

2017 MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN

Village of Ruidoso, Lincoln County

Including

City of Ruidoso Downs, Town of Carrizozo

Village of Capitan, and Village of Corona

Prepared by



EXECUTIVE SUMMARY

Throughout 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. Families and individuals can be immensely affected and businesses that are damaged cannot contribute to the economy. The money, time and effort to respond to and recover from these emergencies or disasters divert public resources and attention from other important programs and problems. The five jurisdictions contained within Lincoln County, New Mexico participating in this planning effort recognize the consequences of disasters and the need to reduce the impacts of natural and human-caused hazards. The County and jurisdictions 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 impact of natural and human-caused hazards.

The elected and appointed officials of Lincoln County demonstrated their commitment to hazard mitigation in 2011-2012 by preparing the first Lincoln County All Hazard Mitigation Plan (2012 Plan). The 2012 Plan covered the county jurisdiction and was approved by FEMA on April 30, 2012. In order to remain compliant with the congressional regulations, the county must perform a full plan update and obtain FEMA approval.

In response, the Village of Ruidoso, City of Ruidoso Downs, Town of Carrizozo, Village of Capitan, and Village of Corona partnered with Lincoln County to accomplish a Multi-Jurisdictional Hazard Mitigation Update. The Village of Ruidoso secured a federal planning grant and hired SZ Enterprises, LLC to assist all the participating jurisdictions within Lincoln County on the update process. The Village of Ruidoso reconvened a mitigation planning team (MPT) comprised of veteran and first-time representatives from each participating jurisdiction, and other various county, state, and federal departments and organizations. The MPT began meeting in July 2016 and completed in (completion date). The meetings and MPT worked in a collaborative effort to review, evaluate, and update the 2012 Plan keeping the single, consolidated multi-jurisdictional plan format and approach. The 2017 Plan will continue to guide the County and participating local jurisdictions toward greater disaster resistance in full harmony with the character and needs of the community and region.

The Plan has been prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S. C. 5165, enacted under Sec. 104 the Disaster Mitigation Act of 2000, (DMA 2000) Public Law 106-390 of October 30, 2000, as implemented at Title 44 CFR 201.6 and 201.7 dated October, 2007. The Plan includes risk assessments for multiple natural hazards, a public outreach effort, and development of a mitigation strategy that incorporates measures intended to eliminate or reduce the effects of future disasters throughout Lincoln County. The development of the various 2017 Plan elements was accomplished through a joint and cooperative venture by members of the MPT, with Village of Ruidoso serving as the lead agency and primary point of contact for the planning effort.

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SECTION 1: JURISDICTIONAL ADOPTION AND FEMA APPROVAL

Requirement §201.6(c)(5): *[The local hazard mitigation plan shall include...] Documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.*

Requirement §201.6(d)(3): *A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit it for approval within five (5) years in order to continue to be eligible for mitigation project grant funding.*

Requirement §201.7(a)(1): *Indian tribal governments applying to FEMA as a grantee must have an approved Tribal Mitigation Plan meeting the requirements of this section as a condition of receiving non-emergency Stafford Act assistance and FEMA mitigation grants.*

Requirement §201.7(a)(4): *Multi-jurisdictional plans (e.g. county-wide or watershed plans) may be accepted, as appropriate, as long as the Indian tribal government has participated in the process and has officially adopted the plan. Indian tribal governments must address all the elements identified in this section to ensure eligibility as a grantee or as a sub-grantee.*

1.1 DMA 2000 Requirements

1.1.1 General Requirements

This 2016 update of the Lincoln County Multi-Jurisdictional Hazard Mitigation Plan (Plan) has been prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Stafford Act), 42 U.S.C. 5165, as amended by Section 104 of the Disaster Mitigation Act of 2000 (DMA 2000) Public Law 106-390 enacted October 30, 2000. The regulations governing the mitigation planning requirements for local mitigation plans are published under the Code of Federal Regulations (CFR) Title 44, Section 201.6 (44 CFR §201.6). Minimum requirements for tribal mitigation plans are published under CFR Title 44, Section 201.7 (44 CFR §201.7). Additionally, a DMA 2000 compliant plan that addresses flooding will also meet the minimum planning requirements for the Flood Mitigation Assistance program as provided for under 44 CFR §78.

DMA 2000 provides requirements for States, Tribes, and local governments to undertake a risk-based approach to reducing risks to natural hazards through mitigation planning¹. The local mitigation plan is the representation of the jurisdiction's commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Local plans will also serve as the basis for the State to provide technical assistance and to prioritize project funding.

Under 44 CFR §201.6 and §201.7, local and tribal governments must have a Federal Emergency Management Agency (FEMA)-approved local mitigation plan in order to apply for and/or receive project grants as a sub-grantee under the following Hazard Mitigation Assistance (HMA) programs:

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Flood Mitigation Assistance (FMA)

In addition, Indian Tribal governments applying to FEMA as a grantee must have an approved tribal mitigation plan meeting the requirements of 44 CFR §201.7 as a condition of

receiving non- emergency Stafford Act assistance through Public Assistance Categories C through G and the above mentioned HMA program funds.

1.1.2 Update Requirements

DMA 2000 requires that existing plans be updated every five years, with each plan cycle requiring a complete review, revision, and re-approval of the plan at both the state and FEMA level. Lincoln County, the incorporated communities of Village of Ruidoso, City of Ruidoso Downs, Town of Carrizozo, Village of Capitan, and Village of Corona are all currently covered under a FEMA approved multi- jurisdictional hazard mitigation plan. The Plan is the result of an update process performed by the participating jurisdictions to update the current 2012 version of the Lincoln County All Hazard Mitigation Plan (2012 Plan).

1.2 Official Record of Adoption

Promulgation of the Plan is accomplished through formal adoption of official resolutions by the governing body for each participating jurisdiction in accordance with the authority and powers granted to those jurisdictions by the State of New Mexico and/or the federal government. Participating jurisdictions in the Plan include:

| County | Villages | Towns | City |
|---|--|---|---|
| <ul style="list-style-type: none">Lincoln | <ul style="list-style-type: none">RuidosoCapitanCorona | <ul style="list-style-type: none">Carrizozo | <ul style="list-style-type: none">Ruidoso Downs |

Each jurisdiction will keep a copy of their official resolution of adoption located in Appendix A of their copy of the Plan.

1.3 FEMA Approval Letter

The Plan was submitted to the New Mexico Department of Homeland Security and Emergency Management (DHSEM), the authorized state agency, and FEMA, for review and approval. FEMA’s approval letter is provided on the following page.

¹FEMA, 2008, *Local Multi-Hazard Mitigation Planning Guidance*

[Insert FEMA Approval Letter Here]

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SECTION 2: INTRODUCTION

2.1 Plan Purpose and Authority

The purpose of the Plan is to identify natural hazards that impact the various jurisdictions located within Lincoln County, assess the vulnerability and risk posed by those hazards to community-wide human and structural assets, develop strategies for mitigation of those identified hazards, present future maintenance procedures for the plan, and document the planning process. The Plan is prepared in compliance with DMA 2000 requirements and represents a multi-jurisdictional update of the 2012 Plan.

Funding for the development of the Plan was provided through a PDM planning grant obtained by Village of Ruidoso through the State of New Mexico (DHSEM) from FEMA, with each participating jurisdiction providing the matching funds. SZ Enterprises, LLC was retained by Village of Ruidoso to provide consulting services in guiding the update planning process and Plan development.

2.2 General Plan Description

The Plan is generally arranged and formatted to be consistent with the 2013 New Mexico Hazard Mitigation Plan (State Plan) and is comprised of the following major sections:

Planning Process – this section summarizes the planning process used to update the Plan, describes the assembly of the planning team and meetings conducted, and summarizes the public involvement efforts.

Community Description – this section provides an overall description of the participating jurisdictions and the County as a whole.

Risk Assessment – this section summarizes the identification and profiling of natural hazards that impact the County and the vulnerability assessment for each hazard that considers exposure/loss estimations and development trend analyses.

Mitigation Strategy – this section presents a capability assessment for each participating jurisdiction and summarizes the Plan mitigation goals, objectives, actions/projects, and strategy for implementation of those actions/projects.

Plan Maintenance Strategy – this section outlines the proposed strategy for evaluating and monitoring the Plan, updating the Plan in the next 5 years, incorporating plan elements into existing planning mechanisms, and continued public involvement.

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SECTION 3: PLANNING PROCESS

§201.6 (b): *Planning process. 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.*

§201.6(c)(1): *[The plan shall include...]* (1) *Documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

This section includes the delineation of various DMA 2000 regulatory requirements, as well as the identification of key stakeholders and planning team members within Lincoln County. In addition, the necessary public involvement meetings and actions that were applied to this process are also detailed.

3.1 Update Process Description

Village of Ruidoso applied for and received a PDM planning grant to fund a multi-jurisdictional effort to review and update the 2012 Lincoln County Plan. Letters from the participating jurisdictions were received to be included in the PDM planning grant application. Once the grant was received, the County then selected SZ Enterprises, LLC to work with the participating jurisdictions and guide the Plan update process. An initial project kick-off meeting between SZ Enterprises, LLC and participating jurisdictions was convened July 27, 2016 to line up the meeting dates and agendas for the coming planning efforts, discuss the plan format and potential changes to the Plan outline and content to address recent FEMA guidelines, request initial data, and other administrative tasks. Six planning team meetings and several other individual community meetings were conducted over the period of July 2016 to November 2016, along with all the work required to collect, process, document updated data, and make changes to the Plan. Details regarding updated key contact information and promulgation authorities, the planning team selection, participation, and activities, and public involvement are discussed in the following sections.

3.2 Previous Planning Process Assessment

The first task of preparation for the Plan update, was to evaluate the process used to develop the 2012 Plan. This was initially discussed in the July 27, 2016 kick-off meeting with the goal of establishing the framework for the planning effort ahead. The 2012 Plan process employed a single jurisdictional approach and during plan development, the contractor sent sections, or parts of sections, to the Emergency Services Director, who disseminated the information to those who were unable to attend scheduled meetings, for review. All members of the Mitigation Planning Group (MPG) were kept informed via contact by email. Their input was shared with the MPG members through discussion at MPG meetings, by email, and through personal contact. The MPG members then submitted revisions or additional details. The Emergency Services Director then presented the revisions to the contractor, who incorporated them into the plan.

Most of the planning team members were new to the hazard mitigation planning process altogether, so there was very little institutional knowledge of the prior process. The Plan update process that was embraced employed a multi-jurisdictional approach with representation from each participating jurisdiction in larger multi-jurisdictional planning team meetings wherein concepts would be presented and discussed,

and work assignments would be made for completion by each jurisdiction.

3.3 Planning Team

3.3.1 General

The planning team was organized as one level for this Plan update. The team was developed as a Multi-Jurisdictional Planning Team (MPT) that was comprised of one or more representatives from each participating jurisdiction.

The role of the MPT was to work with the planning consultant to perform the coordination, research, and planning element activities required to update the 2012 Plan. Attendance by each participating jurisdiction was required for every MPT meeting as the meetings were structured to progress through the plan update process. Steps and procedures for updating the 2012 Plan were presented and discussed at each MPT meeting, and worksheet assignments were normally given. Each meeting built on information discussed and assignments made at the previous meeting. The MPT representatives also had the responsibility of being the liaison to the LPT, and were tasked with:

- Conveying information and assignments received at the MPT meetings
- Ensuring that all requested worksheets were completed fully and returned on a timely basis
- Provide support and data
- Make planning decisions regarding plan update components
- Review the Plan draft documents
- Arranging for review and official adoption of the Plan

3.3.2 Planning Team Assembly

At the beginning of the update planning process, the Village of Ruidoso organized and identified members for the MPT by initiating contact with the PPOCs identified in the 2012 Plan, their equivalent, or the emergency manager for all 5 incorporated towns and cities. In July 2016, a kick-off email letter was sent to the identified MPT members announcing the start of the planning effort. The MPT representatives and MPT participants are summarized in Table 3-1. Returning planning team members from the 2012 Plan are highlighted with an asterisk.

| Name | Jurisdiction / Organization | Department / Position | Planning Team Role |
|------------------------|------------------------------------|---------------------------------------|---|
| Orlando A. Arriola Sr. | Village of Ruidoso | Fire Department Fire Chief | MPT Committee Chairperson MPT representative |
| Cody Thetford | Village of Ruidoso | Fire Department Interim Fire Chief | MPT Interim Committee Chairperson MPT representative |
| Jerry Corliss | Village of Ruidoso | Fire Department Lieutenant | MPT representative |
| Michael Morrow | Village of Ruidoso | Fire Department Captain | MPT representative |
| Darren Hooker | Village of Ruidoso | Police Department Chief | MPT representative |
| Lawrence T. Chavez | Village of Ruidoso | Police Department Lieutenant | MPT representative |
| Curt Temple* | Lincoln County | Interim Road Dept. Director | MPT representative |

| Table 3-1: Summary of mitigation planning team representatives/participants | | | |
|--|----------------|---|--------------------|
| Joe Kenmore* | Lincoln County | Office of Emergency Services Emergency Services Director | MPT representative |
| Samantha Mendez | Lincoln County | Interim Planning Director | MPT representative |
| Chris Rupp | Ruidoso Downs | Police Department Chief | MPT representative |
| Kenny Ellard | Ruidoso Downs | Fire Department Assistant Fire Chief | MPT representative |
| Steve Dunigan | Ruidoso Downs | Planning & Zoning Director | MPT representative |
| Darrell Chavez | Ruidoso Downs | Police Department / Lieutenant | MJPT participant |
| Anthony Sanchez | USFS | FMO | MPT participant |
| Yovanne Lucero | Carrizozo | Mayor | MPT representative |
| Leann Weihbrecht | Carrizozo | Clerk | MPT participant |
| David Cox | Capitan | Public Work | MPT representative |
| Brad Gage | Corona | Fire Chief | MPT representative |

