M        |
| <i>Benefit-Cost:</i> Develop a county-wide zoning regulation to minimize property loss county-wide   |  |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Local jurisdictions will need to obtain specialized assistance toward zoning requirements as it relates to all hazard events |  |              |   |                      |   |                              |                   |   |          |
| <b>Identify critical infrastructure where safe rooms can be constructed for protection/safety of building occupants within the facility</b>                |  |              |   |                      |   |                              |                   |   |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed  | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department                           | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s) | Priority |
|--|---|--------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 2.3.4  | High Wind,<br>Thunderstorm,<br>Tornado  | Las Vegas    | New and<br>Existing                           | New                  | Local<br>jurisdictions,<br>hospitals<br>,schools, higher<br>education | 24 months                    | \$600,000         | HMGP, EMPG                        | M        |
| <i>Benefit-Cost:</i> Provide a safe and secure environment for identified critical infrastructures and for those that are occupying the structures             |   |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Federal regulations requirements are involved, Wind, debris impact ,designs, permitting & Code compliance by local jurisdictions |   |              |   |                      |   |                              |                   |                                   |          |
| <b>Harden the bay doors of the fire stations to reduce vulnerability to wind-related events.</b>   |   |              |   |                      |   |                              |                   |                                   |          |
| 3.1.4  | High Wind,<br>Thunderstorm,<br>Tornado  | Las Vegas    | Existing                                      | Not<br>started       | SMC/LAS<br>VEGAS/Pecos<br>Fire Agencies                               | 24-36<br>months              | \$500,000         | HMGP, Fire<br>Funds,              | M        |
| <i>Benefit-Cost:</i> Mitigation project that would assist in minimizing infrastructure damage and provide more safety  |   |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> This project will have to be supported by local departments county-wide  |   |              |   |                      |   |                              |                   |                                   |          |
| <b>Research and meet with State Plant Pest and Disease Agencies such as USDA/APHIS to identify mitigation projects in this area</b>                            |   |              |   |                      |   |                              |                   |                                   |          |
| 3.2.2  | Pandemic/Epidemic<br>Pests  | Las Vegas    | N/A   | New                  | SMC/LV OEM &<br>USDA/APHIS  | 12 months                    | None              | LOCAL                             | M        |
| <i>Benefit-Cost:</i> Minimal cost and county-wide benefits. This project will help citizens with potential threats to agriculture and plant disease events     |   |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Outreach is covered by local and state organizations   |   |              |   |                      |   |                              |                   |                                   |          |
| <b>Identify funding streams and resources for technical assistance to scope bridge repair or reinforcement projects on identified vulnerable bridges</b>       |   |              |   |                      |   |                              |                   |                                   |          |
| 3.2.4  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Hazardous<br>Materials Incidents,<br>Landslide, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | Existing                                      | Not<br>started       | SMC/LAS<br>VEGAS/Pecos<br>Public Works                                | 12-24<br>months              | none              | HMPG/DOT/<br>LOCAL                | M        |
| <i>Benefit-Cost:</i> Project is a county-wide benefit toward identifying reduction of property losses  |   |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> the cost and outreach is covered by the county but will need local jurisdiction support  |   |              |   |                      |   |                              |                   |                                   |          |
| <b>Conduct engineering studies on hardening, retrofitting, or rebuilding vulnerable bridges.</b>   |   |              |   |                      |   |                              |                   |                                   |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed  | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department  | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)                 | Priority |
|--|---|--------------|---|----------------------|--|------------------------------|-------------------|---|----------|
| 3.2.5  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Hazardous<br>Materials Incidents,<br>Landslide, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | Existing                                      | Not<br>started       | SMC/LAS<br>VEGAS/Pecos<br>Public Works       | 24-36<br>months              | \$200,000         | HMPG/DOT/<br>LOCAL                                | M        |
| <i>Benefit-Cost:</i> Project will assist communities with identifying bridges within transportation routes toward addressing safety & reduce property loss                                   |   |              |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> jurisdictions maybe required to have water flow and environmental studies conducted  |   |              |   |                      |  |                              |                   |   |          |
| <b>Harden, retrofit, or replace vulnerable, unsafe bridges that are used by heavy equipment to access areas vulnerable to wildfire, snowfall, landslide, and flooding.</b>                   |   |              |   |                      |  |                              |                   |   |          |
| 3.2.6  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Hazardous<br>Materials Incidents,<br>Landslide, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | Existing                                      | Not<br>started       | SMC/LAS<br>VEGAS/Pecos<br>Public Works       | 24-36<br>months              | \$3,000,000       | HMPG/DOT/LO<br>CAL                                | M        |
| <i>Benefit-Cost:</i> Conduct inspection on existing areas and improve with maintenance and hardening of existing systems county-wide   |   |              |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> Cost will need to be a collaborative effort with local jurisdictions and private non-profit organizations possible hydrologic & environmental studies required |   |              |   |                      |  |                              |                   |   |          |
| <b>Encourage new development areas to install underground utilities, which would help reduce the chances of power outages.</b>   |   |              |   |                      |  |                              |                   |   |          |
| 3.3.1  | Hailstorm, High<br>Wind, Severe<br>Winter Weather,<br>Thunderstorm,<br>Tornado, Wildfire  | Las Vegas    | New   | Not<br>started       | SMC/ LAS<br>VEGAS/Pecos/<br>Electrical Coops | 6-12 months                  | none              | General<br>revenue /<br>External<br>sources, HMGP | M        |
| <i>Benefit-Cost:</i> Minimal cost and is a county-wide benefit that would assist citizens during all hazard related events toward health & safety  |   |              |   |                      |  |                              |                   |   |          |



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| Goal/<br>Objective<br>/ Action<br>ID  | Hazard(s)<br>Addressed  | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)                 | Priority |
|---|---|--------------|---|----------------------|---|------------------------------|-------------------|---|----------|
| <i>Technical Feasibility:</i> This project will need support from local jurisdictions, private sector and coops county wide   |   |              |   |                      |   |                              |                   |   |          |
| <b>Encourage churches and community groups to assist vulnerable persons in the event of power loss and to develop an emergency plan.</b>  |   |              |   |                      |   |                              |                   |   |          |
| 4.3.2   | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat, High<br>Wind, Landslide,<br>Severe Winter<br>Weather, Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire  | Las Vegas    | N/A   | Not<br>started       | SMC/LV OEM                                  | 6-12 months                  | \$10,000          | SHSGP,HMPG  | M        |
| <i>Benefit-Cost:</i> Assist vulnerable population county-wide during all hazard events  |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> The cost and outreach is covered by Emergency Management and local churches   |   |              |   |                      |   |                              |                   |   |          |
| <b>Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding potential mitigation measures using the local newspaper, utility bill inserts, inserts in the phone book, county websites, and educational programs for school age children or "how to" classes in retrofitting by local merchants. Integrate "Disaster Resistance Education" into the public school curriculum.</b> |   |              |   |                      |   |                              |                   |   |          |
| 6.1.4   | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide,<br>Pandemic/Epidemic<br>, Pests, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | N/A   | On-going             | SMC/LV OEM                                  | 12-24<br>months              | \$30,000          | General<br>revenue /<br>External<br>sources, HMGP | M        |
| <i>Benefit-Cost:</i> Obtain educational materials and develop outreach programs toward all hazard events  |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> The cost and outreach will need to be supported by local jurisdictions  |   |              |   |                      |   |                              |                   |   |          |
| <b>Identify funding sources to create a staff community outreach position to enhance mitigation and emergency preparedness in the community</b>   |   |              |   |                      |   |                              |                   |   |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed  | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department       | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)                 | Priority |
|--|---|--------------|---|----------------------|---|------------------------------|-------------------|---|----------|
| 6.2.3  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide,<br>Pandemic/Epidemic<br>, Pests, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Las Vegas    | N/A   | Not<br>started       | SMC/LV OEM  | 24-36<br>months              | \$45,000          | General<br>revenue/<br>EMPG,HMPG                  | M        |
| <i>Benefit-Cost:</i> Position would assist in conducting mitigation and public outreach on a consistent bases  |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Funding support would need to be assisted through federal grants   |   |              |   |                      |   |                              |                   |   |          |
| <b>Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).</b> |   |              |   |                      |   |                              |                   |   |          |
| 6.2.2  | Flood   | Las Vegas    | New and<br>Existing                           | Not<br>started       | SMC/LAS<br>VEGAS/Pecos<br>Flood Plain<br>Managers | 6-12 months                  | \$10,000          | General<br>revenue /<br>External<br>sources, HMGP | L        |
| <i>Benefit-Cost:</i> Develop educational resources and materials toward public awareness and benefits toward obtaining flood insurance                                 |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Cost will be to develop public outreach county-wide and needs to be supported by local jurisdictions.                                    |   |              |   |                      |   |                              |                   |   |          |

**Table 8.4-3  
Village of Pecos Mitigation Actions**

| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed   | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department    | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)                          | Priority |
|--|--|--------------|---|----------------------|--|------------------------------|-------------------|--|----------|
| <b>Conduct a more in depth hazard analysis for wildfires and their effects on residences, infrastructure, water supplies, and the economy.</b>   |  |              |   |                      |  |                              |                   |  |          |
| 1.1.6  | Wildfire, Drought  | Pecos        | N/A   | Not started          | SMC/CLV/ Pecos Fire                            | 12-24 months                 | \$25,000          | HMGP, Fire Funds,  | H        |
| <i>Benefit-Cost:</i> Up-date the current CWPP to include the infrastructures, water supplies and economic impact toward wildfires  |  |              |   |                      |  |                              |                   |  |          |
| <i>Technical Feasibility:</i> cost and outreach is covered by fire funds and supported by local jurisdictions  |  |              |   |                      |  |                              |                   |  |          |
| <b>Identify flood prone areas in the county and design effective water drainage systems to minimize flooding</b>   |  |              |   |                      |  |                              |                   |  |          |
| 2.2.1  | Flood  | Pecos        | New and Existing                              | New                  | SMC Public Works                               | 36 months                    | \$2,000,000       | HMGP, LOCAL  | H        |
| <i>Benefit-Cost:</i> Minimize disaster recovery assistance request, property damage, reoccurring damages, and minimize manpower usage  |  |              |   |                      |  |                              |                   |  |          |
| <i>Technical Feasibility:</i> This will require, engineer designing, possible permitting requirements by supporting jurisdictions  |  |              |   |                      |  |                              |                   |  |          |
| <b>Improve and protect existing culverts, arroyos, and acequias, and install new culverts within the county as needed to reduce flooding county-wide</b>                                     |  |              |   |                      |  |                              |                   |  |          |
| 2.3.7  | Flooding   | Pecos        | Existing                                      | Not started          | Public Works, PNP Community Ditches & Acequias | 2014-2019                    | \$250,000         | Mitigation grant funding from DR 1435 and external sources | H        |
| <i>Benefit-Cost:</i> Conduct inspection on existing areas and improve with maintenance and hardening of existing systems county-wide   |  |              |   |                      |  |                              |                   |  |          |
| <i>Technical Feasibility:</i> Cost will need to be a collaborative effort with local jurisdictions and private non-profit organizations possible hydrologic & environmental studies required |  |              |   |                      |  |                              |                   |  |          |
| <b>Identify funding streams and resources for technical assistance to scope bridge repair or reinforcement projects on identified vulnerable bridges</b>                                     |  |              |   |                      |  |                              |                   |  |          |
| 3.2.4  | Dam Failure, Drought, Earthquake, Flood, Hazardous Materials Incidents, Landslide, Severe Winter Weather, Terrorism, Thunderstorm, Tornado, Wildfire | Pecos        | Existing                                      | Not started          | SMC/CLV/Pecos Public Works                     | 12-24 months                 | none              | HMPG/DOT/ LOCAL  | H        |
| <i>Benefit-Cost:</i> Project is a county-wide benefit toward identifying reduction of property losses  |  |              |   |                      |  |                              |                   |  |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed  | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s)                 | Priority |
|--|---|--------------|---|----------------------|---|------------------------------|-------------------|---|----------|
| <i>Technical Feasibility:</i> the cost and outreach is covered by the county but will need local jurisdiction support                                      |   |              |   |                      |   |                              |                   |   |          |
| <b>Conduct engineering studies on hardening, retrofitting, or rebuilding vulnerable bridges.</b>   |   |              |   |                      |   |                              |                   |   |          |
| 3.2.5  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Hazardous<br>Materials Incidents,<br>Landslide, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Pecos        | Existing                                      | Not<br>started       | SMC/CLV/Pecos<br>Public Works               | 24-36<br>months              | \$200,000         | HMPG/DOT/<br>LOCAL                                | H        |
| <i>Benefit-Cost:</i> Project will assist communities with identifying bridges within transportation routes toward addressing safety & reduce property loss |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> jurisdictions maybe required to have water flow and environmental studies conducted  |   |              |   |                      |   |                              |                   |   |          |
| <b>Research and implement localized drainage projects in the repetitive loss areas to reduce flood potential and impacts.</b>                              |   |              |   |                      |   |                              |                   |   |          |
| 5.2.1  | Flood   | Pecos        | Existing                                      | Not<br>started       | SMC,CLV, PECOS                              | 12-36<br>MONTHS              | \$200,000         | General<br>revenue /<br>External<br>sources, HMGP | H        |
| <i>Benefit-Cost:</i> Reduce the risk to communities living in the area: Reduce the cost of repetitive loss to structures in SFHA                           |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Identify and prioritize special projects for regional drainage projects for legislative funding                              |   |              |   |                      |   |                              |                   |   |          |
| <b>Well exploration to identify potable water supplies</b>   |   |              |   |                      |   |                              |                   |   |          |
| 1.1.2  | Drought   | Pecos        | N/A   | New                  | San Miguel<br>County                        | 36 months                    | \$1,000,000       | HMGP, USGA,<br>LOCAL                              | M        |
| <i>Benefit-Cost:</i> This is a need to improve on identifying additional water sources for the health, safety and well-being of the citizens county-wide   |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> This will depend on identified site locations and water users rights   |   |              |   |                      |   |                              |                   |   |          |
| <b>Identify critical infrastructure facilities to install generator hook-ups and purchase mobile generators to use in power outages</b>                    |   |              |   |                      |   |                              |                   |   |          |
| 4.2.2  | Severe Winter<br>Weather  | Pecos        | Existing                                      | New                  | All jurisdictions                           | 24 months                    | \$600,000         | HMGP, EMPG  | M        |
| <i>Benefit-Cost:</i> The need to provide services through the Continuity of operations/ Continuity of Government   |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Will require electrical designing of facilities' and purchase of equipment supported by local jurisdictions                  |   |              |   |                      |   |                              |                   |   |          |
| <b>Conduct field testing &amp; sampling of surface and sub-surface water sources</b>   |   |              |   |                      |   |                              |                   |   |          |
| 1.1.1  | Drought   | Pecos        | N/A   | New                  | San Miguel<br>County                        | 24 months                    | \$500,000         | HMGP, USGA,<br>LOCAL                              | L        |

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|---|--|--------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| <i>Benefit-Cost:</i> Regional & County-wide mitigation project that benefits all jurisdictions in the identifying of locations for additional water sources   |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> This project requires the collaboration of multi-jurisdictions and needs to be identified within the regional water plans   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Develop water storage/hydrant systems in for raw, drinking and effluent water.</b>   |  |              |   |                      |   |                              |                   |                                   |          |
| 1.1.5   | Drought, Flood,<br>Wildfire                                      | Pecos        | N/A   | New                  | SMC/CLV/Pecos<br>Fire & Public<br>Works                           | 36 months                    | \$900,000         | HMP, Fire<br>Funds,               | L        |
| <i>Benefit-Cost:</i> Increase the water storage capabilities toward fire suppression, irrigation and drinking water for citizens  |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Cost will need to be a collaborative effort with local jurisdictions and private non-profit organizations possible hydrologic & environmental studies required                |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Join the Community Rating System (CRS) and pursue opportunities to improve CRS ratings</b>   |  |              |   |                      |   |                              |                   |                                   |          |
| 1.1.7   | Flood  | Pecos        | New and<br>Existing                           | Not<br>started       | SMC/LV/Pecos<br>Planning &<br>zoning,<br>Community<br>Development | 12-24<br>months              | NONE              | HMPG/LOCAL                        | L        |
| <i>Benefit-Cost:</i> County-wide project which benefits property owners in lowering insurance rates   |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Local jurisdictions need to support the program and continue to participate   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Install flashing roadside emergency notification signs to advise of an emergency, web announcement, &amp; AM Radio Broadcast with additional instructions</b>  |  |              |   |                      |   |                              |                   |                                   |          |
| 1.2.1   | Hazardous<br>Materials   | Pecos        | N/A   | New                  | SMC/LV OEM  | 24 months                    | \$200,000         | HMGP,HMEP,<br>LOCAL               | L        |
| <i>Benefit-Cost:</i> This is a county-wide project which will allow for an early warning system toward life safety issues in all-hazard events  |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Will need to install signs along major state and public roadways, that integrated with existing Highway advisory system and supported by local jurisdictions                  |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Construct a tower and transponder to have the ability to receive NOAA weather alert notification and purchase NOAA radios for public facilities and vulnerable populations to receive these messages</b> |  |              |   |                      |   |                              |                   |                                   |          |
| 1.2.2   | High Wind,<br>Thunderstorm,<br>Severe Winter<br>Weather, Tornado | Pecos        | N/A   | New                  | SMC/LV OEM &<br>NOAA  | 24 months                    | \$300,000         | HMGP, NOAA,<br>LOCAL              | L        |
| <i>Benefit-Cost:</i> Project is to obtain an early warning weather system county-wide   |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Costs should be through NOAA but budget restraints require local jurisdictions support  |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Implement a county-wide mass notification/emergency messaging system to provide a centralized notification system</b>  |  |              |   |                      |   |                              |                   |                                   |          |

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|--|---|--------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 1.2.3  | Dam Failure,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials, High<br>Wind, Flood,<br>Landslide, Pandemic<br>/ Epidemic, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire   | Pecos        | N/A   | New                  | SMC/LV OEM                                  | 12 months                    | \$36,000          | HMP, SHSGP,<br>LOCAL              | L        |
| <p><i>Benefit-Cost:</i> This system is a county-wide benefit. This project will allow immediate notice to citizens as well as regional contacts toward early warning messages toward all hazard events</p> <p><i>Technical Feasibility:</i> The initial cost is minimal but will require local jurisdictions to support on-going maintenance</p> <p><b>Research and identify public warning systems that use redundant means of contact to reach stakeholders and the community to deliver and receive information regarding hazards, threats, impacts, and damage. Purchase, install, and implement the warning system.</b></p> |   |              |   |                      |   |                              |                   |                                   |          |
| 1.2.4  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide,<br>Pandemic/Epidemic<br>, Pests, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Pecos        | N/A   | Not<br>started       | SMCLV OEM                                   | 12-18<br>months              | NONE              | HMPG. LOCAL                       | L        |
| <p><i>Benefit-Cost:</i> This system is a county-wide benefit. This project will allow immediate notice to citizens as well as regional contacts toward early warning messages toward all hazard events</p> <p><i>Technical Feasibility:</i> Minimal to no cost to local jurisdictions toward researching and identifying potential solutions</p>   |   |              |   |                      |   |                              |                   |                                   |          |

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|---|---|--------------|---|----------------------|---|------------------------------|-------------------|---|----------|
| <b>Research the feasibility and benefits of becoming a NOAA StormReady Community</b>  |   |              |   |                      |   |                              |                   |   |          |
| 1.2.5   | Flood, Hailstorm,<br>High Winds,<br>Thunderstorm,<br>Tornado,   | Pecos        | New and<br>Existing                           | Not<br>started       | SMC/LV OEM                                  | 6-12 months                  | NONE              | NOAA/LOCAL  | L        |
| <i>Benefit-Cost:</i> Assist communities and NOAA with up-date weather related data toward all hazard events.  |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Cost and outreach is covered by NOAA and minimal costs to local jurisdictions, but support is needed  |   |              |   |                      |   |                              |                   |   |          |
| <b>Design &amp; develop an OEM web-site that provides drop down links toward mitigation/preparedness/response/recovery and identify funding sources toward hailstorm mitigation programs</b>    |   |              |   |                      |   |                              |                   |   |          |
| 1.3.1   | Dam Failure,<br>Drought, Extreme<br>Heat, Hailstorm,<br>Hazardous<br>Materials, High<br>Wind, Flood,<br>Landslide, Pandemic<br>/ Epidemic, Pests,<br>Severe Winter<br>Weather, Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Pecos        | New and<br>Existing                           | New                  | SMC/LV OEM                                  | 24 months                    | \$5,000           | HMGP,LOCAL  | L        |
| <i>Benefit-Cost:</i> This will be an accessible web-site to anyone that will want to obtain information toward this hazard, and additional outreach information                                 |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Cost and outreach will need to be supported by local jurisdictions toward the set-up of the initial web-site design and will require minimal maintenance and cost |   |              |   |                      |   |                              |                   |   |          |
| <b>Install outdoor early warning systems at local parks, athletic fields, and on educational institution campuses</b>   |   |              |   |                      |   |                              |                   |   |          |
| 1.3.3   | Dam Failure, Flood,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire  | Pecos        | N/A   | Not<br>started       | SMC/LV OEM                                  | 36 months                    | \$200,000         | General<br>revenue /<br>External<br>sources, HMGP | L        |

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|--|---|--------------|---|----------------------|---|------------------------------|-------------------|--|----------|
| <i>Benefit-Cost:</i> This project is an early warning system that benefits the communities county-wide to ensure an early warning system toward all hazard events  |   |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> The cost and outreach will need to be conducted by local jurisdictions and first responders  |   |              |   |                      |   |                              |                   |  |          |
| <b>Work with the state and USDA NRCS to install additional high-elevation SNOTEL stations in the Sangre de Cristo Mountains and Glorieta Mesa</b>  |   |              |   |                      |   |                              |                   |  |          |
| 1.3.4  | Drought   | Pecos        | N/A   | Not started          | SMCLV OEM                                   | 24-36 months                 | \$50,000          | HMPG/USDA/<br>NRCS/USGS                  | L        |
| <i>Benefit-Cost:</i> Installation SNOTEL stations will assist in flood control, and retention measures in the county. It will help to reduce flood impacts and improve overall water resource management in drought conditions.                    |   |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Installation of SNOTEL stations will require coordination, maintenance, and management agreements with the state and USDA NRCS.  |   |              |   |                      |   |                              |                   |  |          |
| <b>Work with USGS to install continuous monitoring stream gages on Tecolote Creek, the Conchas River (above the lake), the Canadian River, the Pecos River, and the Gallinas River 1000' south of the diversion gate.</b>                          |   |              |   |                      |   |                              |                   |  |          |
| 1.3.5  | Drought   | Pecos        | N/A   | Not Started          | SMC/CLV/ Pecos, watershed associations      | 24 months                    | \$50,000          | USGS, Local                              | L        |
| <i>Benefit-Cost:</i> Installation of stream gauges will assist in water management, flood control, and retention measures in the county. It will help to reduce flood impacts and improve overall water resource management in drought conditions. |   |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Installation of stream gauges will require coordination, maintenance, and management agreements with USGS.   |   |              |   |                      |   |                              |                   |  |          |
| <b>Review and develop the current building codes to include mitigation for seismic shaking in future construction</b>  |   |              |   |                      |   |                              |                   |  |          |
| 2.1.1  | Earthquake  | Pecos        | New and Existing                              | New                  | SMC Planning & Zoning                       | 18 month                     | \$50,000          | HMGP, LOCAL                              | L        |
| <i>Benefit-Cost:</i> To develop a county-wide enforceable building code that enhance structural safety county-wide   |   |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Will require a code enforcement personnel to identify , process and enforce adopted regulations  |   |              |   |                      |   |                              |                   |  |          |
| <b>Improve on state building codes through local modifications that meet or exceed state and national models by ordinance, which would result in additional techniques to harden structures.</b>   |   |              |   |                      |   |                              |                   |  |          |
| 2.1.5  | Earthquake, Flood, Extreme Heat, Hailstorm, High Wind, Severe Winter Weather, Thunderstorm, Tornado, Wildfire | Pecos        | New   | Not started          | SMC Planning & Zoning Division              | 24-36 months                 | \$75,000.00       | General revenue / External sources, HMGP | L        |
| <i>Benefit-Cost:</i> To develop a county-wide enforceable building code that enhance structural safety county-wide in order to minimize property damage  |   |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> No cost for jurisdictions to have an ordinance developed in the county toward exceeding current building code requirements   |   |              |   |                      |   |                              |                   |  |          |
| <b>Identify funding sources to develop zoning regulations and ordinances to reduce loss from identified hazards.</b>   |   |              |   |                      |   |                              |                   |  |          |



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|--|--|--------------|---|----------------------|---|------------------------------|-------------------|--|----------|
| 2.1.7  | Dam Failure,<br>Drought,<br>Earthquake, Flood, ,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide, Severe<br>Winter Weather,<br>Thunderstorm,<br>Tornado, Wildfire | Pecos        | New   | Not<br>started       | SMC Planning &<br>zoning office             | 6-12 months                  | none              | General<br>revenue /<br>External<br>sources, HMGP    | L        |
| <i>Benefit-Cost:</i> Project is a county-wide benefit toward identifying reduction of property losses  |  |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> The cost and outreach is covered by the county but will need local jurisdiction support                                      |  |              |   |                      |   |                              |                   |  |          |
| <b>Develop and implement zoning regulations and ordinances to reduce loss from identified hazards.</b>   |  |              |   |                      |   |                              |                   |  |          |
| 2.1.8  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide, Severe<br>Winter Weather,<br>Thunderstorm,<br>Tornado, Wildfire   | Pecos        | New   | Not<br>started       | SMC Planning &<br>zoning office             | 6-12 months                  | \$75,000          | General<br>revenue /<br>External<br>sources, HMGP    | L        |
| <i>Benefit-Cost:</i> Develop a county-wide zoning regulation to minimize property loss county-wide   |  |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Local jurisdictions will need to obtain specialized assistance toward zoning requirements as it relates to all hazard events |  |              |   |                      |   |                              |                   |  |          |
| <b>Research and study the feasibility of developing and implementing an environmental protection ordinance</b>   |  |              |   |                      |   |                              |                   |  |          |
| 2.1.9  | Flood  | Pecos        | New and<br>existing                           | Not<br>started       | SMC/CLV/ Pecos<br>P &Z or OEM               | 12-24<br>months              | none              | EPA/HMGP/<br>LOCAL/Higher<br>Education<br>institutes | L        |

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|---|----------------------------------|--------------|---|----------------------|---|------------------------------|-------------------|--|----------|
| <i>Benefit-Cost:</i> Evaluate the community's capacity for additional development given environmental protection priorities.  |                                  |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Will require citizen support and participation as well as technical support from a professional environmental consultant  |                                  |              |   |                      |   |                              |                   |  |          |
| <b>Pursue elevation/acquisition/flood proofing projects and structural solutions to flooding using available grant funding for the repetitive loss structures in the county and municipalities. Annually review and correct the Repetitive Loss List by submitting correction worksheets to FEMA.</b> |                                  |              |   |                      |   |                              |                   |  |          |
| 2.2.2   | Flood                            | Pecos        | Existing                                      | Not started          | SMC,CLV, PECOS  | 12-24 MONTHS                 | \$100,000         | General revenue / External sources, HMGP | L        |
| <i>Benefit-Cost:</i> Reduce the risk to communities living in the area: Establish beneficial living environment for improved health, safety and general welfare of the residents.   |                                  |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Maintain development review and regulate all development in San Miguel County through Local, State and Federal Government Divisions to meet NFIP policies.  |                                  |              |   |                      |   |                              |                   |  |          |
| <b>Re-design and construction of the diversion gates to handle increase water flows during floods or heavy rains</b>  |                                  |              |   |                      |   |                              |                   |  |          |
| 2.3.1   | Dam Failure, Flood               | Pecos        | N/A   | New                  | Storrie Water users association                           | 36 months                    | \$3,000,000       | HMGP, LOCAL                              | L        |
| <i>Benefit-Cost:</i> minimizes the flood waters that effect the public infrastructure, residences and business districts of the City of Las Vegas   |                                  |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Cost is covered by private non-profit organization with support by local jurisdictions  |                                  |              |   |                      |   |                              |                   |  |          |
| <b>Require the use of hail resistant material in future county-funded construction projects</b>   |                                  |              |   |                      |   |                              |                   |  |          |
| 2.3.3   | Hailstorm                        | Pecos        | New and Existing                              | New                  | SMC Planning & Zoning                                     | 12 months                    | NONE              | LOCAL, NMCID                             | L        |
| <i>Benefit-Cost:</i> To develop a county-wide enforceable building code that enhance structural safety county-wide in order to minimize property damage   |                                  |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> No cost for county to have a proper ordinance, regulation developed in the county building code requirements  |                                  |              |   |                      |   |                              |                   |  |          |
| <b>Identify critical infrastructure where safe rooms can be constructed for protection/safety of building occupants within the facility</b>   |                                  |              |   |                      |   |                              |                   |  |          |
| 2.3.4   | High Wind, Thunderstorm, Tornado | Pecos        | New and Existing                              | New                  | Local jurisdictions, hospitals ,schools, higher education | 24 months                    | \$600,000         | HMGP, EMPG                               | L        |
| <i>Benefit-Cost:</i> Provide a safe and secure environment for identified critical infrastructures and for those that are occupying the structures  |                                  |              |   |                      |   |                              |                   |  |          |
| <i>Technical Feasibility:</i> Federal regulations requirements are involved, Wind, debris impact ,designs, permitting & Code compliance by local jurisdictions  |                                  |              |   |                      |   |                              |                   |  |          |
| <b>Conduct a study to identify landslide areas within the county and install rock netting toward protection measures at the identified sites</b>  |                                  |              |   |                      |   |                              |                   |  |          |
| 2.3.5   | Landslide                        | Pecos        | N/A   | New                  | SMC/Pecos Public Works & NMDOT                            | 24 months                    | \$500,000         | HMGP, DOT, LOCAL                         | L        |

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|---|--|--------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| <i>Benefit-Cost:</i> Quantitatively estimate the risk from potential landslides along transportation corridors.   |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Reduce the risk to communities living in the area, or to the population passing the area along transportation lines of local jurisdictions  |  |              |   |                      |   |                              |                   |                                   |          |
| <b>The Upper Pecos Watershed Association is completing a NEPA analysis for “roadside thinning” within the Pecos Canyon</b>  |  |              |   |                      |   |                              |                   |                                   |          |
| 3.1.1   | Wildfire   | Pecos        | N/A   | Ongoing              | Upper Pecos<br>Watershed<br>Association     | 2014-2019                    | \$360,000         | US Forest, HMP,<br>LOCAL          | L        |
| <i>Benefit-Cost:</i> Tree thinning reduces the impact of downed trees on local infrastructure that provide access and power to the community. It also reduces the risk of wildfire caused by trees falling on overhead power lines in the canyon. |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Tree thinning improves the overall health of trees and forested areas and reduces the risk of wildfire caused by trees falling on overhead power lines.   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Harden the bay doors of the fire stations to reduce vulnerability to wind-related events.</b>  |  |              |   |                      |   |                              |                   |                                   |          |
| 3.1.4   | High Wind,<br>Thunderstorm,<br>Tornado   | Pecos        | Existing                                      | Not<br>started       | SMC/CLV/Pecos<br>Fire Agencies              | 24-36<br>months              | \$500,000         | HMGP, Fire<br>Funds,              | L        |
| <i>Benefit-Cost:</i> Mitigation project that would assist in minimizing infrastructure damage and provide more safety   |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> This project will have to be supported by local departments county-wide   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Install a generator at each of the Fire and Police Stations to reduce vulnerability to power-outages during hazard events.</b>   |  |              |   |                      |   |                              |                   |                                   |          |
| 3.1.5   | Dam Failure,<br>Earthquake, Flood,<br>Extreme Heat, High<br>Wind, Landslide,<br>Severe Winter<br>Weather, Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Pecos        | Existing                                      | Not<br>started       | SMC/CLV/ Pecos<br>Fire                      | 24-36<br>months              | \$1,350,000       | HMGP, Fire<br>Funds,              | L        |
| <i>Benefit-Cost:</i> Mitigation project to allow for Continuity of operations during all hazard events  |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The cost of electrical installation and equipment would need to be supported by local jurisdictions and first responders  |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Harden Pecos Village Complex Building to reduce vulnerabilities to various natural hazards.</b>  |  |              |   |                      |   |                              |                   |                                   |          |

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| Goal/<br>Objective<br>/ Action<br>ID   | Hazard(s)<br>Addressed   | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s) | Priority |
|--|--|--------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 3.1.6  | Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Pecos        | Existing                                      | Not<br>started       | Village of Pecos                            | 36 months                    | \$150,000         | HMGP, Local                       | L        |
| <i>Benefit-Cost:</i> The Pecos Village Complex houses the village administration, fire department, and police department. It is the single most critical asset in the community for management and administration of emergencies and disasters in Pecos. |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The Pecos Village Complex needs to be hardened for high winds, rising waters, and other natural hazards that could compromise the envelope of the structure.   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Conduct a seismic study of all critical infrastructure within the county to identify the effects of an earthquake on existing facilities</b>  |  |              |   |                      |   |                              |                   |                                   |          |
| 3.2.1  | Earthquake   | Pecos        | Existing                                      | New                  | SMC/LV OEM                                  | 24 months                    | \$75,000          | HMGP, LOCAL,                      | L        |
| <i>Benefit-Cost:</i> obtain data that identifies, inventories and prioritizes structures that could be seismically hazardous and ability for continuity of government  |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Seismic studies will identify the risk areas and vulnerable assets within the hazard areas where further mitigation actions may be required.   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Research and meet with State Plant Pest and Disease Agencies such as USDA/APHIS to identify mitigation projects in this area</b>  |  |              |   |                      |   |                              |                   |                                   |          |
| 3.2.2  | Pandemic/Epidemic<br>Pests   | Pecos        | N/A   | New                  | SMC/LV OEM &<br>USDA/APHIS                  | 12 months                    | None              | LOCAL                             | L        |
| <i>Benefit-Cost:</i> Minimal cost and county-wide benefits. This project will help citizens with potential threats to agriculture and plant disease events   |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> Outreach is covered by local and state organizations   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Harden, retrofit, or replace vulnerable, unsafe bridges that are used by heavy equipment to access areas vulnerable to wildfire, snowfall, landslide, and flooding.</b>   |  |              |   |                      |   |                              |                   |                                   |          |

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|--|---|--------------|---|----------------------|---|------------------------------|-------------------|---|----------|
| 3.2.6  | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Hazardous<br>Materials Incidents,<br>Landslide, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Pecos        | Existing                                      | Not<br>started       | SMC/CLV/Pecos<br>Public Works               | 24-36<br>months              | \$3,000,000       | HMPG/DOT/LO<br>CAL                                | L        |
| <i>Benefit-Cost:</i> Conduct inspection on existing areas and improve with maintenance and hardening of existing systems county-wide   |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Cost will need to be a collaborative effort with local jurisdictions and private non-profit organizations possible hydrologic & environmental studies required   |   |              |   |                      |   |                              |                   |   |          |
| <b>Encourage new development areas to install underground utilities, which would help reduce the chances of power outages.</b>   |   |              |   |                      |   |                              |                   |   |          |
| 3.3.1  | Hailstorm, High<br>Wind, Severe<br>Winter Weather,<br>Thunderstorm,<br>Tornado, Wildfire  | Pecos        | New   | Not<br>started       | SMC/<br>CLV/Pecos/<br>Electrical Coops      | 6-12 months                  | none              | General<br>revenue /<br>External<br>sources, HMGP | L        |
| <i>Benefit-Cost:</i> Minimal cost and is a county-wide benefit that would assist citizens during all hazard related events toward health & safety  |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> This project will need support from local jurisdictions, private sector and coops county wide  |   |              |   |                      |   |                              |                   |   |          |
| <b>Develop emergency evacuation and sheltering plans</b>   |   |              |   |                      |   |                              |                   |   |          |
| 4.1.3  | Terrorism   | Pecos        | N/A   | Not<br>started       | SMC/LV OEM                                  | 24 months                    | \$50,000          | HMPG/SHSGP/<br>LOCAL                              | L        |
| <i>Benefit-Cost:</i> Allow first responders the ability to assist communities during all hazard events   |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> Will require researching and identifying areas within a 4700 square mile area with 514 miles of roads.   |   |              |   |                      |   |                              |                   |   |          |
| <b>Install and maintain ITAC channels in public safety radios to improve inter-operability with Santa Fe County</b>  |   |              |   |                      |   |                              |                   |   |          |
| 4.2.1  | Wildfire  | Pecos        | N/A   | Existing             |   |                              |                   |   | L        |
| <i>Benefit-Cost:</i> Minimal cost to the first responder agencies with benefits of multi-jurisdictional communication during large events like wildfire.   |   |              |   |                      |   |                              |                   |   |          |
| <i>Technical Feasibility:</i> As long as existing radios support the frequencies and there is radio channel space available, this action is easily attainable.   |   |              |   |                      |   |                              |                   |   |          |
| <b>Identify senior centers, community centers, and schools throughout the county that can be used for heating/cooling stations and install generator hook ups, towable generators and electric A/C &amp; heating combination systems</b> |   |              |   |                      |   |                              |                   |   |          |

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| Goal/<br>Objective<br>/ Action<br>ID  | Hazard(s)<br>Addressed   | Jurisdiction | Applies to<br>New or<br>Existing<br>Structure | Status of<br>Project | Responsible<br>Party/Agency /<br>Department | Target<br>Completion<br>Date | Estimated<br>Cost | Potential<br>Funding<br>Source(s) | Priority |
|---|--|--------------|---|----------------------|---|------------------------------|-------------------|-----------------------------------|----------|
| 4.3.1   | Extreme Heat,<br>Severe Winter<br>Weather  | Pecos        | Existing                                      | New                  | SMC/LV OEM                                  | 24 months                    | \$500,000         | HMGP, LOCAL                       | L        |
| <i>Benefit-Cost:</i> This is a county-wide project that benefits toward citizens safety, health and well-being. This will ensure citizens have a location to remain either warm or cool in extreme events   |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The cost of electrical installation and equipment would need to be supported by local jurisdictions   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Encourage churches and community groups to assist vulnerable persons in the event of power loss and to develop an emergency plan.</b>  |  |              |   |                      |   |                              |                   |                                   |          |
| 4.3.2   | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat, High<br>Wind, Landslide,<br>Severe Winter<br>Weather, Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Pecos        | N/A   | Not<br>started       | SMC/LV OEM                                  | 6-12 months                  | \$10,000          | SHSGP,HMPG                        | L        |
| <i>Benefit-Cost:</i> Assist vulnerable population county-wide during all hazard events  |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The cost and outreach is covered by Emergency Management and local churches   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Create a public awareness program to promote "See Something, Say Something" in conjunction with New Mexico Department of Homeland Security</b>   |  |              |   |                      |   |                              |                   |                                   |          |
| 6.1.3   | Terrorism  | Pecos        | N/A   | New                  | SMC/LV OEM &<br>NMDHSEM                     | 12 months                    | \$30,000          | HMGP, LETPG,<br>LOCAL             | L        |
| <i>Benefit-Cost:</i> This program allows citizens to report suspicious activities quickly to the proper authorities in order to investigate suspicious activities   |  |              |   |                      |   |                              |                   |                                   |          |
| <i>Technical Feasibility:</i> The cost and outreach is to implement an on-going federal program with a local public awareness campaign supported by local jurisdictions   |  |              |   |                      |   |                              |                   |                                   |          |
| <b>Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding potential mitigation measures using the local newspaper, utility bill inserts, inserts in the phone book, county websites, and educational programs for school age children or "how to" classes in retrofitting by local merchants. Integrate "Disaster Resistance Education" into the public school curriculum.</b> |  |              |   |                      |   |                              |                   |                                   |          |

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|---|---|--------------|---|----------------------|--|------------------------------|-------------------|---|----------|
| 6.1.4   | Dam Failure,<br>Drought,<br>Earthquake, Flood,<br>Extreme Heat,<br>Hailstorm,<br>Hazardous<br>Materials Incidents,<br>High Wind,<br>Landslide,<br>Pandemic/Epidemic<br>, Pests, Severe<br>Winter Weather,<br>Terrorism,<br>Thunderstorm,<br>Tornado, Wildfire | Pecos        | N/A   | On-going             | SMC/LV OEM                                   | 12-24<br>months              | \$30,000          | General<br>revenue /<br>External<br>sources, HMGP | L        |
| <i>Benefit-Cost:</i> Obtain educational materials and develop outreach programs toward all hazard events  |   |              |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> The cost and outreach will need to be supported by local jurisdictions  |   |              |   |                      |  |                              |                   |   |          |
| <b>Develop and distribute public awareness information regarding potential mitigation measures using various means to reach adults, children, visitors, and vulnerable populations.</b> |   |              |   |                      |  |                              |                   |   |          |
| 6.1.5   | Pandemic/<br>Epidemic, Pests,<br>Severe Winter<br>Weather,<br>Thunderstorm,   | Pecos        | N/A   | Not<br>started       | SMC/CLV/Pecos<br>Hospitals, clinics<br>& OEM | 12-24<br>months              | \$40,000          | DOH/HMPG/<br>SHSGP/LOCAL                          | L        |
| <i>Benefit-Cost:</i> Citizens county-wide will benefit with outreach on protection, and mitigation toward all hazard events   |   |              |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> Cost and outreach will need to be supported by local jurisdictions toward the implementing a public awareness campaign                                    |   |              |   |                      |  |                              |                   |   |          |
| <b>Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).</b>                  |   |              |   |                      |  |                              |                   |   |          |
| 6.2.2   | Flood   | Pecos        | New and<br>Existing                           | Not<br>started       | SMC/CLV/Pecos<br>Flood Plain<br>Managers     | 6-12 months                  | \$10,000          | General<br>revenue /<br>External<br>sources, HMGP | L        |
| <i>Benefit-Cost:</i> Develop educational resources and materials toward public awareness and benefits toward obtaining flood insurance  |   |              |   |                      |  |                              |                   |   |          |
| <i>Technical Feasibility:</i> Cost will be to develop public outreach county-wide and needs to be supported by local jurisdictions.   |   |              |   |                      |  |                              |                   |   |          |





## 8.5 Current Wildfire Mitigation Programs

San Miguel County has developed several programs to reduce the danger associated with wildland fires. The FireWise Program emphasizes awareness of fire risk and wildfire prevention strategies. The Fuel Reduction Program identifies areas of high fuel loading that are near the Urban Wildland Interface that are in need of excess fuel removal. The County Fire Division and Office of Emergency Management (OEM) take the lead in monitoring the progress of all proposed projects.