3.3.3 Planning Team Activities

The MPT met for the first time on July 27, 2016 to begin the plan update process. Five more meetings were convened about twice a month to step through the plan review and update process. Each MPT member was sent a copy of the 2012 Plan for review and reference, and was instructed to review the section being updated in advance of the meeting that section was discussed. Table 3-2 summarizes the MPT meetings convened, along with a brief list of the agenda items discussed. Detailed meeting notes for all of the MPT meetings are provided in Appendix A.

| Meeting Type, Date, and Location | Meeting |
|--|---|
| Pre-Planning Kick-Off Meeting July 22, 2016 Village of Ruidoso Fire Dept. Station 1, Ruidoso NM | <ul style="list-style-type: none"> • Discuss schedule of MPT meetings • Discuss Plan outline and changes required by FEMA guidelines • Strategize the MPT list • Discuss roles of Village of Ruidoso and SZ Enterprises in the overall planning process |

| Table 3-2: Summary of planning meetings convened as part of the plan update process | |
|---|---|
| <p>MPT Meeting No. 1 July 27, 2016 Village of Ruidoso Fire Dept. Station 1 Ruidoso, NM</p> | <ul style="list-style-type: none"> • Initial Introductions and Welcome • Purpose, Need, Expectations <ul style="list-style-type: none"> ○ General Overview ○ Update Requirements ○ Proposed Outline for New Plan • Planning Process <ul style="list-style-type: none"> ○ Discussion Of Last Planning Process ○ Planning Team Roles And Responsibilities • Public Involvement <ul style="list-style-type: none"> ○ Discuss Past Strategy ○ Formulate New Strategy ○ Additional Invitations • Conclusion |
| <p>MPT Meeting No. 2 August 3, 2016 Village of Ruidoso Fire Dept. Station 1 Ruidoso, NM</p> | <ul style="list-style-type: none"> • Welcome and Introductions • Summary of First Meeting • Review Community Capabilities <ul style="list-style-type: none"> ○ Capability Assessment <ul style="list-style-type: none"> ▪ Legal And Regulatory (Codes / Ordinances) ▪ Administrative, Technical and Fiscal Capabilities ▪ Plans / Manuals / Guidelines / Studies ○ Plan Integration And Incorporation <ul style="list-style-type: none"> ▪ Past Plan Cycle and Future Strategy • Risk Assessment <ul style="list-style-type: none"> ○ Initial Hazard List Identification ○ Critical Facilities And Infrastructure Review And Update ○ Initial Data Collection • Conclusion |



MPT photo, HMP 2nd meeting

| Table 3-2: Summary of planning meetings convened as part of the plan update process | |
|--|---|
| Meeting Type, Date, and Location | Meeting Agenda |
| <p>MPT Meeting No. 3</p> <p>August 17, 2016</p> <p>Lincoln County EOC 1 Conference Room Capitan, NM</p> | <ul style="list-style-type: none"> • Summary of Second Meeting • Task Assignment Status Review <ul style="list-style-type: none"> • Community Capabilities • Hazard Event Profiles • Risk Assessment <ul style="list-style-type: none"> • Review Hazard Profile Data and Mapping • Historic Hazard Database Review • PRI Analysis spreadsheet • Community Assessment spreadsheet • Repetitive Loss Properties • Development Trends <ul style="list-style-type: none"> • Past Plan Cycle • Future Development • Conclusion |
| <p>MPT Meeting No. 4</p> <p>August 24, 2016</p> <p>Lincoln County EOC 1 Conference Room Capitan, NM</p> | <ul style="list-style-type: none"> • Summary of Third Meeting • Task Assignment Status Review <ul style="list-style-type: none"> • Community Capabilities • Hazard Event Profiles • Risk Assessment <ul style="list-style-type: none"> • Review Hazard Profile Data and Mapping • Historic Hazard Database Review • PRI Analysis spreadsheet • Community Assessment spreadsheet • Repetitive Loss Properties • Conclusion |
| <p>MPT Meeting No. 5</p> <p>September 14, 2016</p> <p>Lincoln County EOC 1 Conference Room Capitan, NM</p> | <ul style="list-style-type: none"> • Task Assignment Status Review • Mitigation Strategy – Goals And Objectives • Mitigation Strategy – Actions/Projects <ul style="list-style-type: none"> • Action/Project Identification • Implementation Strategy • Plan Maintenance Strategy <ul style="list-style-type: none"> • Monitoring and Evaluation • Plan Update Schedule • Continued Public Involvement • Conclusion |
| <p>MPT Meeting No. 6</p> <p>October 27, 2016</p> <p>Lincoln County EOC 1 Conference Room Capitan, NM</p> | <ul style="list-style-type: none"> • HMP Update review w/DHSEM • Questions and Answers • Conclusion |



HMP 3rd Meeting, MPT, photo

3.3.4 Agency/Organization Participation

The planning process used to develop the 2012 Plan included participation from several agencies and organizations which operate within or have jurisdiction over small and large areas of Lincoln County. For this update, a list of known and/or potential stakeholders not already involved in the MPT was brainstormed and compiled at both the internal kickoff meeting and MPT Meeting No.1. Invitations were sent to the identified list via emails requesting their participation. Personal invitations by Cody Thetford, Interim Village of Ruidoso Fire Chief, and Joe Kenmore, Lincoln County Emergency Director were also extended to agencies to participate in the planning meetings. In addition to the personal invitations, a broader invitation to all citizens within and near Lincoln County was indirectly extended via website postings, which are discussed more thoroughly in Section 3.5.2. This approach was considered the best way to reach interested non-profits and businesses within the County and provide them an opportunity for participation in the planning process. Table 3-3 represents the list of all entities (except the participating jurisdictions) that were either directly invited or that responded to the public invitations:

| Table 3-3: List of agencies and organizations invited or participating in the planning process | |
|---|-----------------------------|
| Agency / Organization | Contact Position |
| USFS | Anthony Sanchez |
| Mescalero Apache Tribe | Danny Breuninger, President |

| Table 3-3: List of agencies and organizations invited or participating in the planning process | |
|---|--------------------------------------|
| Bureau of Land Management | Kyle Arnold |
| NM State Land, Forestry Division | Javier Anderson SF, Les Owens, NMSLO |
| Otero County | Pamela Heltner, County Manager |
| Chavez County | Stanton Riggs, County Manager |
| Socorro County | Fred Hollis, County Manager |
| DeBaca County | Emergency Management |
| Torrance County | Javier Sanchez, Emergency Manager |
| Guadalupe County | Emergency Management |
| Capitan Public Works | David Cox, Director |
| Ruidoso Public Works | J.R. Bowman |
| Lincoln County Road Dept. | Curt Temple, Interim Road Dept. |

Joe Kenmore, Lincoln County Emergency Manager



An integral part of the planning process included coordination with agencies and organizations outside of the participating jurisdiction's governance to obtain information and data for inclusion into the Plan or to provide more public exposure to the planning process. Much of the information and data that is used in the risk assessment is developed by agencies or organizations other than the participating jurisdictions. In some cases, the jurisdictions may be members of a larger organization that has jointly conducted a study or planning effort like the development of a community wildfire protection plan, participation in an area association of governments, or participation in a FEMA RiskMAP Discovery study. Examples of those data sets include the FEMA floodplain mapping, community wildfire protection plans, severe weather statistics, hazard incident reports, and regional comprehensive plans. The resources obtained, reviewed and compiled into the risk assessment are summarized in Section 3.6 and at the end of each subsection of Section 5.3 of this Plan. Jurisdictions needing these data sets obtained them by requesting them directly from the host agency or organization, downloading information posted to website locations, or engaging consultants.

3.4 Public Involvement

3.4.1 Previous Plan Assessment

The public involvement strategy for the 2012 Plan development included the publishing of public notices, including a link to the full-time website maintained on the Lincoln County servers. Lincoln County conducted multiple public meetings with the primary public meeting being a County Board of Commissioners meeting on September 15, 2009. Board of Commissioners meetings are a standard venue for providing opportunities for public participation and comment on issues of concern to the community. All Board meetings are open to the public and publicly noticed with published agendas.

3.4.2 Plan Update

The opportunity for public involvement and input to the plan update process was accommodated using the general strategy as the 2012 Plan. Participating jurisdictions also posted public notices to their respective websites that included a link to the full time website maintained on the Village of Ruidoso website. A copy of the 2012 Plan was made available on the County website along with contact information for the MPT PPOC. Social media such as Facebook and Twitter were used by several jurisdictions to get the word out.

A second wave of post-draft public notices was posted to jurisdiction websites and a copy of the draft Plan was posted to the County website for review and comment. Interested citizens were also encouraged to participate in the local community adoption process.

3.5 Reference Documents and Technical Resources

Over the course of the update planning process, numerous other plans, studies, reports, and technical information were obtained and reviewed for incorporation or reference purposes. The majority of sources referenced and researched pertain to the risk assessment and the capabilities assessment. To a lesser extent, the community descriptions and mitigation strategy also included some document or technical

information research. Table 3-4 provides a reference listing of the primary documents and technical resources reviewed and used in the Plan. Detailed bibliographic references for the risk assessment are provided at the end of each hazard risk profile in Section 5.3. Other bibliographic references are provided as footnotes throughout the Plan.

| Referenced Document or Technical Source | Resource Type | Description of Reference and Its Use |
|--|---------------------------------|---|
| State of New Mexico Hazard Mitigation Plan (2015) | Hazard Data Mitigation Data | Some of the hazard data and mitigation information published in the State Plan are used and incorporated into the Plan update. |
| New Mexico Forestry Division | Hazard Data | Source for wildfire data associated with State Land |
| Bureau Net (2015) | Website Database | Source for NFIP statistics. |
| Comprehensive Floodplain Management Plan | Technical and Planning Resource | The Lincoln County Comprehensive Floodplain Management Plan is a source for flooding data and mitigation strategies envisioned for the areas served by the District. |
| Federal Emergency Management Agency | Technical and Planning Resource | Resource for HMP guidance (How-To series), floodplain and flooding related NFIP data (mapping, repetitive loss, NFIP statistics), and historic hazard incidents. Used in the risk assessment and mitigation strategy. |
| U.S. Global Change Research Program | Technical and Data Resource | Source for National Climate Assessment reports and documentation with discussions on climate change. |
| U.S. Census Bureau | Data Resource | Source and demographic information |
| Lincoln County All Hazard Mitigation Plan (2012) | Hazard Mitigation Plan | FEMA approved hazard mitigation plan that formed the starting point for the update process. |
| Lincoln County Community Wildfire Protection Plan (2014) | CWPP | Source for wildfire history and risk data. |
| National Climatic Data Center | Technical Resource | Online resource for weather related data and historic hazard event data. Used in the risk assessment. |
| National Response Center | Technical Resource | Source of traffic related HAZMAT incidents and rail accidents. Used in the risk assessment. |
| National Weather Service | Technical Resource | Source for hazard information, data sets, and historic event records. |

| Table 3-4: List of resource documents and references reviewed and incorporated in the HMP update process | | |
|--|--------------------------|--|
| Referenced Document or Technical Source | Resource Type | Description of Reference and Its Use |
| U.S. Census Bureau | Technical Data | TIGER/Line shape file for county census block data was used to obtain block boundaries, population, and housing units |
| U.S. Forest Service | Technical Data | Source for local wildfire data. |
| U.S. Geological Survey | Technical Data | Source for geological hazard data and incident data. |
| Jurisdictional Master Plans | Planning and Hazard Data | General Plans prepared by each of the various jurisdictions summarizes the long-term growth strategies and can provided data regarding development trends. |



Photos: MPT using the Lincoln County Simtable to simulate wildfire and flooding scenarios.

3.6 Plan Integration Into Other Planning Mechanisms

Incorporation and/or integration of the Plan into other planning mechanisms, either by content or reference, enhances a community’s ability to perform hazard mitigation by expanding the scope of the Plan’s influence. It also helps a community to capitalize on all available mechanisms at their disposal to accomplish hazard mitigation and reduce risk.

3.6.1 Past Plan Incorporation/Integration Assessment

Lincoln County was the only jurisdiction to reveal the assessment of incorporating the 2012 Plan elements into other planning programs over the past planning cycle.

3.6.2 Five Year Plan Integration/Incorporation Strategy

With the efficacy of integrating the 2012 Plan during the last cycle in view, the MPT identified typical ways to use and incorporate the Plan over the next five-year planning cycle, as follows:

- Use of, or reference to, Plan elements in updates/revisions to codes, ordinances, general and/or comprehensive planning documents, and other long-term strategic plans.
- Integration of defined mitigation A/Ps into capital improvement plans and programming.
- Reference to Plan risk assessments during updates or revisions to land use planning and zoning maps.
- Resource for developing and/or updating emergency operations plans, community wildfire protection plans, emergency response plans, etc.
- Reference during grant application processes.
- Use of the Plan as a resource during LEPC meetings.

Specific opportunities for integrating and/or referencing the Plan into other planning mechanisms over the next five years are summarized by jurisdiction in Tables 3-5. In all cases, the jurisdiction’s PPOC will take responsibility to ensure that the Plan, risk assessment, goals and mitigation strategies are integrated and/or incorporated into the listed planning mechanism by participating in those efforts as they occur.

| Table 3-5: Plan integration history and future strategy for Lincoln County | |
|---|--|
| <u>Plan Integration Over the Past Plan Cycle:</u> Plan integration for Lincoln County has been incorporated into the County’s CWPP. | |
| <u>Plan Integration Strategy for Next Five Years:</u> | |
| Planning Mechanism | Description of Planning Mechanism Opportunity |
| Lincoln County Emergency Operations Plan (EOP) | The EOP identifies response and recovery actions in Lincoln County, and is reviewed and updated annually. The EOP will include integration of risk assessment data from the HMP. |

| Table 3-5: Plan integration history and future strategy for Lincoln County | |
|---|---|
| County Master Plan (CMP) | The hazards identified within this study will be referenced within the applicable development areas. |
| Capital Improvement Program (CIP) | Integration of the HMP mitigation actions and projects between the CIP's and the HMP will be part of the process. |
| Community Wildfire Protection Plan (CWPP) | The CWPP identifies at risk communities within or near the wildland/urban interface. The HMP contributes historical evidence for mitigation of fires within the CWPP interface. |

| Table 3-5: Future plan integration strategy for Village of Ruidoso | |
|---|---|
| Plan Integration Strategy for Next Five Years: | |
| Planning Mechanism | Description of Planning Mechanism Opportunity |
| Village of Ruidoso Emergency Operations Plan (EOP) | The Emergency Operations Plan (EOP) has been devised to provide effective emergency operations within the Village of Ruidoso using the governmental organizations and resources to the full extent. Any revision of the EOP will reference the HMP. |
| Capital Improvement Program (CIP) | The HMP can be utilized to inform and guide the submittal and funding of CIP projects on an annual basis. |
| Community Wildfire Protection Plan (CWPP) | Development of this HMP allows the Village of Ruidoso to look at areas of wildland/urban interface, giving the opportunity to focus on which projects to include in the priority listing that best minimizes the possibility of fires in the community. The HMP and CWPP will continue to be integrated to share risk assessment and mitigation data. |
| Community Master Plan (CMP) | Integration of the HMP with future updates of the Community Master Plan will provide additional input into the identification of problematic areas and address possible areas of mitigation interest. The HMP will serve as a reference source during all amendments to the CMP. |

| Table 3-5: Future plan integration strategy for City of Ruidoso Downs | |
|--|---|
| Plan Integration Strategy for Next Five Years: | |
| Planning Mechanism | Description of Planning Mechanism Opportunity |
| Emergency Operations Plan (EOP) | Review and amend plan as needed for sections that address al Hazard Mitigation procedures. |
| Capital Improvement Program (CIP) | Provide the information needed from the hazard mitigation standpoint to identify areas where CIP funds may be utilized in projects, i.e. infrastructure repair. |

| Table 3-5: Future plan integration strategy for City of Ruidoso Downs | |
|--|--|
| Community Master Plan (CMP) | Under the Community Master Plan, future reviews/amendments are anticipated and the HMP will be referenced and integrated as appropriate. |

| Table 3-5: Future plan integration strategy for Town of Carrizozo | |
|--|--|
| Plan Integration Strategy for Next Five Years: | |
| Planning Mechanism | Description of Planning Mechanism Opportunity |
| Emergency Operations Plan (EOP) | The Town of Carrizozo’s EOP is planning for response to and mitigation to potential disasters. The EOP and HMP share common risk assessment elements and will continue to be integrated. |
| Community Master Plan (CMP) | The HMP will be reviewed and utilized in the coordination of any CMP revisions. |
| Communication Plan (CP) | The HMP will serve as a reference for the identification of future CP updates. |

| Table 3-5: Future plan integration strategy for Village of Capitan | |
|---|--|
| Plan Integration Strategy for Next Five Years: | |
| Planning Mechanism | Description of Planning Mechanism Opportunity |
| Emergency Operations Plan (EOP) | When the EOP will be revised, the plan’s elements will be either reference or incorporate the goals, risks, and mitigation actions/projects of the HMP. |
| Community Master Plan (CMP) | With updates to the CMP, having the hazard mitigation plan in place as a reference for overall impact of growth to the community. |
| Communications Plan (CP) | The CP is an outline for developing and maintaining present and future communication needs of the community. These needs will utilize the HMP for future communication projects. |

| Table 3-5: Future plan integration strategy for Village of Corona | |
|--|---|
| Plan Integration Strategy for Next Five Years: | |
| Planning Mechanism | Description of Planning Mechanism Opportunity |
| Emergency Operations Plan (EOP) | The EOP and HMP share common risk assessment elements and will continue to be integrated. |
| Community Master Plan (CMP) | Community’s Master Plan will support further integration of the HMP. |
| Capital Improvement Program (CIP) | The CIP’s revision will reference the HMP. |
| Communications Plan (CP) | The HMP will serve as a basis for updating the community’s CP. |

3.6.3 *Plan Incorporation Process*

Each jurisdiction has particular processes that are followed for officially incorporating and adopting planning documents and tools. Many of the processes and procedures are similar for jurisdictions with comparable government structures.

In general, planning documents prepared by the various departments or divisions of a particular jurisdiction are developed using an appropriate planning process that is overseen and carried out by staff, with the occasional aid of consultants. Each planning process is unique to the plan being developed, but all usually involve the formation of a planning or steering committee, and have some level of interagency/stakeholder coordination within the plan’s effective area. Public involvement may also be incorporated when appropriate and depending on the type of plan. New or updated plans are usually developed to a draft stage wherein they are presented to the respective governing body for initial review and comment. Upon resolution and address of all comments, which may take several iterations, the plans are then presented to the governing body for final approval and official adoption.

Integration or reference to the Plan into these various processes will be accomplished by the active participation of the MPT PPOC representative(s) from each jurisdiction, in the other planning teams or committees to ensure that the Plan risk assessment, goals, and mitigation A/Ps are integrated and/or incorporated into the planning mechanism as appropriate.

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SECTION 4: COMMUNITY DESCRIPTIONS

4.1 General

The purpose of this section is to provide updated basic background information on Lincoln County as a whole and includes information on geography, climate, population and economy. Abbreviated details and descriptions are also provided for each participating jurisdiction.

4.2 County Overview

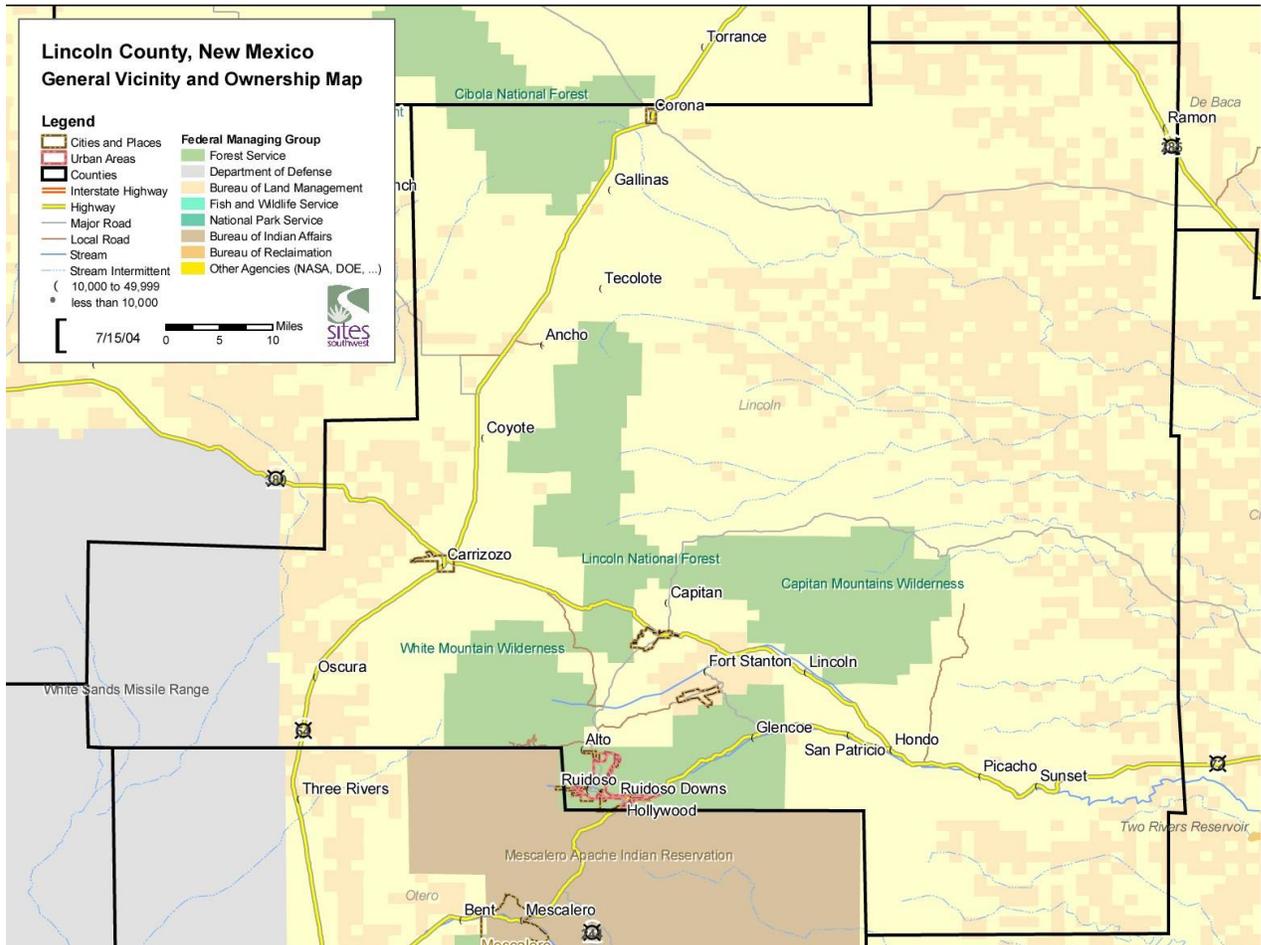
4.2.1 Location and Geography

Lincoln County is located in south central New Mexico. Lincoln County is bordered Torrance and Guadalupe Counties to the North, De Baca County to the Northeast, Chaves County to the East, Otero County to the South, Sierra County to the Southwest, and Socorro County to the West (see Figure 1). Named after Abraham Lincoln, the County was established in 1869. At that time, it made up nearly one fourth of the entire state and was the largest county in the United States. Today it comprises 4,858 square miles which range from sprawling ranch lands to mountain settings. Important natural features in Lincoln County include the Lincoln National Forest, Sacramento Mountains, Capitan Mountains, Bonito Lake, and the Valley of Fires lava fields.

Lincoln County also has a rich history. It lays claim to some of the most well-known figures of the West, including Billy the Kid and Smokey Bear. The County is also dotted with ghost towns and artists' enclaves, as well as the resort town of Ruidoso.

There are three primary roadways that serve Lincoln County: US routes 380, 70, and 54. Route 380 bisects the County, running east to west. It connects Interstate 25 to Carrizozo, through Hondo, and eventually goes to Roswell and Texas. Route 70 runs southwest to northeast, connecting Las Cruces, Alamogordo, and Tularosa to Ruidoso before joining route 380 in Hondo. Route 54 is a north-south roadway, which runs from El Paso, through Carrizozo, north to Corona, and continues northeast through several states. There are several small airports throughout the County, including the Carrizozo and Ruidoso Municipal Airports. From Carrizozo, the nearest metropolitan center is Las Cruces, which lies 124 miles to the southwest. Albuquerque is 152 miles to the northwest, while Santa Fe, the state capital, is about 162 miles to the north.¹ The terrain in Lincoln County varies from relatively flat prairie lands and rolling foothills to high mountain peaks. It is a rugged region in the Basin and Range Province, with green hills and large plains surrounding and separating high mountain ranges. The plains are eroded, with canyons and the beds of dry streams; the tree-covered mountains include the Sierra Blanca, Sierra Oscura, Gallinas (with 8,615-foot Gallinas Peak), Jicarilla (with 9,650-foot Carrizo Mountain), and Capitan (with 10,083-foot Capitan Peak). Much of southwestern Lincoln County is covered by the Malpais, a region of lava beds that originated from Little Black Peak.

¹ Lincoln County Comprehensive Plan 2007



Retrieved from <http://www.britannica.com/EBchecked/topic/341673/Lincoln>

4.2.2 Climate

Summertime high temperatures range in the 80s Fahrenheit (°F) with lows in the 40s and 50s °F. Winter temperatures vary from highs in the upper 40s and 50s °F; lows in the 20s °F. The assessment area has over 300 days of sunshine per year. Average annual precipitation is 23 inches around Ruidoso and 15 inches around Corona. The majority of precipitation is received during summer months. Annual average snowfall in Ruidoso is 35.5, Capitan 30.7, and Corona 26.7 inches, respectively. Table 4-1 below shows the jurisdictional average monthly climate summary.