The county has been able to treat approximately 500 acres per year since the decision was signed in 2006. The goal has been to treat 800 acres a year. The county anticipates completing 300-500 acres 2010. Overall, the county would like to thin 800 acres per year over the next 5 years. At this schedule thinning would be completed by 2016. Annually, the county has been able to secure approximately \$250,000 to implement thinning projects.

These sources have been in the form of appropriated funds and grant partnerships. The county is considering potential projects which would include additional training for structural and wildland fires, construction of water storage facilities, improved communications, post-fire mitigation, and obtaining state insurance for structural fires. The following list includes projects currently managed by the county:

- Limiting the number of vehicular camping spaces near streams;
- Respect the Rio: a public education campaign where rangers visit campgrounds to teach visitors about water quality hazards, and appropriate use of sites near streams;
- Upper Pecos Watershed Project;
- FireWise programs;
- Gallinas Fuels Reduction project;
- Travel Management, 2005 project to define the roads in USFS and Wilderness lands;
- USFS Fire Prevention Officer provides outreach about fire prevention strategies;
- USFS Public Information Officer provides informational wildfire flyers;
- NM State Parks: Conchas Lake State Park has a Wildfire Evacuation Plan; and
- Historical tree thinning project on City of Las Vegas land that produced 200 to 300 cords of free firewood for residents.

### 8.5.1 FireWise Program

The national FireWise Communities program is a multi-agency effort designed to increase awareness of individual wildfire awareness and responsibility. The FireWise Communities approach emphasizes community responsibility for planning in the design of a safe community as well as effective emergency response, and individual responsibility for safer home construction and design, landscaping, and maintenance. San Miguel County is not currently listed as a recognized national FireWise Community but is currently working toward recognition through the implementation and maintenance of its Community Wildfire Protection Plan (CWPP).

### 8.5.2 Fuel Reduction Program

Treating vegetation is one of the most viable ways the county can reduce the risk of catastrophic wildland fire. Vegetation should be treated around homes, along evacuation and travel routes in

creation of landscape fuel breaks, in the Gallinas Municipal Watershed, around critical infrastructure, and throughout the county to improve watershed health and reduce fire hazards.

There are twenty-nine recommended treatment corridors primarily located within the northwest quadrant of the county and nineteen proposed evacuation fuel breaks within the northwest quadrant. The three highest priority forested areas for evacuation/travel route treatments include Highway 63 (Pecos Canyon), Forest Road (FR) 223, and FR 123. Hazardous fuels reduction efforts along Highway 63 extend from Monastery Lake to the northern end of Cowles. FR 223 efforts extend along FR 223 from highway 63 to the Iron Gate campground that includes FR 223A. The extent of efforts on FR 123 extends from Highway 63 to the extreme rated Dalton Canyon community. All three of these fuels mitigation projects consist of limbing and thinning to a recommended minimum of 200 feet wide.

### 8.5.3 Wildfire Response Capabilities

The San Miguel County fire districts provide emergency response services to all of the unincorporated areas of the county. The county has a Fire Division with a full-time fire chief that oversees the volunteer fire districts. Services provided include wildland fire and structural fire prevention and suppression, emergency medical services, hazardous materials mitigation and rural search and rescue. Structure fires are infrequent and wildland fires make up approximately 90 percent of the fire responses. There are currently 12 active county fire districts including the following: Cabo Lucero, Conchas, El Pueblo, Gallinas, Ifeld, La Placitas, Pecos Canyon, Rowe, Sapello Rociada, Sheridan, Tecolote, and Trementina. County proposed sub-stations in the planning stages include the following: San Geronimo, Conchas, South Station, San Jose, Storrie Lake, San Ignacio, Los Montoyas, Tecolotito, Trujillo, and East Pecos.

The county fire districts are staffed by 300 volunteer firefighters and there are approximately 60 fire trucks within the county with varying capabilities. Volunteer county fire departments include the following: Cabo Lucero, Conchas, East Pecos, El Pueblo, Gallinas, Ifeld, La Placitas, Pecos Canyon, Sapello, Rociada, Rowe, Sheridan, Tecolote, Tecolotito, and Trementina. The Village of Pecos has a well-staffed fire department since the Village heavily invests in this service with 18 volunteer firefighters and one paid fire chief.

**Table 8.5.3-1  
County Active Fire Stations and Proposed Sub-Stations**

| Station | Location               | Address                     |
|---------|------------------------|-----------------------------|
| 1       | Bernal*                | 20 El Cerrito Road          |
| 2       | Tecolote               | 10 Tecolote Plaza           |
| 3       | Cabo Lucero            | 900 Ridgecrest Drive        |
| 4       | San Geronimo*          | 2200 Tecolote Canyon Drive  |
| 5       | Conchas Main Station   | 100 Conchas Dam Road        |
| 6       | Conchas North Side     | 500 Conchas Dam Road        |
| 7       | Conchas Bell Ranch     | 800 South Bell Ranch Road   |
| 8       | Conchas South Station* | 111 Hoover Ville Road       |
| 9       | El Pueblo              | 1000 Gonzales Ranch Road    |
| 10      | Villanueva             | 503 Villanueva St. Park Rd. |

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| Station | Location      | Address                    |
|---------|---------------|----------------------------|
| 11      | San Jose*     | 303 San Jose Road          |
| 12      | Gallinas      | 3695 Hot Springs Road      |
| 13      | Storrie Lake* | 353 Mora Route Road        |
| 14      | La Placita*   | 1065 NM Highway 65         |
| 15      | Ilfeld        | 1000 San Ysidro Road       |
| 16      | Rowe*         | 4009 Old Las Vegas Highway |
| 17      | Pecos Canyon  | 607 South State Road 63    |
| 18      | Sapello       | 416 High Country           |
| 19      | Rociada       | 1200 High Country Road     |
| 20      | San Ignacio*  | 500 Hermits Peak Road      |
| 21      | Sheridan      | 3327 Ojitos Frios Road     |
| 22      | Los Montoyas* | 801 Anton Chico Road       |
| 23      | Tecolotito*   | 407 Tecolotito Road        |
| 24      | Trementina    | 100 Sabinoso Road          |
| 25      | Trujillo*     | 4300 Trujillo Route Road   |
| 26      | East Pecos*   | SMC-B51 And SR 223         |

Source: San Miguel County Fire Chief website. Available at <[http://www.smccounty.net/fire\\_marshall.htm](http://www.smccounty.net/fire_marshall.htm)>.

\*Designates proposed county sub-stations

County fire districts also work with municipal fire departments in the City of Las Vegas and the Village of Pecos that provide mutual aid and have developed water systems and fire hydrants for fire suppression. New Mexico State Forestry's Las Vegas District, located at Storrie Lake State Park in Las Vegas, also provides fire suppression response for Wildland fires on state and private lands in the county.

The U.S. Department of Agriculture (USDA) Forest Service, Santa Fe National Forest Pecos/Las Vegas Ranger District administers a large portion of the forested lands in the county. They provide initial attack fire suppression resources and they can mobilize a significant number of resources for extended attack wildfire suppression through their local, regional and national interagency dispatch centers. Other federal agencies such as the Bureau of Land Management and the National Park Service, Pecos National Historical Park have limited initial attack resources in the county but participate in the interagency dispatch and mobilization. San Miguel County fire districts provide primary fire suppression response for the U.S. Fish and Wildlife Service at McAllister Lake Wildlife Refuge. The Pecos National Historical Park has an agreement with the Village of Pecos stating that the Village will provide structural fire protection to Park buildings. The County Road Department can respond to wildfires with road graders. The State of New Mexico Department of Transportation can also respond to wildfires when life or property is threatened.

## 8.6 Current Communications Mitigation Programs

In January 2010, the City of Las Vegas Community Development Division received funding from the Department of Homeland Security and Emergency Management to upgrade all radios in the Transportation Department.

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## 9. PLAN IMPLEMENTATION, MONITORING AND UPDATES

### 9.1 Interim Final Rule for Plan Monitoring and Maintenance

**Requirement §201.6(c)(4)(i):** *[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle*

**Requirement §201.6(c)(4)(ii):** *[The plan 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.*

**Requirement §201.6(c)(4)(iii):** *[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.*

The San Miguel County Hazard Mitigation Plan will be monitored, maintained, and updated by the San Miguel County and City of Las Vegas Office of Emergency Management (OEM) Director, with the assistance and participation of all participating jurisdictions included in the Plan.

The contact information for the San Miguel County OEM is:

**Dennis English**  
**Emergency Manager**  
**SMC/LV Office of Emergency Management**  
**denglish@smcounty.net**  
**505.425.6190**

### 9.2 Method for Monitoring the Plan

The County's maintenance strategy for implementation, monitoring, and evaluation provides a structure that encourages collaboration, information sharing, and innovation. Through a multi-tiered implementation method, the County will work with partners and residents to implement a highly localized approach to loss reduction while serving communal needs through coordinated policies and programs. Through this strategy, San Miguel County will work to break the disaster cycle and achieve more disaster resistant communities.

This Plan will be monitored by the Emergency Manager. The Emergency Manager will monitor the plan at least annually for several related purposes:

- To maintain the currency of hazard and risk information;
- To ensure that the mitigation strategies reflect the priorities of participating communities and stakeholders;
- To comply with Federal Emergency Management Agency (FEMA) and State of New Mexico requirements for plan maintenance;
- To maintain eligibility for state and federal disaster assistance and mitigation grants for San Miguel County, the City of Las Vegas, and the Village of Pecos; and
- To ensure this Plan is in harmony with other planning efforts throughout the planning area.

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The Emergency Manager will continuously monitor the Plan with respect to the purposes noted above, and with respect to the update triggers noted below.

### **9.2.1 Implementation**

In order to ensure efficient and effective implementation, the County will make use of its existing capabilities and infrastructure. When funding and opportunities arise, the County and all participating jurisdictions will work to implement the mitigation strategies described in this Plan over the next five years. In many cases, it is intended that these strategies will be implemented as collaborative efforts, as partnerships between the County and the respective jurisdiction(s).

The Emergency Manager will work in conjunction with those departments identified in both the capability identification and the mitigation strategy section to initiate the strategy outlined in the Mitigation Action Plan for each participating jurisdiction. For example, all measures involving public information and outreach will be coordinated with the City/Village Council or County Commission, which serve as the elected representatives of the jurisdiction.

### **9.2.2 Public Education Programs**

At the individual resident level, public education and outreach programs provide the planning area with localized mechanisms for implementation. This approach to mitigation can adapt to the varying vulnerabilities and needs throughout the planning area. Public education programs are also a means for involving the public in mitigation policy development. Departments conducting mitigation-related programs will provide information regarding proposed mitigation measures to individuals, to aid individuals in choosing methods those that would be most effective in their communities.

The public education programs level will also include NFIP recommended aspects that will help establish the planning area's participating in the CRS, should the jurisdictions opt to join the program.

### **9.2.3 Hazard Mitigation Plan Mitigation Planning Group**

The San Miguel County Hazard Mitigation Plan MPG, who oversaw the development of this Plan, will be the body responsible for determining the direction of mitigation policy recommendations, for reviewing the performance measures, and for Plan implementation. The MPG, which also includes the County's LEPC, represents a County-wide group of hazard and vulnerability experts and government employees whose departments will be responsible for many of the implementation activities. The MPG will be responsible for collaborating on County-wide policies and programs on the city/village level.

When required, but at least annually, the MPG will be responsible for monitoring, evaluating, and updating the Plan (discussed below). The MPG will ultimately provide a mechanism for coordination among those departments engaged in mitigation to ensure that a comprehensive and efficient approach be undertaken in the planning area's efforts at all-hazards mitigation. The Emergency Manager will initiate and coordinate these efforts.

### **9.3 Schedule for Monitoring the Plan**

This is the first hazard mitigation plan for San Miguel County, the City of Las Vegas, and the Village of Pecos. Through the first five-year cycle, plan monitoring activities will be ongoing. In addition to the FEMA-mandated five year update cycle, the OEM will perform a review of the current Plan at least annually, or more often as circumstances require. At least annually, a progress report will be prepared by each participating jurisdiction, noting any updates to information in the Plan or progress that has been made towards the goals, objectives or actions identified in the Plan.

In addition to the scheduled reports, the Mitigation Planning Group will convene meetings after damage-causing natural hazard events to review the impacts of such events. Based on those impacts, adjustments to the mitigation priorities identified in the mitigation strategies may be made or additional event-specific actions may be identified.

### **9.4 Method and Schedule for Evaluating and Updating the Plan**

The San Miguel County Hazard Mitigation Plan will be updated within five years, and will be submitted to NMDHSEM and FEMA for review and approval.

Comprehensive review of and revisions to this Plan will be undertaken on a five-year cycle. This Plan was adopted in November 12, 2014, and thus must undergo a formal FEMA-compliant update process by November 12, 2019. Approximately 18-24 months prior to the five year anniversary of Plan adoption, the OEM will initiate a comprehensive review of the Plan with particular attention to FEMA guidance, and will likely seek funding to perform this update.

The OEM will prepare a report (1) describing the update requirements; (2) summarizing the staff analysis of the Plan, highlighting areas that require modification and explaining the reasons why the modification is needed, and; (3) providing detailed recommendations about how the Plan should be updated, noting any technical work that may be required. The report will be provided to the MPG for consideration; the Committee will review the report and provide recommendations for updates. The report will also be posted on the County's website for public review and comment, with notifications provided to all participating jurisdictions for dissemination within their community.

The OEM will be responsible for the completion of any updates determined necessary by the MPG.

When the draft updates are completed, the MPG will conduct a comprehensive evaluation and revision. The OEM will produce a final draft of the updated Plan for consideration by the MPG, who will review the updated Plan, indicate any desired changes, and recommend approval and adoption of the Plan in sufficient time to meet FEMA requirements.

### **9.5 Incorporation into Existing Planning Mechanisms**

A wide array of planning authority and action capability exists within the planning area. Participating jurisdictions will take the opportunity to incorporate information from the 2014 Plan into their existing programs and decision-making processes, and use the Plan data to focus on the risks and vulnerabilities they face. This data and information will be used, to the extent possible and practicable, to create more sustainable, disaster-resilient communities. The existing efforts

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effort will continue with the adoption and approval of this Plan, which contains a higher degree of detailed information by jurisdiction than previously collected information.

A variety of existing plans were reviewed and considered during the development of this Plan update, including but not limited to:

- After Action Reports
- Comprehensive Plans
- Land Use Plans
- Master Plans
- Water Management Plans/Policies
- Wildfire Plans
- Zoning Codes/Ordinances
- State Hazard Mitigation Plan
- State Fire and Building Codes

Going forward, this Plan will be considered in the development and updating of new and existing plans and planning efforts. All participating jurisdictions in this Plan are responsible for creating and maintaining a process by which this Plan will be considered and incorporated into their other planning mechanisms. This work will be accomplished with the assistance of the San Miguel County OEM.

Upon approval of this Plan, each participating jurisdiction will be provided with a copy of the approved Plan. The identified point of contact for each participating jurisdiction will be responsible for ensuring that the approved Plan is available to the appropriate staff within the jurisdiction, to ensure that the Plan can be incorporated into all applicable planning mechanisms. In addition, the Plan will be posted to the County's website, where it will be available to and accessible by the general public as well as all participating jurisdictions.

## **9.6 Circumstances that will Initiate Plan Review and Updates**

This section identifies the circumstances or conditions under which the OEM will initiate Plan reviews and/or updates:

- On the recommendation of the MPG or on its own initiative, any City Council or County Commission may initiate a Plan review at any time
- At the close of each calendar year
- After natural hazard events that appear to significantly change the apparent risk to the planning area's assets, operations and/or constituents

The Plan will guide the planning area's mitigation efforts for the foreseeable future. The MPG has developed a method to ensure that regular review and update of the Plan occurs within a five-year cycle. The OEM will coordinate all reviews.

The OEM will collaborate with members of the Steering Committee to monitor and evaluate the mitigation strategy implementation. This will be done through project implementation tracking. Findings will be presented and discussed at LEPC and MPG meetings.



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At the close of each calendar year, the OEM will provide each participating jurisdiction with a project implementation questionnaire. This questionnaire will provide the mechanism by which project implementation information can be collected and tracked, and will allow for an assessment of the overall implementation of the Plan, at both the County and the municipal levels.

The OEM will provide a report of the entire implementation strategy to the Steering Committee during meetings. This report will drive will include the following:

- Updates on implementation at the public education and community planning levels
- Updates on mitigation activities undertaken
- Updates on hazard occurrences in the County, City of Las Vegas, and Village of Pecos
- Changes or anticipated changes in hazard risk and vulnerability at the county, regional, State, FEMA, and US Department of Homeland Security levels
- Any implementation activities undertaken, by participating jurisdiction
- Problems encountered or success stories
- Any technical or scientific advances that may alter, make easier, or create new measures

Finally, the MPG will determine updates to the strategy based on the above information and a discussion of:

- The various resources available through budgetary means as well as any relevant grants
- The current and expected political environment and public opinion
- Meeting the mitigation goals with regards to changing conditions.

## **9.7 Continued Public Involvement**

As noted above, this Plan will be evaluated and updated periodically and when certain triggering events occur. The County and participating jurisdictions will utilize public notices in an effort to include the public in the update process. The OEM, in conjunction with the participating jurisdictions, will undertake public outreach and awareness activities as outlined in the Mitigation Action Plan.

San Miguel County and its participating jurisdictions are dedicated to continued public involvement and education in review and updates of the Plan. This dedication is reflected in many of the mitigation measures described in the Mitigation Action Plan. The MPG will seek comment at such time the plan undergoes a formal update. In addition, the MPG is committed to public education and will include information regarding hazard mitigation and community disaster resistance in educational materials and presentations as appropriate.

The public will also have the opportunity to provide ongoing feedback about the Plan. The County will maintain a copy of the Plan on its website, which will be accessible to the general public for the entire approval period.

The tiered implementation structure provides an opportunity for continuous public involvement. Public education campaigns and community planning groups are a means of informing the public on updates and implementation activities. Each participating jurisdiction will provide a public meeting prior to the adoption of the Plan; public comments will be requested during this meeting. The meeting will provide the public a forum for expressing concerns, opinions, or ideas about the

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Plan as well as other plans. These meetings will be advertised in advance through a variety of media.

## APPENDIX A: DEFINITIONS

**Annualized Earthquake Loss (AEL):** The estimated long-term value of earthquake losses in any given single year in a specified geographic area.

**Annualized Earthquake Loss Ratio (AELR):** The ratio of the average annualized earthquake loss to the replacement value of the building inventory. This ratio is used as a measure of relative risk, since it considers replacement value, and can be directly compared across different geopolitical units including census tracts, counties, and states.

**Blizzard Warning:** Issued for sustained or gusty winds of 35 mph or more, and falling or blowing snow creating visibilities at or below  $\frac{1}{4}$  mile; these conditions should persist for at least three hours.

**Blowing Snow:** Wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow that is falling and/or loose snow on the ground picked up by the wind.

**Dense Fog Advisory:** Issued when fog will reduce visibility to  $\frac{1}{4}$  mile or less over a widespread area.

**Freezing Rain:** Rain that falls onto a surface with a temperature below freezing. This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Even small accumulations of ice can cause a significant hazard.

**Hazard:** A source of potential danger or an adverse condition. For example, a hurricane occurrence is the source of high winds, rain, and coastal flooding, all of which can cause fatalities, injuries, property damage, infrastructure damage, interruption of business, or other types of harm or loss.

**Hazard Identification:** Hazard identification involves determining the physical characteristics of a particular hazard - magnitude, duration, frequency, probability, and extent – for a site or a community.

**Risk:** The likelihood of sustaining a loss from a hazard event defined in terms of expected probability and frequency, exposure, and consequences, such as, death and injury, financial costs of repair and rebuilding, and loss of use.

**Risk Analysis:** The process of measuring or quantifying risk. Risk analysis combines hazard identification and vulnerability assessment and answers three basic questions:

- What hazard events can occur in the community?
- What is the likelihood of these hazard events occurring?
- What are the consequences if the hazard event occurs?

**Risk Assessment:** The overall significance of the consequences of a risk analysis for a given planning area.

**Sleet:** Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects. However, it can accumulate like snow and cause a hazard to motorists.

**Snow Flurries:** Light snow falling for short durations. No accumulation or light dusting is all that is expected.

**Snow Showers:** Snow falling at varying intensities for brief periods of time. Some accumulation is possible.

**Snow Squalls:** Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant. Snow squalls are best known in the Great Lakes region of the U.S.

**Vulnerability Assessment:** The process of assessing the vulnerability of people and the built environment to a given level of hazard. The quantification of impacts (i.e., loss estimation) for a hazard event is part of the vulnerability assessment.

**Wind Chill Advisory:** Issued when wind chill temperatures are expected to be a significant inconvenience to life with prolonged exposure, and, if caution is not exercised, could lead to hazardous exposure.

**Wind Chill Warning:** Issued when wind chill temperatures are expected to be hazardous to life within several minutes of exposure.

**Winter Storm Outlook:** Issued prior to a Winter Storm Watch. The Outlook is given when forecasters believe winter storm conditions are possible and are usually issued 3 to 5 days in advance of a winter storm.

**Winter Storm Warning:** Issued when hazardous winter weather in the form of heavy snow, heavy freezing rain, or heavy sleet is imminent or occurring. Winter Storm Warnings are usually issued 12 to 24 hours before the event is expected to begin.

**Winter Storm Watch:** Alerts the public to the possibility of a blizzard, heavy snow, heavy freezing rain, or heavy sleet. Winter Storm Watches are usually issued 12 to 48 hours before the beginning of a Winter Storm.

**Winter Weather Advisories:** Issued for accumulations of snow, freezing rain, freezing drizzle, and sleet which will cause significant inconveniences and, if caution is not exercised, could lead to life-threatening situations.

**APPENDIX B: NATIONAL CLIMATIC DATA CENTER HAZARD HISTORY FOR SAN MIGUEL COUNTY**

| BGN_DATE  | EVTYPE    | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS |
|-----------|-----------|--------|-------|---|------|-----|-----|---------|---------|
| 20-Oct-57 | TORNADO   | 0      | 33    | 0 | 0    | 0   | 0   | 0.03K   |         |
| 11-Jul-58 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 11-Jul-58 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 23-May-59 | TORNADO   | 1      | 400   | 0 | 0    | 0   | 0   | 0.03K   |         |
| 11-Jul-59 | HAIL      | 0      | 0     |   | 3    | 0   | 0   | 0       |         |
| 12-Jul-61 | HAIL      | 0      | 0     |   | 2.5  | 0   | 0   | 0       |         |
| 26-Apr-62 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 31-Aug-62 | TORNADO   | 0      | 33    |   | 0    | 0   | 0   | 0       |         |
| 31-Aug-62 | TORNADO   | 0      | 33    |   | 0    | 0   | 0   | 0       |         |
| 16-Jun-65 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 14-Aug-65 | HAIL      | 0      | 0     |   | 0.75 | 0   | 0   | 0       |         |
| 25-May-66 | HAIL      | 0      | 0     |   | 0.75 | 0   | 0   | 0       |         |
| 18-Jun-66 | TORNADO   | 0.8    | 33    | 1 | 0    | 0   | 0   | 25K     |         |
| 18-Jun-66 | HAIL      | 0      | 0     |   | 2.75 | 0   | 0   | 0       |         |
| 05-Aug-66 | TSTM WIND | 0      | 0     |   | 52   | 0   | 0   | 0       |         |
| 09-Aug-66 | TSTM WIND | 0      | 0     |   | 50   | 0   | 0   | 0       |         |
| 01-Jun-67 | HAIL      | 0      | 0     |   | 0.75 | 0   | 0   | 0       |         |
| 02-Jun-67 | TSTM WIND | 0      | 0     |   | 52   | 0   | 0   | 0       |         |
| 12-May-68 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 16-Jun-68 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 01-Jul-68 | TSTM WIND | 0      | 0     |   | 50   | 0   | 0   | 0       |         |
| 14-Oct-68 | TSTM WIND | 0      | 0     |   | 50   | 0   | 0   | 0       |         |
| 15-Oct-68 | TSTM WIND | 0      | 0     |   | 52   | 0   | 0   | 0       |         |
| 17-Apr-70 | HAIL      | 0      | 0     |   | 0.75 | 0   | 0   | 0       |         |
| 14-May-70 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |

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| BGN_DATE  | EVTYPE    | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS |
|-----------|-----------|--------|-------|---|------|-----|-----|---------|---------|
| 29-Jul-71 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 09-Jul-72 | TSTM WIND | 0      | 0     |   | 55   | 0   | 0   | 0       |         |
| 16-Jul-72 | HAIL      | 0      | 0     |   | 0.75 | 0   | 0   | 0       |         |
| 23-Mar-73 | HAIL      | 0      | 0     |   | 1.5  | 0   | 0   | 0       |         |
| 21-May-73 | TSTM WIND | 0      | 0     |   | 0    | 0   | 0   | 0       |         |
| 10-Aug-73 | HAIL      | 0      | 0     |   | 2    | 0   | 0   | 0       |         |
| 02-Jun-74 | TSTM WIND | 0      | 0     |   | 52   | 0   | 0   | 0       |         |
| 03-Jun-74 | TORNADO   | 0      | 33    | 1 | 0    | 0   | 0   | 25K     |         |
| 09-Jun-75 | HAIL      | 0      | 0     |   | 1.75 | 0   | 0   | 0       |         |
| 20-Sep-75 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 03-Jul-76 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 07-Aug-76 | TSTM WIND | 0      | 0     |   | 57   | 0   | 0   | 0       |         |
| 24-May-77 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 01-Apr-78 | TSTM WIND | 0      | 0     |   | 52   | 0   | 0   | 0       |         |
| 08-May-80 | TSTM WIND | 0      | 0     |   | 50   | 0   | 0   | 0       |         |
| 23-Jun-81 | TORNADO   | 0      | 33    | 1 | 0    | 0   | 0   | 2.5K    |         |
| 13-Jun-82 | HAIL      | 0      | 0     |   | 1.75 | 0   | 0   | 0       |         |
| 13-Jun-82 | TORNADO   | 0.1    | 3     | 1 | 0    | 0   | 0   | 0.03K   |         |
| 13-Jun-82 | HAIL      | 0      | 0     |   | 1.75 | 0   | 0   | 0       |         |
| 13-Jun-82 | HAIL      | 0      | 0     |   | 1.75 | 0   | 0   | 0       |         |
| 20-Jun-82 | HAIL      | 0      | 0     |   | 0.75 | 0   | 0   | 0       |         |
| 26-Jun-82 | HAIL      | 0      | 0     |   | 4.5  | 0   | 0   | 0       |         |
| 06-Sep-82 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 08-Jun-83 | HAIL      | 0      | 0     |   | 1    | 0   | 0   | 0       |         |
| 30-Jun-87 | HAIL      | 0      | 0     |   | 3    | 0   | 0   | 0       |         |
| 08-Aug-87 | TSTM WIND | 0      | 0     |   | 0    | 0   | 0   | 0       |         |
| 04-Jun-89 | HAIL      | 0      | 0     |   | 1.75 | 0   | 0   | 0       |         |

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| BGN_DATE  | EVTYPE      | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS   |
|-----------|-------------|--------|-------|---|------|-----|-----|---------|---|
| 09-Jun-89 | HAIL        | 0      | 0     |   | 1.75 | 0   | 0   | 0       |   |
| 20-Jul-89 | HAIL        | 0      | 0     |   | 2    | 0   | 0   | 0       |   |
| 20-Jul-89 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       |   |
| 28-Jun-90 | TSTM WIND   | 0      | 0     |   | 52   | 0   | 0   | 0       |   |
| 13-Jul-90 | HAIL        | 0      | 0     |   | 0.75 | 0   | 0   | 0       |   |
| 14-Aug-90 | TORNADO     | 0.2    | 10    | 0 | 0    | 0   | 0   | 0       |   |
| 27-Jun-92 | TORNADO     | 0.8    | 73    | 2 | 0    | 0   | 0   | 25K     |   |
| 17-Jul-92 | TSTM WIND   | 0      | 0     |   | 0    | 0   | 0   | 0       |   |
| 13-May-92 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       |   |
| 16-May-93 | LIGHTNING   | 0      | 0     |   | 0    | 1   | 0   | 0       | A 58 year-old male tourist was struck and killed by lightning at a resort 20 miles northwest of Las Vegas. The victim was riding bicycles with his granddaughter, and sought shelter under a tall pine tree during the storm. |
| 05-Aug-93 | FLASH FLOOD | 0      | 0     |   | 0    | 0   | 0   | 5K      | Heavy rains flooded several roads and culverts in Las Vegas this afternoon. Several homes and trailers also received some flood damage.   |
| 28-May-94 | HAIL        | 0      | 0     |   | 1.75 | 0   | 0   | 0       |   |
| 17-Jul-94 | HAIL        | 0      | 0     |   | 1.75 | 0   | 0   | 0       | State police reported Ping-Pong ball-size hail and heavy rain which forced cars off the road along Interstate 25.   |
| 05-May-95 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       | Conchas Lake officials reported nickel- to golf ball-size hail at times covering the ground over two inches deep.   |
| 05-May-95 | HAIL        | 0      | 0     |   | 1.25 | 0   | 0   | 0       | Conchas Lake officials reported nickel- to golf ball-size hail at times covering the ground over two inches deep.   |
| 05-May-95 | HAIL        | 0      | 0     |   | 1.75 | 0   | 0   | 0       | Conchas Lake officials reported nickel- to golf ball-size hail at times covering the ground over two inches deep.   |
| 25-Jun-95 | HAIL        | 0      | 0     |   | 0.75 | 0   | 0   | 0       |   |

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| BGN_DATE  | EVTYPE      | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS  |
|-----------|-------------|--------|-------|---|------|-----|-----|---------|--|
| 26-Jun-95 | HAIL        | 0      | 0     |   | 1.75 | 0   | 0   | 10K     | Hail ranging from quarter to golf ball-size damaged mobile homes and vehicles in Las Vegas and also five miles south of the city.  |
| 29-Jun-95 | FLASH FLOOD | 0      | 0     |   | 0    | 0   | 14  | 0.3M    |  |
| 30-May-96 | HAIL        | 0      | 0     |   | 1.75 | 0   | 0   | 0       |  |
| 02-Jun-96 | HAIL        | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |
| 03-Jun-96 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       | Hail to 1 inch covered the ground like snow from 1S of Las Vegas to 10S of Tecolote on both sides of Interstate 25.  |
| 10-Jul-96 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       |  |
| 24-Jul-96 | HAIL        | 0      | 0     |   | 1.75 | 0   | 0   | 0       |  |
| 30-Aug-96 | HAIL        | 0      | 0     |   | 2.25 | 0   | 0   | 0       |  |
| 30-Aug-96 | HAIL        | 0      | 0     |   | 1.5  | 0   | 0   | 0       |  |
| 30-Aug-96 | HAIL        | 0      | 0     |   | 1.5  | 0   | 0   | 80K     | A large severe storm moved over western San Miguel county producing heavy rain and considerable hail damage. Brief flash flooding was also reported in Las Vegas.  |
| 30-Aug-96 | HAIL        | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |
| 02-Apr-97 | HAIL        | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |
| 02-Apr-97 | HAIL        | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |
| 30-May-97 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       | Several supercells developed near the Colorado border and moved rapidly southward through the highlands of northeast New Mexico. One cell formed west of Raton and moved south with hail over Cimarron, then continued southward over open range west of Wagon |
| 07-Jun-97 | FLOOD       | 0      | 0     |   | 0    | 0   | 0   | 80K     | The Pecos River, already swollen by late season snowmelt, rose quickly during 12 to 18 hours of steady rain which totaled nearly 3   |



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| BGN_DATE  | EVTYPE      | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS  |
|-----------|-------------|--------|-------|---|------|-----|-----|---------|--|
|           |             |        |       |   |      |     |     |         | inches in the watershed above Pecos. The combined heavy runoff caused damage to several private bridges and filled low cross   |
| 03-Jul-97 | HAIL        | 0      | 0     |   | 1.5  | 0   | 0   | 0       |  |
| 01-Aug-97 | FLASH FLOOD | 0      | 0     |   | 0    | 0   | 0   | 150K    | Heavy rain in central San Miguel county produced rock and mud slides which closed Highway 104 about 15 miles west of Trujillo and washed away much of the road material along a 2.6 miles stretch of County Road C-51-A near Trujillo.                         |
| 20-Aug-97 | HAIL        | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |
| 10-Sep-97 | HAIL        | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |
| 30-Jul-98 | FLASH FLOOD | 0      | 0     |   | 0    | 0   | 0   | 2K      | Heavy thunderstorms produced small hail and brief flash flooding from near Gallinas southeast into Las Vegas. Damage was limited to rural road washouts.<br>Two separate lines of thunderstorms formed over eastern New Mexico and then merged into a complex. |
| 03-Aug-98 | TORNADO     | 0.1    | 30    | 0 | 0    | 0   | 0   | 0       | Several funnel clouds were reported during a five minute period near McAlister Lake. A brief tornado touchdown overturned a cattle feeder.   |
| 19-Aug-98 | FLASH FLOOD | 0      | 0     |   | 0    | 0   | 0   | 0       | Three and one-half inches of rain in several hours caused large areas of standing water and closed roads around Conchas.   |
| 29-Sep-98 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       |  |
| 25-May-99 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       |  |
| 29-May-99 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       |  |
| 28-Jun-99 | HAIL        | 0      | 0     |   | 1.75 | 0   | 0   | 0       |  |
| 08-Jul-99 | HAIL        | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |

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| BGN_DATE  | EVTYPE           | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS   |
|-----------|------------------|--------|-------|---|------|-----|-----|---------|---|
| 12-Sep-99 | HAIL             | 0      | 0     |   | 0.88 | 0   | 0   | 0       |   |
| 30-May-00 | WILD/FOREST FIRE | 0      | 0     |   | 0    | 0   | 0   | 1.2M    | The Viveash Mesa Fire in northwest San Miguel County began May 30 from unknown causes and quickly spread in hot and dry conditions to consume nearly 30,000 acres of wildland forest. Several ranch buildings were lost to this fire. |
| 02-Jun-00 | FLASH FLOOD      | 0      | 0     |   | 0    | 0   | 0   | 0       | Heavy rain of near 1 inch over the Viveash Burn area northeast of Pecos sent a 5 foot surge of ash and debris down Cow Creek. A large fish kill was reported at the confluence with the Pecos River.                                  |
| 05-Jun-00 | FLASH FLOOD      | 0      | 0     |   | 0    | 0   | 0   | 10K     | Observer reported flooded ranch roads and fence damage following heavy rain of 1-2 inches in less than an hour.   |
| 06-Jun-00 | HAIL             | 0      | 0     |   | 1    | 0   | 0   | 0       |   |
| 28-Jun-00 | FLASH FLOOD      | 0      | 0     |   | 0    | 0   | 0   | 0       | Heavy road flooding was reported near Romeroville during a storm that produced about 2 inches of rain in less than an hour.   |
| 23-Oct-00 | FLASH FLOOD      | 0      | 0     |   | 0    | 0   | 0   | 0       | Heavy rain or more than 2 inches produced flooding of numerous low water crossings southwest of Las Vegas.  |
| 29-Apr-01 | HAIL             | 0      | 0     |   | 0.75 | 0   | 0   | 0       |   |
| 11-May-01 | HAIL             | 0      | 0     |   | 0.75 | 0   | 0   | 0       | Hail 3 to 5 inches deep covered Interstate 25 north of Las Vegas.   |
| 11-May-01 | HAIL             | 0      | 0     |   | 0.75 | 0   | 0   | 0       |   |
| 07-Jun-01 | HAIL             | 0      | 0     |   | 0.75 | 0   | 0   | 0       |   |
| 07-Jun-01 | TSTM WIND        | 0      | 0     |   | 60   | 0   | 0   | 0       |   |
| 08-Jun-01 | HAIL             | 0      | 0     |   | 1    | 0   | 0   | 0       | One inch hail accumulated 3-5 inches deep on Highway 84.  |
| 20-Jun-01 | HAIL             | 0      | 0     |   | 0.75 | 0   | 0   | 0       |   |

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| BGN_DATE  | EVTYPE            | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS   |
|-----------|-------------------|--------|-------|---|------|-----|-----|---------|---|
| 21-Jun-01 | HAIL              | 0      | 0     |   | 1.75 | 0   | 0   | 0       |   |
| 13-Jul-01 | HAIL              | 0      | 0     |   | 0.75 | 0   | 0   | 0       | Hail and heavy rain of 1.5 inch in 30 minutes was reported at Conchas Dam.  |
| 11-Jul-02 | TSTM<br>WIND/HAIL | 0      | 0     |   | 0    | 0   | 0   | 0       | Marble sized hail covered Interstate 25 up to eight inches deep at mile marker 350-352 north of Las Vegas.  |
| 04-Jun-02 | HAIL              | 0      | 0     |   | 1.75 | 0   | 0   | 0       |   |
| 16-Jun-02 | HAIL              | 0      | 0     |   | 0.75 | 0   | 0   | 0       |   |
| 16-Jun-02 | HAIL              | 0      | 0     |   | 0.88 | 0   | 0   | 0       | Hail to nickel size covered the ground at Conchas Lake.   |
| 13-Jun-03 | HAIL              | 0      | 0     |   | 2    | 0   | 0   | 0       | Thunderstorms which produced large hail over central New Mexico between Las Vegas and Clines Corners moved east with a strong out flow boundary to trigger additional intense storms over east central sections of the state.             |
| 04-Jun-03 | FUNNEL CLOUD      | 0      | 0     |   | 0    | 0   | 0   | 0       | A small thunderstorm that formed over south central San Miguel County at midafternoon moved eastward into northwest Quay County where it intensified. Near Tucumcari the storm developed strong mesocyclone radar signatures.             |
| 04-Jun-03 | HAIL              | 0      | 0     |   | 1.75 | 0   | 0   | 0       | Storms that formed over central Colfax County intensified and move south-southeast as a storm complex that produced large 2 to 3 inch diameter hail and high winds from just east of Springer then southward between Wagon Mound and Roy. |
| 04-Jun-03 | HAIL              | 0      | 0     |   | 2.5  | 0   | 0   | 0       | Storms that formed over central Colfax County intensified and move south-southeast as a storm complex that produced large 2 to 3 inch diameter hail and high winds from just east of  |

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| BGN_DATE  | EVTYPE     | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS  |
|-----------|------------|--------|-------|---|------|-----|-----|---------|--|
|           |            |        |       |   |      |     |     |         | Springer then southward between Wagon Mound and Roy.   |
| 13-Jun-03 | HAIL       | 0      | 0     |   | 1    | 0   | 0   | 0       | Thunderstorms which produced large hail over central New Mexico between Las Vegas and Clines Corners moved east with a strong out flow boundary to trigger additional intense storms over east central sections of the state.        |
| 13-Jun-03 | HAIL       | 0      | 0     |   | 0.75 | 0   | 0   | 0       | Thunderstorms which produced large hail over central New Mexico between Las Vegas and Clines Corners moved east with a strong out flow boundary to trigger additional intense storms over east central sections of the state.        |
| 07-Jul-03 | HAIL       | 0      | 0     |   | 1.5  | 0   | 0   | 0       | An intense thunderstorm which began during late afternoon over San Miguel County west of Las Vegas moved south into eastern Torrance County producing a near continuous swath of 1 to 3 inch hail before collapsing north of Encino. |
| 07-Jul-03 | HAIL       | 0      | 0     |   | 0.75 | 0   | 0   | 0       | An intense thunderstorm which began during late afternoon over San Miguel County west of Las Vegas moved south into eastern Torrance County producing a near continuous swath of 1 to 3 inch hail before collapsing north of Encino. |
| 04-Sep-03 | HEAVY RAIN | 0      | 0     |   | 0    | 0   | 0   | 0       | Heavy rain of 3 inches in 90 minutes caused Tecolote Creek to overflow onto Road 283 near Camp Bluehaven and San Geronimo.   |
| 19-Jun-04 | HAIL       | 0      | 0     |   | 0.88 | 0   | 0   | 0       | Accumulation of hail on Interstate 25 caused several accidents.  |
| 19-Jun-04 | HAIL       | 0      | 0     |   | 1    | 0   | 0   | 0       |  |
| 19-Jun-04 | HAIL       | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |

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| BGN_DATE  | EVTYPE | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS  |
|-----------|--------|--------|-------|---|------|-----|-----|---------|--|
| 19-Jun-04 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       |  |
| 19-Jun-04 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       |  |
| 20-Jun-04 | HAIL   | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |
| 06-Jul-04 | HAIL   | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |
| 12-Aug-04 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       |  |
| 12-Aug-04 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       |  |
| 13-Aug-04 | HAIL   | 0      | 0     |   | 1.75 | 0   | 0   | 0       |  |
| 29-Aug-04 | HAIL   | 0      | 0     |   | 0.88 | 0   | 0   | 0       |  |
| 30-May-05 | HAIL   | 0      | 0     |   | 0.88 | 0   | 0   | 0       | Intense storms with extended periods of large hail formed during early afternoon between Raton and Santa Rosa then moved southeast staying over the open rangelands mainly west and northwest of Tukumcari but reaching Clovis before dissipating during early |
| 30-May-05 | HAIL   | 0      | 0     |   | 1.25 | 0   | 0   | 0       | Several intense storms that formed north and northwest of Tukumcari during early evening moved southeast across east central New Mexico to reach Clovis and eastern Roosevelt by late evening.   |
| 30-May-05 | HAIL   | 0      | 0     |   | 1.25 | 0   | 0   | 0       | Several intense storms that formed north and northwest of Tukumcari during early evening moved southeast across east central New Mexico to reach Clovis and eastern Roosevelt by late evening.   |
| 25-May-05 | HAIL   | 0      | 0     |   | 1.75 | 0   | 0   | 0       | Storms with bursts of large hail formed near Las Vegas propagated southeast into east central New Mexico and finally diminished over Chaves County.  |
| 25-May-05 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       | Storms with bursts of large hail formed near Las Vegas propagated southeast into east central New Mexico and finally diminished over Chaves County.  |