Table 4-1 Average Monthly Climate Summary for the Village of Ruidoso, Village Capitan, Village of Corona and Town of Carrizozo

| Climate Attribute | Month | | | | | | | | | | | | |
|---|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
| Ruidoso (January 2007 – December 2011) | | | | | | | | | | | | | |
| Average Temperature (°F) | 35 | 38 | 45 | 51 | 57 | 65 | 67 | 67 | 61 | 53 | 44 | 37 | 52 |
| Average Total Precipitation (inches) 2010 | 1.6 | 0.8 | 1.0 | 0.7 | 1.9 | 2.0 | 6.4 | 3.1 | 2.6 | 1.0 | 0.4 | 1.5 | 23 |
| Capitan (January 2007 – December 2013) | | | | | | | | | | | | | |
| Average Temperature (°F) | 35 | 39 | 47 | 53 | 60 | 70 | 69 | 69 | 63 | 55 | 45 | 36 | 53 |
| Average Total Precipitation (inches) 2011 | 0.6 | 0.4 | 0.5 | 0.4 | 1.0 | 0.7 | 4.8 | 2.0 | 1.8 | 0.6 | 0.2 | 1.0 | 14 |
| Corona (January 2007 – December 2012) | | | | | | | | | | | | | |
| Average Temperature (°F) | 33 | 36 | 43 | 49 | 57 | 69 | 69 | 70 | 64 | 54 | 44 | 34 | 52 |
| Average Total Precipitation (inches) 2010 | 0.5 | 0.6 | 0.8 | 0.7 | 1.5 | 0.7 | 3.5 | 2.3 | 2.5 | 1.3 | 0.3 | 0.8 | 15.5 |
| Carrizozo (January 2007 – December 2010) | | | | | | | | | | | | | |
| Average Temperature (°F) | 35 | 41 | 49 | 55 | 63 | 73 | 74 | 73 | 67 | 57 | 44 | 38 | 56 |
| Average Total Precipitation (inches) 2010 | 0.5 | 0.6 | 0.3 | 0.6 | 1.1 | 0.7 | 3.3 | 1.2 | 1.2 | 1.1 | 0.8 | 0.8 | 12.2 |

Source: Annual Climatological Summary from National Centers for Environmental Information

4.2.3 Population

According to the 2010 United States Census for Lincoln County, NM, there were 20,497 people, 9,219 households, and 5,859 families residing in the county. The population density was 4.2 inhabitants per square mile (1.6/km²). The racial makeup of the county was 85.1% white, 2.4% American Indian, 0.5% black or African American, 0.4% Asian, 9.2% from other races, and 2.5% from two or more races. Those of Hispanic or Latino origin made up 29.8% of the population.

In the county the population was spread out with 19% under the age of 18, and 22% who were 65 years of age or older. The median age was 49.4 years old. 50.9% females and 49.1% males. The average household size is 2.21 persons.¹

4.2.4 Economy

Important economic values are year-round recreational resort facilities, tourism, historical communities and buildings, Ruidoso Downs, site seeing, nearby Mescalero Apache Reservation, and retirement communities. Ecological values include such things as watersheds, wildlife and aquatic habitats, rangeland grazing, forest products, and view sheds. The Bonito and other watersheds are water sources for communities inside and outside of the county. Important infrastructure includes such things as U.S. Highways (54, 70, 285, and 380), county roads, a railroad, communication towers, communities, watersheds, ski area, and historical communities.

Services, retail trade, and construction provided the most number of jobs in Lincoln County in the past. Major employers include several companies in the hospitality and recreation industry, the health care sector, construction, as well as local government.

The Mescalero Apache tribe is the largest employer of Lincoln County residents, though it is actually located in Otero County, bordering Ruidoso to the south. The tribe provides up to 1,500 jobs, depending on the season, for the operation of the Inn of the Mountain Gods hotel, golf course, and casino and the Ski Apache resort. The nearby Ruidoso Downs Racetrack and the Billy the Kid Casino together provide an additional 600 to 1,250 jobs.

The local government and related services are other important sources of jobs. Ruidoso Municipal Schools has 452 employees, while the Village of Ruidoso provides 200 jobs, and Lincoln County provides 115. Meanwhile, the Lincoln County Medical Center employs nearly 250 people. Finally, the Wal-Mart Super Center, located in Ruidoso Downs, has the capacity to employ up to 350 people, and Sierra Blanca Constructors provides between 100 and 250 jobs.

Tourism is also a major part of the economy of Lincoln County. Visitors are drawn to the cultural and historic significance of the County, which lays claim to Billy the Kid and Smokey Bear, as well as the natural beauty and associated recreational activities such as skiing, hiking, and fishing. Lincoln County is well-known for its “Wild West” heritage, specifically the so-called Lincoln County War of 1878, which led rise to the gunslinger Billy the Kid and his famed escape from the Lincoln County Courthouse in 1881. Visitors can learn about these events during Old Lincoln Days, held in August in the town of Lincoln. This one-street town is a National Historical Landmark, and

¹ United States Census Bureau

several of its buildings make up the Lincoln State Monument. The Billy the Kid National Scenic Byway is an 84-mile loop through Lincoln County, connecting historic places such as Lincoln and Fort Stanton with the larger towns of Ruidoso and Ruidoso Downs as well as the smaller villages of San Patricio, Hondo, Capitan, and Alto. There are various tourist attractions along the route.

In Capitan, visitors can learn about Smokey Bear, the national mascot for preventing forest fires, at the Smokey the Bear Museum, the Smokey Bear Historical State Park and its corresponding visitor center, and during the annual Smokey the Bear Stampede, held every July.²

4.3 Jurisdictional Overviews

The following are brief overviews for each of the participating jurisdictions in the Plan.

4.3.1 Village of Ruidoso

The Village of Ruidoso is a unique community located at 6,000 plus feet in elevation and is tucked right into Sierra Blanca and the surrounding mountains of the Sacramento's. The Village is a tourist destination town which has a permanent population of approximately 9,000 people which can swell to over 30,000 on specific weekends. Because of the physical location of the Village, as well as its seasonal tourist orientation, Ruidoso must proactively address a number of specific issues in order to better control its own fate and enhance its sustainability over the long-term. These issues include land development, infrastructure improvement needs, economic development and diversification, environmental protection, and retaining affordability of the community for all of its citizens and guests, just to name a few. The Village of Ruidoso provides many services, including some not normally found in a small community, such as an airport, library and convention center. These create economic challenges but also enhance the appeal of the area.

The high number of part-time residents also presents challenges for providing and funding infrastructure improvements and general governmental services. The reliance on seasonal tourists for much of the revenue that supports the community means that Ruidoso must be constantly vigilant to identify and make improvements necessary to continue to attract those people to the community. One important tool a municipality has in helping to protect and enhance quality of life within the Village is the Comprehensive Plan.³

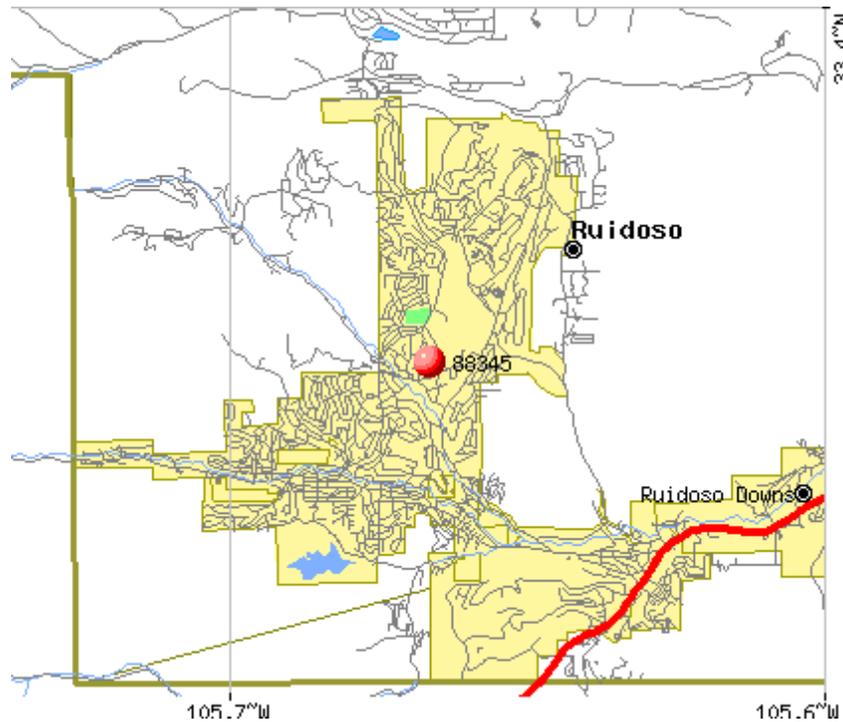


Source: <http://www.skiapache.com/photos-videos/>

² Lincoln County Comprehensive Plan 2007

³ Village of Ruidoso Comprehensive Plan 2010

According to the 2010 U.S. Census, in the Village of Ruidoso there were 8,029 people, 8,428 housing units total which includes 2,675 owner-occupied and 1,109 renter-occupied, with 882 families residing in the village. The racial makeup of the village was 85.91% White, 0.39% African American, 3.00% Native American, 0.57% Asian, 7.69% from other races, and 2.37% from two or more races. Hispanic or Latino of any race were 27.10% of the population.



Source: Village of Ruidoso Comprehensive Plan 2010

4.3.2 *Capitan*

Ideally located in the heart of historic Lincoln County, Capitan is home to 1,500 friendly residents. A growing residential community, the Village surrounded by cattle ranches is situated between the Capitan and Sacramento Mountains at an elevation of 6,530 feet. Residents and tourists typically enjoy a temperate climate, days filled with brilliant sunshine cooled by the brisk mountain breeze.¹

Founded in the 1890's, incorporated in 1941, the Village retains its small town country flavor. In spring of 1950, a badly burned black bear cub was rescued from a large forest fire at Capitan Gap in the Capitan Mountains. First called Hotfoot Teddy, he was later renamed Smokey and became the real-life version of the United States Forest Service mascot Smokey Bear. Smokey was later sent to the National Zoo in Washington D.C., where he lived for 26 years. Upon his death on November 9, 1976, Smokey's remains were returned by the government to Capitan

¹ Retrieved from www.villageofcapitan.com

and buried at what is now the Smokey Bear Historical Park. Buried on the grounds of the Smokey Bear Historical Park is Smokey Bear. The park features fire prevention information, a xeriscape garden with walkable pathways and benches for outdoor enjoyment. A conservation seedling program and a re-leaf program are sponsored at the site by the NM State Forestry Division.²

According to the 2010 U.S. census, there were 1,489 people, 804 households, and 176 families residing in the village. The population density was 450.9 people per square mile (174.1/km²). There were 1,186 housing units at an average density of 224.0 per square mile (86.5/km²). The racial makeup of the village was 84.35% White, 0.47% African American, 0.94% Native American, 0.067% Asian, 10.81% from other races, and 3.35% from two or more races. Hispanic or Latino of any race were 24.78% of the population.



Source: https://en.wikipedia.org/wiki/Smokey_Bear

4.3.3 *Ruidoso Downs*

The first home in the area of what would be present day Ruidoso Downs was built in the 1880s by Lowery Hale. Mr. Hale owned most of the land in the area and acquired over 800 acres. The early 1900s saw the construction of the two-story White Mountain Inn on the banks of Rio Ruidoso. A man named J.V. or Rev. S.M. Johnson built the Inn, and this originally was the only business in the area. The Johnson family also operated a general store, post office, and dance hall.

² Retrieved from www.smokeybearpark.com

The mid 1930s saw the opening of Turner’s Tavern, a saloon, and filling station, followed by a garage and general mercantile store that later became Fox Merchandise. The first community sawmill was started by Ed Hoagland in 1936. Timber played an important part of the City’s development until heavy cutting decimated the area’s timber resources.

The original town site was laid out in 1933, and the community was named Palo Verde. The name did not last long, and with opening of the post office in 1947, the U.S. Postal Administration changed the town’s name to Green Tree. At this time, Green Tree was incorporated as a Village largely due to the need for a reliable community water system. It wasn’t until 1958 that City residents voted to change by special election the name to Ruidoso Downs, and not until 1961 that the town officially became Ruidoso Downs with the opening of the new post office.

The Ruidoso Downs Racetrack opened in 1946 and became an instant attraction for Texans who were cashing in on the oil boom. The All American Futurity, the world’s most prestigious and richest quarter horse race, debuted in 1958. The Billy the Kid Casino at the east end of the racetrack opened in 2000. Despite these tourist attractions, Ruidoso Downs maintains a small town atmosphere which is highly valued by its residents. Ruidoso Downs is well known throughout the southwest and Texas as a community with the friendliest people.¹



Source: www.discoverruidoso.com

¹ City of Ruidoso Downs Comprehensive Plan 2004

4.3.4 Carrizozo

Carrizozo, New Mexico is a small town near the geographic center of the state. It is located at the crossroads of Highways 54 and 380, about 50 miles north of Alamogordo, and is the county seat of Lincoln County. Founded in 1899, the town provided the main railroad access for Lincoln County, and the town experienced significant population growth in the early decades of the 1900s. However, with declining relevance of the railroad, the population of the town has gradually declined.⁹

The location of Carrizozo was selected as the site for a station on the El Paso and Northeastern Railway (EP&NE) main line in 1899. Carrizozo was chosen over the nearby booming mine town of White Oaks, New Mexico, resulting in large-scale migration from White Oaks to Carrizozo. The railroad brought businesses, growing populations, and increased importance to the town of Carrizozo. As a result, a county referendum in 1909 moved the county seat of Lincoln County from the town of Lincoln to Carrizozo.¹

Modern Carrizozo is a scenic small town of about one thousand people — half the population it had at its peak — nestled at the crossroads of Highways 54 and 380. It rests on the northern lip of the Tularosa basin, in a region where the ecology changes very rapidly. The town lies at an elevation of 5400 feet (1.6 km), and as you head north the transition from desert basin to high plains grassland is very fast. Beyond the scarce man-made entertainment, there is Carrizozo's most famous attraction, The Valley of Fires. It is the youngest lava flow in the continental United States (only one or two thousand years old), and is also the youngest example of frequent volcanism that occurred along the Rio Grande rift.²

According to the 2010 census, there were 996 people residing in the town. The racial makeup of the town was 78.71% White, 0.70% African American, 2.61% American Indian, 14.16% Other, and 3.82% identified as two or more. Hispanics of any race were 43.57% of the population. 54.72% of the population were men, 45.28% were women. 15.96% were under the age of 18, 24.50% were over 65, and 59.54% were between 18 and 65.