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| BGN_DATE  | EVTYPE | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS  |
|-----------|--------|--------|-------|---|------|-----|-----|---------|--|
| 27-May-05 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       | Storms with large hail developed south of Las Vegas into northwest Guadalupe County to Interstate 40 at mile marker 240.       |
| 27-May-05 | HAIL   | 0      | 0     |   | 0.75 | 0   | 0   | 0       | Storms with large hail developed south of Las Vegas into northwest Guadalupe County to Interstate 40 at mile marker 240.       |
| 27-May-05 | HAIL   | 0      | 0     |   | 1.75 | 0   | 0   | 0       | Storms with large hail developed south of Las Vegas into northwest Guadalupe County to Interstate 40 at mile marker 240.       |
| 27-May-05 | HAIL   | 0      | 0     |   | 0.88 | 0   | 0   | 0       | Storms with large hail developed south of Las Vegas into northwest Guadalupe County to Interstate 40 at mile marker 240.       |
| 06-Jun-05 | HAIL   | 0      | 0     |   | 0.88 | 0   | 0   | 0       | Storm thunderstorms moved slowly east across east central and southeast New Mexico with periods of large hail and gusty winds. |
| 06-Jun-05 | HAIL   | 0      | 0     |   | 0.88 | 0   | 0   | 0       | Storm thunderstorms moved slowly east across east central and southeast New Mexico with periods of large hail and gusty winds. |
| 06-Jun-05 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       | Storm thunderstorms moved slowly east across east central and southeast New Mexico with periods of large hail and gusty winds. |
| 10-Jun-05 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       | An intense storm formed south of Pecos and moved southeast along Interstate 25 before dissipating south of Las Vegas.          |
| 10-Jun-05 | HAIL   | 0      | 0     |   | 1.75 | 0   | 0   | 0       | An intense storm formed south of Pecos and moved southeast along Interstate 25 before dissipating south of Las Vegas.          |
| 10-Jun-05 | HAIL   | 0      | 0     |   | 0.88 | 0   | 0   | 0       | An intense storm formed south of Pecos and moved southeast along Interstate 25 before dissipating south of Las Vegas.          |
| 10-Jun-05 | HAIL   | 0      | 0     |   | 0.88 | 0   | 0   | 0       | An intense storm formed south of Pecos and moved southeast along Interstate 25 before dissipating south of Las Vegas.          |

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| BGN_DATE  | EVTYPE | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS  |
|-----------|--------|--------|-------|---|------|-----|-----|---------|--|
| 10-Jun-05 | HAIL   | 0      | 0     |   | 0.75 | 0   | 0   | 0       | An intense storm formed south of Pecos and moved southeast along Interstate 25 before dissipating south of Las Vegas.  |
| 26-Jun-05 | HAIL   | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |
| 26-Jun-05 | HAIL   | 0      | 0     |   | 0.75 | 0   | 0   | 0       | Several intense storms yielded large hail and heavy rain over the New Mexico central highlands north and south of Las Vegas. Heavy rain of 3 to 4 inches in less than an hour flooded small arroyos and ranch roads southwest of Encino. |
| 04-Jul-05 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       | Several intense storms produce high winds and small hail across east central New Mexico. The storm that moved into Tucumcari knocked down a number of power lines and cancelled 4th of July community fireworks displays.                |
| 05-Jul-05 | HAIL   | 0      | 0     |   | 1.5  | 0   | 0   | 0       | Several intense storms formed near Wagon Mound and then moved southeast into eastern San Miguel County. A storm southwest of Conchas Dam displayed particularly strong hail and brief rotational signatures over the open rangelands.    |
| 05-Jul-05 | HAIL   | 0      | 0     |   | 0.88 | 0   | 0   | 0       | Several intense storms formed near Wagon Mound and then moved southeast into eastern San Miguel County. A storm southwest of Conchas Dam displayed particularly strong hail and brief rotational signatures over the open rangelands.    |
| 05-Jul-05 | HAIL   | 0      | 0     |   | 0.75 | 0   | 0   | 0       | Several intense storms formed near Wagon Mound and then moved southeast into eastern San Miguel County. A storm southwest of Conchas Dam displayed particularly strong   |

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| BGN_DATE  | EVTYPE      | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS   |
|-----------|-------------|--------|-------|---|------|-----|-----|---------|---|
|           |             |        |       |   |      |     |     |         | hail and brief rotational signatures over the open rangelands.  |
| 05-Jul-05 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       | Several intense storms formed near Wagon Mound and then moved southeast into eastern San Miguel County. A storm southwest of Conchas Dam displayed particularly strong hail and brief rotational signatures over the open rangelands. |
| 05-Jul-05 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       | Several intense storms formed near Wagon Mound and then moved southeast into eastern San Miguel County. A storm southwest of Conchas Dam displayed particularly strong hail and brief rotational signatures over the open rangelands. |
| 01-Sep-05 | HAIL        | 0      | 0     |   | 1.75 | 0   | 0   | 0       | Intense thunderstorms with hail and heavy rain moved east across west central San Miguel County. A storm north of Las Vegas pelted the Interstate 25 corridor south of Watrous with about 20 minutes of golf ball size hail.          |
| 01-Sep-05 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       | Intense thunderstorms with hail and heavy rain moved east across west central San Miguel County. A storm north of Las Vegas pelted the Interstate 25 corridor south of Watrous with about 20 minutes of golf ball size hail.          |
| 01-Sep-05 | FLASH FLOOD | 0      | 0     |   | 0    | 0   | 0   | 0       | Intense thunderstorms with hail and heavy rain moved east across west central San Miguel County. A storm north of Las Vegas pelted the Interstate 25 corridor south of Watrous with about 20 minutes of golf ball size hail.          |



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| BGN_DATE  | EVTYPE            | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS   |
|-----------|-------------------|--------|-------|---|------|-----|-----|---------|---|
| 27-Jul-06 | FLASH FLOOD       | 0      | 0     |   | 0    | 0   | 0   | 0       | Heavy rain and strong runoff into Canon Blanco forced the closure of State Road 3 near Aurora. County officials also reported heavy damage to rural roads and culverts across southwest San Miguel County.                                    |
| 14-Jun-06 | TSTM WIND         | 0      | 0     |   | 50   | 0   | 0   | 0       |   |
| 14-Jun-06 | TSTM WIND         | 0      | 0     |   | 50   | 0   | 0   | 0       |   |
| 22-Jun-06 | HAIL              | 0      | 0     |   | 1    | 0   | 0   | 0       |   |
| 22-Jun-06 | HAIL              | 0      | 0     |   | 1.75 | 0   | 0   | 0       |   |
| 22-Jun-06 | HAIL              | 0      | 0     |   | 1    | 0   | 0   | 0       |   |
| 24-Jun-06 | TSTM WIND         | 0      | 0     |   | 51   | 0   | 0   | 0       | Heavy rain and pea size hail also reported.   |
| 24-Jun-06 | HAIL              | 0      | 0     |   | 0.88 | 0   | 0   | 0       |   |
| 11-Sep-06 | HAIL              | 0      | 0     |   | 0.75 | 0   | 0   | 0       |   |
| 11-Jul-07 | HAIL              | 0      | 0     |   | 0.88 | 0   | 0   | 0       | EPISODE NARRATIVE: Deep moisture and strong instability led to an isolated report of large hail in San Miguel county on the 11th.   |
| 25-Aug-07 | HAIL              | 0      | 0     |   | 1    | 0   | 0   | 0       | EPISODE NARRATIVE: A mid-level short wave trough and upper level jet maximum acted on very unstable air to enhance severe thunderstorms that produced large hail across northeast New Mexico.   |
| 10-Sep-07 | HAIL              | 0      | 0     |   | 0.88 | 0   | 0   | 0       | EPISODE NARRATIVE: A back door cold front slid into northeast New Mexico early on the 10th and acted as a focus for thunderstorms during the afternoon hours.   |
| 10-Sep-07 | THUNDERSTORM WIND | 0      | 0     |   | 56   | 0   | 0   | 4K      | EVENT NARRATIVE: The general public reported that a barn roof was blown off.<br>EPISODE NARRATIVE: A back door cold front slid into northeast New Mexico early on the 10th and acted as a focus for thunderstorms during the afternoon hours. |

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| BGN_DATE  | EVTYPE  | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS   |
|-----------|---------|--------|-------|---|------|-----|-----|---------|---|
| 10-Sep-07 | HAIL    | 0      | 0     |   | 1.75 | 0   | 0   | 0       | EVENT NARRATIVE: Hail was observed at Mile Marker 32. EPISODE NARRATIVE: A back door cold front slid into northeast New Mexico early on the 10th and acted as a focus for thunderstorms during the afternoon hours.                                   |
| 10-Sep-07 | HAIL    | 0      | 0     |   | 1    | 0   | 0   | 0       | EVENT NARRATIVE: The hail accumulated to a depth of one to two inches. EPISODE NARRATIVE: A back door cold front slid into northeast New Mexico early on the 10th and acted as a focus for thunderstorms during the afternoon hours.                  |
| 28-Sep-07 | HAIL    | 0      | 0     |   | 0.88 | 0   | 0   | 0       | EPISODE NARRATIVE: A deepening trough of low pressure along the west coast began to draw moisture north into New Mexico early on the 28th. This helped destabilize the atmosphere.  |
| 28-May-08 | TORNADO | 1      | 100   | 0 | 0    | 0   | 0   | 0       | EVENT NARRATIVE: A long-lived supercell spawned at least one tornado on its eastward trek across San Miguel County. A confirmed touchdown was reported and photographed north of Anton Chico.   |
| 28-May-08 | HAIL    | 0      | 0     |   | 2.75 | 0   | 0   | 0       | EPISODE NARRATIVE: A warm unstable air mass and a strongly sheared environment resulted in supercell thunderstorms across parts of New Mexico. Severe storms began near the central mountain chain during the afternoon and spread across the plains. |
| 05-May-08 | HAIL    | 0      | 0     |   | 0.88 | 0   | 0   | 0       | EPISODE NARRATIVE: The first outbreak of severe weather occurred across eastern New Mexico on the afternoon and evening of the 5th.   |
| 28-May-08 | HAIL    | 0      | 0     |   | 2.1  | 0   | 0   | 0       | EPISODE NARRATIVE: A warm unstable air mass and a strongly sheared environment  |

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| BGN_DATE  | EVTYPE  | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS   |
|-----------|---------|--------|-------|---|------|-----|-----|---------|---|
|           |         |        |       |   |      |     |     |         | resulted in supercell thunderstorms across parts of New Mexico. Severe storms began near the central mountain chain during the afternoon and spread across the plains.  |
| 28-May-08 | HAIL    | 0      | 0     |   | 1.75 | 0   | 0   | 0       | EPISODE NARRATIVE: A warm unstable air mass and a strongly sheared environment resulted in supercell thunderstorms across parts of New Mexico. Severe storms began near the central mountain chain during the afternoon and spread across the plains. |
| 28-May-08 | HAIL    | 0      | 0     |   | 1    | 0   | 0   | 0       | EPISODE NARRATIVE: A warm unstable air mass and a strongly sheared environment resulted in supercell thunderstorms across parts of New Mexico. Severe storms began near the central mountain chain during the afternoon and spread across the plains. |
| 28-May-08 | TORNADO | 0      | 25    | 0 | 0    | 0   | 0   | 0       | EVENT NARRATIVE: A tornado briefly touched down 9 miles north of Tucumcari.<br>EPISODE NARRATIVE: A warm unstable air mass and a strongly sheared environment resulted in supercell thunderstorms across parts of New Mexico.                         |
| 19-Jun-08 | HAIL    | 0      | 0     |   | 0.75 | 0   | 0   | 0       | EPISODE NARRATIVE: An upper level disturbance combined with a dry line to trigger thunderstorms across eastern New Mexico, some of which produced large hail.   |
| 27-Jul-08 | HAIL    | 0      | 0     |   | 0.75 | 0   | 0   | 0       | EPISODE NARRATIVE: Deep moisture from the remnants of Dolly and strong instability resulted in a report of large hail in San Miguel county.   |
| 12-Aug-08 | HAIL    | 0      | 0     |   | 1    | 0   | 0   | 0       | EPISODE NARRATIVE: Large hail was observed over San Miguel county while flash flooding occurred in Union county.  |

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|-----------|--------|--------|-------|---|------|-----|-----|---------|---|
| 17-Aug-08 | HAIL   | 0      | 0     |   | 0.75 | 0   | 0   | 0       | EPISODE NARRATIVE: An upper low over Colorado provided adequate wind shear and instability to produce a severe weather outbreak across central and eastern sections of New Mexico. Several of the storms became tornadic while others produced large hail, damaging winds.      |
| 28-Apr-09 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       | EPISODE NARRATIVE: Isolated severe thunderstorms developed along a dry line extending from near Las Vegas to southeast of Clines Corners. Other storms developed along the east slopes of the Sacramento Mountains.   |
| 28-Apr-09 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       | EPISODE NARRATIVE: Isolated severe thunderstorms developed along a dry line extending from near Las Vegas to southeast of Clines Corners. Other storms developed along the east slopes of the Sacramento Mountains.   |
| 27-May-09 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       | EPISODE NARRATIVE: A weak upper level disturbance moving southeast out of southern Colorado provided a focus for scattered to numerous showers and thunderstorms over central and eastern New Mexico on the afternoon of the 26th. Several storms produced heavy rain and hail. |
| 27-May-09 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       | EPISODE NARRATIVE: A weak upper level disturbance moving southeast out of southern Colorado provided a focus for scattered to numerous showers and thunderstorms over central and eastern New Mexico on the afternoon of the 26th. Several storms produced heavy rain and hail. |
| 03-Jun-09 | HAIL   | 0      | 0     |   | 1    | 0   | 0   | 0       | EPISODE NARRATIVE: Northwest flow developed over New Mexico on the 3rd as a   |

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|-----------|--------|--------|-------|---|-----|-----|-----|---------|---|
|           |        |        |       |   |     |     |     |         | shortwave ridge tightened over the southwest. Isolated severe thunderstorms developed over the east slopes of the Sangre de Cristo Mountains and moved southeast.   |
| 06-Jul-09 | HAIL   | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: Continued deep moisture and good shear over the eastern half of New Mexico resulted in another round of severe thunderstorms over primarily the eastern plains.  |
| 18-Aug-09 | HAIL   | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: Severe weather erupted across portions of the eastern plains during the afternoon hours as a strong shortwave moved across northern New Mexico. Dew points in the mid-50s to low 60s, abundant instability, and 40 to 50 knots of 0 to 6 km. |
| 18-Aug-09 | HAIL   | 0      | 0     |   | 2   | 0   | 0   | 0       | EPISODE NARRATIVE: Severe weather erupted across portions of the eastern plains during the afternoon hours as a strong shortwave moved across northern New Mexico. Dew points in the mid-50s to low 60s, abundant instability, and 40 to 50 knots of 0 to 6 km. |
| 27-Aug-09 | HAIL   | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: A frontal boundary surging southwest through the eastern plains combined with a mid-level short wave trough pushing south through the northern mountains to spark isolated strong to severe thunderstorms over the east central high plains. |
| 13-Apr-10 | HAIL   | 0      | 0     |   | 2   | 0   | 0   | 0       | EPISODE NARRATIVE: An upper level trough of low pressure and surface cold front increased instability and lift across northeast   |

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|-----------|--------|--------|-------|---|-----|-----|-----|---------|--|
|           |        |        |       |   |     |     |     |         | New Mexico, with plenty of low level moisture available. This led to a few reports of large hail over San Miguel and Union Counties.   |
| 13-Apr-10 | HAIL   | 0      | 0     |   | 2   | 0   | 0   | 0       | EPISODE NARRATIVE: An upper level trough of low pressure and surface cold front increased instability and lift across northeast New Mexico, with plenty of low level moisture available. This led to a few reports of large hail over San Miguel and Union Counties. |
| 26-May-10 | HAIL   | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: Low level moisture retreated west to the east slopes of the central mountain chain on the 26th. Moderate instability along the east slopes combined with weak upper level forcing created isolated severe thunderstorms.                          |
| 26-May-10 | HAIL   | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: Low level moisture retreated west to the east slopes of the central mountain chain on the 26th. Moderate instability along the east slopes combined with weak upper level forcing created isolated severe thunderstorms.                          |
| 26-May-10 | HAIL   | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: Low level moisture retreated west to the east slopes of the central mountain chain on the 26th. Moderate instability along the east slopes combined with weak upper level forcing created isolated severe thunderstorms.                          |
| 26-May-10 | HAIL   | 0      | 0     |   | 2   | 0   | 0   | 0       | EPISODE NARRATIVE: Low level moisture retreated west to the east slopes of the central mountain chain on the 26th. Moderate instability along the east slopes combined with weak upper level forcing created isolated severe thunderstorms.                          |

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| BGN_DATE  | EVTYPE      | LENGTH | WIDTH | F | MAG | FAT | INJ | PROPDMG | REMARKS   |
|-----------|-------------|--------|-------|---|-----|-----|-----|---------|---|
| 27-May-10 | HAIL        | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: Abundant low level moisture combined with weak instability along the east slopes of the Sangre de Cristo Mountains allowed for locally strong thunderstorms to develop during the afternoon of the 27th.   |
| 27-May-10 | HAIL        | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: Abundant low level moisture combined with weak instability along the east slopes of the Sangre de Cristo Mountains allowed for locally strong thunderstorms to develop during the afternoon of the 27th.   |
| 02-Jun-10 | HAIL        | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: A weak surface frontal boundary combined with a weak upper level disturbance moving southeast across the Northeast Plains provided enough lift for isolated thunderstorms to develop Wednesday afternoon.  |
| 24-Jun-10 | HAIL        | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: Plenty of moisture remained across eastern New Mexico behind the previous day's back door cold front. Thunderstorms with heavy rain pounded western San Miguel County, resulting in a flash flood in Bernal, knocking out bridges on county roads. |
| 06-Jun-10 | HAIL        | 0      | 0     |   | 1   | 0   | 0   | 0       | EPISODE NARRATIVE: A back door cold front brought a fresh supply of low level moisture to eastern New Mexico on the 6th. The added moisture and instability produced scattered showers and thunderstorms over the east, with a few of the storms turning severe.      |
| 24-Jun-10 | FLASH FLOOD | 0      | 0     |   | 0   | 0   | 0   | 750K    | EPISODE NARRATIVE: Plenty of moisture remained across eastern New Mexico behind   |

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|-----------|-------------|--------|-------|---|------|-----|-----|---------|---|
|           |             |        |       |   |      |     |     |         | the previous day's back door cold front. Thunderstorms with heavy rain pounded western San Miguel County, resulting in a flash flood in Bernal, knocking out bridges on county roads.   |
| 01-Jul-10 | FLASH FLOOD | 0      | 0     |   | 0    | 0   | 0   | 1K      | EPISODE NARRATIVE: Very efficient rain-producing thunderstorms slowly moved eastward from near Santa Fe across the southern Sangre de Cristo Mountains over the Tecolote Fire burn scar. Over two inches of rain fell across a relatively large area. |
| 01-Jun-11 | HAIL        | 0      | 0     |   | 0.88 | 0   | 0   | 0       | EPISODE NARRATIVE: Thunderstorms formed along the Central Mountain Chain before moving eastward onto the plains. The better moisture and instability at the lower elevations allowed for storms to become severe with damaging hail and winds.        |
| 01-Jun-11 | HAIL        | 0      | 0     |   | 1.75 | 0   | 0   | 0       | EPISODE NARRATIVE: Thunderstorms formed along the Central Mountain Chain before moving eastward onto the plains. The better moisture and instability at the lower elevations allowed for storms to become severe with damaging hail and winds.        |
| 01-Jun-11 | HAIL        | 0      | 0     |   | 0.88 | 0   | 0   | 0       | EPISODE NARRATIVE: Thunderstorms formed along the Central Mountain Chain before moving eastward onto the plains. The better moisture and instability at the lower elevations allowed for storms to become severe with damaging hail and winds.        |
| 01-Jun-11 | HAIL        | 0      | 0     |   | 1    | 0   | 0   | 0       | EPISODE NARRATIVE: Thunderstorms formed along the Central Mountain Chain before moving eastward onto the plains. The better moisture and instability at the lower   |



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| BGN_DATE  | EVTYPE       | LENGTH | WIDTH | F | MAG  | FAT | INJ | PROPDMG | REMARKS  |
|-----------|--------------|--------|-------|---|------|-----|-----|---------|--|
|           |              |        |       |   |      |     |     |         | elevations allowed for storms to become severe with damaging hail and winds. |
| 21-May-12 | HAIL         | 0      | 0     |   | 0.75 | 0   | 0   | 0       |  |
| 21-May-12 | FUNNEL CLOUD | 0      | 0     |   | 0    | 0   | 0   | 0       |  |
| 5-Jun-12  | HAIL         | 0      | 0     |   | 0.88 | 0   | 0   | 0       |  |
| 15-Jun-12 | HAIL         | 0      | 0     |   | 1    | 0   | 0   | 0       |  |
| 19-Aug-12 | HAIL         | 0      | 0     |   | 0.88 | 0   | 0   | 0       |  |
| 19-Aug-12 | HAIL         | 0      | 0     |   | 1    | 0   | 0   | 0       |  |

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**APPENDIX C: PRESIDENTIAL DECLARATIONS FOR SAN MIGUEL COUNTY**

| <b>Date</b> | <b>FEMA Disaster No.</b> | <b>Event</b>                  | <b>Location</b>   | <b>Remarks</b>                  |
|-------------|--------------------------|-------------------------------|-------------------|---------------------------------|
| 13-Oct 1954 | DR-27                    | New Mexico Flood              |                   | No further information provided |
| 15-Oct-1955 | DR-38                    | New Mexico Flood              | San Miguel County | Public Assistance               |
| 1-Jul-1965  | DR-202                   | Severe Storms/Flood           | San Miguel County | Public Assistance               |
| 11-May-1973 | DR-380                   | Severe Storms/Snow Melt/Flood | San Miguel County | Public Assistance               |
| 21-May-1974 | FM-2015                  | NM Guadalupita Fire           |                   | No further information provided |
| 18-Jun-1977 | FM-2025                  | NM Barker Fire                |                   | No further information provided |
| 23-Jun-1979 | DR-589                   | Severe Storms/Snow Melt/Flood | San Miguel County | Public Assistance               |
| 5-May1996   | FM-2177                  | NM Hondo Fire                 |                   | No further information provided |
| 24-Jun-1998 | FM-2213                  | NM Osha Canyon Complex        |                   | No further information provided |
| 2-July-1998 | EM-3128                  | NM Extreme Fire Hazard        |                   | No further information provided |
| 13-May-2000 | DR-1329                  | NM Wildfire                   | San Miguel County | Public Assistance               |
| 30-May-2000 | FM-2304                  | NM Viveash Fire               | San Miguel County | Public Assistance               |
| 7-May-2002  | FM-2404                  | NM Dalton Fire                | San Miguel County | Public Assistance               |
| 13-Jun-2002 | FM-2424                  | NM Roybal Fire Complex        | San Miguel County | Public Assistance               |
| 10-May-2003 | FM-2467                  | NM Walker Fire                |                   | No further information provided |
| 29-Apr-2004 | DR-1514                  | Severe Storms and Flood       | San Miguel County | Public Assistance               |

*2014 San Miguel County Hazard Mitigation Plan  
Appendix C: Presidential Disaster Declarations*

## **APPENDIX D: MEETING NOTES AND ATTENDANCE ROSTERS**

### **D.1 Kick-off Meeting**

**San Miguel County Multi-jurisdictional Hazard Mitigation Plan  
Kick-off Meeting  
Wednesday May 29, 2013  
9:00 AM**

#### **AGENDA**

- I. Introductions
- II. Benefits of Participation
  - A. Addressing Municipalities and Communities
    - 1. Unincorporated San Miguel County
    - 2. Las Vegas
    - 3. Pecos
    - 4. Other communities
  - B. Defining the Mitigation Planning Group and Key Stakeholders
- III. Hazard Mitigation Planning Overview
  - A. What is Hazard Mitigation
  - B. Planning Steps/Process
  - C. Plan Organization
  - D. Required Elements
  - E. HMP Committee Role
- IV. Hazard Overview
  - A. Previously Recognized Hazards
  - B. Hazard Identification Exercise
- V. Homework
  - a. Asset Identification
  - b. Capability Assessment
- VI. Questions and Comments
- VII. Adjourn

**San Miguel County Multi-jurisdictional Hazard Mitigation Plan  
Meeting Notes  
Wednesday May 29, 2013**

- A. Welcome and Introductions
  
- B. Project Goals
  - Get federal funding eligibility
  - Mitigate future hazard risk
  
- C. Recent Disasters
  - 2010 Wildfire
  - Lost 5 river crossings from flooding event
  - Prolonged significant drought
  
- D. Other Participating Communities
  - Land Grants; Dennis English will look-up if they need to be included in the HMP
  - School Districts are governed under the County or school's jurisdiction
  
- E. Hazard Identification Exercise
  - Drought (significant water supply issues)
  - Earthquake
  - Flood
  - Severe Winter Weather
  - Tornado
  - Thunderstorm
  - Wildfire
  - Dam Failure (high hazard dams are within the county)
  - Pests (Pine Tree Beetles and Feral Hogs kill livestock and agriculture)
  - Landslide
  - High Wind
  - Hailstorm
  - Expansive Soils (patchy areas with clay can expand with moisture)
  - Extreme Heat
  - Levee Failure
  - Hazardous Materials Incidents (hazardous materials are shipped on railways, roadways, and the interstate throughout the County)
  - Terrorism (United World College has international students)
  - Bridge Failure from Natural Hazards
  
- F. Community Profile
  - Participates in National Flood Insurance Program (NFIP) and Community Rating System (CRS)
    - Need to get CRS Class Rating from Michael Garcia, Land Development Specialist

*2014 San Miguel County Hazard Mitigation Plan  
Appendix D: Meetings Notes and Attendance Rosters*

- County has a floodplain ordinance
- Large agriculture economy

G. Additional Comments

- State of New Mexico Drought Task Force (Meets Quarterly)
  - Developed a report on drought impacts to tourism and agriculture assets
  - Need to reach out to the New Mexico Department of Agriculture for drought issues and potential funding opportunities
  - SHMO will check with task force issues and potentially expanding water haul capabilities
- Emergency water hauls have been provided by the National Guard in the past
- Emergency water bladders are provided from San Miguel County OEM
- No commercial water haulers within the State of New Mexico
- No water sharing agreements with other counties or municipalities in the State of New Mexico

H. Next Steps

- Community Asset Profile (Dennis will be the lead to get forms filled out by all participating communities)
- Capability Assessment (Dennis will be the lead to get forms filled out by all participating communities)
- Next Meeting will be in Mid-July (After the 4th of July and before 7/27/13)

**San Miguel County Multi-jurisdictional Hazard Mitigation Plan  
Attendance Roster  
Wednesday May 29, 2013  
9:00 AM**

| Name              | Organization                |
|-------------------|-----------------------------|
| Sally Flores      | LEPC                        |
| Vanita Menapace   | Harding County              |
| Mack Crow         | C of C                      |
| Joe Julian        | US Forest Service           |
| Benito Armijo     | NMBH 1                      |
| Robert Sanchez    | NMBH 1                      |
| Joe Aragon        | NMBH 1                      |
| Eugene Garcia     | Las Vegas Police Department |
| Comelita Austin   | NM Forestry Division        |
| Les Montoya       | San Miguel County           |
| Ramon M. Lucero   | El Valle Water Alliance     |
| Carlos Ortiz, Jr  | City of Las Vegas           |
| Christian Montano | Las Vegas Police Department |
| David Trujillo    | NMDOT District 4            |
| Ken Bentson       | NMHU                        |
| Melinda Gonzales  | San Miguel County           |
| Don Cole          | CLV                         |
| William Gonzales  |                             |

*2014 San Miguel County Hazard Mitigation Plan  
Appendix D: Meetings Notes and Attendance Rosters*

|                   |                           |
|-------------------|---------------------------|
| David Martinez    | LVCS                      |
| Russell Pacheco   | San Miguel County         |
| Patrick Snedeker  | SMC Detention Center      |
| Christopher Blake | New Mexico State Police   |
| David Watson      | AVRH                      |
| Martin Salazar    | Optic                     |
| Moreos Gonzales   | NMDHSEM - Intern          |
| Lauren Hall       | NMDHSEM - Intern          |
| Wendy Blackwell   | NMDHSEM - SHMO            |
| Arthur Herrera    | Las Vegas Fire Department |
| Connie Abila      | OEM                       |
| Alex Tofoya       | San Miguel County         |
| Michael Garcia    | P & Z                     |
| Harold Garcia     | Public Works              |
| Dennis English    | OEM/City of Las Vegas     |
| Kurt Parkinson    | OEM/City of Las Vegas     |



## **D.2 Meeting Two**

**San Miguel County Multi-jurisdictional Hazard Mitigation Plan  
HIRA Meeting  
Wednesday August 21, 2013  
10:00 AM**

**MEETING AGENDA**

- I. Welcome and Opening Remarks
- II. Plan Development Status
- III. Plan Purpose
- IV. Mitigation Goals
- V. Asset Ranking Methodology
- VI. Hazard Identification and Risk Assessment
  - a. Review List of Hazards
  - b. Hazard History Discussion
- VII. Qualitative Risk Assessment Exercise
- VIII. Public Surveys
- IX. Homework
  - a. Risk Analysis Worksheet
  - b. NFIP Worksheet
  - c. Safe Growth Audit Worksheet
- X. Q&A and Next Steps
- XI. Adjourn

**San Miguel County Multi-jurisdictional Hazard Mitigation Plan  
HIRA Meeting Notes  
Wednesday August 21, 2013**

**Purpose -**

- No changes

**Goals –**

- Add “all educational institutions & facilities” to goal 2 or 3
- Add “vulnerable populations” to goal 1

**Asset Ranking Methodology –**

Make 3 categories

- Move public works and schools to level 1
- Move level 3 and 4 into level 2
- Move level 5 to level 3

**Hazards Review –**

- Add Pandemic/Epidemic hazard
  - OEM provided POD support to NMDOH
    - 800 H1N1 vaccinations in SMC

**Hazard History –**

- Dam Failure
  - Significant Seepage (get numbers or POC from Dennis)
  - SMC has aging high-risk dams
  - Peterson, Bradner, and Storrie Dams
  - Highlight Peterson
- Drought
  - 60 wells in one community (get name from Dennis)
  - State has 3 outstanding executive orders
  - Property taxes lowered due to drought (State or local?, how much?)
  - Check with the Assessor’s office
  - U-Haul operator stated that 100’s of people have said they were moving away because of the drought
- Earthquake
  - Our Lady of Sorrow Church on National Ave suffered cracked due to the 2005 earthquake
- Flood
  - 2013, 2 state declaration requests for SMC.
  - For month of July flooding, est. \$700K damage to roadways and infrastructure
  - Potential Statewide declarations
  - 1 bridge lost
  - 1 private structure damaged
    - Commercial building with no flood insurance
  - 682 buildings in the 1% zone
  - 36 claims for \$7M in SMC
  - 100 claims for \$13M in LV
- Expansive Soils

*2014 San Miguel County Hazard Mitigation Plan  
Appendix D: Meetings Notes and Attendance Rosters*

- Water Treatment Plan suffered cracks from expansive soils (get more info from Dennis)
- Extreme Heat
  - Tie to drought
  - SMC has plans for cooling stations but has not activated the plan
- Hailstorm
  - Villa Nueva area experiences large hail nearly every year (Spring-Summer)
    - State park may have record
  - East side of the county (Conchas) is vulnerable to hail and experiences a lot of events
- Hazardous Materials
  - MVA 5 miles south of town
  - Semi truck accident in 1999-2000
  - Multi-jurisdictional response
  - 5 days of soil remediation
- High Wind
  - April/May is the most vulnerable time
  - Roofs ripped on in LV (get info from Dennis)
  - Transformer poles snap and cause wildfires (cause of Tres Lagunas fire)
  - Window damage at Highlands University
  - Power outages
  - Winds in excess of 60-70 mph
- Landslide
  - Burn scars allow wash into roadways during monsoon seasons
- Levee Failure
  - None
- Pests
  - Pine beetles
    - Contact extension agent
  - Feral hogs
    - Destroying Agriculture
    - Harming livestock
    - Disease on cattle
    - Riparian issues in river banks (erosion and silting of waters)
  - Field mice carry disease (find out what kinds from Dennis)
  - Mosquitos
    - H1N1
    - LV treats for mosquitos
- Severe Winter Weather
  - -27 degrees in LV. The city couldn't provide gas for heat
- Terrorism
  - None
- Thunderstorms
  - Check with utility for historic records/damage
- Tornado
  - 2012 incident (Dennis to provide details and pictures)

2014 San Miguel County Hazard Mitigation Plan  
 Appendix D: Meetings Notes and Attendance Rosters

- Wildfire
  - None

**Qualitative Assessment Methodology (Infrastructure) -**

- Low – 12-24 hours
- Moderate – 24-72 hours
- High – greater than 72 hours

**San Miguel County Multi-jurisdictional Hazard Mitigation Plan  
 HIRA Meeting Attendance Roster  
 Wednesday August 21, 2013**

| <b>Name (PLEASE PRINT)</b> | <b>Office/Department/Agency</b> | <b>Phone</b> | <b>Email</b>                |
|----------------------------|---------------------------------|--------------|-----------------------------|
| Connie Abila               | OEM                             | 425-2855     | cabila@smcounty.net         |
| Sally Flores               | LEPC                            | 425-3930     | sallypflores@gmail.com      |
| Kurt Parkinson             | OEM                             | 426-3018     | kparkinson@smcounty.net     |
| Dennis English             | OEM                             | 425-6910     | denglish@smcounty.net       |
| Daniel Encinias            | PW                              | 425-3664     |                             |
| Alice Sena                 | LEPC/Tecolote                   | 426-4289     | sena770ak@yahoo.com         |
| Matt Stanley               | Witt O'Brien's                  | 912-655-4809 | mstanley@wittobriens.com    |
| Arthur Herrera             | LVFD                            | 505-425-6321 | aherrera@ci.las-vegas.nm.us |
| Tim Nia                    | Cabo Luceno                     | 505-429-2053 |                             |
| Daniel Garcia, Jr          | EPVFD                           | 575-421-2925 |                             |
| Russell Pacheco            | SMC Fire                        | 505-425-2855 |                             |
| Andres Martinez            | Gallinas Fire                   | 505-425-6171 | gallinasfire@smcounty.net   |
| Melinda Gonzales           | SMC Finance                     | 505-425-6516 |                             |
|                            | SMC HR                          | 425-1557     |                             |
| Ken Bentson                | NMHU                            | 454-3080     | kbentson@nmhu.edu           |
| Connie Chevez              | Red Cross                       | 425-6224     | conniec@desertgate.com      |
| Antone Padillo             | SMCOC                           | 429-7779     | apadillo@smcounty.net       |
| Alex Tafoya                | SMC                             | 425-7805     |                             |
| Christian Montano          | LVPD                            | 425-7504     | blue1@ci.las-vegas.nm.us    |

| Name (PLEASE PRINT) | Office/Department/Agency | Phone    | Email                           |
|---------------------|--------------------------|----------|---------------------------------|
| Jean Montano        | LVPD                     | 425-7504 | Juan_montano@ci.las-vegas.nm.us |
| Michael Garcia      | P&Z SMC                  | 426-3040 | mgarcia@smcounty.net            |

**Village of Pecos Mitigation Planning Meeting  
 August 22, 2013**

**Attendees:**

- Ralph Lopez, Fire Chief
- Ramona Quintana, Village of Pecos Clerk
- Tony Roybal, Village of Pecos Mayor
- Arthur Varela, Village of Pecos Treasurer
- Brian Ambrogi, Wilson and Company
- Dennis English, SMC/LV OEM
- Matthew Stanley, Witt O'Brien's

**Pecos Assets and Infrastructure –**

Village of Pecos is very concerned about protecting the Pecos River and views is as critical infrastructure for the Village, County, and State.

- Possible mitigation actions include:
  - Diking around the wastewater treatment plant
  - Storm drainage improvements to reduce silting in the Pecos River

The municipal building is the village's central critical asset. Pecos does have a COOP and an identified back-up facility. That information is forthcoming.

- Possible mitigation actions include:
  - Generators at the municipal building
  - Generators at the back-up village municipal building

**Asset Ranking Methodology –**

Make 3 categories (instead of the proposed 5)

- Move public works and schools to level 1
- Move level 3 and 4 assets into level 2
- Move level 5 assets to level 3
- Delete/remove levels 4 and 5

**Hazards Review –**

- Added Pandemic/Epidemic hazard
  - OEM provided POD support to NMDOH

- 800 H1N1 vaccinations in SMC
- Pecos agreed with all of the identified hazards for the plan

**Pecos Hazard History –**

- Dam Failure
- Drought
  - Always a concern
  - Protection of the Pecos River is a priority as this is the major critical infrastructure waterway through the village (as well as a major water source for the state)
- Earthquake
  - Dennis English will provide the seismic survey study documents regarding the Taos fault line
- Flood
  - Storm water drainage issues cause localized street flooding, washouts, and erosion
- Expansive Soils
- Extreme Heat
- Hailstorm
- Hazardous Materials
  - Potential exists for hazardous materials transportation incidents from traffic traveling through Pecos, on Interstate-25, or on occasional detours if I-25 detours through Pecos.
- High Wind
  - Frequent brown-outs in the Village of Pecos
  - All power lines, both transfer and distribution lines are above ground
  - Power is provided by a local co-op
  - “How do we get trees cut in federal lands to create and maintain a safe buffer?”
  - Currently the buffer is only 10’ on either side of the power lines (total of 20’ buffer)
  - Trees falling on power lines cause wildfires such as the Tres Lagunas fire
- Landslide
- Levee Failure
- Pests
- Severe Winter Weather
  - Snow has caused clogging of heating vents in houses and requiring fire department response to assist homeowners with clearing the vents.
- Terrorism
- Thunderstorms
- Tornado
  - The east side of the county also has history with dangerous dust devils
  - 2012 Tornado impacted the Village of Pecos and caused property damage
- Wildfire
  - Always a risk and a threat with grave concerns about trees falling on power lines and causing fires (Tres Lagunas Fire)

**Qualitative Assessment Methodology –**

Make changes in concordance with the County and Las Vegas meeting decisions for Infrastructure:

*2014 San Miguel County Hazard Mitigation Plan  
Appendix D: Meetings Notes and Attendance Rosters*

- Low – 12-24 hours
- Moderate – 24-72 hours
- High – greater than 72 hours

**Village of Pecos Mitigation Planning Meeting  
Attendance Roster  
August 22, 2013**

| <b>Name (PLEASE PRINT)</b> | <b>Office/Department/ Agency</b> | <b>Title</b>                        | <b>Email</b>             |
|----------------------------|----------------------------------|-------------------------------------|--------------------------|
| Ralph Lopez                | Village of Pecos                 | Fire Chief                          | pvfdchief38@yahoo.com    |
| Ramona Quintana            | Village of Pecos                 | Village Clerk                       | mona@villageofpecos.com  |
| Tony Roybal                | Village of Pecos                 | Village Mayor                       | troybal@hotmail.com      |
| Arthur Varela              | Village of Pecos                 | Village Treasurer                   | art@villageofpecos.com   |
| Brian Ambrogi              | Wilson and Company               | Project Manager<br>(Water provider) | bjambrogi@wilsonco.com   |
| Dennis English             | SMC/LV OEM                       | Emergency Manager                   | denglish@smcounty.net    |
| Matt Stanley               | Witt O'Brien's                   | Consultant                          | mstanley@wittobriens.com |

### **D.3 Meeting 3**

**San Miguel County Multi-jurisdictional Hazard Mitigation Plan  
Mitigation Strategies Meeting  
Thursday November 14, 2013  
10:00 AM City of Las Vegas  
2:00 PM Village of Pecos**

#### **MEETING AGENDA**

- I. Plan Development Status and Timeline
- II. Capability Assessment Results
- III. Community Survey Results
- IV. Goals, Objectives, and Actions
- V. Next Steps

San Miguel HMP Mitigation Actions Meetings  
San Miguel County, City of Las Vegas, Village of Pecos  
November 14, 2013  
10:00 AM and 2:00 PM

#### **MEETING NOTES**

The meeting opened with a review of the project's status and timeline. Results of the Capability Assessment and Community Survey were reviewed in advance of working on the Mitigation Action Plan.

Results of the review of the Capability Assessment revealed the following amendments:

- The City of Las Vegas has a Class 5 ISO rating
- The County has full time GIS capabilities
- The County does not have full time Land Surveyors
- The County does not have water/sewer/gas fees, but Las Vegas does.
- Communications capabilities need to address both inter-operability and alert/notifications for the community
- The County and Village of Pecos have installed ITAC channels in public safety radios to improve inter-operability with Santa Fe County
- San Miguel County and Santa Fe County have established Joint Command Operations in previous disaster events.



- The County and both municipalities have adopted the state fire and building codes

The Mitigation Action Plan activities included:

Recommendation that San Miguel County include a local freeboard (1'-2') ordinance as a flood mitigation measure.

Mitigation Actions the address diversion gates refer to Storrie Lake

Goals –

- In Meeting 2 we added “all educational institutions & facilities” to Goal 2 or 3 and “vulnerable populations” to goal 1. These amendments were vetted and approved at this meeting.

Objectives –

- Objectives for each goal were reviewed and approved:
  - Objective 1.1—Promote partnerships between jurisdictions to encourage and facilitate coordination of planning and development initiatives, particularly on developments of multi-jurisdictional impact.
  - Objective 1.2—Create, implement and improve systems that provide warning and inter-jurisdictional emergency communications
  - Objective 1.3—Enhance the local governments’ ability to notify the public at risk and provide emergency instruction during a disaster.
  - Objective 2.1—Increase the county and municipal control over development, especially in high hazard areas.
  - Objective 2.2—Implement programs that seek to remove residential structures from high hazard areas.
  - Objective 2.3—Implement projects that involve the construction of structures designed to reduce the impact of a hazard, such as dams, levees, floodwalls, retaining walls, safe rooms, etc., or such structural modifications as the elevation or relocation of bridges, the anchoring of manufactured housing, or a retrofit of an existing building.
  - Objective 3.1—Ensure that infrastructure, equipment and support systems are maintained and/or upgraded to support emergency services response and recovery operations.
  - Objective 3.2—Promote partnerships between jurisdictions to continue to develop a county-wide approach to identifying and implementing infrastructure mitigation actions.
  - Objective 3.3—Improve overhead utility line networks to reduce vulnerability to direct and indirect impacts by hazard events.
  - Objective 4.1—Ensure that emergency services organizations are prepared and have the capability to detect and promptly respond to emergency situations.
  - Objective 4.2—Maximize intergovernmental coordination on the effective use of emergency response resources during response, including vital communications between multiple agencies in emergency situations.

*2014 San Miguel County Hazard Mitigation Plan  
Appendix D: Meetings Notes and Attendance Rosters*

- Objective 4.4—Increase emergency capacities to properly equip emergency shelters in order to improve emergency response and large-scale evacuations.
- Objective 5.1—Reduce the vulnerability of historic facilities that are important to the community.
- Objective 5.2—Strive to involve the private sector, local historians, and local and state historic preservation entities in participating in mitigation planning efforts.
- Objective 6.1—Develop outreach programs focused on increasing public education to increase awareness of hazards and their associated risks.
- Objective 6.2—Develop outreach programs focused on increasing participation in mitigation programs by business, industry, institutions and community groups.

Mitigation Actions –

- Natural springs located under critical infrastructure and historic structures have caused basement and foundation level flooding
- New - Enlarge and armor canals to reduce seepage and overtopping (flood, dam, drought hazards)
- Diversion gates - Add Pecos
- Construct a levee control system – County only
- Field testing for surface and subsurface water - Add Las Vegas and Pecos
- Well exploration - Las Vegas is working on wellfield sustainability. Dennis English may be able to collect more information in this.
- Well exploration – Las Vegas is also rehabilitating old wells.
- Well exploration – Las Vegas wants to add aquifer storage and recovery, enlarge reservoir, and repair seepage in the reservoir.
- Well exploration – Add Pecos and El Valle Mutual Domestic Water Association
- Seismic Study – Add Las Vegas and Pecos. Add CLV actions for a geological study on local structures, strengthen historic structures/chimneys in the Cat D seismic zone.
- Building Codes – Add CLV and Pecos
- Expansive Soils are not a hazard in CLV or Pecos but are in the county.
- Heating and cooling centers should include CLV (add schools to the facilities designated as heating/cooling shelters). Add Pecos
- Effective water draining systems – Add CLV and Pecos
- OEM website – Add CLV and Pecos
- Build with hail resistant materials – Add CLV. Change the action to read “hazard” instead of “hailstorm”
- Hailstorm roof mitigation – Add Pecos
- Flashing road signage – Add CLV and Pecos
- Safe rooms – Add CLV and Pecos
- Landslide – Add Pecos
- Storrie Lake Levee – Add CLV
- USDA/APHIS – include pandemic hazard – Add CLV and Pecos
- Generators – Add CLV and Pecos
- Snow fences – County only
- See something, say something – Add CLV and Pecos
- NOAA transponder – Add CLV and Pecos

*2014 San Miguel County Hazard Mitigation Plan  
Appendix D: Meetings Notes and Attendance Rosters*

- GIS capabilities – Add CLV
- Notification systems – Add CLV and Pecos
- Develop water storage – drop CWPP language and add “raw, drinking, and effluent water” – Add CLV and Pecos
- Acequia protection – Add CLV and Pecos, add mutual water associations
- Dam Inundation Data Study – EAPs have inundation data (remove action)
- Reservoir seepage – Add CLV
- Expansive soil – Add county, CLV, and Pecos. Send MS soil study to Dennis.
- Outdoor warning – Add county, CLV and Pecos.
- NFIP – Add county, CLV, and Pecos.
- Prevention Activities – Add county, CLV and Pecos
- Repetitive Loss (elevation and acquisitions) – Make this an existing action item, add freeboard ordinance, and include CLV, Pecos and the county.
- Drainage projects – Add county, CLV and Pecos.
- Adopt current building codes – rework wording to say “improve state building codes through local modifications that meet or exceed state and national models. Add county, CLV and Pecos.
- Fire Code – The county is currently modifying codes – Add county
- Underground utilities – Add county, CLV and Pecos
- Fire stations – Add county, CLV and Pecos
- Generators – Add county, CLV and Pecos
- Add – Harden CLV Town Hall, rename it to “Village Complex Building”
- Wildfire – Add county, CLV and Pecos
- Churches – Add county, CLV and Pecos
- Zoning ordinances – Add county, CLV and Pecos.
- Community outreach – Add county and CLV.
- Bridge – Add county, CLV and Pecos
- Engineering study – Add county, CLV and Pecos.
- Bridge repair – Add county, CLV and Pecos.
- Public warning systems – Add county, CLV and Pecos.
- SNOTEL – Add county and Pecos
- Storm gage – Add Gallinas River 1000’ south of the diversion gate, add Pecos River, and all county rivers - – Add county, CLV, and Pecos
- Expansive soils – remove action
- Expansive soils – remove action
- Flood prevention – change this action to environmental protection, Add county, CLV and Pecos
- Delete next 5 actions
- Sewer and sanitation – Add CLV and county
- Delete stockpiles
- Evacuation plans – Add CLV and county
- Delete water conservation action

LOCATION

DATE

City Council Chambers

OFFICE OF EMERGENCY MANAGEMENT  
 San Miguel County & City of Las Vegas

11/14/13

READY BEFORE YOU NEED US.



Mitigation Strategies Meeting

| NAME             | AGENCY            | PHONE        | EMAIL                       |
|------------------|-------------------|--------------|-----------------------------|
| Dennis English   | SMLCV O&M         | 505-725-6180 | denglish@smcounty.net       |
| Kurt Robinson    | SMLCV O&M         | 505-425-4191 | krobinson@smcounty.net      |
| Russell Pacheco  | Sue/Lema          | 505-422-1855 | eric@smcounty.net           |
| Esquibel, Dennis | Manager Las Vegas | 505-464-5006 | dennis.esquibel@state.nv.us |
| Dale P. Wagoner  | NMSP              | 505-425-4771 | dale.wagoner@state.nv.us    |
| SOE JULIAN       | USFS              | 505-757-6121 | julian@fs.fed.us            |
| Daniel Encinias  | SMLCV/DW          | 505-422-9837 |                             |
| Angela Garcia    | SMC P.W.          | 505-421-3225 | hgarcia@smcounty.net        |
| Michael Garcia   | PT 2 Floodplain   | 505-426-3010 | mgarcia@smcounty.net        |
| Don Cole         | ALV               | 505-429-6326 | doncole2000@msn.com         |
| LES Pachya       | SMC               | 505-421-4462 | lespachya@smcounty.net      |
| CHRIS CAVALOS    | CLV               | 505-429-0434 | ccavalos@ci.las-vegas.nv.us |
| Kenneth Jenkins  | Las Vegas P.D.    | 505-422-5162 | kjenkins@ci.las-vegas.nv.us |
| Samuel Mendez    | LVPD              | 505-429-4388 | smendez@ci.las-vegas.nv.us  |
| Ronald Pino III  | MOHA County       | 575-643-5125 | rpino@moa.coop@yaho.com     |

LOCATION



DATE

City Council Chambers

OFFICE OF EMERGENCY MANAGEMENT  
 SAN MIGUEL COUNTY & CITY OF LAS VEGAS

11/14/13

READY BEFORE YOU NEED US.

Mitigation Strategies Meeting

| NAME                  | AGENCY                  | PHONE    | EMAIL                          |
|-----------------------|-------------------------|----------|--------------------------------|
| Chris Archuleta       | Las Vegas City Schools  | 425-2319 | chrisarchuleta@nycpschools.com |
| MARTIN A. VIALI       | Scata Fe County OERM    | 928-3078 | martin@scatafecounty.org       |
| Jose A. Villegas, SR. | Santa Fe County OERM    | 928-3072 | jvillegas@scatafecounty.org    |
| Eugene Garcia         | Las Vegas Police        | 425-7524 | egarcia@ci.las-vegas.nv.us     |
| Sally Flores          | Legis-Security and Res. | 425-3930 | sallyflores@gmail.com          |
| Carlos A. Ortiz Jr.   | CLV/Paid                | 424-1401 | carlosortiz@ci.las-vegas.nv.us |
| Paul Myers            | NY/Low Res.             | 424-1401 | pmyers@ci.las-vegas.nv.us      |
| Ariston Montoya       | Las Vegas Police        | 424-1026 | amontoya@ci.las-vegas.nv.us    |
|                       |                         |          |                                |
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|                       |                         |          |                                |
|                       |                         |          |                                |

LOCATION

DATE

City Council Chambers

OFFICE OF EMERGENCY MANAGEMENT  
 San Miguel County & City of Las Vegas

11/14/13

READY BEFORE YOU NEED US.



Mitigation Strategies Meeting

| NAME             | AGENCY                  | PHONE        | EMAIL                       |
|------------------|-------------------------|--------------|-----------------------------|
| CHRIS WAGG       | N.M.S.P.                | 505-660-8464 | CHRIS@PHED.WAGG.STATE.NM.US |
| Arthur L. Varela | Village of Pecos        | 505-757-6511 | art@villageofpecos.com      |
| Xenos M. Lucero  | El Valle Water Alliance | 505-660-2154 | rmwalucero@aol.com          |
|                  |                         |              |                             |
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|                  |                         |              |                             |

## APPENDIX E: INVITATIONS AND ADVERTISEMENTS

May 1, 2013

[Insert Name]  
[Insert Title]  
[Insert Organization/Department]  
[Insert Address]

Dear Community Stakeholder:

I am pleased to inform you that San Miguel County is beginning the process of developing its federally required Hazard Mitigation Plan (HMP). The purpose of the HMP is to identify and assess the hazards (both natural and human-caused) that threaten San Miguel County and its communities, and to chart specific courses of action that the County may take in order to lessen their effects. Furthermore, having a Federal Emergency Management Agency (FEMA) and New Mexico Department of Homeland Security and Emergency Management (NMDHSEM)-approved HMP will ensure that San Miguel County is eligible for certain types of federal disaster relief when the need arises. It will also afford the County opportunities to apply for future federal hazard mitigation grant opportunities. The HMP process will be executed by the Las Vegas/San Miguel Office of Emergency Management, with the assistance of Witt | O'Brien's, a reputable emergency management planning firm.

You have been identified as a key stakeholder and would be a valuable resource to San Miguel County and its municipalities during the HMP process. As such, we ask that you consider participating as a member of the HMP Steering Committee. The duties of the Steering Committee members will include:

- Attend a minimum of three (3) HMP project meetings over the course of one year;
- Provide input regarding San Miguel County, its population, critical facilities, assets, and infrastructure;
- Assist in identifying hazards and assessing their potential impacts on the County;
- Assist in identifying the related capabilities of San Miguel County and the participating municipalities;
- Assist in identifying past, present, and potential hazard mitigation projects for San Miguel County and the participating municipalities; and
- Review project deliverables before they are submitted to NMDHSEM and FEMA for approval.

The first planning meeting has been tentatively scheduled for the last week in May. Please let us know your availability and willingness to join the HMP Steering Committee for the project kick-off meeting on [insert date and time]. We appreciate your time and consideration, and look forward to hearing from you.

Sincerely,

Dennis English  
Las Vegas/San Miguel County Emergency Manager

August 2, 2013

[Insert Name]  
[Insert Title]  
[Insert Organization/Department]  
[Insert Address]

Dear Community Stakeholder:

As you are aware, San Miguel County is currently in the process of developing its Multi-Jurisdictional All Hazard Mitigation Plan (HMP). The purpose of the HMP is to identify and assess the hazards (both natural and human-caused) that threaten San Miguel and its communities, and to chart specific courses of action that the county may take in order to lessen their effects. The project kickoff meeting was held at the San Miguel County Commissioner's Office on May 30, 2013, and marked the beginning of what promises to be a fruitful planning process.

At the project kickoff meeting, members of the MPG identified and reviewed a number of hazards which threaten life and property in San Miguel County and discussed elements of the community profile. Meeting #2 will be conducted on **Wednesday, August 21, 2013** at (insert time) at (insert location/address). At this meeting, the team will begin the process of conducting the hazard and risk assessment.

Please let us know if you will be willing to assist us in the critical task of preparing San Miguel County for the next disaster by attending Meeting #2. It is important that we obtain as much input as possible during this phase of the planning process, and you have been identified as a valuable resource to the planning process.

We appreciate your time and consideration, and look forward to hearing from you.

Sincerely,

Dennis English  
Las Vegas/San Miguel County Emergency Manager



October 10, 2013

Dear Community Stakeholder:

As part of the continued Hazard Mitigation Plan development process, the County and City of Las Vegas, and Village of Pecos will host planning meetings to develop and discuss mitigation strategies for the next five years. The purpose of this meeting is to identify mitigation actions/projects for each hazard and each jurisdiction identified in the plan. Each jurisdiction must identify at least two (2) actions/projects per hazard. Some projects may overlap jurisdictions (or be county-wide) but must be recognized and accepted by all participating jurisdictions. The mitigation strategy must also include each jurisdiction's continued participation in the National Flood Insurance Program (NFIP). The hazards identified for the plan are:

|                       |                                     |
|-----------------------|-------------------------------------|
| Drought               | Landslide                           |
| Earthquake            | High Wind                           |
| Flood                 | Hailstorm                           |
| Severe Winter Weather | Expansive Soils                     |
| Tornado               | Extreme Heat                        |
| Thunderstorm          | Levee Failure                       |
| Wildfire              | Bridge Failure from Natural Hazards |
| Dam Failure           | Hazardous Materials Incidents       |
| Pests                 | Terrorism                           |

We ask that you begin to consider mitigation action items that could address each of these hazard in your respective jurisdiction. Action items may include community education and outreach, flood/wind/snow/tornado hardening of structures, drainage improvements, generators for critical facilities, etc. Mitigation actions should include specifics regarding the asset/structure/infrastructure needing mitigation. It is important to consider any mitigation projects/actions you may want to address during the next five (5) years. Only mitigation projects identified in the plan will be eligible for federal funding, should it come available.

The Mitigation Strategies meetings will be held on Thursday, November 14 at the following locations and times:

| <b>Jurisdiction</b> | <b>Location</b> | <b>Time</b> |
|---------------------|-----------------|-------------|
|---------------------|-----------------|-------------|

*2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements*

|                  |  |                 |
|------------------|--|-----------------|
| Las Vegas/SMC    | City Council 1700 North Grand Ave, Las Vegas, NM 87701 | 10:00am-12:00pm |
| Village of Pecos | Pecos Village 92 S Main Street, Pecos, NM 87552        | 2:00pm-4:00pm   |

Please make plans to participate in this critical element of the Hazard Mitigation Plan development. We appreciate your time and consideration, and look forward to seeing from you at the meeting.

Sincerely,

Dennis English  
Las Vegas/San Miguel County Emergency Manager





READY BEFORE YOU NEED US.

Dennis English, Emergency Manager

The San Miguel County/City of Las Vegas Office of Emergency Management has completed a final draft of the San Miguel County, City of Las Vegas, and Village of Pecos, NM "All Hazards Multi-Jurisdictional Mitigation Plan" for public review and comments.

The San Miguel County Multi-Jurisdictional Hazard Mitigation Plan is designed to protect people and property from the effects of natural and human-caused hazards. By taking action today, we can reduce the likelihood of injuries, loss of life and damage to our communities. That is what hazard mitigation planning is all about - taking action based on a solid understanding of our vulnerabilities to reduce the impacts of hazards that may strike sometime in the future. In addition to developing a framework for action, the Plan enables participating counties and municipalities to apply for pre and post-disaster mitigation funding that would not otherwise be available. This funding can help local jurisdictions implement identified projects that meet the goals and objectives outlined in the plan.

We prefer that stakeholders not make changes to the original word document so we have provided a comment form to be filled out in order to keep changes from being missed and prevent accidental deletions of any portion of the plan.

The plan and comment form in electronic form can be found on the following web-sites for review and comments:

- [www.smcountry.net](http://www.smcountry.net)
- [www.lasvegasnm.gov](http://www.lasvegasnm.gov)
- [www.facebook.com/SMCLVOEM](http://www.facebook.com/SMCLVOEM)

There is also a hard copy of the plan for review and comments located at the following libraries:

- Carnegie Library 500 National Ave. Las Vegas NM 87701
- NMHU Donnelly Library 800 W National Ave. Las Vegas NM 87701
- Luna Community College, Samuel F. Vigil Library 366 Luna Drive Las Vegas NM 87701

You may also drop off any comments or comment form directly to the San Miguel County Office of Emergency Management, 518 Valencia Street Suite 102, Las Vegas NM 87701 or email your comments to [oem@smcounty.net](mailto:oem@smcounty.net). Thank you for your participation.

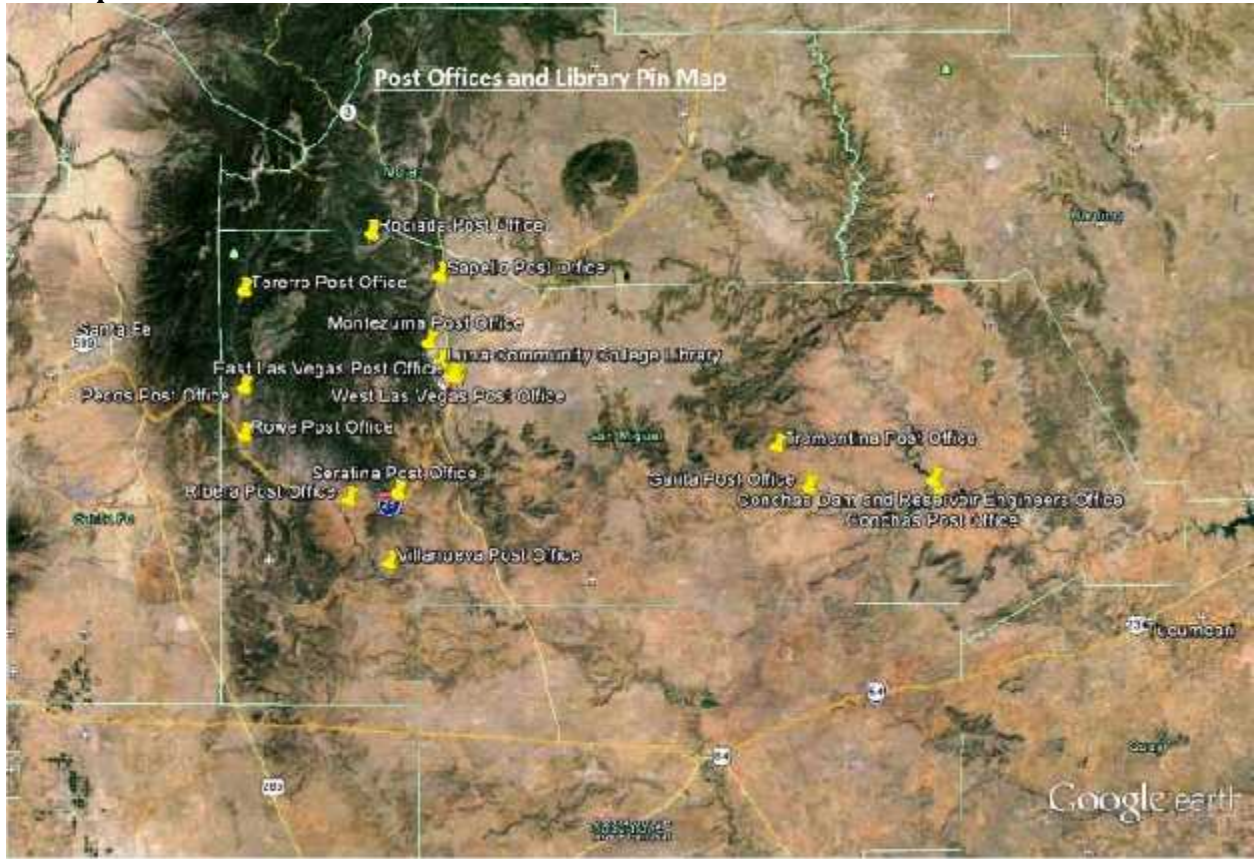








**Participation invitation locations:**



2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements





2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements



2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements




2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements

SAN MIGUEL COUNTY

<http://www.sanmiguel.net>

HOME | INTRODUCING ELECTED OFFICIALS | DEPARTMENTAL SERVICES | HOW & HOW TO INTERACT



**Emergency Preparedness Plans**

[NIE Department of Health](#)  
[Risk Cases Helpline](#)  
[Disaster Plan](#)

**FEMA**  
[Disaster Plan](#)  
[Disaster Plan](#)


**FEMA**  
[New Mexico Disaster](#)  
[Sample Kit](#)

**HEALTH**  
[U.S. Department of Homeland Security](#)  
[Center for Disease Control and Prevention Emergency Preparedness Response](#)

**FOREST FIRE UPDATES**  
[NADRA's Active Wildfires](#)  
[MapView Site](#)  
[New Mexico Fire Information](#)

# BIENVENIDOS

## Welcome to the Official San Miguel County Web Site



**COUNTY TELEPHONE NUMBERS**

**SOL E SOURCE AND EMERGENCY PURCHASES**

**FINANCIAL SYSTEM REF**

### Public Notices

*Click on text that is underlined for more information*

**COMMISSIONERS MEETING 2ND TUESDAY OF EACH MONTH**

**SPECIAL MEETING AND PUBLIC HEARING ON TUESDAY, APRIL 22, 2014 FROM 1:30 P.M. TO 7:45 P.M. FOR SAN MIGUEL COUNTY PROPOSED OIL AND GAS ORDINANCE IN PECOS, NEW MEXICO, AT THE PECOS VILLAGE HALL**

[PUBLIC MEETING SCHEDULE](#)  
[2014 OPS, SAN MIGUEL](#)

**Local Community Links**

[San Miguel County Law Office](#)  
[Local Emergency Planning Committee](#)

[San Miguel County Emergency Organization](#)

[City of Las Vegas](#)

[New Mexico Highways Department](#)

[Las Vegas Community College](#)

[Las Vegas City Schools](#)

[West Las Vegas School District](#)

[United World College](#)

[Las Vegas San Miguel Chamber of Commerce](#)

[Las Vegas Museum](#)

[Citizens Committee](#)

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SAN MIGUEL COUNTY

<http://www.sanmiguel.net>

[NIEC \(National Incident Coordination Center\)](#)

[National Interagency Fire Center](#)

[SanMiguel.com](#)

FOR REPORT A FIRE, CALL 911

[San Miguel County](#)

[Twitter](#)

[Facebook](#)

**THE SAN MIGUEL COUNTY CITY OF LAS VEGAS OFFICE OF EMERGENCY MANAGEMENT HAS COMPLETED A FINAL DRAFT OF THE SAN MIGUEL COUNTY, CITY OF LAS VEGAS, AND VILLAGE OF PECOS, NEW MEXICO HAZARD MITIGATION PLAN FOR PUBLIC REVIEW AND COMMENTS. [more information](#)**

**SAN MIGUEL COUNTY EL VALLE DE SAN MIGUEL FLYING DRAGON SCHEDULE ANNOUNCEMENT APPLICATION**

**FEDERAL DROUGHT ASSISTANCE FOR 27 COUNTIES**

**PROPOSED DRAFT OIL AND GAS ORDINANCE**

**REQUEST INSPECTION PUBLIC RECORDS**

**TORT NOTICE OF CLAIM**

**SAN MIGUEL COUNTY IS CURRENTLY UNDER FIRE RESTRICTIONS**

**PROHIBITING OPEN FIRES AND BURNING IN CONTAINERS ORDINANCE**

**SAN MIGUEL COUNTY ECONOMIC SUSTAINABILITY REPORT AUGUST 2010 PART 1 & 2**

**SOLID WASTE ORDINANCE**

**EL VALLE SUB-AREA PLAN**

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**LOCAL EMERGENCY ALERT RADIO**

**LOCAL AM EMERGENCY ALERT SYSTEM (.....) 1670 AM ON YOUR RADIO DIAL!**

**PECOS VALLEY EMERGENCY ALERT RADIO**

[for Historic Preservation](#)

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4/21/2014 9:15 AM



2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements

The San Miguel County Multi

http://www.smccounty.net/mitigationPlan.htm

The San Miguel County Multi-Jurisdictional Hazard Mitigation Plan is designed to protect people and property from the effects of natural and human-caused hazards. By taking action today, we can reduce the likelihood of injuries, loss of life and damage to our communities. That is what hazard mitigation planning is all about - taking action based on a solid understanding of our vulnerabilities to reduce the impacts of hazards that may strike sometime in the future. In addition to developing a framework for action, the Plan enables participating counties and municipalities to apply for pre and post-disaster mitigation funding that would not otherwise be available. This funding can help local jurisdictions implement identified projects that meet the goals and objectives outlined in the plan.

We prefer that stakeholders not make changes to the original word document so we have provided a comment form to be filled out in order to keep changes from being missed and prevent accidental deletions of any portion of the plan.

The plan and comment form in electronic format can be found at the following link for review and comments: <https://files.secureserver.net/0/4/2014/04/2014HMPlan.pdf>

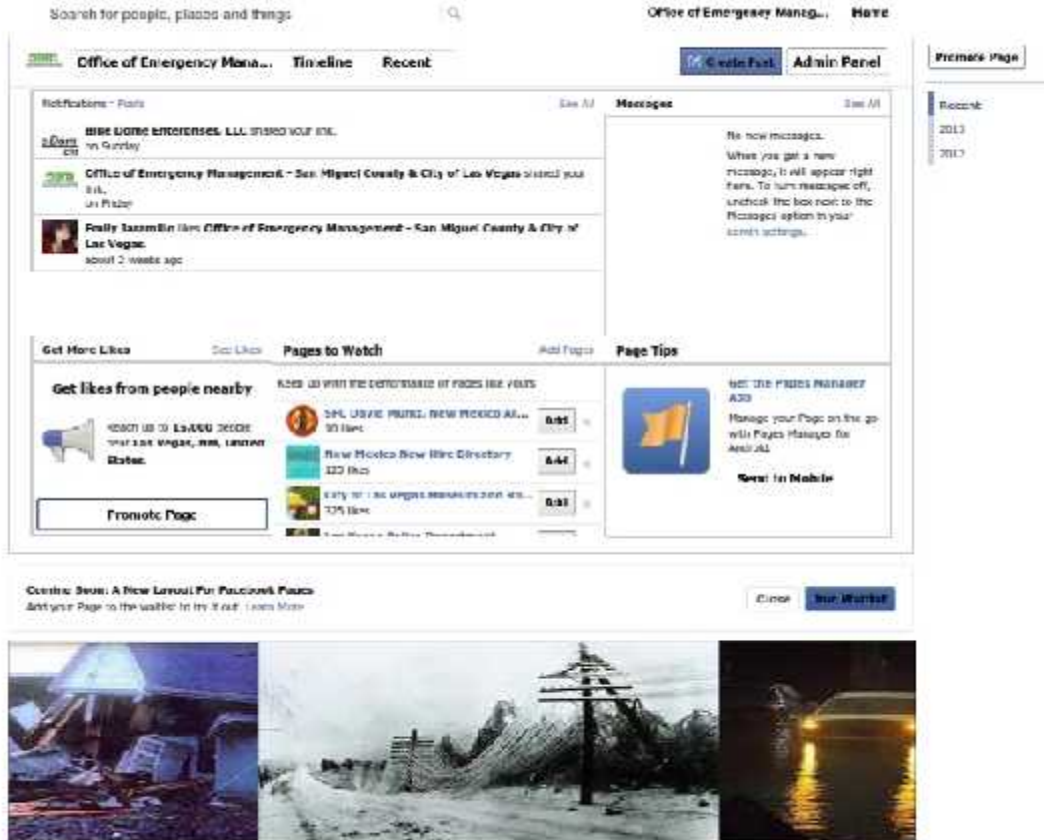
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Thank you for your participation.

Office of Emergency Management - San Miguel County & City of Las Vegas

https://www.facebook.com/SMCLVOEM/?ref=hl



2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements

2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements

City of Las Vegas

http://www.lasvegasnev.gov



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4/23/2014 10:05 AM

City of Las Vegas

http://www.lasvegasnev.gov





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4/23/2014 10:05 AM

2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements


Rand McNally Driving Directions and Maps

http://maps.randmcnally.com/print.do

From: Las Vegas, NV  
To: Las Vegas, NV  
229.4 miles  
7 hrs, 37 min


---


**Las Vegas, NM**

Total Distance: 26.9  
Total Time: 1 hr, 7 min

|    | Directions                                       | Mileage    | Total Mileage |  |
|----|--|------------|---------------|--|
| 1. | Turn right on 7th St/Santa Fe Trail Rd 010 NM 56 | 200 feet   | 200 feet      |  |
| 2. | Turn left on NM 94                               | 12.8 miles | 12.8 miles    |  |
| 3. | Bear left on NM-105 NM-270                       | 8.7 miles  | 21.5 miles    |  |
| 4. | Road forks, keep right for NM 105 NM 270         | 2.0 miles  | 23.5 miles    |  |
| 5. | Road forks, keep right for NM 105                | 0.0 miles  | 23.5 miles    |  |
| 6. | Arrive at your destination NM-105                | 1.9 miles  | 25.4 miles    |  |

---


**Roswell, NM**

Total Distance: 14.1  
Total Time: 42 min, 9

|    | Directions                       | Mileage    | Total Mileage |  |
|----|----------------------------------|------------|---------------|--|
| 1. | Proceed west on NM-105           |            |               |  |
| 2. | Arrive at your destination NM-94 | 14.1 miles | 14.1 miles    |  |

1 of 1

5/7/2014 1:24 PM

Rand McNally Driving Directions and Maps

http://maps.randmcnally.com/print.do


**Sapalo, NM**

Total Distance: 14.9  
Total Time: 35 min, 4

|     | Directions                                    | Mileage    | Total Mileage |  |
|-----|---|------------|---------------|--|
| 1.  | Proceed east on NM 94                         |            |               |  |
| 2.  | Turn right on Santa Fe Trail Rd 010 NM 56     | 200 feet   | 200 feet      |  |
| 3.  | Turn right on Dona Cecilia St/Dona Cecilia Dr | 10.4 miles | 10.4 miles    |  |
| 4.  | Turn right on 8th St/NV 71                    | 0.8 miles  | 11.2 miles    |  |
| 5.  | Turn left on Gallegos Rd                      | 0.5 miles  | 11.7 miles    |  |
| 6.  | Turn right on Old National Rd                 | 200 feet   | 11.9 miles    |  |
| 7.  | Bear left on El Uvero Rd                      | 100 feet   | 12.0 miles    |  |
| 8.  | Road forks, keep right for El Uvero Rd        | 0.3 miles  | 12.3 miles    |  |
| 9.  | Turn left on MF-263/NN-05                     | 0.5 miles  | 12.8 miles    |  |
| 10. | Turn right on NF-263/NN-05                    | 1.00 feet  | 13.1 miles    |  |
| 11. | Continue on NN-05                             | 1.7 miles  | 14.7 miles    |  |
| 12. | Arrive at your destination NM-65              | 100 feet   | 14.9 miles    |  |

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**Montezuma, NM**

Total Distance: 6.6  
Total Time: 23 min, 4

|    | Directions                         | Mileage   | Total Mileage |  |
|----|------------------------------------|-----------|---------------|--|
| 1. | Proceed east on NM-65              |           |               |  |
| 2. | Continue on NP-42/NN-05            | 200 feet  | 200 feet      |  |
| 3. | Turn right on Montezuma Ave/NN-109 | 4.4 miles | 4.6 miles     |  |
| 4. | Turn right on Avenida G            | 1.0 miles | 5.6 miles     |  |

1 of 1

5/7/2014 1:24 PM

2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements

Real Mobile Driving Directions and Maps

http://maps.realmobile.com/print.do

| 5.                        | Arrive at your destination Toledo St                | 0.1 miles     | 0.0 miles  |  |
|---------------------------|---|---------------|------------|--|
| <b>West Las Vegas, NM</b> |   |               |            | Total Distance: 55.4<br>Total Time: 1 hrs 10 |
| Directions                | Mileage   | Total Mileage |            |  |
| 1.                        | Proceed north on Toledo St                          |               |            |  |
| 2.                        | Turn right on S Pacific St                          | 0.0 miles     | 0.0 miles  |  |
| 3.                        | Turn left on Independence Ave                       | 200 feet      | 0.0 miles  |  |
| 4.                        | Turn left on Grand Avenue La Parra Toll-25BL NM-110 | 0.5 miles     | 0.5 miles  |  |
| 5.                        | Turn right on E University Ave/NM-33 E              | 0.5 miles     | 1.0 miles  |  |
| 6.                        | Turn left on NM 410                                 | 16.2 miles    | 17.2 miles |  |
| 7.                        | Arrive at your destination NM-410                   | 7.0 miles     | 24.4 miles |  |
| <b>Tombraha, NM</b>       |   |               |            | Total Distance: 13.5<br>Total Time: 25 min 0 |
| Directions                | Mileage   | Total Mileage |            |  |
| 1.                        | Proceed south on NM-410                             |               |            |  |
| 2.                        | Turn left on NM-104                                 | 7.0 miles     | 7.0 miles  |  |
| 3.                        | Turn left on NM-104                                 | 5.8 miles     | 12.8 miles |  |
| 4.                        | Arrive at your destination NM-104                   | 100 feet      | 13.5 miles |  |
| <b>Gorda, NM</b>          |   |               |            | Total Distance: 23.4<br>Total Time: 35 min 4 |
| Directions                | Mileage   | Total Mileage |            |  |
| 1.                        | Proceed south on NM-104                             |               |            |  |

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Real Mobile Driving Directions and Maps

http://maps.realmobile.com/print.do

| 2.                       | Turn left on NM 104                                      | 100 feet      | 602 feet   |  |
|--------------------------|--|---------------|------------|--|
| 3.                       | Proceed on Woodstock Scuric Byway/NM 104                 | 17.1 miles    | 17.7 miles |  |
| 4.                       | Turn right on Woodstock Scuric Byway/NM 104              | 8.8 miles     | 26.0 miles |  |
| 5.                       | Arrive at your destination Woodstock Scuric Byway/NM 104 | 0.1 miles     | 26.1 miles |  |
| <b>Coronado Area, NM</b> |  |               |            | Total Distance: 75.7<br>Total Time: 2 hrs 11 |
| Directions               | Mileage  | Total Mileage |            |  |
| 1.                       | Proceed east on Mesquite Scuric Byway/NM-104             |               |            |  |
| 2.                       | Turn left on Mesquite Scuric Byway/NM-104                | 0.4 miles     | 0.4 miles  |  |
| 3.                       | Continue on University Ave/NM-85                         | 75.2 miles    | 75.6 miles |  |
| 4.                       | Arrive at your destination                               | 700 feet      | 75.7 miles |  |
| <b>Las Vegas, NM</b>     |  |               |            |  |

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2014 San Miguel County Hazard Mitigation Plan  
 Appendix E: Invitations and Advertisements

Rand McNally Driving Directions and Maps

http://maps.mcnally.com/print.do



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Rand McNally Driving Directions and Maps

http://maps.mcnally.com/print.do

From: Las Vegas, NV  
 To: Villavieja, NM  
 127.2 miles  
 3 hrs 29 min

---

A Las Vegas, NM

|    | Directions   | Mileage    | Total Mileage |
|----|--|------------|---------------|
| 1. | Enter ramp following the sign I-25 S                       | 0.1 miles  | 0.1 miles     |
| 2. | Exit right following the sign Villavieja/NM 3 S (EXIT 323) | 22.7 miles | 23.1 miles    |
| 3. | At ramp's end, take a left to San Miguel                   | 700 feet   | 23.2 miles    |
| 4. | Turn left on HW 3  | 11.8 miles | 35.0 miles    |
| 5. | Turn right according on HW 3                               | 200 feet   | 35.1 miles    |
| 6. | Arrive at your destination: NM-3                           | 200 feet   | 35.1 miles    |

Total Distance: 35.1  
 Total Time: 1 hrs 29

---

B Villavieja, NM

|    | Directions                   | Mileage  | Total Mileage |
|----|------------------------------|----------|---------------|
| 1. | Proceed to the End of NM-3   |          |               |
| 2. | Turn left continuing on NM-3 | 400 feet | 20.0 feet     |

Total Distance: 20.1  
 Total Time: 1 hrs 19

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2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements

Real Mobile Driving Directions and Maps

<http://maps.realmobile.com/print.do>

|    |   |            |            |  |
|----|---|------------|------------|--|
| 3. | Turn right on NM 8  | 300 feet   | 692 feet   |  |
| 4. | Turn right on Las Vegas (SR 36 N)                             | 11.7 miles | 11.8 miles |  |
| 5. | Exit right following the sign Teodoro (EXIT 338)              | 12.0 miles | 23.8 miles |  |
| 6. | At ramp one, take a left to CR B17                            | 6.3 miles  | 30.1 miles |  |
| 7. | Turn left on Santa Fe (US 8)                                  | 330 feet   | 34.2 miles |  |
| 8. | Arrive at your destination Santa Fe (NM 22 S) US 81 N US 81 N | 4.9 miles  | 39.1 miles |  |

**C** Santa Fe, NM Total Distance: 23.0  
Total Time: 15 min 2

| Directions   | Mileage    | Total Mileage |
|--|------------|---------------|
| 1. Proceed south on Santa Fe (NM 22 S) US 81 N US 81 N               |            |               |
| 2. Exit right following the sign (NM 22) From Pecos/NM-03 (EXIT 327) | 22.3 miles | 22.3 miles    |
| 3. Exit ramp (down left) at Santa Fe (NM 40 N)                       | 300 feet   | 22.5 miles    |
| 4. Turn left on Las Vegas  | 6.3 miles  | 22.8 miles    |
| 5. Arrive at your destination I-25 N US 84 S Highway, Route 65       | 1000 feet  | 23.0 miles    |

**D** Rowe, NM Total Distance: 5.1  
Total Time: 14 min

| Directions   | Mileage   | Total Mileage |
|--|-----------|---------------|
| 1. Proceed north on I-25 N US 84 S (Interstate 25 N)           |           |               |
| 2. Turn left on NM 407 Interstate (down the left) E W 34       | 1.00 feet | 1.00 feet     |
| 3. Turn right to Santa Fe (NM 40 S)                            | 6.3 miles | 6.3 miles     |
| 4. Arrive at your destination I-25 N US 84 S (Interstate 25 N) | 5.1 miles | 5.1 miles     |

2 of 3

3/7/2014 1:03 PM

Real Mobile Driving Directions and Maps

<http://maps.realmobile.com/print.do>

**E** Pecos, NM Total Distance: 44.3  
Total Time: 15 min 1

| Directions   | Mileage    | Total Mileage |
|--|------------|---------------|
| 1. Proceed south on E Wale St Santa Fe (NM 62)                     |            |               |
| 2. Turn right on I-25 N US 81 S Historic Route 69 Santa Fe (I)     | 0.6 miles  | 0.6 miles     |
| 3. Turn left continuing on I-25 N                                  | 330 feet   | 0.5 miles     |
| 4. Exit right following the sign ( I-25 BL/NW 05/NW 10) (EXIT 310) | 21.7 miles | 43.1 miles    |
| 5. Turn left on E University Ave (NM 104 W) NM 45 W                | 6.5 miles  | 43.9 miles    |
| 6. Continue on University Ave (NM 45)                              | 6.3 miles  | 44.2 miles    |
| 7. Arrive at your destination                                      | 700 feet   | 44.3 miles    |

**F** Las Vegas, NM

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2014 San Miguel County Hazard Mitigation Plan  
Appendix E: Invitations and Advertisements

San Miguel County - Directions and Maps

<http://www.sanmiguelcounty.com/print.do>



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1 APPENDIX F: PUBLIC SURVEY RESULTS

San Miguel County Hazard Mitigation Survey



| 1. Please indicate your age range: |  |                  |                |
|------------------------------------|--|------------------|----------------|
|                                    |  | Response Percent | Response Count |
| 18 to 30                           |  | 17.6%            | 23             |
| 31 to 40                           |  | 16.0%            | 21             |
| 41 to 50                           |  | 34.4%            | 45             |
| 51 to 60                           |  | 18.3%            | 24             |
| 60 to over                         |  | 13.7%            | 18             |
| answered question                  |  |                  | 131            |
| skipped question                   |  |                  | 1              |



| 2. Gender:        |  |                  |                |
|-------------------|--|------------------|----------------|
|                   |  | Response Percent | Response Count |
| Male              |  | 59.5%            | 75             |
| Female            |  | 40.5%            | 51             |
| answered question |  |                  | 126            |
| skipped question  |  |                  | 6              |



1






| 3. How long have you lived in San Miguel County? |  |                  |                |
|--|--|------------------|----------------|
|  |  | Response Percent | Response Count |
| Less than 1 year                                 |  | 1.5%             | 2              |
| 1 to 5 year                                      |  | 5.4%             | 7              |
| 6 to 9 years                                     |  | 8.5%             | 11             |
| 10 to 19 years                                   |  | 17.7%            | 23             |
| 20 years or more                                 |  | 66.9%            | 87             |
| answered question                                |  |                  | 130            |
| skipped question                                 |  |                  | 2              |






| 4. In which jurisdiction do you reside? |  |                  |                |
|---|--|------------------|----------------|
|   |  | Response Percent | Response Count |
| Unincorporated San Miguel County        |  | 44.2%            | 57             |
| City of Las Vegas                       |  | 51.2%            | 66             |
| Village of Pecos                        |  | 4.7%             | 6              |
| answered question                       |  |                  | 129            |
| skipped question                        |  |                  | 3              |

2

| 5. Do you own or rent? |  |                  |                |
|------------------------|--|------------------|----------------|
|                        |  | Response Percent | Response Count |
| Own                    |  | 81.7%            | 103            |
| Rent                   |   | 18.3%            | 23             |
|                        | Other (please specify)   |                  | 4              |
| answered question      |  |                  | 126            |
| skipped question       |  |                  | 6              |

| 6. Have you ever received information about how to make your family and home safer from natural disasters? |   |                  |                |
|--|---|------------------|----------------|
|  |   | Response Percent | Response Count |
| Yes  |    | 41.2%            | 54             |
| No   |  | 58.8%            | 77             |
| answered question  |   |                  | 131            |
| skipped question   |   |                  | 1              |

| <b>7. If you answered "YES" to question #6, how recently?</b> |   |                         |                       |
|---|---|-------------------------|-----------------------|
|   |   | <b>Response Percent</b> | <b>Response Count</b> |
| <b>Within the last 6 months</b>                               |  | 42.6%                   | 23                    |
| Between 7 and 12 months                                       |  | 18.5%                   | 10                    |
| Between 1 and 2 years   |  | 22.2%                   | 12                    |
| Between 2 and 5 years   |  | 9.3%                    | 5                     |
| 5 years or more   |  | 7.4%                    | 4                     |
| <b>answered question</b>                                      |   |                         | <b>54</b>             |
| <b>skipped question</b>                                       |   |                         | <b>78</b>             |

| <b>8. From whom did you last receive information about how to make your family and home safer from natural disasters?</b> |   |                         |                       |
|---|---|-------------------------|-----------------------|
|   |   | <b>Response Percent</b> | <b>Response Count</b> |
| <b>News Media (newspaper, radio, television, internet)</b>  |  | 38.9%                   | 28                    |
| American Red Cross  |  | 6.9%                    | 5                     |
| <b>Government agency</b>  |  | 38.9%                   | 28                    |
| Other non-profit organization   |  | 6.9%                    | 5                     |
| Insurance agent or company  |  | 12.5%                   | 9                     |
| Utility company   |  | 15.3%                   | 11                    |
| Unsure  |  | 22.2%                   | 16                    |
| Other (please specify)  |   |                         | 14                    |
| <b>answered question</b>  |   |                         | <b>72</b>             |
| <b>skipped question</b>   |   |                         | <b>60</b>             |