Source:https://commons.wikimedia.org/wiki/Category:Valley_of_Fire

¹ https://en.wikipedia.org/wiki/Carrizozo,_New_Mexico

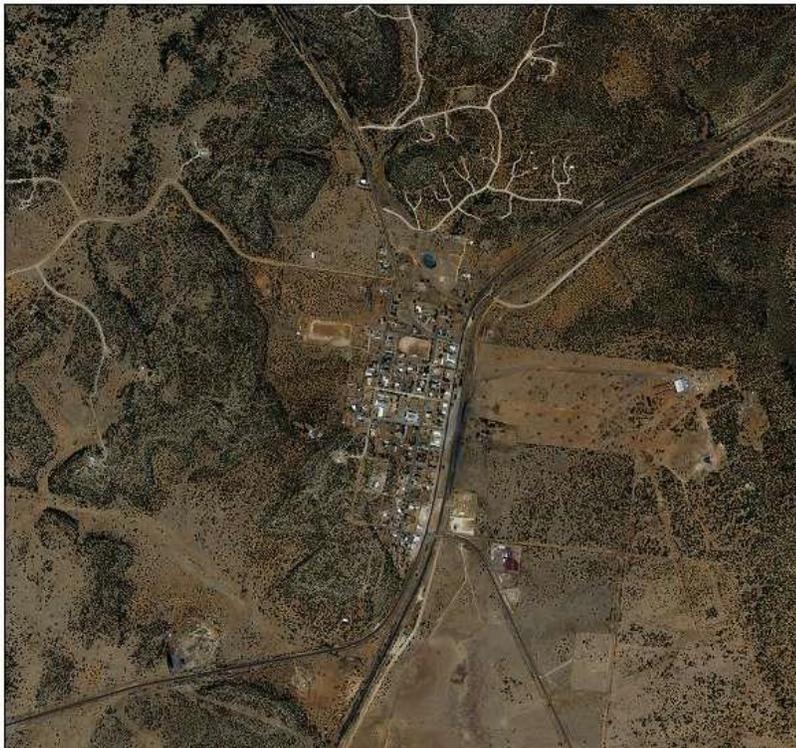
² www.carrizoworks.org

4.3.5 *Corona*

Corona is a village in Lincoln County, New Mexico, located on U.S. Route 54. Corona was established as a railroad town in 1903 with the building of El Paso and South Western Railroad from Carrizozo to Santa Rosa where it connected to the Rock Island Line. This brought many homesteaders and farmers to the area and initiated the growth of Corona as a trade center, enabling farmers and ranchers to ship their products to market.

In the 1950's, natural gas transmission lines were laid through the area, company housing was built, and some thirty families were employed. Recognized as one of the best in the state, the school has long been the focal point of the community. The School District encompasses parts of three counties and serves an area of 2061 square miles. The stage lines are now gone, the mines are closed; farming is minimal; the railroad depot has been moved; trains no longer stop here and natural gas lines have been automated. Corona is still the trade center for the area; school is still the heart of the community; and Corona is once again, ranching country.

As of the United States Census Bureau of 2010, there were 172 people, 120 households, and 18 families residing in the village. The population density was 161.4 people per square mile (62.5/km²). There were 118 housing units at an average density of 115.4 per square mile (44.7/km²). The racial makeup of the village was 92.44% White, 0.5% Native American, 6.97% from other races, and 4.85% from two or more races. Hispanic or Latino of any race were 26.74% of the population.



Source: Corona aerial photo, Google Earth.

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SECTION 5: HAZARD IDENTIFICATION AND RISK ASSESSMENT

§201.6(c)(2): [The plan shall include...] (2) A **risk assessment** that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards. The risk assessment shall include:

- (i) A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
- (ii) A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. The plan should describe vulnerability in terms of:
 - (A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;
 - (B) An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate;
 - (C) 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.
- (iii) For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

Risk assessment is a main aspect to the hazard mitigation planning process. When performing a risk assessment, the following questions need to be determined, “what” can happen, “when” how often it is likely to happen, and “how bad” the effects can be. The primary elements, according to DMA 2000, of a risk assessment that answer those questions are generally segregated into the following:

- **Hazard Identification and Screening**
- **Hazard Profiling**
- **Assessing Vulnerability to Hazards**

The risk assessment for Lincoln County and participating jurisdictions was performed using a county- wide, multi-jurisdictional perspective, with much of the information gathering and development being accomplished by the MPT. This approach was incorporated because many hazard events would likely affect numerous jurisdictions within a consolidated urban area like Lincoln County, and are rarely relegated to a single jurisdictional boundary. The vulnerability analysis was performed in a way such that the results reflect vulnerability at an individual jurisdictional level, and at a countywide level.

5.1 Hazard Identification and Screening

Hazard identification and Screening is the process of analyzing what hazards occur and can potentially occur to a jurisdiction. For this update, the list of hazards identified in the 2012 Plan was reviewed by the MPT, who chose to add a few man-made hazards in addition to the natural hazards listed. To ensure compatibility with the State Plan, the MPT also compared and contrasted the 2012 Plan list to the comprehensive hazard list summarized in the 2013 New Mexico Plan. Table 5-1 summarizes the 2012 Plan and 2013 State Plan hazard lists.

| Table 5-1: Summary of Initial Hazard Identification Lists | |
|--|--|
| 2012 Plan Hazard List | 2013 State Plan Hazard List |
| <ul style="list-style-type: none"> • Wildfire • High Wind • Flood • Drought • Thunderstorms • Severe Winter Storms • Dam Failure • Earthquakes • Tornadoes • Hazardous Materials • Extreme Heat | <ul style="list-style-type: none"> • Dam Failure • Drought • Earthquake • Extreme Heat • Expansive Soils • Flood • High Wind • Landslides • Land Subsidence • Severe Winter Storms • Thunderstorms (Lightning and Hail) • Tornadoes • Volcanoes • Wildland/Wildland-Urban Interface fire |

One tool used in the initial screening process was the historic hazard database referenced in the 2012 Plan. With this update, the 2012 Plan database was reviewed and updated to include declared disaster events and significant non-declared events that have occurred during the last plan cycle. Declared event sources included New Mexico Department of Homeland Security and Emergency Management (NMDHSEM), Federal Emergency Management Agency (FEMA), National Weather Service (NWS), National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center (NCDC), United States Geological Survey (USGS), and United States Forest Service (USFS). The historic hazard database presented in this plan primarily represent the period of January 2010 to January 2016. Two tables are used in this update to summarize the historic hazard events. Table 5-2 summarizes the state disaster declarations that included Lincoln County. Table 5-3 summarizes Lincoln County hazard events that meet the following selection criteria:

- 1 or more fatalities
- 1 or more injuries
- Any dollar amount in property or crop damages
- Significant event, as expressed in historical records or according to defined criteria above

| Table 5-2: State of New Mexico Natural Hazard Reported Events That Included Lincoln County January 2010 to January 2016 | | | | |
|--|------------------------|------------------------|-----------------|--------------------------|
| Hazard | No. of | Recorded Losses | | |
| | Reported Events | Fatalities | Injuries | Damage Costs (\$) |
| Droughts | 2331 | 0 | 0 | \$0 |
| Earthquake | 0 | 0 | 0 | \$0 |
| Extreme Heat | 0 | 0 | 0 | \$0 |
| Expansive Soils | 0 | 0 | 0 | \$0 |
| Floods | 530 | 10 | 8 | \$44,667,000 |
| High Wind | 954 | 0 | 1 | \$7,329,000 |
| Landslides | 0 | 0 | 0 | \$0 |
| Land Subsidence | 0 | 0 | 0 | \$0 |
| Severe Winter Storms | 93 | 0 | 4 | \$402,243,015 |
| Thunderstorms | 420 | 0 | 1 | \$5,978,000 |
| Tornadoes | 42 | 0 | 1 | \$1,083,000 |
| Wildfire | 44 | 0 | 21 | \$60,708,000 |
| Notes: Damage Costs are reported as is and no attempt has been made to adjust costs to current dollar values | | | | |

Source: www.ncdc.noaa.gov

| Table 5-3: Lincoln County Hazard Recorded Events – January 2010 to January 2016 | | | | |
|--|----------------|------------------------|-----------------|--------------------------|
| Hazard | No. of | Recorded Losses | | |
| | Records | Fatalities | Injuries | Damage Costs (\$) |
| Drought | 164 | 0 | 0 | \$0 |
| Earthquake | 0 | 0 | 0 | \$0 |
| Extreme Heat | 0 | 0 | 0 | \$0 |
| Flood | 25 | 0 | 1 | \$294,000 |
| High Wind | 127 | 0 | 0 | \$127,000 |
| Severe Winter Storms | 8 | 0 | 0 | \$1,000,000 |
| Thunderstorm | 48 | 0 | 0 | \$76,000 |
| Tornado | 4 | 0 | 0 | \$101,050 |
| Wildfire | 5 | 0 | 0 | \$31,031,000 |
| Notes: Damage Costs are reported as is and no attempt has been made to adjust costs to current dollar values | | | | |

Source: www.ncdc.noaa.gov

The culmination of the review and screening process by the MPT resulted in a decision to retain the same hazard lists as the 2012 Plan for profiling and updating with the addition of three more hazards (highlighted with asterisk*). Updated definitions for each hazard are provided in Section 5.2.

- **Wildfire**
- **Severe Weather**
 - **High Wind**
 - **Thunderstorms**
 - **Winter Storms**
 - **Extreme Heat**
- **Flood**
- **Drought**
- **Dam Failure**
- **Tornadoes**
- **Hazardous Materials**
- **Earthquake**
- **Terrorism***
- **Active Shooter***
- **Communicable Disease Outbreak***

5.1.1 *Climate Change*

FEMA has currently recommended that jurisdictions should consider the impact that climate change has on natural hazards. Per FEMA, climate change in and of itself may not be a hazard, but it may change the characteristics of the hazards that currently affect the planning area. Again, considering climate change is not required by Federal mitigation planning regulation, but it can provide a better understanding of how risk may change in the future. It was decided that the MPT would consider climate change within the descriptions of existing identified hazards.

It is known that climate change is not only difficult to predict, but it is also highly debated. However, according to the United States Global Change Research Program (USGCRP) there is a growing body of science and research that indicates several climate change trends. Trends that should be considered when evaluating natural hazard vulnerability and risk. The 3rd National Climate Assessment (NCA) was released by the USGCRP in May 2014, which is a comprised of the latest body of work and science on the climate change topic. The NCA report is divided into regions, and the Southwest region includes the states of Arizona, California, Colorado, Nevada, New Mexico, and Utah. According to the NCA²⁹, the Southwest regional climate change impacts noted include increased heat, drought, and insect outbreaks that result in more wildfires, declining water supplies, reduced agricultural yields, health impacts in cities due to heat, and flooding and erosion in coastal areas. In this report, the NCA released the following “5 Key Messages” for the Southwest Region:

1. **Reduced Snowpack and Streamflows:**

The amount of snowpack and streamflow are estimated to decrease in many parts of the Southwest, producing less surface water supply availability.

2. **Threats to Agriculture:**

Drought and extreme weather affect local agriculturally dependent economies. As climate change intensifies, existing growers and farming economies will be displaced.

3. **Increased Wildfire:**

Increased drought and warming will be linked to increased wildfires, impacting the people and ecosystems in Southwest region.

4. **Sea Level Rise and Coastal Damage:**

As the Earth continues to warm, sea levels will continue to rise, increasing coastal damage.

5. Heat Threats to Health:

Threats to public health and public health costs will growth start to rise due to the projected regional temperature increases.

According to FEMA, climate change should be addressed during mitigation planning because the probability and severity of future hazard events will be affected. In Section 5.2, a brief assessment of the potential effects that current climate change understanding may have on the Plan hazards is provided where appropriate.

5.2 Hazard Risk Profiles

The following sections summarize the risk profiles for each of the Plan hazards identified in Section 5.1. For each hazard, the following elements are addressed to present the overall risk profile:

- **Description**
- **Historical Occurrences**
- **Location, Probability, and Extent**
- **Climate Change Impacts**
- **Sources**
- **Profile Maps (if applicable)**

County-wide profile maps are provided at the end of the section (if applicable) and jurisdiction specific maps are included in the Executive Plan Summary for that jurisdiction.

5.3.1 *Wildfire*

Description

A wildfire is any fire occurring in a wildland area (e.g. grassland, forest, brush land) except for fire under prescription and mitigation. Wildfires are part of the natural management of forest ecosystems, but may also be caused by human factors. According to the National Fire Protection Association (NFPA) over 80% of forest fires are started as a result of negligent human behavior such as smoking in wooded areas or improper extinguishing of campfires. Lightning is the second most common cause for wildfire.

There are three classes of wildland fires: surface fires, ground forest, and crown fires. A surface fire is the most common of these three classes and burns along the floor of a forest, moving slowly and killing or damaging trees. A ground fire (muck fire) is usually started by lightning or human carelessness and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees.

Wildfires can occur at any time of day and during any month of the year, but the peak fire season in Lincoln County is normally from March through June. The length of the fire season and the peak months vary appreciably from year to year. Land use, vegetation, amount of combustible materials present, and weather conditions such as wind, low humidity, and lack of precipitation are the chief factors in determining the number of fires and acreage burned. Generally, fires are more likely when vegetation is dry from a winter with little snow and/or a spring and summer with sparse rainfall.

Wildfires are capable of causing significant injury, death, and damage to property. The potential for property damage from fire increases each year as more recreational properties are developed on forested land and more people use these areas. Fires can extensively affect the economy of an area, especially the logging, recreation, and tourism industries, upon which many counties depend. Major direct costs associated with wildfires are the salvage and removal of downed timber and debris and restoration of the burned area. The indirect effects of wildfires can also be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways and the land itself. Soil exposed to intense heat may lose its ability to absorb moisture and support life. If burned out woodlands and grasslands are not replanted quickly, widespread soil erosion, mudflows, and siltation of rivers could result, thereby enhancing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation by wildfires are also subject to increased landslide hazards. The only natural cause of wildfire is lightning; however, human carelessness and arson account for a large portion of all wildfires.

Factors that determine the potential for fire include relative humidity, moisture content of the fuel, atmospheric stability, drought, available energy of the fuel, probability of ignition, rate of spread, and the slope and fuel levels of the area. These factors are taken into account when determining the fire danger for a specific area.

- **Relative humidity.** Relative humidity is 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 (RH) is expressed in percent. RH is measured directly by automated weather stations or by taking wet and dry bulb readings with a psychrometer and then applying the National Weather Service psychrometric tables applicable to the elevations where the reading were taken.
- **Fuel moisture.** Fuel moistures in live herbaceous (annual and perennial), woody (shrubs, branches, and foliage) fuels, and dry (dead) fuels are calculated and represent 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.** This index is computed from the morning 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 atmospheric levels. The moisture term is derived from the dew point 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 the 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.** This index is used to measure 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. As the index values increase, the vegetation is subjected to greater stress from moisture deficiency. At higher values, living plants die and become fuel, and the duff/litter layer becomes more susceptible to fire. The KBDI ranges from 0 to 800:

KBDI 0 to 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 to 400. A range of 200 to 400 is typical of the late spring, early growing season. Lower litter and duff layers are drying and beginning to contribute to fire intensity.

KBDI 400 to 600. A range of 400 to 600 is typical of late summer, early fall. Lower litter and duff layers actively contribute to fire intensity and will burn actively.

KBDI 600 to 800. This range is 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.** This is the estimated potential available energy released per unit area in the flaming front of a fire. The day-to-day variations of the energy release component are caused by changes in the moisture contents of the various fuel classes, including the 1,000-hour time lag class. The energy release component is derived from predictions of the rate of heat release per unit area during flaming combustion and the duration of flaming.
- **The Ignition Component.** The ignition component is 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% of all firebrands that encounter wildland fuels will require suppression action.
- **The Spread Component.** This is 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 spread component 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 spread component table is required for each fuel type.
- **Slope and Fuel Levels Matrix.** The International Fire Code Institute combines slope and fuel levels to obtain a susceptibility index, see Table 5-4.

Table 5-4 Wildfire Susceptibility Matrix

| Fuel Class | Critical Fire Weather Frequency | | | | | | | | |
|------------|---------------------------------|-------|-----|-------------------|-------|-----|------------------|-------|-----|
| | <1 day per year | | | 2-7 days per year | | | 8+ days per year | | |
| | Slope % | | | Slope % | | | Slope % | | |
| | <40 | 41-40 | 61+ | <40 | 41-40 | 61+ | <40 | 41-40 | 61+ |
| 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 |

Source: International Fire Code Institute January 2000.

Key:

E = Extreme.

H = High

M = Medium

All of these factors are taken into account when determining the fire danger for a specific area. Because these indicators can change daily, the Fire Danger Rating System, see Table 5-5, was created to show in a simple way the relative danger level to the public.

Table 5-5 Fire Danger Rating System

| Rating | Basic Description | Detailed Description |
|---|--|--|
| Class 1: Low Danger (L) Color Code: Green | 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. |
| Class 2: Moderate Danger (M) Color Code: Blue | 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. Woody 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. |

Table 5-5 Fire Danger Rating System

| Rating | Basic Description | Detailed Description |
|---|--|--|
| Class 3: High Danger (H) Color Code: Yellow | Fires start easily and spread at a rapid rate | 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. |
| Class 4: Very High Danger (VH) Color Code: Orange | Fires start very easily and spread at a very fast rate | 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. |

| Rating | Basic Description | Detailed Description |
|--|---|--|
| Class 5: Extreme (E) Color Code: Red | Fire situation is explosive and can result in extensive property damage | 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. |

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

Location and Extent

New Mexico experiences, on average, 1,947 wildland fires each year that burn an average 126.5 acres apiece (246 thousand acres per year).

The fire regimes in Lincoln County are largely dependent on forest type. Before human settlement, Pinon Juniper woodlands and mixed conifer forests experienced infrequent high intensity stand replacing fires, while Ponderosa Pine forests experienced more frequent lower intensity fires. Fires have been suppressed for about 100 years, since communities in this area have had the capacity to do so. Human efforts combined with climactic conditions have altered fire regimes and fuel conditions. The county has recently experienced several large wildfires costing millions of dollars in property damage and suppression costs.

Fire intensity and size have been increasing due to the increase of fuels, tree density, large area of continuous fuels and a dry weather cycle. Wildfires have occurred in almost every vegetation type with the county, including grasslands, pinon/juniper forests, ponderosa pine forests, and mixed conifer forests. Fires have been started by both human and natural causes close to homes and roads, as well as isolated undeveloped areas. Most wildfires have been suppressed while still small. But several have grown into large fires. Table 5-6 below lists the large wildfires (>1000 acres) that Lincoln County has experienced since 2000 - 2016. Figure 5-1 The “Base Historic Fires” map shows these fires and additional fires the County has experienced in the last 50 years. Many of the historic fires have impacted or come very close to impacting communities and population centers within the county.

Table 5-6 Lincoln County Wildfires (>1000 acres) 2000-2016

| | Date | Size (acres) | Structures |
|-------------|-------------|---------------------|-------------------|
| Cree | May, 2000 | 6,500 | 3 |
| Kokopelli | March, 2002 | 1,000 | 29 |
| Peppin | June 2004 | 64,000 | unknown |
| Donaldson | June, 2011 | 101,563 | 1 |
| White | April, 2011 | 10,000 | 5 |
| Little Bear | June, 2012 | 44,330 | 250 |

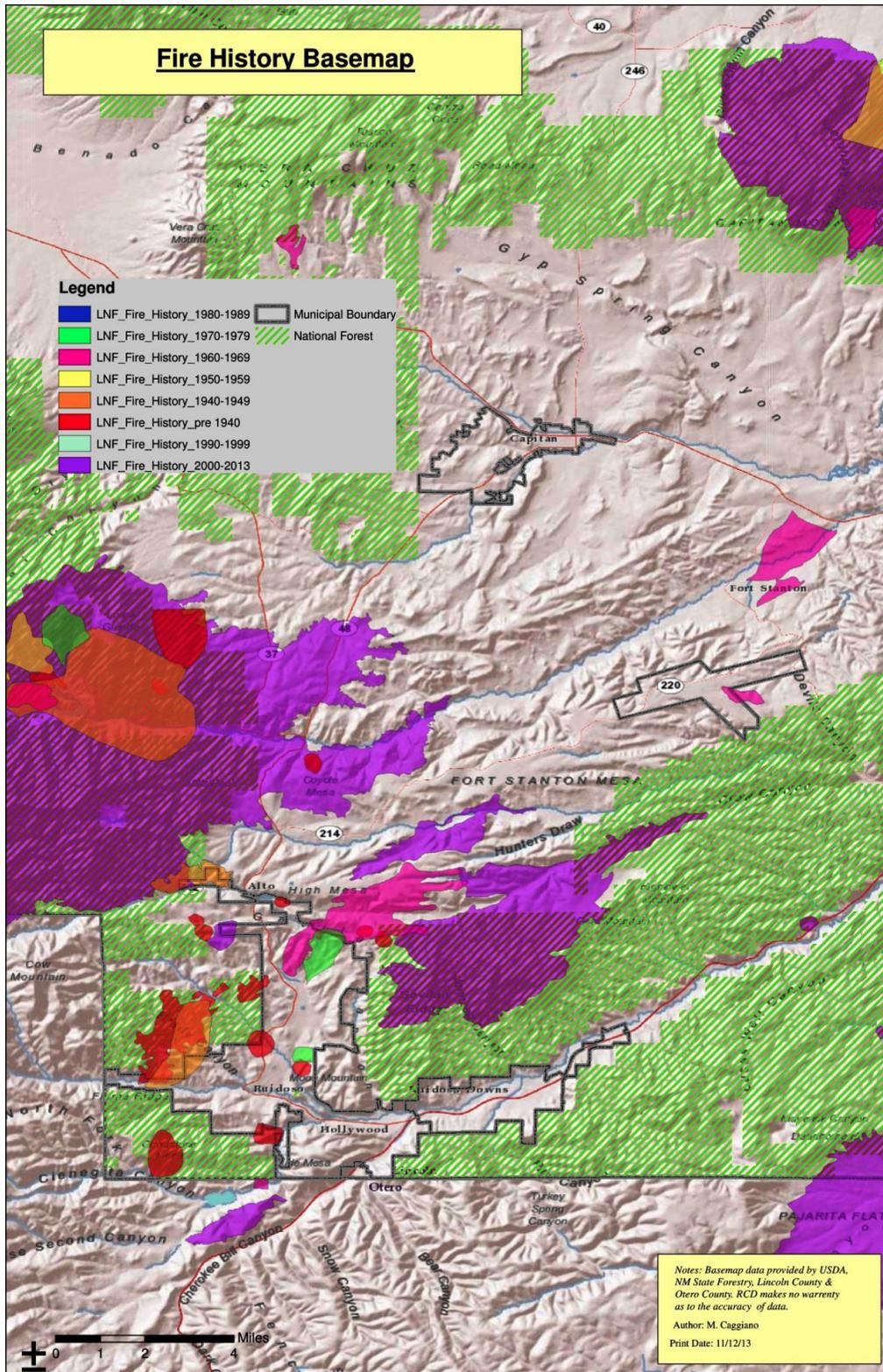


Figure 5-1 Fire History Basemap.

The majority of Lincoln County is dominated by a high desert, with grasslands, pinon juniper forests, ponderosa pine forests, and dry mixed conifer forests occurring at progressively higher elevations. Currently, forests are too dense with most stands in the County being overstocked, contributing to a high degree of departure from its historic range of variability (land fire dataset). Lincoln County's wild land urban interface (WUI) and areas of high fire risk are a mix of pinon juniper, ponderosa pine, and mixed conifer forest types. Limited amounts of riparian forests exist along waterways. Stand densities in untreated forest are higher than historical norms. As of 2014, beetle and insect damage are at epidemic proportions. This combination of insects, disease, drought, and fire caused stress are responsible for significant mortality in some stands/hillsides, and is expected to continue. This mortality increases fire risk while dead trees hold needles, and will contribute to increased fuel loading as dead trees fall to the forest floor. Treated areas (public and private land) have generally fared better than untreated land but are not immune to insects, disease, or drought. Current conditions around communities have improved largely due to thinning efforts, but much work remains to be completed. Vegetation on treated properties quickly grows back underscoring the need for continued maintenance.

Much of the county has been treated to reduce hazardous fuel. Strategically located public land has been treated by government agencies, and private land has been treated by landowners, often with the assistance of government grant programs. The desired conditions around structures include defensible space with a minimum cleared area extending 30 feet from the structure. Additional clearance is desirable if appropriate. A variety of fuel treatment strategies are needed to reach the desired conditions. Treatment types include mechanical removal, mastication, bulldozer pushes, piling, handwork and prescribed burns.

The stakeholders in Lincoln County have been working with one another for over 10 years. Over this time, great strides have been made in reducing the wildfire risk around the community. Ruidoso became a Firewise community in 2003, Ranches of Sonterra Subdivision & Black Forest Subdivision became a Firewise communities in 2015.¹ The surrounding subdivisions and communities are currently implementing similar strategies. The Sierra Blanca Wildfire Training Academy has been training local and regional firefighters and provides a variety of NWCG classes for municipal, volunteer, state and federal agency firefighters. The Greater Ruidoso Area working group provides a forum for agency representatives to plan and develop new projects. Local fire departments are implementing interagency cooperative burns. Figure 5-2 illustrates the 2014 fuels projects in Lincoln National Forest District.

Various entities in Lincoln County and in the Village of Ruidoso have conducted hazardous fuel reduction projects and have treated over 50,000 acres since 2008. Treatments have occurred on National Forest System lands, BLM lands, State trust lands, Municipal lands, and private property.