**9. On a scale of 1-5 with 1 being the least prepared and 5 being the most prepared, please rank how prepared you are for the impacts of natural or human-caused disasters.**

|                          | 1             | 2             | 3                           | 4             | 5        | Rating Average | Rating Count |
|--------------------------|---------------|---------------|-----------------------------|---------------|----------|----------------|--------------|
|                          | 16.3%<br>(21) | 20.2%<br>(26) | <b>39.5%</b><br><b>(51)</b> | 17.8%<br>(23) | 6.2% (8) | 2.78           | 129          |
| <b>answered question</b> |               |               |                             |               |          |                | <b>129</b>   |
| <b>skipped question</b>  |               |               |                             |               |          |                | <b>3</b>     |

**10. Which of the following steps has your household taken to prepare for a natural hazard event? (Check all that apply.)**

|  | Response Percent | Response Count |
|--|------------------|----------------|
| Received first aid/CPR training            | 71.5%            | 93             |
| <b>Maintain flashlights and batteries</b>  | <b>78.5%</b>     | <b>102</b>     |
| Maintain emergency food and water supplies | 46.2%            | 60             |
| Own a battery-powered radio                | 49.2%            | 64             |
| Designated a meeting place                 | 28.5%            | 37             |
| Maintain emergency medical supplies        | 43.1%            | 56             |
| Identified utility shutoff locations       | 58.5%            | 76             |
| Prepared a disaster supply kit             | 23.1%            | 30             |
| <b>answered question</b>                   |                  | <b>130</b>     |
| <b>skipped question</b>                    |                  | <b>2</b>       |




**11. Which of the following types of hazard events have you or someone in your household experienced within San Miguel County and how concerned are you about the hazards listed? (Please check any that you have experienced and the level of concern for all of the hazards).**

|                              | Have Experienced | Not Concerned | Somewhat Concerned | Very Concerned | Extremely Concerned | I'm not familiar with this hazard |
|------------------------------|------------------|---------------|--------------------|----------------|---------------------|-----------------------------------|
| Dam Failure                  | 5.2% (5)         | 32.0% (31)    | 18.6% (18)         | 10.3% (10)     | 17.5% (17)          | 22.7% (22)                        |
| Drought                      | 47.2% (58)       | 1.6% (2)      | 11.4% (14)         | 20.3% (25)     | 44.7% (55)          | 0.8% (1)                          |
| Earthquake                   | 9.7% (9)         | 58.1% (54)    | 20.4% (19)         | 4.3% (4)       | 2.2% (2)            | 15.1% (14)                        |
| Flood                        | 38.5% (40)       | 11.5% (12)    | 30.8% (32)         | 20.2% (21)     | 17.3% (18)          | 1.9% (2)                          |
| Expansive Soils              | 5.3% (5)         | 45.3% (43)    | 14.7% (14)         | 8.4% (8)       | 6.3% (6)            | 28.4% (27)                        |
| Extreme Heat                 | 31.1% (33)       | 17.9% (19)    | 35.8% (38)         | 16.0% (17)     | 17.0% (18)          | 2.8% (3)                          |
| Hailstorm                    | 50.4% (62)       | 10.6% (13)    | 26.8% (33)         | 19.5% (24)     | 17.1% (21)          | 1.6% (2)                          |
| Hazardous Materials Incident | 11.1% (11)       | 17.2% (17)    | 36.4% (36)         | 12.1% (12)     | 22.2% (22)          | 9.1% (9)                          |
| High Wind                    | 44.9% (53)       | 5.9% (7)      | 26.3% (31)         | 28.8% (34)     | 15.3% (18)          | 2.5% (3)                          |
| Landslide                    | 7.2% (7)         | 44.3% (43)    | 28.9% (28)         | 8.2% (8)       | 4.1% (4)            | 11.3% (11)                        |
| Levee Failure                | 6.1% (6)         | 54.1% (53)    | 16.3% (16)         | 4.1% (4)       | 8.2% (8)            | 14.3% (14)                        |
| Destructive Pests            | 16.5% (16)       | 24.7% (24)    | 40.2% (39)         | 15.5% (15)     | 9.3% (9)            | 5.2% (5)                          |
| Severe Winter Weather        | 46.1% (47)       | 7.8% (8)      | 29.4% (30)         | 24.5% (25)     | 21.6% (22)          | 2.0% (2)                          |

2014 San Miguel County Hazard Mitigation Plan  
 Appendix F: Public Surveys








|                          |                   |                   |                   |            |                   |            |
|--------------------------|-------------------|-------------------|-------------------|------------|-------------------|------------|
| Terrorism                | 12.1% (12)        | 22.2% (22)        | <b>27.3% (27)</b> | 18.2% (18) | 21.2% (21)        | 7.1% (7)   |
| Thunderstorm             | <b>46.5% (53)</b> | 13.2% (15)        | 30.7% (35)        | 19.3% (22) | 11.4% (13)        | 0.9% (1)   |
| Tornado                  | 9.6% (9)          | <b>37.2% (35)</b> | 30.9% (29)        | 8.5% (8)   | 10.6% (10)        | 10.6% (10) |
| Wildfire                 | 33.0% (37)        | 2.7% (3)          | 17.9% (20)        | 17.9% (20) | <b>41.1% (46)</b> | 4.5% (5)   |
| <b>answered question</b> |                   |                   |                   |            |                   |            |
| <b>skipped question</b>  |                   |                   |                   |            |                   |            |

**12. To the best of your knowledge, is your property located in a designated floodplain?**

|                          |   | Response Percent | Response Count |
|--------------------------|---|------------------|----------------|
| Yes                      |    | 17.6%            | 23             |
| No                       |    | 58.8%            | 77             |
| Not Sure                 |  | 23.7%            | 31             |
| <b>answered question</b> |   |                  | <b>131</b>     |
| <b>skipped question</b>  |   |                  | <b>1</b>       |

**13. Do you have flood insurance?**







|                          |   | Response Percent | Response Count |
|--------------------------|---|------------------|----------------|
| Yes                      |  | 23.8%            | 31             |
| No                       |  | 76.2%            | 99             |
| <b>answered question</b> |   |                  | <b>130</b>     |
| <b>skipped question</b>  |   |                  | <b>2</b>       |

| 14. If you do NOT have flood insurance, what is the primary reason? |   |                  |                |
|---|---|------------------|----------------|
|   |   | Response Percent | Response Count |
| I don't need it/my property has never flooded                       |  | 12.1%            | 14             |
| <b>Don't need it/my house is not in the floodplain</b>              |  | <b>36.2%</b>     | <b>42</b>      |
| My homeowners insurance will cover me                               |  | 6.9%             | 8              |
| My insurance will not cover it                                      |  | 4.3%             | 5              |
| It is too expensive   |  | 14.7%            | 17             |
| It is not worth it  |  | 1.7%             | 2              |
| Not familiar with it/ don't know about it                           |  | 24.1%            | 28             |
| <b>answered question</b>  |   |                  | <b>116</b>     |
| <b>skipped question</b>   |   |                  | <b>16</b>      |


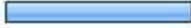
| 15. Did you consider the impact a natural disaster could have on your home before you purchased/moved into your home? |   |                  |                |
|---|---|------------------|----------------|
|   |   | Response Percent | Response Count |
| Yes   |  | 30.4%            | 38             |
| <b>No</b>   |  | <b>69.6%</b>     | <b>87</b>      |
| <b>answered question</b>  |   |                  | <b>125</b>     |
| <b>skipped question</b>   |   |                  | <b>7</b>       |



**17. Which of the following incentives would help to encourage you to spend money to retrofit your home from the possible impacts of natural disasters? (Please check all that apply)**

|  |   | Response Percent | Response Count |
|--|---|------------------|----------------|
| Building permit fee waiver             |  | 26.4%            | 32             |
| <b>Property tax break or incentive</b> |  | <b>59.5%</b>     | <b>72</b>      |
| Insurance premium discount             |  | 51.2%            | 62             |
| Low interest loan                      |  | 29.8%            | 36             |
| Grant funding with a cost-share        |  | 50.4%            | 61             |
| None                                   |  | 14.0%            | 17             |
|  | Other (please specify)  |                  | 4              |
| <b>answered question</b>               |   |                  | <b>121</b>     |
| <b>skipped question</b>                |   |                  | <b>11</b>      |

**18. If your property were located in a designated "high hazard" area, or had received repeated damages from a natural hazard event, would you consider a "buyout", elevation of the structure, or relocation offered by a public agency?**

|                          |   | Response Percent | Response Count |
|--------------------------|---|------------------|----------------|
| Yes                      |  | 62.9%            | 78             |
| No                       |  | 37.1%            | 46             |
| <b>answered question</b> |   |                  | <b>124</b>     |
| <b>skipped question</b>  |   |                  | <b>8</b>       |

| 19. Other Comments |                |
|--------------------|----------------|
|                    | Response Count |
|                    | 14             |
| answered question  | 14             |
| skipped question   | 118            |

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*2014 San Miguel County Hazard Mitigation Plan  
Appendix F: Public Surveys*

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## APPENDIX G: MITIGATION ACTION RANKING WORKSHEETS

### G.1 Instructions

**Mitigation Actions must be prioritized by each participating jurisdiction (SMC, Las Vegas, and Pecos). Each participating jurisdiction may have different priorities for implementing actions. To follow recommendations by FEMA, the actions should be ranked using the prioritization factors as listed below. For each mitigation action on the given jurisdiction worksheet (tab), rank each factor with one of the following:**

0 = not likely  
1 = neutral  
2 = likely

**Use the following explanations as reference for each prioritization factor:**

***Life Safety*** - How effectively will the action protect lives and prevent 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*** - Does the public support 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 who 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?

*2014 San Miguel County Hazard Mitigation Plan  
Appendix G: Mitigation Action Ranking Worksheets*

## G.2 San Miguel County

| Action ID | Project  | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|--|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 1.1.1     | Conduct field testing & sampling of surface and sub-surface water sources  | 1           | 0                   | 2         | 2         | 2     | 2             | 0      | 2              | 2              | 2                          | 15    | HIGH     |
| 1.1.2     | Well exploration to identify potable water supplies  | 0           | 0                   | 2         | 2         | 2     | 2             | 0      | 2              | 2              | 2                          | 14    | HIGH     |
| 1.1.5     | Develop water storage/hydrant systems in for raw, drinking and effluent water.   | 2           | 2                   | 2         | 2         | 2     | 2             | 2      | 1              | 2              | 2                          | 19    | HIGH     |
| 1.1.6     | Conduct a more in depth hazard analysis for wildfires and their effects on residences, infrastructure, water supplies, and the economy.  | 0           | 0                   | 2         | 1         | 2     | 2             | 0      | 1              | 1              | 1                          | 10    | MODERATE |
| 1.1.7     | Join the Community Rating System (CRS) and pursue opportunities to improve CRS ratings   | 0           | 0                   | 2         | 1         | 2     | 2             | 0      | 1              | 2              | 1                          | 11    | MODERATE |
| 1.2.1     | Install flashing roadside emergency notification signs to advise of an emergency, web announcement, & AM Radio Broadcast with additional instructions  | 1           | 0                   | 2         | 2         | 2     | 2             | 0      | 1              | 0              | 0                          | 10    | MODERATE |
| 1.2.2     | Construct a tower and transponder to have the ability to receive NOAA weather alert notification and purchase NOAA radios for public facilities and vulnerable populations to receive these messages | 1           | 1                   | 2         | 1         | 2     | 2             | 1      | 2              | 1              | 0                          | 13    | HIGH     |
| 1.2.3     | Implement a county-wide mass notification/emergency messaging system to provide a centralized notification system  | 2           | 1                   | 2         | 2         | 2     | 2             | 2      | 2              | 2              | 2                          | 19    | HIGH     |

2014 San Miguel County Hazard Mitigation Plan  
Appendix G: Mitigation Action Ranking Worksheets

| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 1.2.4     | Research and identify public warning systems that use redundant means of contact to reach stakeholders and the community to deliver and receive information regarding hazards, threats, impacts, and damage. Purchase, install, and implement the warning system. | 0           | 0                   | 2         | 1         | 2     | 2             | 1      | 1              | 2              | 0                          | 11    | MODERATE |
| 1.2.5     | Research the feasibility and benefits of becoming a NOAA StormReady Community   | 1           | 1                   | 2         | 1         | 2     | 0             | 2      | 2              | 1              | 0                          | 12    | MODERATE |
| 1.3.1     | Design & develop an OEM web-site that provides drop down links toward mitigation/preparedness/response/recovery and identify funding sources toward hailstorm mitigation programs   | 1           | 2                   | 2         | 2         | 2     | 2             | 2      | 2              | 1              | 0                          | 16    | HIGH     |
| 1.3.2     | Create a centralized GIS/Data System to be able to obtain/compile/disseminate information for all hazard events (mapping, assessments, cost analysis, etc.)   | 0           | 2                   | 2         | 2         | 2     | 2             | 2      | 2              | 2              | 2                          | 18    | HIGH     |
| 1.3.3     | Install outdoor early warning systems at local parks, athletic fields, and on educational institution campuses  | 2           | 2                   | 2         | 1         | 2     | 1             | 0      | 0              | 0              | 0                          | 10    | MODERATE |
| 1.3.4     | Work with the state and USDA NRCS to install additional high-elevation SNOTEL stations in the Sangre de Cristo Mountains and Glorieta Mesa  | 1           | 2                   | 2         | 1         | 2     | 2             | 0      | 0              | 1              | 0                          | 11    | MODERATE |

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Appendix G: Mitigation Action Ranking Worksheets

| Action ID | Project  | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|--|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 1.3.5     | Work with USGS to install continuous monitoring stream gages on Tecolote Creek, the Conchas River (above the lake), the Canadian River, the Pecos River, and the Gallinas River 1000' south of the diversion gate. | 1           | 1                   | 2         | 1         | 2     | 2             | 0      | 0              | 0              | 0                          | 9     | MODERATE |
| 2.1.1     | Review and develop the current building codes to include mitigation for seismic shaking in future construction   | 0           | 1                   | 0         | 0         | 1     | 2             | 0      | 1              | 0              | 0                          | 5     | LOW      |
| 2.1.2     | Review and implement mitigation concepts in foundation design toward soil expansion solutions and incorporate them into the building codes through formal adoption   | 0           | 1                   | 1         | 0         | 2     | 0             | 0      | 1              | 0              | 0                          | 5     | LOW      |
| 2.1.3     | Investigate availability of funding and/or for development of expansive soil data (including extent of hazard and probability of occurrence data) for use county-wide  | 0           | 1                   | 1         | 0         | 2     | 1             | 0      | 1              | 0              | 0                          | 6     | LOW      |
| 2.1.4     | Develop local building ordinances that require 1'-2' of freeboard in designated flood zones.   | 0           | 2                   | 1         | 1         | 2     | 2             | 0      | 1              | 0              | 0                          | 9     | MODERATE |
| 2.1.5     | Improve on state building codes through local modifications that meet or exceed state and national models by ordinance, which would result in additional techniques to harden structures.                          | 0           | 1                   | 1         | 1         | 2     | 2             | 0      | 1              | 0              | 0                          | 8     | MODERATE |

2014 San Miguel County Hazard Mitigation Plan  
Appendix G: Mitigation Action Ranking Worksheets

| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 2.1.6     | Improve state fire codes through local modifications that meet or exceed state and national models by ordinance, which would result in additional techniques to harden structures.  | 1           | 1                   | 2         | 1         | 2     | 2             | 0      | 0              | 0              | 0                          | 9     | MODERATE |
| 2.1.7     | Identify funding sources to develop zoning regulations and ordinances to reduce loss from identified hazards.   | 0           | 1                   | 2         | 0         | 2     | 2             | 0      | 0              | 0              | 0                          | 7     | LOW      |
| 2.1.8     | Develop and implement zoning regulations and ordinances to reduce loss from identified hazards.   | 0           | 1                   | 1         | 0         | 2     | 2             | 0      | 0              | 0              | 0                          | 6     | LOW      |
| 2.1.9     | Research and study the feasibility of developing and implementing an environmental protection ordinance   | 0           | 0                   | 2         | 0         | 2     | 1             | 0      | 0              | 0              | 0                          | 5     | LOW      |
| 2.2.1     | Identify flood prone areas in the county and design effective water drainage systems to minimize flooding   | 1           | 2                   | 2         | 2         | 2     | 1             | 0      | 2              | 2              | 2                          | 16    | HIGH     |
| 2.2.2     | Pursue elevation/acquisition/floodproofing projects and structural solutions to flooding using available grant funding for the repetitive loss structures in the county and municipalities. Annually review and correct the Repetitive Loss List by submitting correction worksheets to FEMA. | 0           | 2                   | 2         | 0         | 2     | 1             | 0      | 1              | 0              | 0                          | 8     | MODERATE |
| 2.3.1     | Re-design and construction of the diversion gates to handle increase water flows during floods or heavy rains   | 1           | 2                   | 2         | 2         | 1     | 2             | 0      | 0              | 2              | 2                          | 14    | HIGH     |

2014 San Miguel County Hazard Mitigation Plan  
Appendix G: Mitigation Action Ranking Worksheets

| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 2.3.2     | Identify, design, & construct a levee control system within the county river basins to lower the water flows during a dam failure                 | 2           | 2                   | 1         | 1         | 1     | 2             | 0      | 1              | 1              | 2                          | 13    | HIGH     |
| 2.3.3     | Require the use of hail resistant material in future county-funded construction projects  | 0           | 2                   | 2         | 1         | 2     | 2             | 0      | 1              | 0              | 0                          | 10    | MODERATE |
| 2.3.4     | Identify critical infrastructure where safe rooms can be constructed for protection/safety of building occupants within the facility              | 2           | 0                   | 1         | 1         | 2     | 2             | 1      | 0              | 1              | 0                          | 10    | MODERATE |
| 2.3.5     | Conduct a study to identify landslide areas within the county and install rock netting toward protection measures at the identified sites         | 0           | 1                   | 1         | 1         | 2     | 2             | 0      | 1              | 1              | 0                          | 9     | MODERATE |
| 2.3.6     | Construct snow fences along major utilized highways in the county to minimize snow drifts and build up on roadways                                | -           |                     |           |           |       |               |        |                |                |                            | 0     | LOW      |
| 2.3.7     | Improve and protect existing culverts, arroyos, and acequias, and install new culverts within the county as needed to reduce flooding county-wide | 1           | 2                   | 2         | 2         | 2     | 2             | 1      | 1              | 2              | 2                          | 17    | HIGH     |
| 3.1.1     | The Upper Pecos Watershed Association is completing a NEPA analysis for "roadside thinning" within the Pecos Canyon                               | 1           | 1                   | 0         | 1         | 2     | 0             | 0      | 0              | 0              | 0                          | 5     | LOW      |
| 3.1.3     | Re-design and construct the levee just north of Storrie Lake to minimize the possible breakage during heavy flows                                 | 2           | 2                   | 1         | 1         | 2     | 2             | 0      | 0              | 1              | 0                          | 11    | MODERATE |

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| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 3.1.4     | Harden the bay doors of the fire stations to reduce vulnerability to wind-related events.   | 0           | 2                   | 1         | 0         | 2     | 2             | 0      | 1              | 0              | 0                          | 8     | MODERATE |
| 3.1.5     | Install a generator at each of the Fire and Police Stations to reduce vulnerability to power-outages during hazard events.                        | 2           | 2                   | 2         | 1         | 2     | 2             | 0      | 2              | 1              | 0                          | 14    | HIGH     |
| 3.1.7     | Research vulnerable infrastructure and harden/improve water/sewer sanitation services in identified areas   | 0           | 2                   | 2         | 2         | 2     | 2             | 0      | 1              | 2              | 0                          | 13    | HIGH     |
| 3.2.1     | Conduct a seismic study of all critical infrastructure within the county to identify the effects of an earthquake on existing facilities          | 0           | 0                   | 2         | 1         | 2     | 2             | 0      | 2              | 0              | 0                          | 9     | MODERATE |
| 3.2.2     | Research and meet with State Plant Pest and Disease Agencies such as USDA/APHIS to identify mitigation projects in this area                      | 0           | 0                   | 1         | 1         | 2     | 2             | 0      | 1              | 0              | 0                          | 7     | LOW      |
| 3.2.3     | Research funding opportunities and garner support for repair to the reservoir seepage area.   | 1           | 0                   | 2         | 2         | 2     | 2             | 0      | 2              | 2              | 2                          | 15    | HIGH     |
| 3.2.4     | Identify funding streams and resources for technical assistance to scope bridge repair or reinforcement projects on identified vulnerable bridges | 0           | 1                   | 1         | 1         | 2     | 2             | 0      | 0              | 1              | 0                          | 8     | MODERATE |
| 3.2.5     | Conduct engineering studies on hardening, retrofitting, or rebuilding vulnerable bridges.   | 0           | 2                   | 2         | 1         | 2     | 2             | 0      | 1              | 1              | 0                          | 11    | MODERATE |



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| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 3.2.6     | Harden, retrofit, or replace vulnerable, unsafe bridges that are used by heavy equipment to access areas vulnerable to wildfire, snowfall, landslide, and flooding.   | 1           | 2                   | 2         | 1         | 2     | 2             | 0      | 1              | 1              | 0                          | 12    | MODERATE |
| 3.3.1     | Encourage new development areas to install underground utilities, which would help reduce the chances of power outages.   | 0           | 0                   | 1         | 1         | 2     | 1             | 0      | 0              | 0              | 0                          | 5     | LOW      |
| 4.1.1     | Gallinas Fuels Reduction project  | 1           | 2                   | 2         | 1         | 2     | 2             | 0      | 2              | 1              | 2                          | 15    | HIGH     |
| 4.1.3     | Develop emergency evacuation and sheltering plans   | 2           | 1                   | 2         | 2         | 2     | 2             | 0      | 1              | 2              | 2                          | 16    | HIGH     |
| 4.2.1     | Install and maintain ITAC channels in public safety radios to improve inter-operability with Santa Fe County  | 0           | 1                   | 2         | 1         | 2     | 0             | 0      | 2              | 2              | 0                          | 10    | MODERATE |
| 4.2.2     | Identify critical infrastructure facilities to install generator hook-ups and purchase mobile generators to use in power outages  | 1           | 2                   | 2         | 2         | 2     | 2             | 2      | 1              | 1              | 2                          | 17    | HIGH     |
| 4.3.1     | Identify senior centers, community centers, and schools throughout the county that can be used for heating/cooling stations and install generator hook ups, towable generators and electric A/C & heating combination systems | 2           | 1                   | 2         | 2         | 2     | 2             | 2      | 1              | 1              | 2                          | 17    | HIGH     |
| 4.3.2     | Encourage churches and community groups to assist vulnerable persons in the event of power loss and to develop an emergency plan.   | 1           | 0                   | 1         | 1         | 0     | 2             | 2      | 0              | 1              | 0                          | 8     | MODERATE |

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| Action ID | Project  | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|--|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 5.2.1     | Research and implement localized drainage projects in the repetitive loss areas to reduce flood potential and impacts.   | 1           | 2                   | 2         | 2         | 2     | 2             | 0      | 1              | 2              | 2                          | 16    | HIGH     |
| 6.1.1     | Travel Management Plan was approved in 2013. A map that depicts where camping is permitted will be issued annually   | 0           | 0                   | 1         | 0         | 2     | 0             | 0      | 0              | 1              | 0                          | 4     | LOW      |
| 6.1.2     | Respect the Rio: a public education campaign where rangers visit campgrounds to teach visitors about water quality hazards, and appropriate use of sites near streams  | 0           | 2                   | 1         | 1         | 0     | 2             | 0      | 1              | 1              | 0                          | 8     | MODERATE |
| 6.1.3     | Create a public awareness program to promote "See Something, Say Something" in conjunction with New Mexico Department of Homeland Security   | 1           | 1                   | 1         | 0         | 2     | 2             | 0      | 0              | 0              | 0                          | 7     | LOW      |
| 6.1.4     | Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding potential mitigation measures using the local newspaper, utility bill inserts, inserts in the phone book, county websites, and educational programs for school age children or "how to" classes in retrofitting by local merchants. Integrate "Disaster Resistance Education" into the public school curriculum. | 2           | 2                   | 2         | 2         | 2     | 2             | 0      | 2              | 1              | 0                          | 15    | HIGH     |

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| Action ID | Project  | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|--|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 6.1.5     | Develop and distribute public awareness information regarding potential mitigation measures using various means to reach adults, children, visitors, and vulnerable populations. | 0           | 1                   | 2         | 2         | 2     | 2             | 0      | 1              | 2              | 0                          | 12    | MODERATE |
| 6.2.1     | Develop, deliver, and maintain FireWise programs in the county.  | 1           | 2                   | 2         | 2         | 2     | 2             | 0      | 1              | 2              | 1                          | 15    | HIGH     |
| 6.2.2     | Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).                  | 0           | 2                   | 1         | 0         | 2     | 2             | 2      | 2              | 1              | 0                          | 12    | MODERATE |
| 6.3.3     | Identify funding sources to create a staff community outreach position to enhance mitigation and emergency preparedness in the community   | 0           | 0                   | 2         | 0         | 2     | 0             | 1      | 0              | 0              | 0                          | 5     | LOW      |

### G.3 City of Las Vegas

| Action ID | Project  | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|--|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 1.1.1     | Conduct field testing & sampling of surface and sub-surface water sources  | 2           | 2                   | 2         | 2         | 2     | 1             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 1.1.2     | Well exploration to identify potable water supplies  | 2           | 2                   | 2         | 2         | 2     | 1             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 1.1.3     | Increase aquifer storage and recovery  | 2           | 2                   | 2         | 2         | 2     | 1             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 1.1.4     | Enlarge reservoir  | 2           | 2                   | 2         | 2         | 2     | 1             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 1.1.5     | Develop water storage/hydrant systems in for raw, drinking and effluent water.   | 2           | 2                   | 2         | 2         | 2     | 2             | 2      | 2              | 2              | 2                          | 20    | HIGH     |
| 1.1.6     | Conduct a more in depth hazard analysis for wildfires and their effects on residences, infrastructure, water supplies, and the economy.  | 0           | 0                   | 2         | 2         | 2     | 0             | 1      | 1              | 2              | 2                          | 12    | MODERATE |
| 1.1.7     | Join the Community Rating System (CRS) and pursue opportunities to improve CRS ratings   | 0           | 0                   | 2         | 1         | 2     | 2             | 0      | 1              | 2              | 1                          | 11    | MODERATE |
| 1.2.1     | Install flashing roadside emergency notification signs to advise of an emergency, web announcement, & AM Radio Broadcast with additional instructions  | 2           | 1                   | 2         | 1         | 2     | 0             | 2      | 1              | 1              | 1                          | 13    | HIGH     |
| 1.2.2     | Construct a tower and transponder to have the ability to receive NOAA weather alert notification and purchase NOAA radios for public facilities and vulnerable populations to receive these messages | 2           | 2                   | 2         | 2         | 2     | 1             | 2      | 2              | 2              | 2                          | 19    | HIGH     |

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| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 1.2.3     | Implement a county-wide mass notification/emergency messaging system to provide a centralized notification system   | 2           | 2                   | 2         | 2         | 2     | 0             | 2      | 2              | 2              | 2                          | 18    | HIGH     |
| 1.2.4     | Research and identify public warning systems that use redundant means of contact to reach stakeholders and the community to deliver and receive information regarding hazards, threats, impacts, and damage. Purchase, install, and implement the warning system. | 2           | 2                   | 2         | 2         | 2     | 0             | 2      | 2              | 2              | 2                          | 18    | HIGH     |
| 1.2.5     | Research the feasibility and benefits of becoming a NOAA StormReady Community   | 1           | 1                   | 2         | 1         | 2     | 0             | 2      | 2              | 1              | 0                          | 12    | MODERATE |
| 1.3.1     | Design & develop an OEM web-site that provides drop down links toward mitigation/preparedness/response/recovery and identify funding sources toward hailstorm mitigation programs   | 1           | 2                   | 2         | 2         | 2     | 2             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 1.3.2     | Create a centralized GIS/Data System to be able to obtain/compile/disseminate information for all hazard events (mapping, assessments, cost analysis, etc.)   | 2           | 2                   | 2         | 2         | 2     | 0             | 2      | 2              | 2              | 2                          | 18    | HIGH     |
| 1.3.3     | Install outdoor early warning systems at local parks, athletic fields, and on educational institution campuses  | 0           | 1                   | 1         | 1         | 1     | 1             | 1      | 1              | 1              | 1                          | 9     | MODERATE |

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| Action ID | Project  | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|--|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 1.3.5     | Work with USGS to install continuous monitoring stream gages on Tecolote Creek, the Conchas River (above the lake), the Canadian River, the Pecos River, and the Gallinas River 1000' south of the diversion gate. | 2           | 2                   | 2         | 2         | 2     | 1             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 2.1.1     | Review and develop the current building codes to include mitigation for seismic shaking in future construction   | 1           | 1                   | 1         | 1         | 1     | 1             | 1      | 1              | 1              | 1                          | 10    | MODERATE |
| 2.1.3     | Investigate availability of funding and/or for development of expansive soil data (including extent of hazard and probability of occurrence data) for use county-wide  | 0           | 1                   | 2         | 1         | 1     | 1             | 1      | 1              | 1              | 1                          | 10    | MODERATE |
| 2.1.5     | Improve on state building codes through local modifications that meet or exceed state and national models by ordinance, which would result in additional techniques to harden structures.                          | 1           | 1                   | 1         | 1         | 1     | 1             | 1      | 1              | 1              | 1                          | 10    | MODERATE |
| 2.1.7     | Identify funding sources to develop zoning regulations and ordinances to reduce loss from identified hazards.  | 2           | 0                   | 2         | 1         | 1     | 0             | 0      | 2              | 0              | 2                          | 10    | MODERATE |
| 2.1.8     | Develop and implement zoning regulations and ordinances to reduce loss from identified hazards.  | 2           | 0                   | 2         | 1         | 1     | 0             | 0      | 2              | 0              | 2                          | 10    | MODERATE |
| 2.1.9     | Research and study the feasibility of developing and implementing an environmental protection ordinance  | 0           | 1                   | 1         | 2         | 2     | 2             | 2      | 2              | 2              | 1                          | 15    | HIGH     |

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| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 2.2.1     | Identify flood prone areas in the county and design effective water drainage systems to minimize flooding   | 2           | 0                   | 2         | 2         | 2     | 0             | 1      | 2              | 2              | 2                          | 15    | HIGH     |
| 2.2.2     | Pursue elevation/acquisition/floodproofing projects and structural solutions to flooding using available grant funding for the repetitive loss structures in the county and municipalities. Annually review and correct the Repetitive Loss List by submitting correction worksheets to FEMA. | 2           | 2                   | 1         | 1         | 1     | 1             | 2      | 2              | 1              | 2                          | 15    | HIGH     |
| 2.3.4     | Identify critical infrastructure where safe rooms can be constructed for protection/safety of building occupants within the facility  | 2           | 0                   | 1         | 2         | 2     | 0             | 0      | 2              | 0              | 0                          | 9     | MODERATE |
| 2.3.7     | Improve and protect existing culverts, arroyos, and acequias, and install new culverts within the county as needed to reduce flooding county-wide   | 1           | 1                   | 2         | 1         | 2     | 1             | 1      | 2              | 1              | 1                          | 13    | HIGH     |
| 3.1.2     | Rehabilitate old wells  | 2           | 2                   | 2         | 2         | 2     | 1             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 3.1.3     | Re-design and construct the levee just north of Storrie Lake to minimize the possible breakage during heavy flows   | 2           | 2                   | 2         | 2         | 0     | 2             | 0      | 2              | 2              | 2                          | 16    | HIGH     |
| 3.1.4     | Harden the bay doors of the fire stations to reduce vulnerability to wind-related events.   | 2           | 2                   | 1         | 1         | 1     | 1             | 1      | 1              | 1              | 1                          | 12    | MODERATE |
| 3.1.5     | Install a generator at each of the Fire and Police Stations to reduce vulnerability to power-outages during hazard events.  | 2           | 2                   | 2         | 1         | 1     | 0             | 2      | 2              | 1              | 2                          | 15    | HIGH     |

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| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 3.1.7     | Research vulnerable infrastructure and harden/improve water/sewer sanitation services in identified areas   | 2           | 2                   | 2         | 2         | 2     | 1             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 3.2.1     | Conduct a seismic study of all critical infrastructure within the county to identify the effects of an earthquake on existing facilities                            | 2           | 2                   | 2         | 2         | 2     | 1             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 3.2.2     | Research and meet with State Plant Pest and Disease Agencies such as USDA/APHIS to identify mitigation projects in this area  | 0           | 1                   | 2         | 1         | 2     | 2             | 2      | 2              | 1              | 1                          | 14    | HIGH     |
| 3.2.3     | Research funding opportunities and garner support for repair to the reservoir seepage area.   | 2           | 2                   | 2         | 2         | 2     | 2             | 2      | 2              | 2              | 2                          | 20    | HIGH     |
| 3.2.4     | Identify funding streams and resources for technical assistance to scope bridge repair or reinforcement projects on identified vulnerable bridges                   | 1           | 1                   | 1         | 1         | 1     | 1             | 1      | 1              | 1              | 1                          | 10    | MODERATE |
| 3.2.5     | Conduct engineering studies on hardening, retrofitting, or rebuilding vulnerable bridges.   | 1           | 1                   | 1         | 1         | 1     | 1             | 1      | 1              | 1              | 1                          | 10    | MODERATE |
| 3.2.6     | Harden, retrofit, or replace vulnerable, unsafe bridges that are used by heavy equipment to access areas vulnerable to wildfire, snowfall, landslide, and flooding. | 1           | 1                   | 1         | 1         | 1     | 1             | 1      | 1              | 1              | 1                          | 10    | MODERATE |
| 3.3.1     | Encourage new development areas to install underground utilities, which would help reduce the chances of power outages.   | 2           | 1                   | 2         | 0         | 1     | 1             | 1      | 2              | 0              | 1                          | 11    | MODERATE |



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| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 4.1.2     | Historical tree thinning project on City of Las Vegas land that produced 200 to 300 cords of free firewood for residents.   | 0           | 2                   | 2         | 2         | 2     | 1             | 0      | 2              | 2              | 2                          | 15    | HIGH     |
| 4.1.3     | Develop emergency evacuation and sheltering plans   | 2           | 1                   | 2         | 2         | 2     | 2             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 4.2.2     | Identify critical infrastructure facilities to install generator hook-ups and purchase mobile generators to use in power outages  | 2           | 2                   | 2         | 2         | 2     | 2             | 2      | 2              | 2              | 2                          | 20    | HIGH     |
| 4.3.1     | Identify senior centers, community centers, and schools throughout the county that can be used for heating/cooling stations and install generator hook ups, towable generators and electric A/C & heating combination systems | 2           | 0                   | 2         | 2         | 2     | 0             | 1      | 2              | 2              | 2                          | 15    | HIGH     |
| 4.3.2     | Encourage churches and community groups to assist vulnerable persons in the event of power loss and to develop an emergency plan.   | 2           | 0                   | 1         | 1         | 0     | 0             | 2      | 1              | 1              | 2                          | 10    | MODERATE |
| 5.1.1     | Conduct a geological study on local structures, strengthen historic structures/chimneys in the Cat D seismic zone.  | 2           | 2                   | 2         | 2         | 2     | 1             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 5.2.1     | Research and implement localized drainage projects in the repetitive loss areas to reduce flood potential and impacts.  | 2           | 2                   | 2         | 1         | 1     | 2             | 1      | 1              | 1              | 2                          | 15    | HIGH     |
| 6.1.3     | Create a public awareness program to promote "See Something, Say Something" in conjunction with New Mexico Department of Homeland Security  | 2           | 2                   | 2         | 2         | 2     | 0             | 2      | 2              | 2              | 2                          | 18    | HIGH     |

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| Action ID | Project  | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|--|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 6.1.4     | Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding potential mitigation measures using the local newspaper, utility bill inserts, inserts in the phone book, county websites, and educational programs for school age children or "how to" classes in retrofitting by local merchants. Integrate "Disaster Resistance Education" into the public school curriculum. | 1           | 1                   | 1         | 1         | 1     | 1             | 1      | 1              | 1              | 1                          | 10    | MODERATE |
| 6.1.5     | Develop and distribute public awareness information regarding potential mitigation measures using various means to reach adults, children, visitors, and vulnerable populations.   | 1           | 2                   | 2         | 2         | 2     | 2             | 2      | 2              | 2              | 2                          | 19    | HIGH     |
| 6.2.2     | Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).  | 0           | 0                   | 2         | 1         | 2     | 0             | 0      | 1              | 1              | 0                          | 7     | LOW      |
| 6.3.3     | Identify funding sources to create a staff community outreach position to enhance mitigation and emergency preparedness in the community   | 2           | 0                   | 2         | 1         | 1     | 0             | 0      | 2              | 0              | 2                          | 10    | MODERATE |

### G.4 Village of Pecos

| Action ID | Project  | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|--|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 1.1.1     | Conduct field testing & sampling of surface and sub-surface water sources  | 1           | 0                   | 1         | 0         | 0     | 1             | 0      | 0              | 0              | 1                          | 4     | LOW      |
| 1.1.2     | Well exploration to identify potable water supplies  | 1           | 0                   | 2         | 2         | 2     | 0             | 1      | 2              | 1              | 2                          | 13    | MODERATE |
| 1.1.5     | Develop water storage/hydrant systems in for raw, drinking and effluent water.   | 1           | 1                   | 2         | 0         | 2     | 0             | 1      | 2              | 1              | 0                          | 10    | LOW      |
| 1.1.6     | Conduct a more in depth hazard analysis for wildfires and their effects on residences, infrastructure, water supplies, and the economy.  | 2           | 1                   | 2         | 2         | 2     | 0             | 1      | 2              | 1              | 2                          | 15    | HIGH     |
| 1.1.7     | Join the Community Rating System (CRS) and pursue opportunities to improve CRS ratings   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 1.2.1     | Install flashing roadside emergency notification signs to advise of an emergency, web announcement, & AM Radio Broadcast with additional instructions  | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 1.2.2     | Construct a tower and transponder to have the ability to receive NOAA weather alert notification and purchase NOAA radios for public facilities and vulnerable populations to receive these messages | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 1.2.3     | Implement a county-wide mass notification/emergency messaging system to provide a centralized notification system  | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |

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| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 1.2.4     | Research and identify public warning systems that use redundant means of contact to reach stakeholders and the community to deliver and receive information regarding hazards, threats, impacts, and damage. Purchase, install, and implement the warning system. | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 1.2.5     | Research the feasibility and benefits of becoming a NOAA StormReady Community   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 1.3.1     | Design & develop an OEM web-site that provides drop down links toward mitigation/preparedness/response/recovery and identify funding sources toward hailstorm mitigation programs   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 1.3.3     | Install outdoor early warning systems at local parks, athletic fields, and on educational institution campuses  | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 1.3.4     | Work with the state and USDA NRCS to install additional high-elevation SNOTEL stations in the Sangre de Cristo Mountains and Glorieta Mesa  | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 1.3.5     | Work with USGS to install continuous monitoring stream gages on Tecolote Creek, the Conchas River (above the lake), the Canadian River, the Pecos River, and the Gallinas River 1000' south of the diversion gate.  | 2           | 1                   | 0         | 1         | 1     | 0             | 1      | 0              | 0              | 0                          | 6     | LOW      |

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Appendix G: Mitigation Action Ranking Worksheets

| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 2.1.1     | Review and develop the current building codes to include mitigation for seismic shaking in future construction  | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.1.2     | Review and implement mitigation concepts in foundation design toward soil expansion solutions and incorporate them into the building codes through formal adoption                        | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.1.3     | Investigate availability of funding and/or for development of expansive soil data (including extent of hazard and probability of occurrence data) for use county-wide                     | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.1.5     | Improve on state building codes through local modifications that meet or exceed state and national models by ordinance, which would result in additional techniques to harden structures. | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.1.7     | Identify funding sources to develop zoning regulations and ordinances to reduce loss from identified hazards.   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.1.8     | Develop and implement zoning regulations and ordinances to reduce loss from identified hazards.   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.1.9     | Research and study the feasibility of developing and implementing an environmental protection ordinance   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |

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| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 2.2.1     | Identify flood prone areas in the county and design effective water drainage systems to minimize flooding   | 1           | 1                   | 2         | 2         | 2     | 0             | 1      | 2              | 1              | 2                          | 14    | HIGH     |
| 2.2.2     | Pursue elevation/acquisition/floodproofing projects and structural solutions to flooding using available grant funding for the repetitive loss structures in the county and municipalities. Annually review and correct the Repetitive Loss List by submitting correction worksheets to FEMA. | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.3.1     | Re-design and construction of the diversion gates to handle increase water flows during floods or heavy rains   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.3.3     | Require the use of hail resistant material in future county-funded construction projects  | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.3.4     | Identify critical infrastructure where safe rooms can be constructed for protection/safety of building occupants within the facility  | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.3.5     | Conduct a study to identify landslide areas within the county and install rock netting toward protection measures at the identified sites   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 2.3.7     | Improve and protect existing culverts, arroyos, and acequias, and install new culverts within the county as needed to reduce flooding county-wide   | 2           | 1                   | 2         | 2         | 2     | 0             | 1      | 2              | 1              | 2                          | 15    | HIGH     |

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| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 3.1.1     | The Upper Pecos Watershed Association is completing a NEPA analysis for “roadside thinning” within the Pecos Canyon                               | 0           | 1                   | 0         | 0         | 0     | 1             | 0      | 0              | 1              | 0                          | 3     | LOW      |
| 3.1.4     | Harden the bay doors of the fire stations to reduce vulnerability to wind-related events.   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 3.1.5     | Install a generator at each of the Fire and Police Stations to reduce vulnerability to power-outages during hazard events.                        | 2           | 1                   | 0         | 1         | 1     | 0             | 1      | 2              | 0              | 0                          | 8     | LOW      |
| 3.1.6     | Harden Pecos Village Complex Building to reduce vulnerabilities to various natural hazards.   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 3.2.1     | Conduct a seismic study of all critical infrastructure within the county to identify the effects of an earthquake on existing facilities          | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 3.2.2     | Research and meet with State Plant Pest and Disease Agencies such as USDA/APHIS to identify mitigation projects in this area                      | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 3.2.4     | Identify funding streams and resources for technical assistance to scope bridge repair or reinforcement projects on identified vulnerable bridges | 2           | 1                   | 2         | 2         | 2     | 0             | 1      | 2              | 1              | 2                          | 15    | HIGH     |
| 3.2.5     | Conduct engineering studies on hardening, retrofitting, or rebuilding vulnerable bridges.   | 2           | 1                   | 2         | 2         | 2     | 0             | 1      | 2              | 1              | 2                          | 15    | HIGH     |

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| Action ID | Project   | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|---|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 3.2.6     | Harden, retrofit, or replace vulnerable, unsafe bridges that are used by heavy equipment to access areas vulnerable to wildfire, snowfall, landslide, and flooding.   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 3.3.1     | Encourage new development areas to install underground utilities, which would help reduce the chances of power outages.   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 4.1.3     | Develop emergency evacuation and sheltering plans   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 4.2.1     | Install and maintain ITAC channels in public safety radios to improve inter-operability with Santa Fe County  | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 4.2.2     | Identify critical infrastructure facilities to install generator hook-ups and purchase mobile generators to use in power outages  | 1           | 1                   | 2         | 2         | 2     | 0             | 1      | 2              | 1              | 0                          | 12    | MODERATE |
| 4.3.1     | Identify senior centers, community centers, and schools throughout the county that can be used for heating/cooling stations and install generator hook ups, towable generators and electric A/C & heating combination systems | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 4.3.2     | Encourage churches and community groups to assist vulnerable persons in the event of power loss and to develop an emergency plan.   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 5.2.1     | Research and implement localized drainage projects in the repetitive loss areas to reduce flood potential and impacts.  | 2           | 1                   | 2         | 2         | 2     | 0             | 1      | 2              | 0              | 1                          | 13    | HIGH     |



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| Action ID | Project  | Life Safety | Property Protection | Technical | Political | Legal | Environmental | Social | Administrative | Local Champion | Other Community Objectives | Score | Priority |
|-----------|--|-------------|---------------------|-----------|-----------|-------|---------------|--------|----------------|----------------|----------------------------|-------|----------|
| 6.1.3     | Create a public awareness program to promote "See Something, Say Something" in conjunction with New Mexico Department of Homeland Security   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 6.1.4     | Increase public awareness of hazards and hazardous areas. Distribute public awareness information regarding potential mitigation measures using the local newspaper, utility bill inserts, inserts in the phone book, county websites, and educational programs for school age children or "how to" classes in retrofitting by local merchants. Integrate "Disaster Resistance Education" into the public school curriculum. | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 6.1.5     | Develop and distribute public awareness information regarding potential mitigation measures using various means to reach adults, children, visitors, and vulnerable populations.   | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |
| 6.2.2     | Promote the purchase of flood insurance. Advertise the availability, cost, and coverage of flood insurance through the National Flood Insurance Program (NFIP).  | 0           | 0                   | 0         | 0         | 0     | 0             | 0      | 0              | 0              | 0                          | 0     | LOW      |

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## APPENDIX H: CAPABILITY ASSESSMENT WORKSHEETS

### H.1 San Miguel County

#### Hazard Mitigation Plan Capability Assessment Worksheet

**Jurisdiction:** \_\_\_\_\_ San Miguel County \_\_\_\_\_

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. One worksheet should be completed for each stakeholder jurisdiction in the hazard mitigation plan.

**Task 1: Planning and Regulatory Capabilities**

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following capabilities your jurisdiction has in place.

| Plans  | Yes / No  | Year of latest update | Department/Agency Responsible for this plan | Does the plan address any of the identified hazards? | Does the Plan identify projects to include in the mitigation strategy? | Can this plan be used to implement mitigation actions? |
|--|-----------|-----------------------|---|--|--|--|
| <i>EXAMPLE: Hazard Mitigation Plan</i>                   | <i>No</i> | <i>N/A</i>            | <i>SMCLV OEM</i>                            | <i>Yes</i>   | <i>Yes</i>   | <i>Yes</i>   |
| Comprehensive/Master Plan (or other land use plans)      | Yes       | 2004                  | Planning and Zoning                         | No   | No   | No   |
| Open Space Management Plan (Parks/Rec or Greenways Plan) | No        |                       |   | No   | No   | No   |
| Natural Resource Protection Plan                         | No        |                       |   | No   | No   | No   |

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| <b>Plans</b>   | <b>Yes / No</b> | <b>Year of latest update</b> | <b>Department/Agency Responsible for this plan</b> | <b>Does the plan address any of the identified hazards?</b> | <b>Does the Plan identify projects to include in the mitigation strategy?</b> | <b>Can this plan be used to implement mitigation actions?</b> |
|--|-----------------|------------------------------|--|---|---|---|
| Capital Improvements Plan  | Yes             | 2012                         | Planning and Zoning`                               | No  | No  | No  |
| Economic Development Plan  | Yes             |                              | Planning & Zoning                                  | Yes   | Yes   | Yes   |
| Historic Preservation Plan   | No              |                              |  | No  | No  | No  |
| Farmland Preservation Plan   | No              |                              |  | No  | No  | No  |
| Local Emergency Operations Plan  | Yes             | 2013                         | SMC/LV OEM   | Yes   | No  | Yes   |
| Disaster Recovery Plan   | No              |                              |  | No  | No  | No  |
| Evacuation Plan  | No              |                              |  | No  | No  | No  |
| Floodplain Management Plan   | Yes             | 2010                         | Planning and Zoning                                | Yes   | No  | Yes   |
| Continuity of Operations / Continuity of Government Plan   | Yes             | 2013                         | SMC/LV OEM   | Yes   | No  | Yes   |
| Transportation Plan  | No              |                              |  | No  | No  | No  |
| Stormwater Mgmt. Plan  | Yes             | 2010                         | Public Works Division                              | Yes   | No  | No  |
| Community Wildfire Protection Plan   | Yes             | 2009                         | Fire   | Yes   | Yes   | Yes   |
| Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation) | No              |                              |  | No  | No  | No  |

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| <b>Building Code, Permitting, Inspections</b>              | <b>Yes/No</b> | <b>Year of latest update</b> | <b>Is the code adequately enforced?</b> | <b>Does the code address any of the identified hazards?</b> | <b>Does the code identify projects to include in the mitigation strategy?</b> | <b>Can this code be used to implement mitigation actions?</b> |
|--|---------------|------------------------------|---|---|---|---|
| Fire Code  | No            |                              |   | No  | No  | No  |
| Fire Department ISO rating                                 | Yes           | 2011                         | Rating(s):10/6                          |   |   |   |
| Building Code  | No            |                              |   | No  | No  | No  |
| Building Code Effectiveness Grading Schedule (BCEGS) score | No            |                              | Score:                                  | No  | No  | No  |
| Site plan review requirements                              | No            |                              |   | No  | No  | No  |
|  |               |                              |   |   |   |   |
|  |               |                              |   |   |   |   |

| <b>Land Use Planning and Ordinances</b> | <b>Yes/No</b> | <b>Year</b> | <b>Is the ordinance adequately administered and enforced?</b> | <b>Does the regulation address any of the identified hazards?</b> | <b>Does the regulation identify projects to include in the mitigation strategy?</b> | <b>Can this regulation be used to implement mitigation actions?</b> |
|---|---------------|-------------|---|---|---|---|
| Zoning Regulations/Ordinance            | Yes           | 1986        | Yes   | No  | No  | No  |
| Subdivision Regulations/Ordinance       | Yes           | 1996        | Yes   | No  | No  | No  |
| Floodplain Regulations or Ordinance     | Yes           | 2010        | Yes   | Yes   | No  | No  |
| Stormwater Regulations/Ordinance        | No            |             |   | No  | No  | No  |
| Steep Slope Regulations/Ordinance       | No            |             |   | No  | No  | No  |

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| Land Use Planning and Ordinances                              | Yes/No | Year | Is the ordinance adequately administered and enforced? | Does the regulation address any of the identified hazards? | Does the regulation identify projects to include in the mitigation strategy? | Can this regulation be used to implement mitigation actions? |
|---|--------|------|--|--|--|--|
| Wildfire Regulations/Ordinance                                | Yes    | 2011 | No   | Yes  | Yes  | Yes  |
| Other Natural hazard specific Regulations/Ordinances          | No     |      |  | No   | No   | No   |
| NFIP/CRS/Flood Insurance Rate Maps                            | Yes    | 2009 | Yes  | Yes  | No   | No   |
| Acquisition of land for open space and public recreation uses | No     |      |  | No   | No   | No   |
| FireWise Community  | No     |      |  | No   | No   | No   |
| Storm Ready Community   | No     |      |  | No   | No   | No   |
| Other   | No     |      |  | No   | No   | No   |

| How can the capabilities listed above be expanded and improved to reduce risk?          |
|---|
| Funding sources need to be identified to develop and enhance these plans and ordinances |

**Task 2: Administrative and Technical Capabilities**

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level of government that can provide technical assistance, indicate so in your comments.

| Administration  | Yes/No | Describe capability   | Is coordination effective? |
|---|--------|---|----------------------------|
| Planning Commission   | Yes    | Reviews and addresses conditional use permit applications and sub-division requests | Yes                        |
| Mitigation Planning Committee   | Yes    | Recently organized to complete initial Mitigation Plan                              | Yes                        |
| Maintenance programs to reduce risk (e.g. tree trimming, drainage system cleaning/clearing) | Yes    | Maintenance on County right of ways to include trimming and mowing of vegetation    | No                         |
| Mutual aid agreements   | Yes    | County/ City Fire, NMWARN, DOH, Schools but minimal                                 | No                         |

| Staff                            | Yes/No FT/PT | Is staffing adequate to enforce regulations? | Is staff trained on hazards and mitigation? | Is coordination between agencies and staff effective? |
|----------------------------------|--------------|--|---|---|
| Chief Building Official          | No           |  |   |   |
| Floodplain Administrator/Manager | Yes/FT       | Yes  | Somewhat                                    | Yes   |
| Emergency Manager                | Yes/FT       | No   | Yes   | yes   |
| Community Planner                | Yes/PT       | No   | No  | Yes   |
| Civil Engineer                   | No           | No   |   |   |
| GIS Analyst/Tech/Coordinator     | Yes/FT       | No   | No  | Yes   |
| Land Surveyors                   | No           |  |   |   |
| Grants writers/managers          | Yes/ FT      | Somewhat                                     | No  | Yes   |
| Other:                           |              |  |   |   |
| Other:                           |              |  |   |   |

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| Technical   | Yes/No | Describe capability   | Has capability been used to assess/mitigate risk in the past? |
|---|--------|---|---|
| Warning systems/services (Reverse 911, outdoor warning sirens, smartphone applications, social media feeds) | Yes    | (1) Warning siren/ Detention Center<br>(2) (3) Highway advisory stations<br>(3) - (1) AM Highway advisory trailer<br>(4) OEM Facebook/Twitter/Nixle | Yes   |
| Hazard data and information   | No     | Hazard data is obtained through local history LEPC , NOAA, web-sites  | Yes   |
| Grant writing   | Yes    | Planning & Zoning Supervisor handles these duties   | Yes   |
| HAZUS analysis  | Yes    | Minimal (earthquake/wildfire)   | No  |
| Other:  |        |   |   |
| Other:  |        |   |   |

**How can these capabilities be expanded and improved to reduce risk?**

There is a need to identify a county wide emergency operation center and alert notification system. Staffing increase is needed to allow for data collection & processing of hazards and to be able to research for additional funding sources toward better grant writing applications for funding.

**Tank 3: Financial Capabilities**

Identify whether your jurisdiction has access to or is eligible to use the following funding sources for hazard mitigation.

| Funding Resource                                 | Access/ Eligibility (Yes/No) | Has the funding resource been used in the past and for what type of activities?          | Could the resource be used to fund future mitigation actions? |
|--|------------------------------|--|---|
| Capital improvement programming/ project funding | Yes                          | CDBG Funds have been used for storm drain projects, road projects, buildings, equipment, | If identified projects are approved by local governing bodies |



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|  |     |   |  |
|--|-----|---|--|
|  |     | assisting Volunteer Fire Departments  | and federal regulation requirements  |
| Authority to levy taxes for specific purposes                        | Yes | ¼ percent excise tax to assist county fire. Various other percentages of GRT authority for operations & capital outlay projects | Yes  |
| Fees for water, sewer, gas, or electric services                     | Yes | Have a solid waste Dept. fees and working on isolated waste water fees  |  |
| Impact fees for new development                                      | No  |   |  |
| Stormwater utility fees  | No  |   |  |
| Incur debt through general obligation bonds and/or special tax bonds | No  | No general outstanding debt based on GRT and ad valorem tax   | Commission would have to approve specific purpose and the voters would have to approve |
| Incur debt through private activities                                | No  |   |  |
| Community Development Block Grant (CDBG)                             | Yes | Road & Drainage projects  | yes  |
| Special purpose taxes  | No  |   | No   |
| Other federal funding programs                                       | Yes | Federal Highway Administration funds, PDMG, SHSGP, EMPG, USDA, & Federal earmark appropriations                                 | yes  |
| State funding programs   | Yes | NM Finance Authority, Mortgage Finance Authority, Water Trust Board, local legislative funds                                    | Yes  |
| Other:   |     |   |  |
| Other:   |     |   |  |

**How can these capabilities be expanded and improved to reduce risk?**

There is more need toward awareness for specific projects and there purpose to obtain funding sources available in an attempt to focus on Mitigation

**Task 4: Education and Outreach**

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

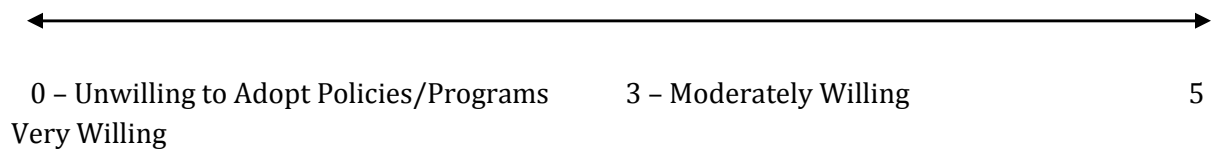
| Program/Organization  | Yes/No | Describe program/organization and how it relates to disaster resilience and mitigation.  | Could the program/organization help implement future mitigation activities? |
|---|--------|--|---|
| Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. | Yes    | LEPC, Volunteer Fire departments, LE/Watersheds associations'/ Water users associations'/Public schools  | Yes   |
| Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)                 | Yes    | OEM web-site <a href="http://www.SMCLVOEM.com">www.SMCLVOEM.com</a> (Facebook) works on public education outreach, Gallinas Watershed Association works on water issues in the watershed and education of watersheds, SMC Fire & City of LV work on fire education | Yes   |
| Natural disaster or safety related school programs  | No     |  |   |
| StormReady certification  | No     | Have conducted Storm ready presentations to community and ARES Group   | Yes   |
| FireWise Communities certification  | No     | SMC Fire is currently promoting the program, but personnel shortage hindering the process  | Yes   |
| Public-private partnership initiatives addressing disaster-related issues   | Yes    | Mostly through LEPC, Gallinas Watershed Association, Upper Pecos Watershed Association.  | Yes   |
| Other:  |        |  |   |
| Other:  |        |  |   |

**How can these capabilities be expanded and improved to reduce risk?**

Would like to see a staff position be dedicated to community out-reach to be able to improve in these areas.

**Task 5: Community Political Capability**

Political capability in this instance is being measured by the degree to which local political leadership (including appointed boards) is willing to enact policies and programs that reduce the hazard vulnerabilities in your community, even if met with some opposition. Examples may include 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 and federal requirements (e.g. building codes, floodplain management, etc.). Rate the jurisdiction's political capability to enact policies and programs that reduce hazard vulnerabilities on a scale from 0 to 5. A higher score corresponds to a higher degree of community political capability.



Score: 3 \_\_\_\_\_

**Task 6: Self-Assessment of Capability**

Please provide an approximate measure of your jurisdiction’s capability to effectively implement hazard mitigation strategies to reduce the hazard vulnerabilities. Using the following table, place an “X” in the box mark in the most appropriate degree of capability (Limited, Moderate, High) based on the best available information and the responses provided in the Capability Assessment Worksheet Tasks 1-5 above. The results from each participating jurisdiction’s responses will be collected and referenced in the Capability Self- Assessment Matrix (Task 7).

| Area                                    | Degree of Capability |          |      |
|---|----------------------|----------|------|
|   | Limited              | Moderate | High |
| Planning and Regulatory Capability      |                      | X        |      |
| Administrative and Technical Capability | X                    |          |      |
| Fiscal Capability                       | X                    |          |      |
| Community Political Capability          | X                    |          |      |
| Community Resiliency Capability         |                      | X        |      |

**Task 7: Capability Self-Assessment Matrix**

*Purpose:* To record the results from the Capability Assessment Survey (Task 6) completed by each jurisdiction.

*Instructions:* Complete the table below by first listing all communities, then enter the degree of capability (limited, moderate, high) for each capability category that was recorded in Task 6 by each jurisdiction.

| Community Name                    | Capability Category                |   |                   |                                |                                 |
|-----------------------------------|------------------------------------|---|-------------------|--------------------------------|---------------------------------|
|                                   | Planning and Regulatory Capability | Administrative and Technical Capability | Fiscal Capability | Community Political Capability | Community Resiliency Capability |
| <i>EXAMPLE:<br/>Hometown City</i> | <i>Moderate</i>                    | <i>Limited</i>                          | <i>Moderate</i>   | <i>Moderate</i>                | <i>High</i>                     |
| San Miguel County                 | Moderate                           | Limited                                 | Limited           | Limited                        | Moderate                        |
| City of Las Vegas                 |                                    |   |                   |                                |                                 |
| Village of Pecos                  |                                    |   |                   |                                |                                 |

## H.2 City of Las Vegas

### Hazard Mitigation Plan Capability Assessment Worksheet

**Jurisdiction:** City of Las Vegas

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. One worksheet should be completed for each stakeholder jurisdiction in the hazard mitigation plan.

**Task 1: Planning and Regulatory Capabilities**

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following capabilities your jurisdiction has in place.

| Plans  | Yes/No    | Year of latest update | Department/Agency Responsible for this plan | Does the plan address any of the identified hazards? | Does the Plan identify projects to include in the mitigation strategy? | Can this plan be used to implement mitigation actions? |
|--|-----------|-----------------------|---|--|--|--|
| <i>EXAMPLE: Hazard Mitigation Plan</i>                   | <i>No</i> | <i>N/A</i>            | <i>SMCLV OEM</i>                            | <i>Yes</i>   | <i>Yes</i>   | <i>Yes</i>   |
| Comprehensive/Master Plan (or other land use plans)      | Yes       | 2011                  | Community Development                       | Flood  | Yes  | Yes  |
| Open Space Management Plan (Parks/Rec or Greenways Plan) | No        | N/A                   | Public Works/Parks                          | Yes  | Yes  | Yes  |
| Natural Resource Protection Plan                         |           |                       |   |  |  |  |
| Capital Improvements Plan                                |           |                       |   |  |  |  |



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| Plans  | Yes/No | Year of latest update | Department/Agency Responsible for this plan | Does the plan address any of the identified hazards? | Does the Plan identify projects to include in the mitigation strategy? | Can this plan be used to implement mitigation actions? |
|--|--------|-----------------------|---|--|--|--|
| Economic Development Plan  |        |                       |   |  |  |  |
| Historic Preservation Plan   |        |                       |   |  |  |  |
| Farmland Preservation Plan   |        |                       |   |  |  |  |
| Local Emergency Operations Plan  |        |                       |   |  |  |  |
| Disaster Recovery Plan   |        |                       |   |  |  |  |
| Evacuation Plan  |        |                       |   |  |  |  |
| Floodplain Management Plan   | Yes    | 2011                  | Community Development                       | Yes  | Yes  | Yes  |
| Continuity of Operations / Continuity of Government Plan   |        |                       |   |  |  |  |
| Transportation Plan  | No     | N/A                   | Public Works/Streets                        | Yes  | Yes  | Yes  |
| Stormwater Mgmt. Plan  | No     | N/A                   | Public Works/Streets                        | Yes  | Yes  | Yes  |
| Community Wildfire Protection Plan   |        |                       |   |  |  |  |
| Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation) |        |                       |   |  |  |  |

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| <b>Building Code, Permitting, Inspections</b>              | <b>Yes/No</b> | <b>Year of latest update</b> | <b>Is the code adequately enforced?</b> | <b>Does the code address any of the identified hazards?</b> | <b>Does the code identify projects to include in the mitigation strategy?</b> | <b>Can this code be used to implement mitigation actions?</b> |
|--|---------------|------------------------------|---|---|---|---|
| Fire Code  |               |                              |   |   |   |   |
| Fire Department ISO rating                                 |               |                              | Rating(s):                              |   |   |   |
| Building Code  | Yes           | 2009                         | Yes                                     | Yes   | No  | Yes   |
| Building Code Effectiveness Grading Schedule (BCEGS) score |               |                              | Score:                                  |   |   |   |
| Site plan review requirements                              | Yes           | 2009                         | Yes                                     | Yes   | No  | Yes   |

| <b>Land Use Planning and Ordinances</b> | <b>Yes/No</b> | <b>Year</b> | <b>Is the ordinance adequately administered and enforced?</b> | <b>Does the regulation address any of the identified hazards?</b> | <b>Does the regulation identify projects to include in the mitigation strategy?</b> | <b>Can this regulation be used to implement mitigation actions?</b> |
|---|---------------|-------------|---|---|---|---|
| Zoning Regulations/Ordinance            | yes           | n/a         | SM CLV  | YES   | YES   | YES   |
| Subdivision Regulations/Ordinance       | yes           | n/a         | SM CLV  | YES   | YES   | YES   |
| Floodplain Regulations or Ordinance     | Yes           | 2011        | Yes   | Yes   | Yes   | Yes   |
| Stormwater Regulations/Ordinance        |               |             |   |   |   |   |
| Steep Slope Regulations/Ordinance       |               |             |   |   |   |   |
| Wildfire Regulations/Ordinance          |               |             |   |   |   |   |

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| Land Use Planning and Ordinances                              | Yes/No | Year | Is the ordinance adequately administered and enforced? | Does the regulation address any of the identified hazards? | Does the regulation identify projects to include in the mitigation strategy? | Can this regulation be used to implement mitigation actions? |
|---|--------|------|--|--|--|--|
| Other Natural hazard specific Regulations/Ordinances          |        |      |  |  |  |  |
| NFIP/CRS/Flood Insurance Rate Maps                            | Yes    | 2010 | Yes  | Yes  | See Comp Plan  | Yes  |
| Acquisition of land for open space and public recreation uses |        |      |  |  |  |  |
| FireWise Community  |        |      |  |  |  |  |
| Storm Ready Community   |        |      |  |  |  |  |
| Other   |        |      |  |  |  |  |

**How can the capabilities listed above be expanded and improved to reduce risk?**  
 Implementation of the designated plans

**Task 2: Administrative and Technical Capabilities**

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level of government that can provide technical assistance, indicate so in your comments.

| Administration  | Yes/No | Describe capability                     | Is coordination effective? |
|---|--------|---|----------------------------|
| Planning Commission   |        |   |                            |
| Mitigation Planning Committee   |        |   |                            |
| Maintenance programs to reduce risk (e.g. tree trimming, drainage system cleaning/clearing) | Yes    | Trimming and removal of hazardous trees | Yes                        |
| Mutual aid agreements   |        |   |                            |

| Staff                            | Yes/No FT/PT | Is staffing adequate to enforce regulations? | Is staff trained on hazards and mitigation? | Is coordination between agencies and staff effective? |
|----------------------------------|--------------|--|---|---|
| Chief Building Official          | Yes/FT       | Yes  | Yes   | Yes   |
| Floodplain Administrator/Manager | FT           | Yes  | Yes   | Yes   |
| Emergency Manager                |              |  |   |   |
| Community Planner                |              |  |   |   |
| Civil Engineer                   | No           | Yes  | Yes   | Yes   |
| GIS Analyst/Tech/Coordinator     |              |  |   |   |
| Land Surveyors                   | No           | Yes  | Yes   | Yes   |
| Grants writers/managers          |              |  |   |   |
| Other:                           |              |  |   |   |
| Other:                           |              |  |   |   |

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| Technical   | Yes/No | Describe capability | Has capability been used to assess/mitigate risk in the past? |
|---|--------|---------------------|---|
| Warning systems/services (Reverse 911, outdoor warning sirens, smartphone applications, social media feeds) |        |                     |   |
| Hazard data and information   |        |                     |   |
| Grant writing   |        |                     |   |
| HAZUS analysis  |        |                     |   |
| Other:  |        |                     |   |
| Other:  |        |                     |   |

| How can these capabilities be expanded and improved to reduce risk? |
|---|
|   |

**Tank 3: Financial Capabilities**

Identify whether your jurisdiction has access to or is eligible to use the following funding sources for hazard mitigation.

| Funding Resource                                 | Access/ Eligibility (Yes/No) | Has the funding resource been used in the past and for what type of activities? | Could the resource be used to fund future mitigation actions? |
|--|------------------------------|---|---|
| Capital improvement programming/ project funding | Yes                          | Building and roadway improvements to include storm drain improvements           | Yes   |
| Authority to levy taxes for specific purposes    |                              |   |   |
| Fees for water, sewer, gas, or electric services |                              |   |   |

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|  |     |                                   |     |
|--|-----|-----------------------------------|-----|
| Impact fees for new development                                      |     |                                   |     |
| Stormwater utility fees  |     |                                   |     |
| Incur debt through general obligation bonds and/or special tax bonds |     |                                   |     |
| Incur debt through private activities                                |     |                                   |     |
| Community Development Block Grant (CDBG)                             | Yes | Building and roadway improvements | Yes |
| Special purpose taxes  |     |                                   |     |
| Other federal funding programs                                       |     |                                   |     |
| State funding programs   | Yes | Building and roadway improvements | Yes |
| Other:   |     |                                   |     |
| Other:   |     |                                   |     |

**How can these capabilities be expanded and improved to reduce risk?**

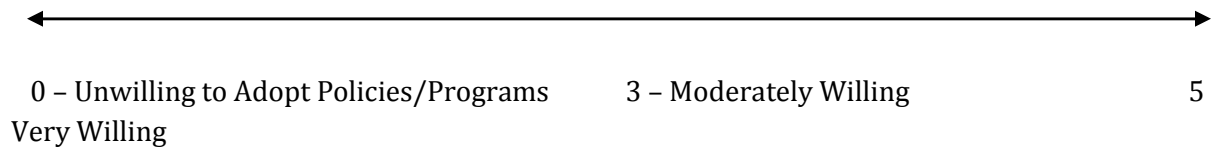
**Task 4: Education and Outreach**

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

| <b>Program/Organization</b>   | <b>Yes/No</b> | <b>Describe program/organization and how it relates to disaster resilience and mitigation.</b> | <b>Could the program/organization help implement future mitigation activities?</b> |
|---|---------------|--|--|
| Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. |               |  |  |
| Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)                 |               |  |  |
| Natural disaster or safety related school programs  |               |  |  |
| StormReady certification  |               |  |  |
| FireWise Communities certification  |               |  |  |
| Public-private partnership initiatives addressing disaster-related issues   |               |  |  |
| Other:  | Yes           | Annual Contractors Meetings  | Yes  |
| Other:  |               |  |  |
| <b>How can these capabilities be expanded and improved to reduce risk?</b>  |               |  |  |
|   |               |  |  |

**Task 5: Community Political Capability**

Political capability in this instance is being measured by the degree to which local political leadership (including appointed boards) is willing to enact policies and programs that reduce the hazard vulnerabilities in your community, even if met with some opposition. Examples may include 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 and federal requirements (e.g. building codes, floodplain management, etc.). Rate the jurisdiction's political capability to enact policies and programs that reduce hazard vulnerabilities on a scale from 0 to 5. A higher score corresponds to a higher degree of community political capability.



Score: 5



**Task 6: Self-Assessment of Capability**

Please provide an approximate measure of your jurisdiction’s capability to effectively implement hazard mitigation strategies to reduce the hazard vulnerabilities. Using the following table, place an “X” in the box mark in the most appropriate degree of capability (Limited, Moderate, High) based on the best available information and the responses provided in the Capability Assessment Worksheet Tasks 1-5 above. The results from each participating jurisdiction’s responses will be collected and referenced in the Capability Self- Assessment Matrix (Task 7).

| Area                                    | Degree of Capability |          |      |
|---|----------------------|----------|------|
|   | Limited              | Moderate | High |
| Planning and Regulatory Capability      |                      |          | X    |
| Administrative and Technical Capability |                      |          | X    |
| Fiscal Capability                       |                      |          | X    |
| Community Political Capability          |                      |          | X    |
| Community Resiliency Capability         |                      |          | X    |

**Task 7: Capability Self-Assessment Matrix**

*Purpose:* To record the results from the Capability Assessment Survey (Task 6) completed by each jurisdiction.

*Instructions:* Complete the table below by first listing all communities, then enter the degree of capability (limited, moderate, high) for each capability category that was recorded in Task 6 by each jurisdiction.

| Community Name                    | Capability Category                |   |                   |                                |                                 |
|-----------------------------------|------------------------------------|---|-------------------|--------------------------------|---------------------------------|
|                                   | Planning and Regulatory Capability | Administrative and Technical Capability | Fiscal Capability | Community Political Capability | Community Resiliency Capability |
| <i>EXAMPLE:<br/>Hometown City</i> | <i>Moderate</i>                    | <i>Limited</i>                          | <i>Moderate</i>   | <i>Moderate</i>                | <i>High</i>                     |
| San Miguel County                 |                                    |   |                   |                                |                                 |
| City of Las Vegas                 | High                               | High                                    | High              | High                           | High                            |
| Village of Pecos                  |                                    |   |                   |                                |                                 |

### H.3 Village of Pecos

#### Hazard Mitigation Plan Capability Assessment Worksheet

**Jurisdiction:** Village of Pecos

Local mitigation capabilities are existing authorities, policies, programs, and resources that reduce hazard impacts or that could be used to implement hazard mitigation activities. Please complete the tables and questions in the worksheet as completely as possible. One worksheet should be completed for each stakeholder jurisdiction in the hazard mitigation plan.

**Task 1: Planning and Regulatory Capabilities**

Planning and regulatory capabilities are the plans, policies, codes, and ordinances that prevent and reduce the impacts of hazards. Please indicate which of the following capabilities your jurisdiction has in place.

| Plans  | Yes/No | Year of latest update | Department/Agency Responsible for this plan | Does the plan address any of the identified hazards? | Does the Plan identify projects to include in the mitigation strategy? | Can this plan be used to implement mitigation actions? |
|--|--------|-----------------------|---|--|--|--|
| <i>EXAMPLE: Hazard Mitigation Plan</i>                   | No     | N/A                   | SMCLV O&M                                   | Yes  | Yes  | Yes  |
| Comprehensive/Master Plan (or other land use plans)      | No     | N/A                   | N/A   | N/A  | N/A  | N/A  |
| Open Space Management Plan (Parks/Rec or Greenways Plan) | No     | N/A                   | N/A   | N/A  | N/A  | N/A  |
| Natural Resource Protection Plan                         | No     | N/A                   | N/A   | N/A  | N/A  | N/A  |

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| Plans   | Yes/No | Year of latest update | Department/Agency Responsible for this plan  | Does the plan address any of the identified hazards? | Does the Plan identify projects to include in the mitigation strategy? | Can this plan be used to implement mitigation actions? |
|---|--------|-----------------------|--|--|--|--|
| Capital Improvements Plan   | Yes    | 2013                  | Village of Pecos                             | No   | No   | Yes  |
| Economic Development Plan   | No     | N/A                   | N/A  | N/A  | N/A  | N/A  |
| Historic Preservation Plan  | No     | N/A                   | N/A  | N/A  | N/A  | N/A  |
| Farmland Preservation Plan  | No     | N/A                   | N/A  | N/A  | N/A  | N/A  |
| Local Emergency Operations Plan   | Yes    | 10 Years Ago          | State Police                                 | No   | No   | Yes  |
| Disaster Recovery Plan  | Yes    | 2013                  | Village of Pecos for village operations only | Yes  | No   | Yes  |
| Evacuation Plan   | Yes    | 10 Year Ago           | State Police                                 | No   | No   | Yes  |
| Floodplain Management Plan  | No     | N/A                   | N/A  | N/A  | N/A  | N/A  |
| Continuity of Operations / Continuity of Government Plan                              | Yes    | 2013                  | Village of Pecos                             | Yes  | No   | Yes  |
| Transportation Plan   | No     | N/A                   | N/A  | N/A  | N/A  | N/A  |
| Stormwater Mgmt. Plan   | No     | N/A                   | N/A  | N/A  | N/A  | N/A  |
| Community Wildfire Protection Plan  | No     | N/A                   | N/A  | N/A  | N/A  | N/A  |
| Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone | No     | N/A                   | N/A  | N/A  | N/A  | N/A  |

**Task 6: Self-Assessment of Capability**

Please provide an approximate measure of your jurisdiction's capability to effectively implement hazard mitigation strategies to reduce the hazard vulnerabilities. Using the following table, place an "X" in the box mark in the most appropriate degree of capability (Limited, Moderate, High) based on the best available information and the responses provided in the Capability Assessment Worksheet Tasks 1-5 above. The results from each participating jurisdiction's responses will be collected and referenced in the Capability Self-Assessment Matrix (Task 7).

| Area                                    | Degree of Capability |          |      |
|---|----------------------|----------|------|
|   | Limited              | Moderate | High |
| Planning and Regulatory Capability      |                      | X        |      |
| Administrative and Technical Capability | X                    |          |      |
| Fiscal Capability                       | X                    |          |      |
| Community Political Capability          | X                    |          |      |
| Community Resiliency Capability         | X                    |          |      |

**Task 6: Self-Assessment of Capability**

Please provide an approximate measure of your jurisdiction's capability to effectively implement hazard mitigation strategies to reduce the hazard vulnerabilities. Using the following table, place an "X" in the box mark in the most appropriate degree of capability (Limited, Moderate, High) based on the best available information and the responses provided in the Capability Assessment Worksheet Tasks 1-5 above. The results from each participating jurisdiction's responses will be collected and referenced in the Capability Self-Assessment Matrix (Task 7).

| Area                                    | Degree of Capability |          |      |
|---|----------------------|----------|------|
|   | Limited              | Moderate | High |
| Planning and Regulatory Capability      |                      | X        |      |
| Administrative and Technical Capability | X                    |          |      |
| Fiscal Capability                       | X                    |          |      |
| Community Political Capability          | X                    |          |      |
| Community Resiliency Capability         | X                    |          |      |

**Task 5: Community Political Capability**

Political capability in this instance is being measured by the degree to which local political leadership (including appointed boards) is willing to enact policies and programs that reduce the hazard vulnerabilities in your community, even if met with some opposition. Examples may include 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 and federal requirements (e.g. building codes, floodplain management, etc.). Rate the jurisdiction's political capability to enact policies and programs that reduce hazard vulnerabilities on a scale from 0 to 5. A higher score corresponds to a higher degree of community political capability.



Score:   3

**Task 4: Education and Outreach**

Identify education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information.

| Program/Organization   | Yes/No | Describe program/organization and how it relates to disaster resilience and mitigation.   | Could the program/organization help implement future mitigation activities? |
|--|--------|---|---|
| Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.  | Yes    | Local business and conservation group exists whose primary functions are the environmental protection and protection of health and safety of the community. These entities address hazard mitigation and recovery efforts as funding becomes available. | Yes   |
| Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)  | No     | N/A   | N/A   |
| Natural disaster or safety related school programs   | No     | N/A   | N/A   |
| Storm Ready certification  | No     | N/A   | N/A   |
| Fire wise Communities certification  | No     | N/A   | N/A   |
| Public-private partnership initiatives addressing disaster-related issues  | No     | N/A   | N/A   |
| Other:   | No     | N/A   | N/A   |
| Other:   | No     | N/A   | N/A   |
| <p><b>How can these capabilities be expanded and improved to reduce risk?</b><br/>                     By implementing specific programs that are applicable to the geographic and demographic characteristics of the local environment.</p> |        |   |   |



**Tank 3: Financial Capabilities**

Identify whether your jurisdiction has access to or is eligible to use the following funding sources for hazard mitigation.

| Funding Resource   | Access/Eligibility (Yes/No) | Has the funding resource been used in the past and for what type of activities? | Could the resource be used to fund future mitigation actions? |
|--|-----------------------------|---|---|
| Capital improvement programming/ project funding                     | Yes                         | Yes, for funding Capital Projects   | Yes   |
| Authority to levy taxes for specific purposes                        | Yes                         | No  | Yes   |
| Fees for water, sewer, gas, or electric services                     | Yes                         | For operational costs   | Yes   |
| Impact fees for new development                                      | No                          | N/A   | N/A   |
| Storm water utility fees   | No                          | N/A   | N/A   |
| Incur debt through general obligation bonds and/or special tax bonds | Yes                         | Yes, for funding sewer and water infrastructure projects                        | Yes   |
| Incur debt through private activities                                | No                          | N/A   | N/A   |
| Community Development Block Grant (CDBG)                             | Yes                         | Yes, for funding Capital Projects   | Yes   |
| Special purpose taxes  | No                          | N/A   | N/A   |
| Other federal funding programs                                       | Yes                         | Yes, for funding sewer and water infrastructure projects                        | N/A   |
| State funding programs   | Yes                         | Yes, for funding Capital Projects   | Yes   |
| Other:   | No                          | N/A   | N/A   |
| Other:   | No                          | N/A   | N/A   |

| How can these capabilities be expanded and improved to reduce risk?<br>By the Village of Pecos availing itself to future funding opportunities. |
|---|
|   |

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| Staff                   | Yes/No<br>FT/PT | Is staffing adequate to enforce regulations? | Is staff trained on hazards and mitigation? | Is coordination between agencies and staff effective? |
|-------------------------|-----------------|--|---|---|
| Grants writers/managers | No              | N/A  | N/A   | N/A   |
| Other:                  | No              | N/A  | N/A   | N/A   |
| Other:                  | No              | N/A  | N/A   | N/A   |

| Technical   | Yes/No | Describable capability | Has capability been used to assess/mitigate risk in the past? |
|---|--------|------------------------|---|
| Warning systems/services (Reverse 911, outdoor warning sirens, smartphone applications, social media feeds) | No     | N/A                    | N/A   |
| Hazard data and information   | No     | N/A                    | N/A   |
| Grant writing   | No     | N/A                    | N/A   |
| HAZUS analysis  | No     | N/A                    | N/A   |
| Other:  | No     | N/A                    | N/A   |
| Other:  | No     | N/A                    | N/A   |

**How can these capabilities be expanded and improved to reduce risk?**  
 All Architectural, Engineering and other technical capabilities are contracted out as the Village of Pecos staff does not have the capability to address technical issues.

**Task 2: Administrative and Technical Capabilities**

Identify whether your community has the following administrative and technical capabilities. These include staff and their skills and tools that can be used for mitigation planning and to implement specific mitigation actions. For smaller jurisdictions without local staff resources, if there are public resources at the next higher level of government that can provide technical assistance, indicate so in your comments.

| Administration  | Yes/No | Describe capability                  | Is coordination effective? |
|---|--------|--------------------------------------|----------------------------|
| Planning Commission   | No     | N/A                                  | N/A                        |
| Mitigation Planning Committee   | No     | N/A                                  | N/A                        |
| Maintenance programs to reduce risk (e.g. tree trimming, drainage system cleaning/clearing) | No     | N/A                                  | N/A                        |
| Mutual aid agreements   | Yes    | Sufficient to address fire incidents | Yes                        |

| Staff                            | Yes/No FT/PT | Is staffing adequate to enforce regulations? | Is staff trained on hazards and mitigation? | Is coordination between agencies and staff effective? |
|----------------------------------|--------------|--|---|---|
| Chief Building Official          | No           | N/A  | N/A   | N/A   |
| Floodplain Administrator/Manager | No           | N/A  | N/A   | N/A   |
| Emergency Manager                | No           | N/A  | N/A   | N/A   |
| Community Planner                | No           | N/A  | N/A   | N/A   |
| Civil Engineer                   | No           | N/A  | N/A   | N/A   |
| GIS Analyst/Tech/Coordinator     | No           | N/A  | N/A   | N/A   |
| Land Surveyors                   | No           | N/A  | N/A   | N/A   |

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| Land Use Planning and Ordinances                              | Yes/No | Year | Is the ordinance adequately administered and enforced? | Does the regulation address any of the identified hazards? | Does the regulation identify projects to include in the mitigation strategy? | Can this regulation be used to implement mitigation actions? |
|---|--------|------|--|--|--|--|
| Ordinance   |        |      |  |  |  |  |
| Stormwater Regulations/Ordinance                              | No     | N/A  | N/A  | N/A  | N/A  | N/A  |
| Steep Slope Regulations/Ordinance                             | No     | N/A  | N/A  | N/A  | N/A  | N/A  |
| Wildfire Regulations/Ordinance                                | No     | N/A  | N/A  | N/A  | N/A  | N/A  |
| Other Natural hazard specific Regulations/Ordinances          | No     | N/A  | N/A  | N/A  | N/A  | N/A  |
| NFIP/CRS/Flood Insurance Rate Maps                            | No     | N/A  | N/A  | N/A  | N/A  | N/A  |
| Acquisition of land for open space and public recreation uses | No     | N/A  | N/A  | N/A  | N/A  | N/A  |
| Fire wise Community   | Yes    | 2013 | Yes  | Yes  | Yes  | Yes  |
| Storm Ready Community   | No     | N/A  | N/A  | N/A  | N/A  | N/A  |
| Other   | No     | N/A  | N/A  | N/A  | N/A  | N/A  |

**How can the capabilities listed above be expanded and improved to reduce risk?**  
The Village of Pecos needs to implement plans that address hazards that pose the greatest risk. Plans should be updated periodically to ensure applicable risks are addressed in terms of reduced risk.