¹ <http://firewise.org/>

Lincoln National Forest Smokey Bear Ranger District FY 2014 Fuels Projects

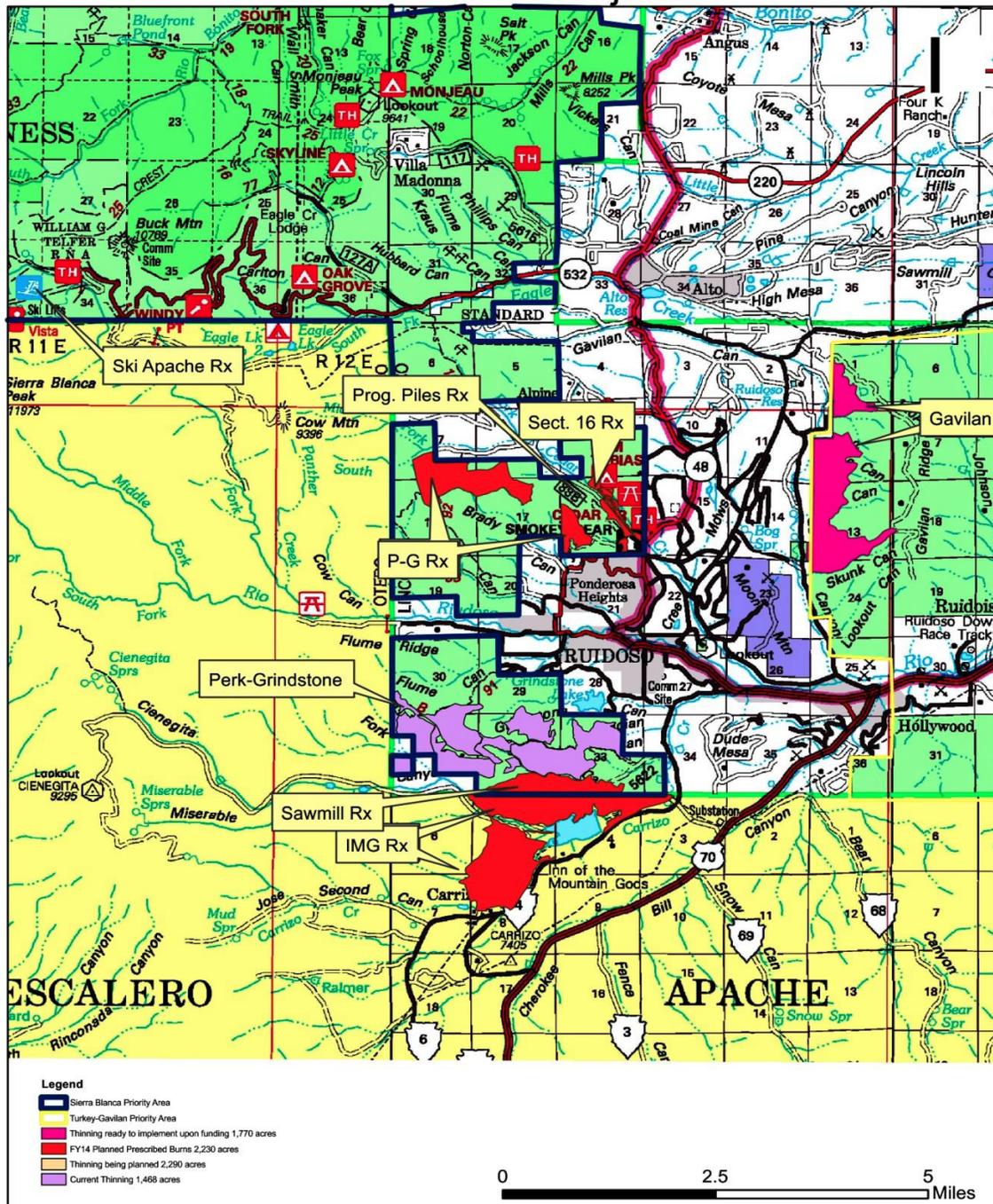


Figure 5-2 illustrates the 2014 fuels projects in Lincoln National Forest District.

Historical Occurrences

As a storm system approached New Mexico on the April 3, 2011, the mid-level gradient and surface pressure gradient increased sharply, leading to high, damaging winds. These strong winds fueled a new wildfire near Ruidoso. A human-caused wildfire, known to be called the White fire, begun in Gavilan Canyon and quickly spread north and northeast as very strong winds fueled the fire. The White Fire crossed Highway 70 near Ruidoso Downs and continued to move toward Forest Service Road 120. Highway 70 between mile markers 265 and 271 was closed for a time. Much of the burned area consists of steep, rough and rocky terrain, which made it difficult to contain the fire. In all, 10,384 acres were scorched, 5 homes and 7 outbuildings were destroyed and another 2 homes and 2 outbuildings were damaged.

A wildfire which started on June 28, 2011, named the Donaldson because it started on the ranch of famous newsman Sam Donaldson, was caused by lightning. The high winds caused the fire to pick up intensity as it sped south of Hondo reaching both sides of the Rio Hondo, reaching not only private land but the Mescalero Apache Tribal lands as well. The fire burned approximately over 100,000 acres and caused over \$5 million in damages.



Village of Ruidoso Fire Department: Photo retrieved from
http://www.whitesandsconstruction.com/project/ruidoso_main_fire_station/

In June of 2012, the Little Bear Fire burned approximately 35,300 acres of National Forest System (NFS) Lands on the Smokey Bear Ranger District of the Lincoln National Forest, with total burn area of 44,330 acres. The fire started in the White Mountain Wilderness and ran northeast across six watersheds, including the Rio Bonito, in the mountains directly adjacent to Ruidoso, Alto, and Angus, New Mexico. The burn severity was high to moderate throughout 53% of the fire. There was major loss of property with over 240 structures lost.



Source: wildfiretoday.com, photo of the 2012 Little Bear Fire



Source: earthobservatory.nasa.gov, aerial photo of the 2012 Little Bear Fire

Probability of Occurrence

The Community Wildfire Hazard Risk Assessment was conducted on communities within the county as well as the unincorporated areas around the county. The National Fire Protection Association (NFPA) standard 1144 was used to rate each community. NFPA 1144 “Standard for Reducing Structure Ignition Hazards from Wildland Fire” assesses the buildings within an area as well as the landscape from the building out to 200’. The structure construction materials, landscaping, and natural conditions are all included in the assessment. The following

Table 5-7 represents the summary of the assessment and probability of occurrence, by community.

| Table 5-7 Assessment Area Summary Information and Probability of Occurrence | | | | | |
|--|--|------------------------------------|--------------------------------|--|--------------------------------------|
| Community | Assets at Risk | Wildfire Risk of Occurrence | NFPA 1144 Hazard Rating | Contributing Factors to NFPA 1144 Ratings | Firefighting Capacity |
| Capitan | Homes, businesses, tourism, Agriculture, watershed quality, wildlife habitat | High | Low | Light Fuel loads, Electrical utilities above ground, Hydrants, Lack of structure sprinkler systems | Capitan VFD, NM State Forestry, USFS |
| Carrizozo | Homes, businesses, tourism, Agriculture, watershed quality, wildlife habitat | High | Low | Light Fuel loads, Electrical utilities above ground, Hydrants, Lack of structure sprinkler systems | Carrizozo VFD |
| Corona | Homes, businesses, tourism, Agriculture, watershed quality, wildlife habitat, railroad | High | Moderate | Medium Fuel Loads, Defensible space around structures 30’-70’, Hydrants, Terrain conducive to unfavorable fire behavior, combustible decks and porches, Electrical utilities above ground, Lack of structure sprinkler systems | Corona VFD |

| Community | Assets at Risk | Wildfire Risk of Occurrence | NFPA 1144 Hazard Rating | Contributing Factors to NFPA 1144 Ratings | Firefighting Capacity |
|------------------|---|------------------------------------|--------------------------------|--|--|
| Ruidoso | Homes, Businesses, tourism, agriculture, historic buildings, recreation, watershed quality, wildlife habitat, aesthetics | High | High | Heavy fuel loads, defensible space less than 30' around structures, hydrants, Terrain conducive to unfavorable fire behavior, combustible decks and porches, Electrical utilities above ground, Lack of structure sprinkler systems | Ruidoso Fire Department, USFS |
| Ruidoso Downs | Homes, Businesses, tourism, agriculture, historic buildings, recreation, watershed quality, wildlife habitat, aesthetics | High | High | Heavy fuel loads, defensible space less than 30' around structures, hydrants, Terrain conducive to unfavorable fire behavior, combustible decks and porches, Electrical utilities above ground, Lack of structure sprinkler systems | Ruidoso Downs Fire Department, USFS |
| Lincoln County | Homes, Businesses, tourism, agriculture, historic buildings, recreation, watershed quality, wildlife habitat, aesthetics, major highway | High | High | Heavy fuel loads, defensible space less than 30' by structures, Terrain conducive to unfavorable fire behavior, combustible decks and porches, Electrical utilities above ground, Lack of structure sprinkler systems, dirt roads, no fire resistant house materials | Bonito VFD, Arabela VFD, Hondo VFD, Glencoe VFD, Nogal VFD, Lincoln VFD USFS Fire, BLM Fire, NM State Forestry |

Source: 2014 Lincoln County Community Wildfire Protection Plan (CWPP)

Climate Change Impacts

The National Climate Change Assessment (NCA) report (Garfin, et.al., 2014) projects wildfire risk and incidents in the Southwest region will likely be increased due to climate change. This is stated as one of the “Key Messages” due to increased temperatures, reduced precipitation, and more severe periods of drought. This assessment will require additional efforts focused towards vegetation management and consideration for jurisdictions to implement climate change impacts into their CWPP.

5.2.2 Flood

Description

Flooding occurs when a river, stream, lake, or other body of water overflows its banks onto normally dry land or there is an excessive pooling of surface water. These events can develop slowly or happen very quickly. These overflow areas are floodplains, Figure 5-3.

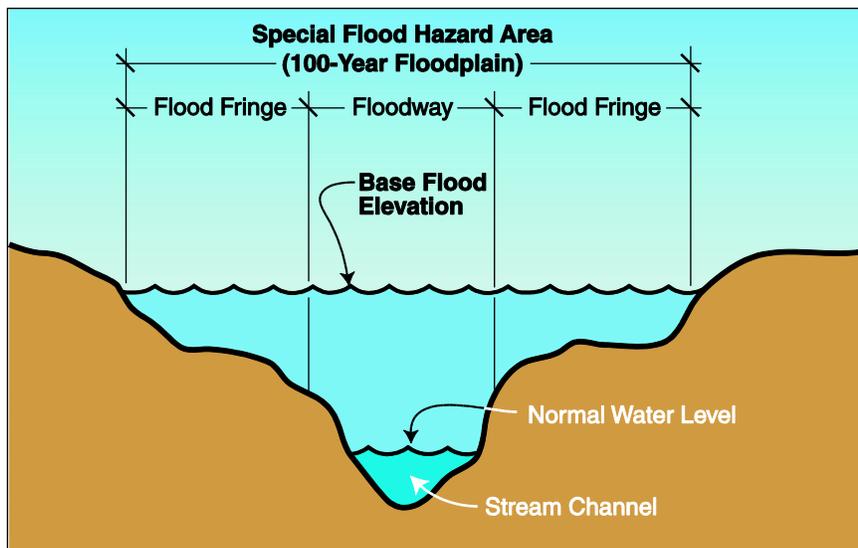


Figure 5-3 Flood Definition

Riverine floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Flood studies use historical records to determine the probability of occurrence for different extents of flooding. The flood recurrence intervals, shown in Table 5-8, are expressed as the percentage chance that a flood of a specific extent will occur in any given year. Alluvial fans and alluvial fan flood hazards do exist in the state. Alluvial fan flood hazard characteristics include heavy sediment/debris loads and high velocity flows. Flash floods are usually the result of excessive precipitation or rapid snowmelt and can occur suddenly. Flash floods cannot be predicted.

Table 5-8 Flood Recurrence Intervals

| Flood Recurrence | Chance of Occurrence in Any Given Year |
|------------------|--|
| 10 year | 10% |
| 50 year | 2% |
| 100 year | 1% |
| 500 year | 0.20% |

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.

Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities.

The NFIP Community Rating System (CRS) was implemented in 1990 as a program to recognize and encourage community floodplain management activities to go beyond 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.

Flood damage is reduced by nearly \$1 billion a year through partnerships with NFIP and CRS communities, the insurance industry, and the lending industry. Buildings constructed in compliance with NFIP building standards also suffer approximately 80% less damage annually than those not built in compliance. Further, every \$3 paid in flood insurance claims saves \$1 in disaster assistance payments.

The NFIP is self-supporting for the average historical loss-year, which means that operating expenses and flood insurance claims are not paid for by the taxpayer but through premiums collected for flood insurance policies. The program has borrowing authority from the U.S. Treasury for times when losses are heavy; however, these loans are usually paid back with interest.

To obtain secured financing to buy, build, or improve structures in Special Flood Hazard Areas (SFHAs), flood insurance must be purchased. Lending institutions that are federally regulated or federally insured must determine if the structure is located in a SFHA and must provide written notice requiring flood insurance.

Flood insurance is available to any property owner located in a community participating in the NFIP. Any area is susceptible to flooding, although to varying degrees. In fact, 25% of all flood claims occur in low-to-moderate risk areas.

The most widely adopted design and regulatory standard for floods in the United States is the 1% annual chance flood and this is the standard formally adopted by FEMA. The 1% annual flood, also known as the base flood elevation, has a 1% chance of occurring in any particular year. It is also often referred to as the “100-year flood” since its probability of occurrence suggests it should only occur once every 100 years. Experiencing a 100-year flood does not mean a similar flood cannot happen for the next 99 years; rather, it reflects the probability that over a long period of time, a flood of that magnitude should only occur in 1% of all years.