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| Building Code, Permitting, Inspections                     | Year of latest update | Is the code adequately enforced? | Does the code address any of the identified hazards? | Does the code identify projects to include in the mitigation strategy? | Can this code be used to implement mitigation actions? |
|--|-----------------------|----------------------------------|--|--|--|
| Fire Code  | N/A                   | Yes, by NFPA                     | N/A  | N/A  | N/A  |
| Fire Department ISO rating                                 | 2008                  | Rating(s): Yes                   | N/A  | N/A  | N/A  |
| Building Code  | 2013                  | Yes                              | N/A  | N/A  | N/A  |
| Building Code Effectiveness Grading Schedule (BCEGS) score |                       | Score: N/A                       | N/A  | N/A  | N/A  |
| Site plan review requirements                              | 2013                  | Yes                              | Yes  | No   | Yes  |

| Land Use Planning and Ordinances  | Year | Is the ordinance adequately administered and enforced? | Does the regulation address any of the identified hazards? | Does the regulation identify projects to include in the mitigation strategy? | Can this regulation be used to implement mitigation actions? |
|-----------------------------------|------|--|--|--|--|
| Zoning Regulations/Ordinance      | N/A  | N/A  | N/A  | N/A  | N/A  |
| Subdivision Regulations/Ordinance | N/A  | N/A  | N/A  | N/A  | N/A  |
| Floodplain Regulations or         | N/A  | N/A  | N/A  | N/A  | N/A  |

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| Plans                                  | Yes/No | Year of latest update | Department/Agency Responsible for this plan | Does the plan address any of the identified hazards? | Does the Plan identify projects to include in the mitigation strategy? | Can this plan be used to implement mitigation actions? |
|--|--------|-----------------------|---|--|--|--|
| management, climate change adaptation) | No     | N/A                   | N/A   | N/A  | N/A  | N/A  |

**APPENDIX I: RISK ANALYSIS WORKSHEETS**

**Risk Analysis Worksheet  
 Jurisdictional Risk Assessment**

Each participating jurisdiction (San Miguel County, City of Las Vegas, and Village of Pecos) should complete a Risk Analysis Worksheet for each hazard identified for the Hazard Mitigation Plan. Those hazards are:

|                |                  |                       |
|----------------|------------------|-----------------------|
| Dam Failure    | Hailstorm        | Severe Winter Weather |
| Drought        | Haz-Mat Incident | Thunderstorm          |
| Earthquake     | High Wind        | Tornado               |
| Expansive Soil | Landslide        | Terrorism             |
| Extreme Heat   | Levee Failure    | Wildfire              |
| Flood          | Pests            |                       |

The following provides the key elements for completing the survey:

**FREQUENCY:** How often is this hazard likely to develop in your jurisdiction?

| Frequency     | Description   |
|---------------|---|
| Highly Likely | Nearly 100% probability in the next year  |
| Likely        | 10% - 100% probability in the next year or at least 1 chance over the next 10 years |
| Possible      | 1% - 10% probability or at least one chance in the next 100 years                   |
| Unlikely      | Less than 1% chance in the next 100 years.  |

**SEVERITY:** What is the expected extent of damage caused by this type of hazard?

| Severity     | Description                                |
|--------------|--|
| Catastrophic | More than 50% of the jurisdiction affected |



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|            |  |
|------------|--|
| Critical   | 25% - 50% of the jurisdiction affected     |
| Limited    | 10% - 25% of the jurisdiction affected     |
| Negligible | Less than 10% of the jurisdiction affected |

**RISK CLASS:** What is the classification of the overall risk posed to the jurisdiction?

|               | Negligible | Limited | Critical | Catastrophic |
|---------------|------------|---------|----------|--------------|
| Highly Likely | C          | B       | A        | A            |
| Likely        | C          | C       | B        | A            |
| Possible      | D          | C       | B        | B            |
| Unlikely      | D          | D       | C        | C            |

**SEASONAL PATTERN:** When will hazard most likely occur?

**PROBABLE DURATION:** How long would this type of event typically impact the jurisdiction?

**SPEED OF ONSET:** How much advance warning does the jurisdiction typically have prior to onset of this type of event?

**RISKS:** What types of impacts does this hazard typically cause to the jurisdiction?





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|                          |                       |
|--------------------------|-----------------------|
| <b>SEASONAL PATTERN:</b> | May- September        |
| <b>DURATION:</b>         | years                 |
| <b>SPEED OF ONSET:</b>   | monthly               |
| <b>RISKS:</b>            | Infrastructure Damage |

List any known hazard history/hazard events in your jurisdiction (for this hazard):

As a result of drought conditions occurring and then monsoon rains the soil surface in San Miguel County produces a cycle of shrinkage and swelling that places stress on structures. This has occurred to the City of Las Vegas Water Treatment Plant which has created a large crack in the walls of the facility. This was discovered during a seismic survey study completed by NM Tech University during 2010

Provide any identified risks or vulnerabilities for the hazard:

Economic Impact

Environmental Impact

Hazard: Extreme Heat

|                          |                        |
|--------------------------|------------------------|
| <b>FREQUENCY:</b>        | Likely                 |
| <b>SEVERITY:</b>         | Critical               |
| <b>RISK CLASS:</b>       | B                      |
| <b>SEASONAL PATTERN:</b> | May- September         |
| <b>DURATION:</b>         | Days/weeks             |
| <b>SPEED OF ONSET:</b>   | hours                  |
| <b>RISKS:</b>            | Public Health & Safety |

List any known hazard history/hazard events in your jurisdiction (for this hazard):

Heat extremes may occur over a 2-3 day period. This has been becoming a more and more occurrence which is a direct result of drought conditions. Although there is no known reports of power outages due to overload of electrical infrastructure .There is the possibility of this occurring within the recent future. The reported cases of injuries that occur from extreme heat are handled by local privately owned hospital and it is not data that can be obtained.

Provide any identified risks or vulnerabilities for the hazard:

Social Impact

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Economic Impact  
 Critical Infrastructure impact

Hazard: Levee Failure

|                          |                       |
|--------------------------|-----------------------|
| <b>FREQUENCY:</b>        | Possible              |
| <b>SEVERITY:</b>         | Negligible            |
| <b>RISK CLASS:</b>       | D                     |
| <b>SEASONAL PATTERN:</b> | May- September        |
| <b>DURATION:</b>         | Weeks/months          |
| <b>SPEED OF ONSET:</b>   | 24-48 hours           |
| <b>RISKS:</b>            | Infrastructure Damage |

List any known hazard history/hazard events in your jurisdiction (for this hazard):  
 There are a minimal amount of levees within San Miguel County. It is not known that the Critical infrastructures for the county has any levees, but there is a possibility that water users and acequias (non-profit organizations) located within San Miguel County do possibly have levees that could be affected under flash flooding conditions

Provide any identified risks or vulnerabilities for the hazard:  
 Economic Impact  
 Agricultural impact

Hazard: Pests

|                          |                        |
|--------------------------|------------------------|
| <b>FREQUENCY:</b>        | Possible               |
| <b>SEVERITY:</b>         | Negligible             |
| <b>RISK CLASS:</b>       | D                      |
| <b>SEASONAL PATTERN:</b> | June-September         |
| <b>DURATION:</b>         | Days/Months            |
| <b>SPEED OF ONSET:</b>   | 5-15 days              |
| <b>RISKS:</b>            | Public Safety & Health |

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List any known hazard history/hazard events in your jurisdiction (for this hazard):

There are a few areas of Pests that affect San Miguel County as well as the state of NM. Hantavirus which is created by rodent bites has been reported in NM since 1993 and since then there is 94 confirmed cases reported this can be found on Google. There is also the West Nile Virus created by mosquitoes which 5 cases had been reported in NM for 2013, and finally the outbreak of Bark Beetles that started in 2002 according to the USDA are killing up to 2.1 million acres of pinion-juniper woodland and 1.3 million acres of ponderosa pine have been affected in AZ and NM during the 2002-2004 outbreak

Provide any identified risks or vulnerabilities for the hazard:

- Economic Impact
- Agricultural impact
- Environmental Impact

Hazard:     Flooding    

|                          |                       |
|--------------------------|-----------------------|
| <b>FREQUENCY:</b>        | Likely                |
| <b>SEVERITY:</b>         | Critical              |
| <b>RISK CLASS:</b>       | B                     |
| <b>SEASONAL PATTERN:</b> | May-September         |
| <b>DURATION:</b>         | Weeks/months          |
| <b>SPEED OF ONSET:</b>   | 24-48 hours           |
| <b>RISKS:</b>            | Infrastructure Damage |

List any known hazard history/hazard events in your jurisdiction (for this hazard): San Miguel County records indicate that on average %150,000.00-\$350,000.00 is spent per year responding to flood damage. Executive Order 2005-025, June 2004, \$750,000.00 requested for culvert installation/replacements and equipment costs to address flood damages in the communities of Ojitos Frios, Las Dispensas, Pecos and lower Rociada in San Miguel County. FEMA DR-1659-NM, June 2006, \$44,708.00 requested for road restoration of eroded ditches and road shoulders, equipment, materials, and labor costs to address flood damages on County roads. Executive Order 2010-025, June 2007, \$316,005.00 requested for equipment, materials and labor costs to address flood damages in the communities of Chapelle, Bernal, Meyers, San Rafael, and Ojitos Frios. A HAZUS-MH model was completed for San Miguel County and estimated there are 1,376,710 buildings classified as residential within the 100 year flood plain. Currently for 2013 San Miguel County has two active declarations requesting state emergency funding. There is an active

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executive order toward flood prevention resulting for the Tres Lagunas Post-Fire Floods in the amount of \$750,000.00 and possibly a presidential declaration resulting in floods that occurred during July 2013 (23-28<sup>th</sup>) which is the Conchas Dam area, San Rafael & Gonzales Ranch area, and a second local declaration on August 9, 2013 of a county road bridge which needs replaced due to floods.

Provide any identified risks or vulnerabilities for the hazard:

Property Damage

Critical Infrastructure (roads, bridges, drainage & public drinking water system)

Life Safety

Transportation problems with public traffic and school routes un-safe.

Power outages (electrical systems damaged)

Phone service problems

EMS service problems

Social impacts

Hazard:           Hailstorms          

|                          |                  |
|--------------------------|------------------|
| <b>FREQUENCY:</b>        | Highly Likely    |
| <b>SEVERITY:</b>         | Critical         |
| <b>RISK CLASS:</b>       | A                |
| <b>SEASONAL PATTERN:</b> | May-August       |
| <b>DURATION:</b>         | Minutes          |
| <b>SPEED OF ONSET:</b>   | Minutes to hours |
| <b>RISKS:</b>            | Property Damage  |

List any known hazard history/hazard events in your jurisdiction (for this hazard):

(Source: <http://www4.ncdcnoaa.gov/cgiwin/wwwcgi.dll/wwevent-storms>) Events occur every year in San Miguel County mostly on the east side of the county (Conchas Dam Area. No reported injuries and mostly damages covered under personal insurance claims. 1995 a hail event was documented through the earlier mentioned source in excess of \$10,000.00 in property damage another one caused in excess of \$80,000.00 in property damages a year later. The National Climatic Data Center shows NM had 935 reported hail events between January 1, 2000 and December 31, 2006 totaling 62.7 million in property damage and \$1.34 million in crop damage. There are also several motor vehicle damages and accidents on roadways that occur yearly that go unreported but insurance claims are made.

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Provide any identified risks or vulnerabilities for the hazard:

- Critical Infrastructure
- Social Impact
- Economic Impact
- Agriculture impact
- Power outages

Hazard:           Haz-Mat Incident          

|                          |                        |
|--------------------------|------------------------|
| <b>FREQUENCY:</b>        | Likely                 |
| <b>SEVERITY:</b>         | Limited                |
| <b>RISK CLASS:</b>       | C                      |
| <b>SEASONAL PATTERN:</b> | Year round             |
| <b>DURATION:</b>         | Hours/days             |
| <b>SPEED OF ONSET:</b>   | Minutes/ hours         |
| <b>RISKS:</b>            | Public Safety & Health |

List any known hazard history/hazard events in your jurisdiction (for this hazard):

San Miguel County has identified the top chemical hazard as being propane from a 2013 Emergency Response Plan to respond to hazardous materials that were identified in the county for the Tier II reporting. This report can be found in the San Miguel County EOP as an appendix to ESF 10. There was an incident where the operator of the Waste Isolation Pilot Plant transportation vehicle had a medical incident and left the roadway hauling the containers but no damage or release occurred, and finally there was an EPA response to Luna Community College toward an illegal dumping site involving electronic waste There are still Chemistry labs at both of the higher institutes which have some hazardous chemicals but there are no further reports.

Provide any identified risks or vulnerabilities for the hazard:

- Economic Impact
- Social impact
- Environmental Impact
- Critical Infrastructure Impact

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Hazard: High Wind

|                          |                       |
|--------------------------|-----------------------|
| <b>FREQUENCY:</b>        | Highly Likely         |
| <b>SEVERITY:</b>         | Catastrophic          |
| <b>RISK CLASS:</b>       | A                     |
| <b>SEASONAL PATTERN:</b> | Year Round            |
| <b>DURATION:</b>         | Weekly-monthly        |
| <b>SPEED OF ONSET:</b>   | hourly                |
| <b>RISKS:</b>            | Infrastructure Damage |

List any known hazard history/hazard events in your jurisdiction (for this hazard):

High winds are highly probable throughout the county, particularly during spring seasons but are known to continue throughout the fall and winter seasons as well. Damages from winds generally consist of debris flying (tree limbs), power outages, Electrical poles and line damages, residential roof damages that generally are reported through private insurance claims. Power outages can last hours some time days due to electrical poles and transformers being damaged. During winter season has created blizzard conditions. (2006 & 2010). It also creates white out conditions on roadways which leave travelers stranded as well as commercial trucking. According to the State Mitigation plan San Miguel County is in Zone II which denotes areas that can experience winds up to 160 mph. It also designates that the central portion of San Miguel County as a special wind region that should be examined for unusual wind conditions due to mountainous terrain.

Provide any identified risks or vulnerabilities for the hazard:

Economic Impact

Health & Public Safety issues

Hazard: Landslide

|                          |             |
|--------------------------|-------------|
| <b>FREQUENCY:</b>        | Possible    |
| <b>SEVERITY:</b>         | Limited     |
| <b>RISK CLASS:</b>       | C           |
| <b>SEASONAL PATTERN:</b> | May- August |
| <b>DURATION:</b>         | Hours-days  |

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|                        |                       |
|------------------------|-----------------------|
| <b>SPEED OF ONSET:</b> | Minutes-hours         |
| <b>RISKS:</b>          | Infrastructure Damage |

List any known hazard history/hazard events in your jurisdiction (for this hazard):

There have been no reported fatalities or injuries that have occurred from landslides. The only items that have been affected are the critical infrastructure of roadways and possible residential or property damage from landslides that generally result through monsoons that occur on burn scars area that was created from wildfires. This would be a combination of debris (trees, land, etc.). San Miguel County's east side is mountain terrain and there is occasional rock slide caused by weather issues.

Provide any identified risks or vulnerabilities for the hazard:

- Economic Impact
- Road closures
- Private property damage

Hazard:     Terrorism    

|                          |                        |
|--------------------------|------------------------|
| <b>FREQUENCY:</b>        | Unlikely               |
| <b>SEVERITY:</b>         | Negligible             |
| <b>RISK CLASS:</b>       | D                      |
| <b>SEASONAL PATTERN:</b> | August-May             |
| <b>DURATION:</b>         | Hours/days             |
| <b>SPEED OF ONSET:</b>   | Minutes/ hours         |
| <b>RISKS:</b>            | Public Safety & Health |

List any known hazard history/hazard events in your jurisdiction (for this hazard):

San Miguel County has (2) higher Education institutes. New Mexico Highlands University and Luna Community College have thousands of students attending on a daily bases. This could be a very attractive location for anyone wanting to create a domestic -terrorism act at any given time. The other location is the Armand Hammer United World College of the American West which has 200 students ages 16-19 from 80 different countries; this is also a location that could possibly invite international terrorism as well as domestic.



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Provide any identified risks or vulnerabilities for the hazard:  
 Economic Impact  
 Social impact  
 International Impact  
 Critical Infrastructure Impact

Hazard: Thunderstorm

|                          |                       |
|--------------------------|-----------------------|
| <b>FREQUENCY:</b>        | Highly Likely         |
| <b>SEVERITY:</b>         | Catastrophic          |
| <b>RISK CLASS:</b>       | A                     |
| <b>SEASONAL PATTERN:</b> | March-August          |
| <b>DURATION:</b>         | hours                 |
| <b>SPEED OF ONSET:</b>   | hourly                |
| <b>RISKS:</b>            | Infrastructure Damage |

List any known hazard history/hazard events in your jurisdiction (for this hazard):

Thunderstorms occur yearly in San Miguel County of which there has been lightning strikes that have cause wildfires. These events also cause flash flooding issues such as events that occurred on July 2013 & August 2013. Which resulted into a state disaster during this timeframe and a possible presidential disaster for the time of July 23-28, 2013 if approved. San Miguel County has received an estimated damage of

Provide any identified risks or vulnerabilities for the hazard:  
 Economic Impact  
 Health & Public Safety issues

Hazard: Tornado

|                          |               |
|--------------------------|---------------|
| <b>FREQUENCY:</b>        | Likely        |
| <b>SEVERITY:</b>         | Limited       |
| <b>RISK CLASS:</b>       | C             |
| <b>SEASONAL PATTERN:</b> | March-October |

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|                        |                  |
|------------------------|------------------|
| <b>DURATION:</b>       | Hours-day        |
| <b>SPEED OF ONSET:</b> | Minutes to hours |
| <b>RISKS:</b>          | Property Damage  |

List any known hazard history/hazard events in your jurisdiction (for this hazard):

On [www.tornadoproject.com/alltorns/nmtorn.htm](http://www.tornadoproject.com/alltorns/nmtorn.htm) (4) F1 tornados recorded with damage June 18, 1966 property damage \$25,000.00 June 03, 1974 \$25,000.00, June 23, 1981, \$3,000.00, June 27, 1992 \$25,000.00 and the most recent tornado was an F-2 on October 17, 2010 F2 creating in the area of \$25,000.00. No fatalities or injuries reported to date.

Provide any identified risks or vulnerabilities for the hazard:

- Critical Infrastructure
- Social Impact
- Economic Impact

Hazard: Winter Storms

|                          |                       |
|--------------------------|-----------------------|
| <b>FREQUENCY:</b>        | Likely                |
| <b>SEVERITY:</b>         | Catastrophic          |
| <b>RISK CLASS:</b>       | A                     |
| <b>SEASONAL PATTERN:</b> | October-March         |
| <b>DURATION:</b>         | Days                  |
| <b>SPEED OF ONSET:</b>   | 24-48 hours           |
| <b>RISKS:</b>            | Infrastructure Damage |

List any known hazard history/hazard events in your jurisdiction (for this hazard): 2006/2007 100 year winter storm. State Disaster on December 29, 2006 covering Bernalillo, Colfax, Guadalupe, Harding, Los Alamos, Mora, Quay, Santa Fe, Sandoval, San Miguel, Taos, Torrance and Union counties. This required the opening of the NM EOC. Executive Order 01-10, December 2000, Snow Removal, San Miguel County \$24,786.00 Executive Order 04-08, February 2004, Snow Removal, San Miguel County, \$41,111.00 and Executive Order 05-016, March 2005 Snow Removal, San Miguel County, \$72,746.00

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Provide any identified risks or vulnerabilities for the hazard: Critical Infrastructure (Roads, drainage, power outages, pipeline (gas), equipment & contract rental,)  
 Social Impact (schools, hospitals)  
 Property Damage (roofs, water pipes, cement cracking)  
 Economic Impact (business closures, pharmacy closures)  
 Life Safety (medical service delays, home heating failures)  
 Public Safety service disruptions  
 Road Closures (Interstate 25 & NM 84)  
 Traffic congestion upon closures  
 Lack of hotels causing sheltering requirements.

Hazard:           Dam Failure          

|                          |   |
|--------------------------|---|
| <b>FREQUENCY:</b>        | Possible  |
| <b>SEVERITY:</b>         | Limited   |
| <b>RISK CLASS:</b>       | C   |
| <b>SEASONAL PATTERN:</b> | July-August                                       |
| <b>DURATION:</b>         | immediately                                       |
| <b>SPEED OF ONSET:</b>   | hours   |
| <b>RISKS:</b>            | Life safety issues/property damage/flash flooding |

List any known hazard history/hazard events in your jurisdiction (for this hazard):  
 None at the present time, according to the 2007 update to the National Inventory of Dams that approximately 1/3 of these propose a “high” or “significant” hazard to life and property. The probability of dam failure is low for most dams but as the dams in San Miguel County age the increasing probability for structural damage and failure increases. The City of Las Vegas has 2 dams that are classified as High and would affect population in the county if failure would occur.

Provide any identified risks or vulnerabilities for the hazard:

- Structural damage
- Flash flooding
- Life Safety issues
- Property Damage
- Recreational impacts
- Public drinking water disruption
- Irrigation /agricultural problems

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Hazard: Earthquake

|                          |                                    |
|--------------------------|------------------------------------|
| <b>FREQUENCY:</b>        | Possible                           |
| <b>SEVERITY:</b>         | Negligible                         |
| <b>RISK CLASS:</b>       | D                                  |
| <b>SEASONAL PATTERN:</b> | Unknown                            |
| <b>DURATION:</b>         | Minutes                            |
| <b>SPEED OF ONSET:</b>   | Minutes                            |
| <b>RISKS:</b>            | Life safety issues/property damage |

List any known hazard history/hazard events in your jurisdiction (for this hazard):  
 Between 1990 and 2005 there were 6 earthquakes that occurred within 100 miles of the county center. There was a 3.8 Magnitude earthquake that occurred 54 miles away in 1995. There was a 3.7 magnitude that occurred 70 miles away in 1990

Provide any identified risks or vulnerabilities for the hazard:

- Lifesaving issues
- Property damage
- Critical Infrastructure damages (power/gas and water services)
- Social impact

Hazard: Wildfire

|                          |                             |
|--------------------------|-----------------------------|
| <b>FREQUENCY:</b>        | Highly Likely               |
| <b>SEVERITY:</b>         | Critical                    |
| <b>RISK CLASS:</b>       | A                           |
| <b>SEASONAL PATTERN:</b> | May-July                    |
| <b>DURATION:</b>         | Weeks                       |
| <b>SPEED OF ONSET:</b>   | None                        |
| <b>RISKS:</b>            | Life safety/property damage |

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List any known hazard history/hazard events in your jurisdiction (for this hazard):

San Miguel County has experienced a large number of wildfires. In regards to the USFS wildfire occurrences within the region's watershed there have been several fires that have stood out within the last 10 years that threatened critical infrastructure including the following; Hartman (2009), Solider (2009), Ortiz (2009), Tecolote (2010), Las Trampas Fire (2002), Dalton Fire (2002), Roybal (20002) and the Viveash Fire (2000). The states expenditures within the county for the last 10 years are approximately \$245,000 per year. In the county's CWPP all the community ranking run from Extreme to High and nothing lower than high risk

Provide any identified risks or vulnerabilities for the hazard:

Life Safety  
Property Damage  
Critical Infrastructure damages  
Evacuations  
Social impacts  
Economic impacts (business)  
Recreational impacts  
Environmental impacts  
Water quality  
Air quality

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## APPENDIX J: SAFE GROWTH AUDIT WORKSHEETS

### J.1 San Miguel County

Jurisdiction: San Miguel County

Use this worksheet to identify gaps in your community's growth guidance instruments and improvements that could be made to reduce vulnerability to future development.

| Comprehensive Plan   | Yes                      | No                                  |
|--|--------------------------|-------------------------------------|
| <b>Land Use</b>  |                          |                                     |
| 1. Does the future land-use map clearly identify natural hazard areas?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Do the land-use policies discourage development or redevelopment within natural hazard areas?   |                          |                                     |
| Floodplain managers discourage building in flood zones but if the builder meets the federal requirements they are still allowed to build |                          |                                     |
| 3. Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas?                        | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <b>Transportation</b>  |                          |                                     |
| 1. Does the transportation plan limit access to hazard areas?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Is transportation policy used to guide growth to safe locations?  |                          |                                     |
| 3. Are movement systems designed to function under disaster conditions (e.g. evacuation)?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <b>Environmental Management</b>  |                          |                                     |
| 1. Are environmental systems that protect development from hazards identified and mapped?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

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|   |   |   |
|---|---|---|
|   |   |   |
| 2. Do environmental policies maintain and restore protective ecosystems?  |   | X |
|   |   |   |
| 3. Do environmental policies provide incentives to development that is located outside protective ecosystems?                                     |   | X |
|   |   |   |
| <b>Public Safety</b>  |   |   |
| 1. Are the goals and policies of the comprehensive plan related to those of the FEMA Local Hazard Mitigation Plan?                                |   | X |
|   |   |   |
| 2. Is safety explicitly included in the plan's growth and development policies?   |   | X |
|   |   |   |
| 3. Does the monitoring and implementation section of the plan cover safe growth objectives?   |   | X |
|   |   |   |
| <b>Zoning Ordinance</b>   |   |   |
| 1. Does the zoning ordinance conform to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas? | X |   |
|   |   |   |
| 2. Does the ordinance contain natural hazard overlay zones that set conditions for land use within such zones?                                    |   | X |
|   |   |   |
| 3. Do rezoning procedures recognize hazard areas as limits on zoning changes that allow greater intensity or density of use?                      |   | X |
|   |   |   |



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|  |   |   |
|--|---|---|
| 4. Does the ordinance prohibit development within, or filling of, wetlands, floodways, and floodplains?  | X |   |
| It regulates but does not prohibit   |   |   |
| <b>Subdivision Regulations</b>   |   |   |
| 1. Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?   |   | X |
| They are required to be identified by the designers but the regulations do not restrict  |   |   |
| 2. Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?                          |   |   |
|  |   |   |
| 3. Do the regulations allow density transfers where hazard areas exist?  |   |   |
|  |   |   |
| <b>Capital Improvement Program and Infrastructure Policies</b>   |   |   |
| 1. Does the capital improvement program limit expenditures on projects that would encourage development in areas vulnerable to natural hazards?            |   |   |
|  |   |   |
| 2. Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? |   |   |
|  |   |   |
| 3. Does the capital improvement program provide funding for hazard mitigation projects identified in the FEMA Mitigation Plan?                             |   |   |
|  |   |   |
| <b>Other</b>   |   |   |
| 1. Do small area or corridor plans recognize the need to avoid or mitigation natural hazards?  |   |   |
|  |   |   |

|  |  |   |
|--|--|---|
| 2. Does the building code contain provisions to strengthen or elevate construction to withstand hazard forces? |  | X |
|  |  |   |
| 3. Do economic development or redevelopment strategies include provisions for mitigation natural hazards?      |  | X |
|  |  |   |
| 4. Is there an adopted evacuation and shelter plan to deal with emergencies from natural hazards?              |  | X |
|  |  |   |

## J.2 City of Las Vegas

### Safe Growth Audit Worksheet

**Jurisdiction:** Community Development

Use this worksheet to identify gaps in your community’s growth guidance instruments and improvements that could be made to reduce vulnerability to future development.

| Comprehensive Plan  | Yes | No |
|---|-----|----|
| <b>Land Use</b>   |     |    |
| 4. Does the future land-use map clearly identify natural hazard areas?  | Y   |    |
| FEMA FLOODPLAIN   |     |    |
| 5. Do the land-use policies discourage development or redevelopment within natural hazard areas?                  | Y   |    |
|   |     |    |
| 6. Does the plan provide adequate space for expected future growth in areas located outside natural hazard areas? |     |    |
|   |     |    |

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| <b>Transportation</b>  |   |   |
|--|---|---|
| 4. Does the transportation plan limit access to hazard areas?  |   |   |
|  |   |   |
| 5. Is transportation policy used to guide growth to safe locations?  |   |   |
|  |   |   |
| 6. Are movement systems designed to function under disaster conditions (e.g. evacuation)?                          |   |   |
|  |   |   |
| <b>Environmental Management</b>  |   |   |
| 4. Are environmental systems that protect development from hazards identified and mapped?                          |   | N |
|  |   |   |
| 5. Do environmental policies maintain and restore protective ecosystems?   |   |   |
|  |   |   |
| 6. Do environmental policies provide incentives to development that is located outside protective ecosystems?      |   |   |
|  |   |   |
| <b>Public Safety</b>   |   |   |
| 4. Are the goals and policies of the comprehensive plan related to those of the FEMA Local Hazard Mitigation Plan? | Y |   |
|  |   |   |
| 5. Is safety explicitly included in the plan's growth and development policies?                                    | Y |   |
|  |   |   |
| 6. Does the monitoring and implementation section of the plan cover safe growth objectives?                        |   |   |

|   |   |  |
|---|---|--|
|   |   |  |
| <b>Zoning Ordinance</b>   |   |  |
| 5. Does the zoning ordinance conform to the comprehensive plan in terms of discouraging development or redevelopment within natural hazard areas? |   |  |
|   |   |  |
| 6. Does the ordinance contain natural hazard overlay zones that set conditions for land use within such zones?                                    |   |  |
|   |   |  |
| 7. Do rezoning procedures recognize hazard areas as limits on zoning changes that allow greater intensity or density of use?                      |   |  |
|   |   |  |
| 8. Does the ordinance prohibit development within, or filling of, wetlands, floodways, and floodplains?   | Y |  |
|   |   |  |
| <b>Subdivision Regulations</b>  |   |  |
| 4. Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?                                    |   |  |
|   |   |  |
| 5. Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?                 |   |  |
|   |   |  |
| 6. Do the regulations allow density transfers where hazard areas exist?   |   |  |
|   |   |  |
| <b>Capital Improvement Program and Infrastructure Policies</b>  |   |  |
| 4. Does the capital improvement program limit expenditures on projects that would encourage development in areas vulnerable to natural hazards?   |   |  |

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|  |   |  |
|--|---|--|
|  |   |  |
| 5. Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards? |   |  |
|  |   |  |
| 6. Does the capital improvement program provide funding for hazard mitigation projects identified in the FEMA Mitigation Plan?                             |   |  |
|  |   |  |
| <b>Other</b>   |   |  |
| 5. Do small area or corridor plans recognize the need to avoid or mitigation natural hazards?  |   |  |
|  |   |  |
| 6. Does the building code contain provisions to strengthen or elevate construction to withstand hazard forces?   | Y |  |
|  |   |  |
| 7. Do economic development or redevelopment strategies include provisions for mitigation natural hazards?  |   |  |
|  |   |  |
| 8. Is there an adopted evacuation and shelter plan to deal with emergencies from natural hazards?  |   |  |
|  |   |  |

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## APPENDIX K: NFIP WORKSHEETS

### K.1 San Miguel County

#### National Flood Insurance Program Worksheet

Use this worksheet to collect information on your community's participation in and continued compliance with the National Flood Insurance Program (NFIP), as well as identify areas for improvement that could be potential mitigation actions. Indicate the source of information, if different from the one included.

| NFIP Topic  | Source of Information   | Comments   |
|---|---|--|
| <b>Insurance Summary</b>  |   |  |
| How many NFIP policies are in the community? What is the total premium and coverage?  | State NFIP Coordinator or FEMA NFIP Specialist                  | See Attached Docs  |
| How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage? | FEMA NFIP or Insurance Specialist                               | See Attached Docs  |
| How many structures are exposed to flood risk within the community?   | Community Floodplain Administrator (FPA)                        | See Attached Docs  |
| Describe any areas of flood risk with limited NFIP policy coverage  | Community FPA and FEMA Insurance Specialist                     | none   |
| <b>Staff Resources</b>  |   |  |
| Is the Community FPA or NFIP Coordinator certified?   | Community FPA   | Yes, CFM March 9, 2011   |
| Is floodplain management an auxiliary function?   | Community FPA   | Yes, Land Development Specialist   |
| Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability) | Community FPA   | Permit review for development ,GIS for identifying site location, site inspections, lowest flood level educational outreach LEPC/NMLZO |
| What are the barriers to running an effective NFIP program in the community, if any?  | Community FPA   | Un-permitted development   |
| <b>Compliance History</b>   |   |  |
| Is the community in good standing with the NFIP?  | State NFIP Coordinator, FEMA NFIP Specialist, community records | yes  |

2014 San Miguel County Hazard Mitigation Plan  
 Appendix K: NFIP Worksheets

|   |   |  |
|---|---|--|
| Are there any outstanding compliance issues (i.e., current violations)?                                       |   | No   |
| When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?              |   | Scheduled visit for November 2013  |
| Is a CAV or CAC scheduled or needed?  |   | Yes November 2013  |
| <b>Regulation</b>   |   |  |
| When did the community enter the NFIP?  | Community Status Book<br><a href="http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-status-book">http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-status-book</a>  | Floodplain ordinance 9-14-10<br>NFIP-Firm data 10/19/10  |
| Are the FIRMs digital or paper?   | Community FPA   | Yes, digital   |
| Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways? | Community FPA   |  |
| Provide an explanation of the permitting process.   | Community FPA, State, FEMA NFIP<br>Flood Insurance Manual<br><a href="http://www.fema.gov/flood-insurance-manual">http://www.fema.gov/flood-insurance-manual</a><br>Community FPA, FEMA CRS Coordinator, ISO representative<br>CRS manual <a href="http://www.fema.gov/library/viewRecord.do?id=2434">http://www.fema.gov/library/viewRecord.do?id=2434</a> | Permit all new development<br>Identify SFHA Reg./Develop<br>Inspect site development<br>Determine elevation for BFE<br>Require elevation certificate<br>Provide flood panel info |
| <b>Community Rating System (CRS)</b>  |   |  |
| Does the community participate in CRS?  | Community FPA, State, FEMA NFIP   | no   |
| What is the community's CRS Class Ranking?  | Flood Insurance Manual<br><a href="http://www.fema.gov/flood-insurance-manual">http://www.fema.gov/flood-insurance-manual</a>   | 10   |
| What categories and activities provide CRS points and how can the class be improved?                          |   | See attached docs  |
| Does the plan include CRS planning requirements   | Community FPA, FEMA CRS Coordinator, ISO representative   | yes  |



|  |  |  |
|--|--|--|
|  | CRS manual <a href="http://www.fema.gov/library/viewRecord.do?id=2434">http://www.fema.gov/library/viewRecord.do?id=2434</a> |  |
|--|--|--|

## J.2 City of Las Vegas

### National Flood Insurance Program Worksheet

Use this worksheet to collect information on your community's participation in and continued compliance with the National Flood Insurance Program (NFIP), as well as identify areas for improvement that could be potential mitigation actions. Indicate the source of information, if different from the one included.

| NFIP Topic  | Source of Information                          | Comments   |
|---|--|--|
| <b>Insurance Summary</b>  |  |  |
| How many NFIP policies are in the community? What is the total premium and coverage?  | State NFIP Coordinator or FEMA NFIP Specialist | Not Available See State Coordinator              |
| How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage? | FEMA NFIP or Insurance Specialist              | Not Available See State Coordinator              |
| How many structures are exposed to flood risk within the community?   | Community Floodplain Administrator (FPA)       | 1110 +- Google Earth Data                        |
| Describe any areas of flood risk with limited NFIP policy coverage  | Community FPA and FEMA Insurance Specialist    | See State/FEMA Insurance Specialist              |
| <b>Staff Resources</b>  |  |  |
| Is the Community FPA or NFIP Coordinator certified?   | Community FPA                                  | Yes  |
| Is floodplain management an auxiliary function?   | Community FPA                                  | Yes  |
| Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability) | Community FPA                                  | Through our Building & Zoning Permitting Process |
| What are the barriers to running an effective NFIP program in the community, if any?  | Community FPA                                  | Be Part of a (CRS)Community Rating System        |
| <b>Compliance History</b>   |  |  |

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|   |   |   |
|---|---|---|
| Is the community in good standing with the NFIP?  | State NFIP Coordinator, FEMA NFIP Specialist, community records   | Yes   |
| Are there any outstanding compliance issues (i.e., current violations)?                                       |   | No  |
| When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?              |   | See State NFIP Coordinator  |
| Is a CAV or CAC scheduled or needed?  |   | Yes   |
| <b>Regulation</b>   |   |   |
| When did the community enter the NFIP?  | Community Status Book<br><a href="http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-status-book">http://www.fema.gov/national-flood-insurance-program/national-flood-insurance-program-community-status-book</a>  | December 3, 2010  |
| Are the FIRMs digital or paper?   | Community FPA   | Both  |
| Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways? | Community FPA   | Meet  |
| Provide an explanation of the permitting process.   | Community FPA, State, FEMA NFIP<br>Flood Insurance Manual<br><a href="http://www.fema.gov/flood-insurance-manual">http://www.fema.gov/flood-insurance-manual</a><br>Community FPA, FEMA CRS Coordinator, ISO representative<br>CRS manual <a href="http://www.fema.gov/library/viewRecord.do?id=2434">http://www.fema.gov/library/viewRecord.do?id=2434</a> | Flood Development Permit Process/Flood Elevation Certificate procedures |
| <b>Community Rating System (CRS)</b>  |   |   |
| Does the community participate in CRS?  | Community FPA, State, FEMA NFIP   | Yes   |
| What is the community's CRS Class Ranking?  | Flood Insurance Manual<br><a href="http://www.fema.gov/flood-insurance-manual">http://www.fema.gov/flood-insurance-manual</a>   | Unknown/See State NFIP Coord.   |
| What categories and activities provide CRS points and how can the class be improved?                          |   | See State NFIP data   |

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|   |   |     |
|---|---|-----|
| Does the plan include CRS planning requirements | Community FPA, FEMA<br>CRS Coordinator, ISO<br>representative<br>CRS manual <a href="http://www.fema.gov/library/viewRecord.do?id=2434">http://<br/>www.fema.gov/library/<br/>viewRecord.do?id=2434</a> | Yes |
|---|---|-----|

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## **APPENDIX L: REFERENCE DOCUMENTS AND MATERIALS**

### **L.1 Literature Cited**

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Department of Homeland Security and Emergency Management/FEMA. 2010. HAZUS-MH: Multi-Hazard Loss Estimation Methodology for Natural Hazards. Version 10.0.0

FEMA. Planning for a Sustainable Future (FEMA 364); available online site at: <[http://www.fema.gov/paln/mitplanning/planning\\_resources.shtm#1](http://www.fema.gov/paln/mitplanning/planning_resources.shtm#1)>.

FEMA. Multi-Hazard Identification and Risk Assessment (MHIRA), available online at <[http://www.fema.gov/plan/prevent/fhm/ft\\_mhira.shtm](http://www.fema.gov/plan/prevent/fhm/ft_mhira.shtm)>.

FEMA. State and Local Mitigation Planning How-to Guides (FEMA 386-1 through -8); available online at: <[http://www.fema.gov/plan/mitplanning/planning\\_resources.shtm#1](http://www.fema.gov/plan/mitplanning/planning_resources.shtm#1)>.

Forrest, S. 1998. *The Preservation of the Village: New Mexico's Hispanic and the New Deal*. University of New Mexico Press. Albuquerque, NM.

Hall, G.E. 1991. San Miguel del Bado and the Common Lands of New Mexico Land Grants. *N.M. Hist. Rev.* Albuquerque, NM. 66:4.

Hawley, J. W., 1986, Physiographic provinces; in Williams, J. L. (ed.), *New Mexico in maps*, 2nd edition: University of New Mexico Press, Albuquerque.

Hopkins, S.J. 2001. Special Water Quality Survey of the Pecos and Gallinas Rivers below the Viveash and Mauelitas Fires. Prepared for the Surveillance and Standards Section, Surface Water Quality Bureau. New Mexico Environment Department. Santa Fe, New Mexico. February.

Love, David. 2001. "What Decision Makers Should Know about Collapsible Soils in New Mexico" in Johnson, Peggy S. (editor) *Water, Watersheds and Land Use in New Mexico: Impacts of Population Growth on Natural Resources*, New Mexico Decision Makers Field Guide No. 1. p. 95. New Mexico Bureau of Mines and Mineral Resources. Albuquerque, New Mexico

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New Mexico Emergency Operation Center. 2007. New Mexico Situation Status (SIT/STAT) Summary. A-07-07 Winter Storm Number 5. Thursday January 18, 2007 to Monday January 22, 2007. Santa Fe, NM.

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Project Final Report. U.S. Geological Survey, Gap Analysis Program, Moscow, ID. 422 pp.

San Miguel County. 2004. San Miguel County Comprehensive Plan 2004–2014.

Western Institute for Study of the Environment. Fire Tracking. 2010 Tecolote Fire. Available online at <<http://westinstenv.org/firetrack/2010/06/14/tecolote-fire/>>.

Wong. I.G. 2009. Earthquakes in New Mexico in New Mexico Earth Matters. New Mexico Bureau of Geology and Mineral Resources. Socorro, NM. Fall.

## **L.2 Earthquake Resources**

<http://earthquake.usgs.gov/hazards/qfaults/>

[http://www.city-data.com/county/San\\_Miguel\\_County-NM.html#ixzz15fn71DW8](http://www.city-data.com/county/San_Miguel_County-NM.html#ixzz15fn71DW8)

[http://earthquake.usgs.gov/earthquakes/states/new\\_mexico/history.php](http://earthquake.usgs.gov/earthquakes/states/new_mexico/history.php)

HAZUS MH Estimated Annualized Earthquake Losses for the United States, FEMA 366, April 2008

## **L.3 General Mitigation Information**

*FEMA Mitigation Grant Programs* Provides an overview of the Pre-Disaster Mitigation (PDM) Program with links to other mitigation resources. Available at <<http://www.fema.gov/fima/mitgrant/shtm#pdm>>.

*National Flood Insurance Program* Provides information on the National Flood Insurance Program. Available at <<http://www.fema.gov/nfip/>>.

## **L.4 Regulatory Information**

*The Disaster Mitigation Act of 2000 (DMA2000)/Public Law 106-390 – October 30, 2000* PDF version available at <<http://www.fema.gov/library/viewRecord.do?id=1935>>.

*The Interim Final Rule – Federal Register Part III, 44 CFR Parts 201 and 206, “Hazard Mitigation Planning and Hazard Mitigation Grant Program”*

Published February 26, 2002. PDF version. Available at  
<[http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2002\\_register&docid=02-4321-filed.pdf](http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2002_register&docid=02-4321-filed.pdf)>.

## **L.5 Disasters and Natural Hazards Information**

### *FEMA – Understanding Your Risks*

Step-by-step guidance on completing a local risk assessment. Provides additional on-line resources. Available at <[http://www.fema.gov/fima/planning\\_toc3.shtm](http://www.fema.gov/fima/planning_toc3.shtm)>.

### *Natural Hazards Center, University of Colorado*

A “clearinghouse for information on natural hazards and human adjustments to hazards and disasters.” A comprehensive source for on-line publications and periodicals and the dissemination of information. Available at <<http://www.colorado.edu/hazards>>.

### *FEMA - How to Deal with Specific Hazards*

Provides links to various hazards and information about dealing with a variety of natural hazards. Available at <<http://www.fema.gov/hazards/>>.

### *National Oceanic and Atmospheric Administration (NOAA)*

Provides information on various projects and research the agency is engaged in. Good source for information on climate and weather. Available at <<http://www.websites.noaa.gov>>.

### *National Climatic Data Center*

“The world’s largest active archive of weather data.” Available at <<http://lwf.ncdc.noaa.gov/oa/ncdc.html>>.

## **L.6 Flood Related Hazards**

### *National Flood Insurance Program (NFIP)*

Available at <<http://www.fema.gov/nfip>>.

### *Digital Quality Level 3 Flood Maps*

Available at <<http://msc.fema.gov/MSD/statemap.htm>>.

### *Association of State Floodplain Managers*

Available at <<http://www.floods.org>>.

### *Massachusetts Coastal Zone Management*

Available at <<http://www.state.ma.us/czm>>.

### *New England Floodplain and Stormwater Managers Association*

Available at <<http://www.nefsma.org>>.

### *The Woods Hole Oceanographic Institution Sea Grant Program*

Available at <[www.whoi.edu/seagrant](http://www.whoi.edu/seagrant)>.

## **L.7 Wind-Related Hazards**

*ASCE Wind Speed Maps*

Available at <<http://www.ascepub.infor.com/windload.html>>.

*U.S. Wind Zone Maps*

Available at <[http://www.fema.gov/mit/bpat\\_tsfs.htm](http://www.fema.gov/mit/bpat_tsfs.htm)>.

*Tornado Project Online*

Available at <<http://www.fornadoproject.com>>.

*National Hurricane Center*

Available at <<http://www.nhc.noaa.gov>>.

*Community Hurricane Preparedness Tutorial*

Available at <<http://meted.ucar.edu/hurricane/chp/hp.htm>>.

## **L.8 Fire Related Hazards**

*FireWise*

Available at <<http://www.FireWise.org>>.

*NOAA Fire Event Satellite Photos*

Available at <<http://www.osei.noaa.gov/Events/Fires>>.

*U.S. Forest Service, USDA*

Available at <<http://www.fs.fed.us/land/wfas/welcome.htm>>.

*USGS Topographic Maps*

Available at <<http://www.mecmcweb.er.usgs.gov/topomaps>>.

## **L.9 Geologic Related Hazards**

*HAZUS*

Available at <<http://www.hazus.org>>.

*Building Seismic Safety Council*

Available at <<http://www.bsscononline.org>>.

*Earthquake hazard history by state*

Available at <<http://www.neic.cr.usgs.gov/neis/states/states.html>>.

*GIS Data Available on Earthquakes*

Available at <<http://geohazards.cr.usgs.gov/eq/html/genmap.html>>.

*USGS Earthquake Homepage*

Available at <<http://quake.wr.usgs.gov>>.



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*U.S. Geological Survey's Landslide Risk Areas*

Available at <[http://landslides.usgs.gov/html\\_files/landslides/nationalmap/national.html?](http://landslides.usgs.gov/html_files/landslides/nationalmap/national.html?)>.

## **L.10 Determining Risk and Vulnerability**

*Vulnerability Assessment Tutorial*

On-line tutorial developed by the National Oceanic and Atmospheric Administration (NOAA) with step-by-step instructions on how to complete a local risk and vulnerability assessment. Available at <<http://www.csc.noaa.gov/products/nchaz/htm/mitigate.htm>>.

*Case Study: An example of a completed risk and vulnerability assessment*

Available at <<http://www.csc.noaa.gov/products/nchaz/htm/case.htm>>.

## **L.11 Mapping the Hazards – Geographic Information Systems (GIS) and Mapping**

*The Multi-Hazard Mapping Initiative (MMI)*

The MMI Provides “A living atlas of hazards data and map services for advisory purposes supplied from a network of hazard and base map providers.” An initiative of FEMA and the National Oceanic and Atmospheric Administration (NOAA), this site provides users with a search engine for finding hazards data specific to their areas of location. Data includes maps addressing flood, earthquake, windstorms, etc. Available at <<http://www.HazardMaps.gov>>.

*The National Spatial Data Infrastructure & Clearinghouse (NSDI) and Federal Geographic Data Committee (FGDC)*

Source for information on producing and sharing geographic data. Available at <<http://www.fgdc.gov>>.

*The OpenGIS Consortium*

Industry source for developing standards and specifications for GIS data. Available at <<http://www.opengis.org>>.

*Federal Insurance and Mitigation Administration (FIMA)*

Provides information on the Federal Insurance and Mitigation Administration. Lists links to additional resources. Available at <<http://www.fema.gov/fima>>.

*Community Rating System (CRS)*

Summarizes the Federal Community Rating System. Available at <<http://www.fema.gov/nfip/crs.htm>>.

## **L.12 Other On-line Publications**

*FEMA's DMA 2000, State & Local Plan Interim Criteria Mitigation Planning Workshop for Local Governments.* Available at <[http://www.fema.gov/fima/planning\\_toc4.shtm](http://www.fema.gov/fima/planning_toc4.shtm)>.

*FEMA's Understanding Your Community's Risks: Identifying Hazards, And Determining Risks.*

Available at <[http://www.fema.gov/fima/planning\\_toc3.shtm](http://www.fema.gov/fima/planning_toc3.shtm)>.

## L.13 Federal Resources

*Federal Emergency Management Agency, Region 6 Office.* Available at <[www.fema.gov](http://www.fema.gov)>.

- **Mitigation Division:** Administers National Flood Insurance Program and Community Rating System; prepares and revises flood insurance studies and maps; information on past and current acquisition, relocation and retrofitting programs; expertise in other natural and technological hazards, including hurricanes, earthquakes and hazardous materials. Financial assistance includes Hazard Mitigation Grant Program (post-disaster), Flood Mitigation Assistance Program (pre- and post-flood), Hurricane Property Protection Grants (pre-disaster) and training for local officials at Emergency Management Institute in Emmetsburg, Maryland.
- **Response and Recovery Division:** Information on dollar amounts of past disaster assistance, including Public Assistance, Individual Assistance and Temporary Housing; information on retrofitting and acquisition/relocation initiatives. Coordinates federal disaster assistance programs, including 75 percent grants for mitigation projects to protect eligible damaged public, private and nonprofit facilities from future damage through the Public Assistance Program, and 100 percent “minimization” grants through the Individual and Family Grant Program and/or Home Repair Grants.

### *Computer Sciences Corporation*

Corporate Headquarters  
2100 East Grand Avenue  
El Segundo, CA 90245  
Tel: (310) 615-0311  
Website: [www.csc.com](http://www.csc.com)

- A private company contracted by the Federal Insurance Administration as the National Flood Insurance Program Statistical Agent, CSC provides information and assistance on flood insurance, including handling policy and claims questions, and providing workshops to lenders, insurance agents and communities.

### *U.S. Army Corps of Engineers*

New England Division  
696 Virginia Road  
Concord, MA 01742-2751  
Chief, Special Studies Branch: John Kennelly  
Tel: (978) 318-8505/Fax: (978) 318-8080  
Website: [www.nae.usace.army.mil](http://www.nae.usace.army.mil)

- Provides 100 percent funding for floodplain management planning and technical assistance under the Floodplain Management Services (FPMS) program and on a 50/50 matching basis for other water resources issues under the Section 22 Planning Assistance to States program. Various flood protection measures such as beach re-nourishment, stream clearance and snagging projects, floodproofing and flood preparedness funded through other programs.

### *Department of Agriculture*

Natural Resources Conservation Service

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451 West Street  
Amherst, MA 01002  
Tel: (413) 253-4350  
Website: [www.nrcs.usda.gov](http://www.nrcs.usda.gov)

- Technical assistance to individual land owners, groups of landowners, communities, and soil and water conservation districts on land-use and conservation planning, resource development, stormwater management, flood prevention, erosion control and sediment reduction, detailed soil surveys, watershed/river-basin planning, and recreation, fish and wildlife management. Financial assistance is available to reduce flood damage in small watersheds and to improve water quality. See Local Conservation District listing under “State Resources” heading.

*Rural Economic and Community Development*

451 West Street, Suite 2  
Amherst, MA 01002  
Tel: (413) 253-4300  
Website: [www.rurdev.usda.gov](http://www.rurdev.usda.gov)

- Technical assistance to rural areas and smaller communities in rural areas on financing public works projects; can purchase local bond issues to help obtain lower interest rates.

*Farm Service Agency*

445 West Street  
Amherst, MA 01002  
Tel: (413) 253-4500  
Website: [www.fsa.usda.gov](http://www.fsa.usda.gov)

- Manages the Wetlands Reserve Program (useful in open space or acquisition projects by purchasing easements on wetlands properties) and farmland set aside programs. Can also cost-share on wetlands restoration projects (good for flood control, stormwater management and water quality).

*Department of Commerce*

National Weather Service  
Forecast Office  
445 Myles Standish Blvd.  
Taunton, MA 02780  
Tel: (508) 823-2262/Fax: (508) 823-2321  
Website: [www.weather.gov](http://www.weather.gov)

- Prepares and issues flood, severe weather and coastal storm warnings. Staff hydrologists can work with communities on flood warning issues; can give technical assistance in preparing flood-warning plans.

*Economic Development Administration (EDA)*

Regional Office  
Curtis Center, Suite 140 South  
Independence Square West

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Philadelphia, PA 19106-3821  
Tel: (215) 597-4603/Fax: (215) 597-6669  
Website: [www.osec.doc.gov/eda/default.htm](http://www.osec.doc.gov/eda/default.htm)

- Assists communities with technical assistance for economic development planning. Following disasters funding is sometimes available for programs designed to assist in the long-term economic recovery of the affected area; can include relocation and redevelopment of hazard prone businesses to a safer location.

*Department of the Interior*  
National Park Service  
Rivers and Trails Conservation Assistance  
Regional Office  
15 State Street  
Boston, MA 02109  
Tel: (617) 223-5203  
Website: [www.nps.gov](http://www.nps.gov)

- Technical assistance with open space preservation planning; can help facilitate meetings and identify non-structural options for floodplain redevelopment.

*Fish and Wildlife Services*  
Regional Office  
300 Westgate Center Drive  
Hadley, MA 01035  
Tel: (413) 253-8200  
Website: [www.fws.gov](http://www.fws.gov)

Can provide technical and financial assistance to restore wetlands and riparian habitats through the North American Wetland Conservation Fund and the Partners for Wildlife programs.

*Small Business Administration*  
Disaster Area 1 Office  
360 Rainbow Boulevard South, 3rd Floor  
Niagara Falls, NY 14303  
Disaster Area Director: William Leggiero  
(800) 659-2955  
Website: [www.sba.gov/disaster](http://www.sba.gov/disaster)

- SBA has the authority to “declare” disaster areas following disasters that affect a significant number of homes and businesses, but that would not need additional assistance through FEMA. (SBA is triggered by a FEMA declaration, however.) SBA can provide additional low-interest funds (up to 20 percent above what an eligible applicant would “normally” qualify for) to install mitigation measures. They can also loan the cost of bringing a damaged property up to state or local code requirements. Can be used in combination with the new “mitigation insurance” under the NFIP, or in lieu of that coverage.

*Environmental Protection Agency*  
Region 1

*2014 San Miguel County Hazard Mitigation Plan*  
*Appendix L: Reference Documents and Materials*

1 Congress Street, Suite 1100  
Boston, MA 02114  
Tel: (888) 372-7341  
Website: [www.epa.gov](http://www.epa.gov)

- *Capitalization Grants for State Revolving Funds*  
Low interest loans to governments to repair, replace or relocate wastewater treatment plants damaged in floods. Does not apply to drinking water or other utilities.
- *Clean Water Act Section 319 Grants*  
Cost-share grants to state agencies that can be used for funding watershed resource restoration activities, including wetlands and other aquatic habitat (riparian zones). Only those activities that control nonpoint pollution are eligible.
- *Wetlands Protection – State Development Grants*  
Grants for states and federally recognized Indian Tribes to develop and enhance wetland protection programs. Projects must demonstrate a direct link to increasing a state's ability to protect wetland resources. (Funds can be used for identification of, but not purchase of, flood easements.)

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2014 San Miguel County Hazard Mitigation Plan  
 Appendix M: Multi-Jurisdiction Participation Summary

1 **APPENDIX M: Multi-Jurisdiction Participation Summary**

| #  | Jurisdiction Name         | Jurisdiction Type     | Plan POC                 | Mailing Address                                    | Email                             | 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 Requirements |
| 1  | San Miguel County         | County                | Dennis English           | 518 Valencia St Suite 102<br>Las Vegas NM 87701    | denglish@smcounty.net             | ✓                      | ✓  | ✓                      | ✓   | ✓                | ✓                     |
| 2  | City of Las Vegas         | City                  | Ken Garcia               | 905 12th Street<br>Las Vegas NM 87701              | kgarcia@ci.las-vegas.nm.us        | ✓                      | ✓  | ✓                      | ✓   | ✓                | ✓                     |
| 3  | Village of Pecos          | Village               | Arthur Varela            | 92 S Main Street<br>Pecos NM 87552                 | art@villageofpecos.com            | ✓                      | ✓  | ✓                      | ✓   | ✓                | ✓                     |
| 4  | NM Highlands University   | School                | James Fries              | Box 9000<br>Las Vegas NM 87701                     | president_office@nmhu.edu         | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 5  | Luna Community College    | School                | Pete Campos              | 366 Luna Drive<br>Las Vegas NM 87701               | PCampos@luna.edu                  | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 6  | City of Las Vegas Schools | School System         | Sheryl McNellis-Martinez | 901 Douglas Ave<br>Las Vegas NM 87701              | LVCS@cybercardinal.com            | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 7  | West Las Vegas Schools    | School System         | Gene Parsons             | 179 Bridge Street<br>Las Vegas NM 87701            | gene_parson@wlvs.k12.nm.us        | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 8  | Pecos Schools             | School System         | Fred Trujillo            | PO Box 368<br>Pecos NM 87552                       | ftrujillo@pecos.k12.nm.us         | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 9  | United World College      | School                | Lauren Ogden             | State Route 65<br>PO Box 248<br>Montezuma NM 87731 | lauren.ogden@uwc-usa.org          | ✓                      |  |                        |   |                  |                       |
| 10 | Harding County            | Neighboring Community | Vanita Menapace          | 35 Pine St<br>Mosquero NM 87733                    | hardingcocomm@plateautel.net      | ✓                      |  |                        |   |                  |                       |
| 11 | Santa Fe County           | Neighboring Community | Katherine Miller         | 102 Grant Ave<br>Santa Fe NM 87504                 | countymanager@santafecountynm.gov | ✓                      |  |                        |   |                  |                       |

2014 San Miguel County Hazard Mitigation Plan  
Appendix M: Multi-Jurisdiction Participation Summary

| #  | Jurisdiction Name | Jurisdiction Type     | Plan POC         | Mailing Address  | Email                              | 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 Requirements |
| 12 | Quay County       | Neighboring Community | Richard Primrose | 300 S 3rd St<br>Tucumcari NM 88433   | richard.primrose@quaycounty-nm.gov | ✓                      |  |                        |   |                  |                       |
| 13 | Mora County       | Neighboring Community | Roger Gonzales   | 518 Main St<br>Mora NM 87732   | rgonzales@countyofmora.com         | ✓                      |  |                        |   |                  |                       |
| 14 | NMDHSEM           | State Government      | Wendy Blackwell  | PO Box 27111<br>Santa Fe NM 87502  | Wendy.Blackwell@state.nm.us        | ✓                      | ✓  | ✓                      | ✓   | ✓                | ✓                     |
| 15 | OSE               | State Government      | Richard Trujillo | Office of the State Engineer<br>130 South Capitol Street<br>Conchas Ortiz & Pino Building<br>PO Box 25102<br>Santa Fe NM 87504 | richard.trujillo123@state.nm.us    | ✓                      | ✓  |                        |   |                  |                       |
| 16 | NMSP              | State Government      | Tommy Hooper     | 520 S. Commerce<br>Las Vegas NM 87701  | tommy.hooper@state.nm.us           | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 17 | NMBHI             | State Government      | Troy D. Jones    | 3695 Hot Springs Blvd<br>Las Vegas NM 87701  | troy.jones@state.nm.us             | ✓                      | ✓  | ✓                      |   |                  |                       |
| 18 | EMNRD             | State Government      | Carmelita Austin | 53 Storrie Lake Dr<br>Las Vegas NM 87701   | CarmelitaM.Austin@state.nm.us      | ✓                      | ✓  | ✓                      |   |                  |                       |
| 19 | NMDOT             | State Government      | Kenny Lujan      | South HWY 85 PO Box 10<br>Las Vegas NM 87701   | Kenny.Lujan@state.nm.us            | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 20 | Storrie Lake      | State                 | Stephen Coca     | HC33 PO Box109#2<br>1190 S St Francis Dr N<br>Santa Fe NM 87504  | stephen.coca@state.nm.us           | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 21 | DOH               | State                 | Dante Halleck    | 605 Lefrao St<br>Santa Fe NM 87505   | Dante.Halleck@state.nm.us          | ✓                      | ✓  | ✓                      | ✓   |                  |                       |



2014 San Miguel County Hazard Mitigation Plan  
Appendix M: Multi-Jurisdiction Participation Summary

| #  | Jurisdiction Name                                 | Jurisdiction Type  | Plan POC          | Mailing Address   | Email                            | 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 Requirements |
| 22 | USACE   | Federal Government | Steve Peterson    | PO Box 1008<br>201 Bell Ranch Road<br>Conchas Dam NM<br>88416 | steven.d.peterson@usace.army.mil | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 23 | EL Valle Water                                    | Water Association  | Ramon Lucero      | 2501 West Zia RD<br>Santa Fe, NM 87505-5763                   | ramon.lucero@soudermiller.com    | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 24 | Storrie Project                                   | Water Association  | Robert Quintana   | RT 1 Box 400<br>Las Vegas NM 87701                            | quintanafarms@msn.com            | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 25 | Rio Gallinas Acequias                             | Water Association  | William Gonzales  | 4000 8th Street<br>Las Vegas NM 87701                         | wilogonzales@yahoo.com           | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 26 | Pecos/LV  | Federal Agency     | Steve Romero      | 1926 N 7th Street   | sfromero@fs.fed.us               | ✓                      |  |                        |   |                  |                       |
| 27 | Ranger District National Forest Wildlife Refuge   | Federal Agency     | Rob Larranaga     | Northern NM National Wild Life Refuge Complex<br>Rt 1 Box 399 | rob_larranaga@fws.gov            | ✓ü                     |  |                        |   |                  |                       |
| 28 | Optic Newspaper                                   | NGO                | Tom McDonald      | 614 Lincoln Street<br>Las Vegas NM 87701                      | tmcdonald@lasvegasoptic.com      | ✓                      | ✓  |                        | ✓   |                  |                       |
| 29 | American Red Cross                                | NGO                | Connie Chavez     | 2109 8th Street<br>Las Vegas NM 87701                         | conniec@desertgate.com           | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 30 | LV/SMC Economic Development/ Chambers of Commerce | NGO                | Lavinia Fenzi     | 1224 Raild Road<br>Las Vegas NM 87701                         | lavinia.fenzi@yahoo.com          | ✓                      | ✓  | ✓                      | ✓   |                  |                       |
| 31 | Historic Society                                  | NGO                | Jeannie McKinnley | 727 Grand Ave<br>Las Vegas NM 87701                           | historic@cybermesa.com           | ✓                      | ✓  | ✓                      | ✓   |                  |                       |

2014 San Miguel County Hazard Mitigation Plan  
 Appendix M: Multi-Jurisdiction Participation Summary

| #  | Jurisdiction Name            | Jurisdiction Type | Plan POC        | Mailing Address                        | Email                    | 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 Requirements |
| 32 | Alta Vista Regional Hospital | NGO               | Kathleen Cahill | 104 Legion Drive<br>Las Vegas NM 87701 | Kathleen_Cahill3@chs.net | ✓                      | ✓  | ✓                      | ✓   |                  |                       |

1

## APPENDIX N: Public and Stakeholder Draft Comments

### 2014 San Miguel County Hazard Mitigation Plan Stakeholder Comment Form

Reviewer Name: Dennis English

Reviewer Phone Number/email: 505-425-6190 denglish@smcounty.net

| Page # | Line # | Table or Figure # | Notes   |
|--------|--------|-------------------|---|
| 124    | 8      |                   | You state 2 hospitals with 472 beds. I know of one in Las Vegas (Alta Vista Regional) but the one in Pecos NM is the Pecos Medical center if you are referring to that jurisdiction.  |
| 124    | 9      |                   | We have 12 full time volunteer fire stations in San Miguel and 2 Fire stations in the Las Vegas City limits that totals 14  |
| 127    | 5-9    | Table 6.3.1-2     | Everything that reads Montezuma Volunteer Fire should read La Placita Volunteer Fire Dept.  |
| 128    | 1      | Table 6.3.1-2     | Change Manager's Office to Administrative Annex building  |
| 129    | 3      | Table 6.3.2-2     | Airport address 910 Airport Rd.   |
| 129    | 3      | Table 6.3.2-2     | Meadow City Transportation address 500 Railroad Ave.  |
| 129    | 3      | Table 6.3.2-2     | Pecos Senior Center address 76 Camino Rael Pecos NM 87552   |
| 129    | 3      | Table 6.3.2-2     | San Miguel Senior Center should be changed to Ribera Senior Center address State Hwy 3 Ribera NM 87560  |
| 129    | 3      | Table 6.3.2-2     | Las Vegas Senior center address is 500 Sabino Street  |
| 133    | 2      |                   | Under the Summary Vulnerability I read nothing of the state declared disasters that occurred. I put a share file in the Mitigation Data file for floods which has all the executive orders there. Is this not included in this section? |
| 135    | 15     |                   | 6.6.4 Identified Data Limitations Do you have suggestions or references where you can obtain such data for the next up-date.  |
| 138    | 32     |                   | 6.9.3 Estimate of Potential losses; Why is there no mention of the previous data within the mitigation data we sent you on describing the state disasters that had previously occurred under the governor executive orders?             |
| 141    | 11-12  |                   | We have 12 activate fire stations and ( ) sub-stations and ( ) sub-stations in the planning stages for the county and 2 active stations in the City of Las Vegas  |

2014 San Miguel County Hazard Mitigation Plan  
 Appendix N: Public and Stakeholder Draft Comments

|     |      |               |   |
|-----|------|---------------|---|
| 151 | 18   | Table 7.5.1-1 | I see a lot of plans that need to be added to the City of Las Vegas they do have the following plans, Capital Improvement, Economic Development, Local Emergency Operation Plan, Continuity of Operation, and Transportation plan |
| 154 | 2    | Table 7.5.2-1 | City of Las Vegas is part of the Mitigation Planning Committee. They do have an Emergency Manager and community planner   |
| 157 | 2    | Table 7.5.4-1 | City of Las Vegas has the same three sections that were X'd for the county  |
| 219 | 27   |               | Let's change the title of OEM director to the Emergency Manager throughout section 9.2 Method for monitoring the plan   |
| 221 | 5-11 |               | This is our very first plan   |

**2014 San Miguel County Hazard Mitigation Plan**  
 Stakeholder Comment Form

Reviewer Name: Dennis English  
 Reviewer Phone Number/email: 505-425-6190 denglish@smcounty.net

| Page # | Line # | Table or Figure # | Notes   |
|--------|--------|-------------------|---|
| 124    |        | Table 6.3.1-2     | Change San Miguel County to San Miguel County Administration building   |
| 125    |        | Table 6.3.1-2     | Change SMC Courthouse to 4 <sup>th</sup> Judicial District, District Attorney address is 1800 New Mexico Ave.   |
| 125    |        | Table 6.3.1-2     | Change SMC Courthouse to 4 <sup>th</sup> Judicial District Court and make the second box just say District Courthouse address is 496 W. National Ave. |
| 128    |        | Table 6.3.1-2     | Change the Administrative Annex Building to San Miguel County Annex Building. Drop the Administrative wording   |

**2014 San Miguel County Hazard Mitigation Plan**  
 Stakeholder Comment Form

Reviewer Name: Dale R. Wagoner  
 Reviewer Phone Number/email: (505) 425-6771//dale.wagoner@state.nm.us

| Page # | Line # | Table or Figure # | Notes  |
|--------|--------|-------------------|--|
| i      | 40     | State of NM       | Please change to read New Mexico State Police instead of New Mexico State Patrol |

2014 San Miguel County Hazard Mitigation Plan  
 Appendix N: Public and Stakeholder Draft Comments

|     |  |   |
|-----|--|---|
| D-4 | Appendix D:<br>Meetings Notes<br>and Attendance<br>Rosters | Please change to read New Mexico State Police instead of New Mexico State Patrol by Christopher Blake's name. |
|-----|--|---|

**2014 San Miguel County Hazard Mitigation Plan**  
 Stakeholder Comment Form

Reviewer Name: Rob Larrañaga, Storrie Project Water Users Association Board Member

Reviewer Phone Number/email: 505-425-3581 ext. 201 rob\_larranaga@fws.gov

| Page # | Line # | Table or Figure #  | Notes   |
|--------|--------|--|---|
| 35     | 10     | 5.1.2 Significant Past Occurrences   | <p>Add to this section to capture the delivery system to Storrie Lake Reservoir (Intermediate size dam of 22,000 acre feet) which provides water supply for domestic, agricultural, wildlife, and recreational/community use; in addition to flood control. The September 13, 2014 (DR-4152) flood event caused considerable damage to the headgates structure on the Storrie Project Water Users Association (SPWUA) main delivery canal to Storrie Lake Reservoir, off of the Gallinas River.</p> <p>The SPWUA is a private non-profit association that serves 50 shareholders and currently stores over 50% of the water supply for the City of Las Vegas. The headgates control the water being diverted into the canal thus managing the amount of water that flows downstream into Las Vegas and the surrounding communities along the Gallinas River. The need to control the flow in the canal to facilitate the repair to the September 13, 2014 flood caused breach prompted the use of heavy equipment to close the headgates, thus causing further damage to the gates and railing system. Preliminary estimates to replace the gates and upgrade the diversion structure are \$900,000.00.</p> |
| 165    | 22     | 8.3 Mitigation Goals & Objectives: 3. Reduce vulnerability of major infrastructure | Objective 3.2, calling for the promotion of partnerships between jurisdictions is an excellent idea as potential funding opportunities could be enhanced. The private non-profit SPWUA is limited in capital improvement project funds and would not be able to finance the improvements to the headgates within their budget.  |

2014 San Miguel County Hazard Mitigation Plan  
 Appendix N: Public and Stakeholder Draft Comments

|     |   |   |  |
|-----|---|---|--|
| 169 |   | Table 8.4-1,<br>Goal/Objective<br>/Action ID# 2.3.1 | <p><b>2.3.1=Re-design and construction of the diversion gates to handle increase water flows during floods or heavy rain events.</b> The installation of remotely manageable, automated Langemann (or comparable) headgates would eliminate the safety concerns associated with the current antiquated, original headgates. Preliminary estimates to replace the gates and upgrade the diversion structure are \$900,000.00.</p> |
| 37  | 5 |   | <p>The statement is not true as recreation is allowed at Storrie Lake Reservoir, and managed by the New Mexico State Parks Department.</p>   |

## APPENDIX O: FEMA Plan Review Tool

### FEMA Courtesy Review of Chapters 1-5:

## 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 the 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*.

|   |   |                                      |
|---|---|--------------------------------------|
| <b>Jurisdiction:</b><br>San Miguel County               | <b>Title of Plan:</b><br>2014 San Miguel County Hazard Mitigation Plan          | <b>Date of Plan:</b><br>May 22, 2014 |
| <b>Local Point of Contact:</b><br>Dennis English        | <b>Address:</b><br>518 Valencia Street, Ste. 102<br>Las Vegas, New Mexico 87701 |                                      |
| <b>Title:</b><br>Emergency Manager                      |   |                                      |
| <b>Agency:</b><br>SMC/LV Office of Emergency Management |   |                                      |
| <b>Phone Number:</b><br>(505) 426-3034                  | <b>E-Mail:</b><br>denglish@smcounty.net   |                                      |

|                        |               |              |
|------------------------|---------------|--------------|
| <b>State Reviewer:</b> | <b>Title:</b> | <b>Date:</b> |
|                        |               |              |

2014 San Miguel County Hazard Mitigation Plan  
 Appendix O: FEMA Plan Review Tool

|  |                                       |                                |
|--|---------------------------------------|--------------------------------|
| <b>FEMA Reviewer:</b><br>Cheryl Copeland | <b>Title:</b><br>HM Community Planner | <b>Date:</b><br>March 12, 2014 |
| <b>Date Received in FEMA Region VI</b>   |                                       |                                |
| <b>Plan Not Approved</b>                 |                                       |                                |
| <b>Plan Approvable Pending Adoption</b>  |                                       |                                |
| <b>Plan Approved</b>                     |                                       |                                |

**SECTION 1:**

**REGULATION CHECKLIST**

| <b>1. REGULATION CHECKLIST</b>  | <b>Location in Plan</b>  | <b>Met</b> | <b>Not Met</b> |
|---|--|------------|----------------|
| <b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>   | <b>(section and/or</b>   |            |                |
| <b>ELEMENT A. PLANNING PROCESS</b>  |  |            |                |
| 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))  | Acknowledgements, p.i<br>Appendix M<br>Sec 3.3 and 3.4, p12-14         | Y          |                |
| 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)) | Sec 3.2, p11<br>Sec 3.3, p12<br>Appendix D<br>Appendix E<br>Appendix M | Y          |                |
| A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))  | Sec 3.7, p14-15<br>Appendix F  | Y          |                |
| A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))  | Sec. 3.8 – p15-16  | Y          |                |



*2014 San Miguel County Hazard Mitigation Plan  
Appendix O: FEMA Plan Review Tool*

| <b>1. REGULATION CHECKLIST</b><br><b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>   | <b>Location in Plan</b><br>(section and/or | <b>Met</b> | <b>Not Met</b> |
|---|--|------------|----------------|
| A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))   | Sec 9 .7 – p224-225                        | Y          |                |
| 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)) | Sec 9 – p220-225                           | Y          |                |

**ELEMENT A: REQUIRED REVISIONS**

A.1 The plan **must** document who was involved in the planning process for each jurisdiction, including the schedule or timeframe and activities that made up the plan's development. The Planning Process section of the plan references the MPG (p. 9, line 17), the Planning team (p. 9, line 38) and Project Team (p.10, line 33). Are these references, 3 different groups? The Plan identifies the type of people or entities involved in the planning process (p.9, line 28-31) but not by name, title and jurisdiction represented. Local Mitigation Planning Handbook, 2-6 states "Multi-jurisdictional plans **must** identify who represented each jurisdiction, including the person's position or title and agency".

Statements clarified om Sections 3.2-3.4, and also addressed through the "Acknowledgements" (p.i) and in Appendix M

A.2 The plan **must** identify stakeholders who were involved or given an opportunity to be involved in the planning process, including the agency/organization and the person's position or title within the agency. Reference is made throughout Section 2 and 3 but: Who did you invite? How were they involved? Did they come to the meetings, did they provide written comments? Are they documented on the meeting sign-in sheet? Local Mitigation Planning Handbook, pages 2-2 and 3-1 & 2 states: "You **must** invite stakeholder participation from neighboring communities that are not part of the planning area...". (This information may be located in Appendix C which has not been submitted to FEMA for courtesy review.)

Clarified in 3.1 and 3.2, and itemized in Appendices D, E, and M.

A.3 The plan **must** document how the public was given the opportunity to be involved in the planning process and how their feedback was incorporated into the plan. Was the survey available to the non-internet public? No documentation of public notices or dates and time of public comment periods. Also, how the public comment period was conducted. (p.12, line 1) (Appendix D?)

Additional language added to 3.7 to detail opportunities and how they were conducted. Appendix F includes all survey results.

A.4 The plan **must** document **what** existing plans, studies, reports, and technical information were reviewed. Plan states project team "reviewed various existing plans". (p.13, line 1) Documentation of which plans, studies, reports and technical information were reviewed and/or incorporated were not included in section submitted to FEMA for courtesy review.

Related plans and reports were added as bullet items in 3.8, p15-16

A.5 Not included in sections submitted to FEMA for courtesy review.

See 9.7, page 224-225

A.6 The plan **must** identify how, when, and by whom the plan will be **monitored, evaluated** and **updated**. The plan **must** include the title of the individual or name of the department/ agency responsible for leading **each** of these efforts. Mentioned on page 2 but not included in sections submitted to FEMA for courtesy review.

See Section 9, p220-225

**ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT**

2014 San Miguel County Hazard Mitigation Plan  
Appendix O: FEMA Plan Review Tool

| <b>1. REGULATION CHECKLIST</b>   |  | <b>Location in Plan</b>                              | <b>Met</b> | <b>Not Met</b> |
|--|--|--|------------|----------------|
| <b>Regulation</b> (44 CFR 201.6 Local Mitigation Plans)  |  | <b>(section and/or</b>                               |            |                |
| 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))   |  | Sec. 5.11-5.18, p34-121                              | Y          |                |
| 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))   |  | Sec. 5.1-5.18 p34-121                                | Y          |                |
| 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))  |  | Table 5-3<br>Sec. 5.1-5.18<br>Sec 6.1-6.11, p123-147 | Y          |                |
| B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))  |  | Sec 5.6.3, p66-68<br>Sec 6.6.1, p135-138             | Y          |                |
| <b>ELEMENT B: REQUIRED REVISIONS</b>   |  |  |            |                |
| <p>B3. Required: The plan <b>must</b> provide an overall summary of each jurisdiction’s vulnerability to the identified hazards. The overall summary of vulnerability identifies structures, systems, populations or other community assets as defined by the community that are susceptible to damage and loss from hazard events.</p> <p><b>See Section 6.1-6.11, p123-147</b></p> <p>B4. Required: Sentence stating how many, if any, insured structures are repetitive or severe repetitive loss. If none, state there are no repetitive or severe repetitive loss structures in San Miguel County.</p> <p><b>See Section 6.6.1 p135-138</b></p> |  |  |            |                |
| <b>ELEMENT C. MITIGATION STRATEGY</b>  |  |  |            |                |
| 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))  |  | Sec 7.5. p152-161                                    |            |                |
| 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))  |  | Sec 7.6, p163-164                                    |            |                |
| C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))   |  | Sec 8.3 p166-167                                     |            |                |
| 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))   |  | Sec 8.4, Tables 8.4-1 through 8.4-3, p168-216        |            |                |

2014 San Miguel County Hazard Mitigation Plan  
Appendix O: FEMA Plan Review Tool

| 1. REGULATION CHECKLIST<br>Regulation (44 CFR 201.6 Local Mitigation Plans)   | Location in Plan<br>(section and/or   | Met | Not Met |
|---|---|-----|---------|
| 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)) | Sec 8.2, p165-166<br><br>Sec 8.4, Tables 8.4-1 through 8.4-3, p168-216<br><br>Appendix G, Mitigation Ranking Worksheets |     |         |
| 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)) | Sec 9.5, p223-224   |     |         |
| <b>ELEMENT C: REQUIRED REVISIONS</b>  |   |     |         |
| <b>ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION</b> (applicable to plan updates only)   |   |     |         |
| D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))  | N/A   |     |         |
| D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))  | N/A   |     |         |
| D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))   | N/A   |     |         |
| <b>ELEMENT D: REQUIRED REVISIONS</b>  |   |     |         |
| <b>ELEMENT E. PLAN ADOPTION</b>   |   |     |         |
| 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))   | The plan will not be locally adopted until it is approved pending adoption (APA) by FEMA                                |     | X       |
| E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))   | The plan will not be locally adopted until it is approved pending adoption (APA) by FEMA                                |     | X       |

2014 San Miguel County Hazard Mitigation Plan  
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| <b>1. REGULATION CHECKLIST</b>   |  | <b>Location in Plan</b> | <b>Met</b> | <b>Not Met</b> |
|--|--|-------------------------|------------|----------------|
| <b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>  |  | <b>(section and/or</b>  |            |                |
| <b><u>ELEMENT E: REQUIRED REVISIONS</u></b>  |  |                         |            |                |
| <b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)</b> |  |                         |            |                |
| F1.  |  |                         |            |                |
| F2.  |  |                         |            |                |
| <b><u>ELEMENT F: REQUIRED REVISIONS</u></b>  |  |                         |            |                |

## SECTION 2:

### PLAN ASSESSMENT

#### 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

The planning process was well documented throughout the first 4 sections of the plan. The HMP identifies the type of people or entities involved in the planning process (p.9, line 28-31) but not by name, title and jurisdiction represented.

A1: Recommendation: Include a matrix of names, titles and jurisdiction they represent.

A1: Recommendation: A matrix works well to document how participating jurisdictions were involved in the planning process, with a check mark for meetings and activities the jurisdictions attended.

A2: Recommendation: A table would work well to identify stakeholders who were involved or given an opportunity to be involved in the planning process, including the agency/organization and the person's position or title within the agency.

A4: Recommendation: Again, using a table to list existing plans, studies, reports and data to help inform the mitigation and which help to identify the existing capabilities and planning mechanisms to implement the mitigation strategy.

##### Element B: Hazard Identification and Risk Assessment

B1. Recommendation: If the MPG feels the hazard isn't prevalent in San Miguel County, you might choose to narrow the list of hazards profiled (expansive soils, landslide, levee failure (may address in future). You can acknowledge they occur at the beginning of the Hazard Profile section but for example state: These hazards may be possible, but the likelihood and magnitude are so minimal that the planning team decides not to provide a detailed description or risk assessment. If you profile the hazard in your risk assessment, you must address this hazard in your mitigation strategy and identify at least two mitigations projects for each jurisdiction. See Local Mitigation Handbook, Task 5, p. 5-3 Task 6, p.6-3

B3. The hazard impact matrix, Table 5-3, does a good job of ranking the consequence or effect of the hazard on the community and its assets. The intent of this element is to consider, for each jurisdiction, not only the potential impacts of future hazard events but also, to identify the vulnerabilities that could be reduced through hazard mitigation actions. Recommendation: Map the critical facilities located in the Wildlife Urban Interface, Special Flood Hazard Areas and other hazards where appropriate.

B3. A Dam Inundation Map for high hazard dams is reference in Sec. 5.1.4.1, 5.1.4.2 & 5.1.4.3 but not included in the section.

B4. The plan describes repetitive loss but does not state if the county and participating jurisdictions have any repetitive loss properties. If none, must be stated. Just add a sentence after definition.

## LOCAL MITIGATION PLAN REVIEW TOOL

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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 the 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*.

|   |   |                                      |
|---|---|--------------------------------------|
| <b>Jurisdiction:</b><br>San Miguel County               | <b>Title of Plan:</b><br>2014 San Miguel County Hazard Mitigation Plan          | <b>Date of Plan:</b><br>May 22, 2014 |
| <b>Local Point of Contact:</b><br>Dennis English        | <b>Address:</b><br>518 Valencia Street, Ste. 102<br>Las Vegas, New Mexico 87701 |                                      |
| <b>Title:</b><br>Emergency Manager                      |   |                                      |
| <b>Agency:</b><br>SMC/LV Office of Emergency Management |   |                                      |
| <b>Phone Number:</b><br>(505) 426-3034                  | <b>E-Mail:</b><br>denglish@smcounty.net   |                                      |

|                        |               |              |
|------------------------|---------------|--------------|
| <b>State Reviewer:</b> | <b>Title:</b> | <b>Date:</b> |
| <b>FEMA Reviewer:</b>  | <b>Title:</b> | <b>Date:</b> |

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|   |  |
|---|--|
| <b>Date Received in FEMA Region VI</b>  |  |
| <b>Plan Not Approved</b>                |  |
| <b>Plan Approvable Pending Adoption</b> |  |
| <b>Plan Approved</b>                    |  |



**SECTION 1:**

**REGULATION CHECKLIST**

| <b>1. REGULATION CHECKLIST</b>  | <b>Location in Plan</b>  | <b>Met</b> | <b>Not Met</b> |
|---|--|------------|----------------|
| <b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>   | <b>(section and/or</b>   |            |                |
| <b>ELEMENT A. PLANNING PROCESS</b>  |  |            |                |
| 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))  | Acknowledgements, p.i<br>Sec 3.3 and 3.4, p12-13<br>Appendix M         | 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)) | Sec 3.2, p11<br>Sec 3.3, p12<br>Appendix D<br>Appendix E<br>Appendix M | X          |                |
| A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))  | Sec 3.7, p14-15<br>Appendix F  | X          |                |
| A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))  | Sec. 3.8 – p15-16  | 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))   | Sec 9 .7 – p223-224  | 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))   | Sec 9 – p219-224   | X          |                |
| <b><u>ELEMENT A: REQUIRED REVISIONS</u></b>   |  |            |                |
| <b>ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT</b>   |  |            |                |
| 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))  | Sec. 5.1-5.18, p33-120   | 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))  | Sec. 5.1-5.18 p33-120  | 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))   | Table 5-3<br>Sec. 5.1-5.18, p33-120<br>Sec 6.1-6.11, p121-145          | X          |                |

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| 1. REGULATION CHECKLIST<br>Regulation (44 CFR 201.6 Local Mitigation Plans)  | Location in Plan<br>(section and/or   | Met | Not<br>Met |
|--|---|-----|------------|
| B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))  | Sec 5.6.3, p65-67<br>Sec 6.6.1, p133-136  | X   |            |
| <b>ELEMENT B: REQUIRED REVISIONS</b>   |   |     |            |
| <b>ELEMENT C. MITIGATION STRATEGY</b>  |   |     |            |
| 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))  | Sec 7.5. p149-160   | 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))  | Sec 7.6, p160-162   | X   |            |
| C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))   | Sec 8.3 p164-165  | 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)) | Sec 8.4, Tables 8.4-1 through 8.4-3, p167-214   | 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))                      | Sec 8.2, p163-164<br>Sec 8.4, Tables 8.4-1 through 8.4-3, p167-214<br>Appendix G, Mitigation Ranking Worksheets | 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))                      | Sec 9.5, p221-222   | X   |            |
| <b>ELEMENT C: REQUIRED REVISIONS</b>   |   |     |            |
| <b>ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION</b> (applicable to plan updates only)  |   |     |            |
| D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))   | N/A   |     |            |
| D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))   | N/A   |     |            |
| D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))  | N/A   |     |            |

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| <b>1. REGULATION CHECKLIST</b>  |  | <b>Location in Plan</b> | <b>Met</b> | <b>Not Met</b> |
|---|--|-------------------------|------------|----------------|
| <b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>   |  | <b>(section and/or</b>  |            |                |
| <b><u>ELEMENT D: REQUIRED REVISIONS</u></b>   |  |                         |            |                |
| <b>ELEMENT E. PLAN ADOPTION</b>   |  |                         |            |                |
| 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)) | The plan will not be locally adopted until it is approved pending adoption (APA) by FEMA |                         |            | X              |
| E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))                     | The plan will not be locally adopted until it is approved pending adoption (APA) by FEMA |                         |            | X              |
| <b><u>ELEMENT E: REQUIRED REVISIONS</u></b>   |  |                         |            |                |
| <b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)</b>  |  |                         |            |                |
| F1.   |  |                         |            |                |
| F2.   |  |                         |            |                |
| <b><u>ELEMENT F: REQUIRED REVISIONS</u></b>   |  |                         |            |                |
|   |  |                         |            |                |

**SECTION 2:**

**PLAN ASSESSMENT**

**A. Plan Strengths and Opportunities for Improvement**

**Element A: Planning Process**

**Element B: Hazard Identification and Risk Assessment**