Table 5-9 shows NFIP status and statistics for Lincoln County and participating jurisdictions. No payments have been paid out in Lincoln County for flood damage since the establishment of the NFIP in 1978.

| Table 5-9: NFIP status and statistics for Lincoln County and participating jurisdictions | | | | | | |
|--|---------------------|------------------------|-----------------------------------|---------------------------|---------------------------|---|
| Jurisdiction | Community ID | NFIP Entry Date | Current Effective Map Date | Number of Policies | Amount of Coverage | Floodplain Management |
| Lincoln County | 350122 | 6/2004 | 11/16/2011 | 89 | \$20,330,400 | Provides floodplain management for the Unincorporated County with a CFM |
| Village of Ruidoso | 350098 | 6/7/1974 | 11/5/2014 | 211 | \$40,341,100 | Floodplain management provided by the Village of Ruidoso CFM |
| Ruidoso Downs | 350034 | 5/31/1974 | 11/5/2014 | 6 | \$1,399,500 | Floodplain management provided by the City of Ruidoso Downs CFM |
| Carrizozo | 350110 | 6/2/2010 | 11/16/2011 | 1 | \$74,800 | Floodplain management provided by MOU with Lincoln County |
| Capitan | 350098 | 11/19/2008 | 11/16/2011 | 2 | \$128,600 | Floodplain management provided by MOU with Lincoln County |
| Corona | 350099 | N/A | 11/16/2011 | 0 | 0 | NOT A PARTICIPATING NFIP COMMUNITY |
| At present, there are no identified repetitive-loss properties in Lincoln County, Village of Ruidoso, Ruidoso Downs, Carrizozo, Capitan, or Corona. | | | | | | |

FEMA Flood Insurance Rate Maps (FIRM) exist for Lincoln County (dated 3/28/78), the Village of Ruidoso (3/15/94), Ruidoso Downs (7/5/82), Carrizozo (8/22/75), and Capitan (6/25/76). These maps are included as Appendix C.

Flood zones as identified throughout this plan are defined as (Figure 5-2):

- **A Zone.** The 100-year or base floodplain elevation (BFE). These floodplains are mapped by approximate methods; BFEs are not determined. This is often called an unnumbered A zone or an approximate A zone. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones

- **AE Zone.** Base floodplain where base flood elevations are provided.
- **AH Zone.** Shallow flooding in base floodplain. BFEs are provided.
- **Zone X (shaded):** Area of moderate flood hazard, usually the area between the limits of the 100-year and the 500-year floods.
- **Zone X (unshaded):** Area determined to be outside the 500-year flood.
- **Zone D:** Area of undetermined but possible flood hazards.

Location and Extent

Table 5-10 lists the major causes of riverine flooding vs. flash flooding. Additionally, flash flooding can affect large portions of the County. Flash flooding is the second greatest weather hazard in New Mexico. Statistics based on storm data for 1959 to 2006 show that New Mexico ranks tenth in the nation in flash flood deaths per capita. The flash flooding problem stems from a number of factors.

Table 5-10 Flooding vs. Flash Floods – Causes

| Riverine Floods | Flash Floods |
|--|--|
| Low lying, relatively undisturbed topography | Hilly/mountainous areas |
| High season water tables | High velocity flows |
| Poor drainage | Short warning times |
| Excess paved surfaces | Steep slopes |
| Constrictions – filling | Narrow stream valleys |
| Obstructions – bridges | Parking lots and other impervious surfaces |
| Soil characteristics | Improper drainage |

During the summer (June through August), thunderstorm frequency in certain parts of New Mexico is among the highest in the nation. Excessive moisture during the summer can lead to large volume runoffs enhanced by the terrain.

Most of the flash floods in New Mexico are associated with the summer monsoon season. Approximately 60% of all flash floods in the state occur in July and August. The monsoon season generally dissipates in the northern part of the state in early September.

In mid- to late summer the Pacific winds bring humid subtropical air into the state. Solar heating triggers afternoon thunderstorms that can be devastating. Because of too much rain, in too small an area, in too short a time, flash flooding may result. These flash floods generally travel down arroyos (normally dry streambeds) and can produce a rapid rise in water level, high velocity, and large amounts of debris, which can lead to significant damage that includes uprooting trees, undermining buildings and bridges, and scouring new channels.

The intensity of flash flooding is a function of the intensity and duration of rainfall, steepness of the watershed, stream gradients, watershed vegetation, natural and artificial flood storage areas, and configuration of the streambed and floodplain. Dam failure and ice jams may also lead to flash flooding. Urban areas are increasingly subject to flash flooding due to the removal of vegetation, replacement of ground cover with impermeable surfaces, and construction of drainage systems. Local drainage floods may occur outside of recognized drainage channels or delineated floodplains from a combination of locally heavy precipitation, a lack of infiltration, inadequate facilities for drainage and storm water conveyance, and increased surface runoff.

Winter flash flood events usually result from unseasonably high-level rain on top of a snow pack. Excessive runoff allows the combined release of the water in the snow pack along with the rain. These can be flash flood events lasting less than a day, or they can evolve into longer-term flooding events lasting from one day to a couple of weeks. Winter flooding occurs between November and February and usually affects the southwest portion of the state.

Most spring events occur between April and June. They vary between winter type events where the rain falls over an old snow pack in or near the mountains to events in the eastern plains, which are often associated with cold fronts, abundant moisture from the Gulf of Mexico, and upslope conditions.

Figure 5-4 demonstrates that seasonal flooding and flashfloods may impact large portions of Lincoln County. Additionally, the extent of the impact from flooding is best demonstrated on the County's Flood Insurance Rate Maps which can be accessed through the Lincoln County Planning Department.

There is an expectation that Lincoln County will experience at least one flood event a year. Based on available data it is expected that areas within identified floodplains would experience one to ten feet of inundation impacting structures and the ability to navigate flooded transportation routes. In the aftermath of the 2012 Little Bear Fire, it has been noted that areas that were previously not shown in the flood plain are being more severely impacted by flood events, particularly the Rio Bonito and Eagle Creek, and will be addressed more fully in the next update. Examples of flood events and their extents include the 2008 Ruidoso Flood (discussed below) where the peak flow measured at the Hollywood Station registered 1630 cubic feet per second. In 2006, a flash flood in Alamogordo roared through the middle of town inundating areas from First Street to Tenth Street.

In addition to the potential for annual flooding events, data is available from the County Planning Department (provided by FEMA) regarding 100-year flood events in Lincoln County for the following rivers (data is feet above river bed):

- Carrizo Creek : 12’+-
- Cedar Creek : 9’ +-
- Rio Bonito: 10’+-
- Rio Ruidoso: 20’+-
- Rio Hondo: 20’ +-
- Salado Creek: 10’+-

In all areas of the County bridges/crossings are going to be under the base flood elevation according to the 1% flood chart. This will be a severe risk to the County of losing road infrastructure, and necessitating water crossing rescues of County residents that will be stranded.

The worst case scenario for flooding would result from failure of the Lake Mescalero, Bonita, Alto and Grindstone dams which would result in the water flow in the Rio Ruidoso increasing to 40 feet above the streambed through Ruidoso and Ruidoso Downs. After Ruidoso Downs it would be 20 feet above the streambed through the Hondo Valley.

Inundation levels for communities of concern in Lincoln County are illustrated on the maps identified in Table 5-11. No hazard areas with assigned flood depths were included. Additional data may be obtained through the Lincoln County Flood Manager. It must be noted that, due to a lack of project funding, the most current set of FIRMs does not include the entire County and there may be additional areas that will be impacted by flood events for which data is not available.

Table 5-11 Lincoln County FIRMs – Community Maps and Flood Hazard Areas

| Community | Community Number | Panels | Flood Hazard Areas |
|-------------------------------------|------------------|--|--|
| Capitan, Village of | 350098 | 1615, 1625 | Special Flood Hazard Areas (Zone A) along Salado Creek , Magado Creek, Oso Creek and Spring Canyon Creek |
| Carrizozo, Town of | 350110 | 1250, 1275 | Special Flood Hazard Areas (Zone A) at the east end of town and along the Nogal Arroyo |
| Corona, Village of | 350099 | 0090,0305 | Special Flood Hazard Area (Zone A) along County Line Road |
| Mescalero Apache Indian Reservation | 350041 | 2055, 2065 | Maps not in data set. |
| Village of Ruidoso | 350033 | 1890, 1895, 1910, 1950, 2052, 2055, 2056, 2057, 2058, 2059, 2066, 2067, 2080, 2100 | Special Flood Hazard Area (Zone AE) along the Rio Ruidoso |
| City of Ruidoso Downs | 350034 | 2059, 2080, 2085 | Special Flood Hazard Area (Zone AE) along the Rio Ruidoso |

Figure 5-4 illustrates that areas of highest potential flooding impact are water bodies located along transportation routes such as Highway 70 and nearest to population centers like Hondo, Ruidoso Downs and Ruidoso.

Flood gauges maintained by USGS are located at the following locations:

- Rio Hondo at Diamond A Ranch near Roswell, NM
- Rio Hondo above Chavez Canyon near Hondo, NM
- Rio Ruidoso at Hollywood, NM
- Rio Ruidoso at Ruidoso, NM
- Eagle Creek below South Fork near Alto, NM
- Bonito Lake near Alto, NM
- Rio Bonito at Highway 48 Bridge near Alto, NM

According to the report New Mexico Flood History, excessive runoff of the Rio Ruidoso is the principal cause of flooding in Ruidoso. The Rio Ruidoso is a perennial river which flows approximately 6 miles through the village in an easterly direction. The source of the Rio Ruidoso is on the eastern slope of Sierra Blanca at an elevation of nearly 12,000 feet. The drainage area at the Hollywood gaging station is 125 square miles.

Excessive flow in the tributaries of the Rio Ruidoso causes the remaining flood problems in the community. The major tributaries to the Rio Ruidoso from upstream to downstream are: Brady Canyon, an intermittent stream which flows southeasterly; Carrizo Creek, a perennial stream which rises on the southeast slope of Sierra Blanca, then flows to the northeast; Cedar Creek, a perennial stream which flows southeasterly; and Cherokee Bill Canyon, which contains a northeasterly flowing intermittent stream. Cherokee Bill Canyon flow originates in the Sacramento Mountains.

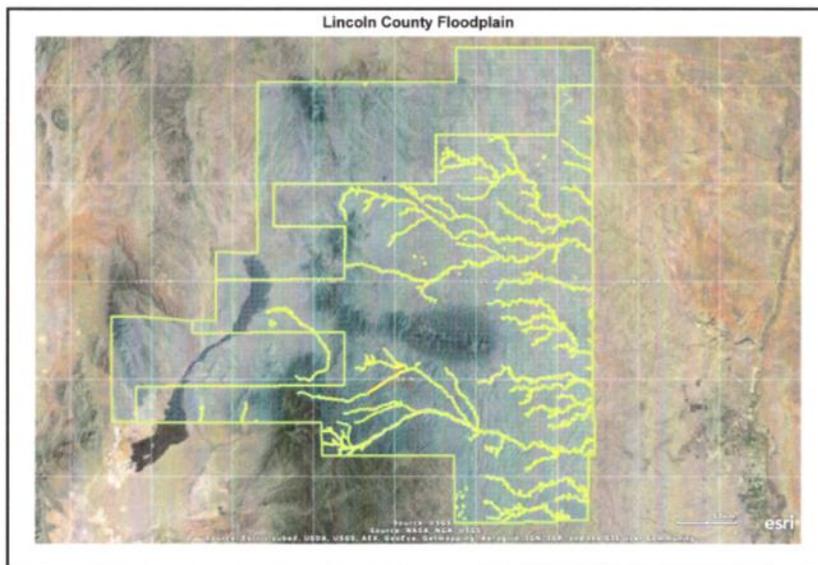


Figure 5-4 Lincoln County Flood Plain

In Capitan, on September 14, 2014, a prolonged period of moderate to locally heavy rainfall associated with the remnant moisture from Hurricane Odile impacted much of southern and eastern New Mexico between the 17th and 20th. Many areas from the upper Gila region of Catron County eastward across Socorro and Lincoln counties into the eastern plains reported 4 day rainfall amounts of 2 to nearly 5 inches. This prolonged heavy rainfall event and abundant remnant moisture set the stage for flash flooding as a second upper disturbance approached from northwestern Mexico on the 21st. A large area of heavy rainfall shifted very slowly north across Lincoln and Chaves counties resulting in flash flooding. A persistent area of torrential rainfall later in the day around Cimarron also produced significant flash flooding. Flooding was reported on State Road 246 at mile markers 4,27-29, and 55-56. Pavement was damaged at mile marker 29. The highway was closed from Capitan to Roswell. This event caused over \$130 K in damages in Lincoln County.

Probability of Occurrence

Table 5-12 provides probability data for flood events in Lincoln County.

Table 5-12 Flood Hazard Probability

| Hazard | n | N | T | P | Source/Comments |
|--------|----------------------|-------------------------------|--------------------------------------|----------------------------|--------------------------|
| Flood | 13 | 14 | 1.076923 | 0.928571 | NCDC (includes F'floods) |
| | 2 | 3 | 1.5 | 0.666667 | FEMA - PDD, Major Events |
| KEY | n = number of events | N = number of years in record | T = Recurrence Interval (T = N/n) | P = Probability (P=1/T) | |

Climate Change Impacts

Additional policies pertaining to flood mitigation and floodplain development may be warranted due to the possible climate change effects. The NCA report (Garfin, et.al., 2014) indicates the Southwest region could have a reduction in average annual precipitation and lower streamflow volumes. Although, anticipated intensified winter storms could lead to increased flooding, also due to the impact of reduced vegetation, watershed, drought, and wildfires.

5.2.3 Severe Weather

5.2.3.1 High Wind

Description

Wind is the motion of air relative to the earth’s surface. In the mainland U.S. the mean annual wind speed is reported to be 8 to 12 mph, with frequent speeds of 50 mph and occasional wind speeds more than 70 mph. Large-scale extreme wind phenomena are experienced over every region of the United States and its territories. High winds can result from thunderstorm inflow and outflow, downburst winds when the storm cloud collapses, strong frontal systems or gradient winds (high or low-pressure systems) moving across a region. High winds are defined as speeds reaching 50 mph or more, either sustained (continuous) or gusting.

Although various scales can be used to measure the effects of wind, the Beaufort Wind Scale is specifically adapted to wind effects on land. Table 5-13 summarizes the correlation of wind speed with visible effects of the wind speed (land conditions) and how these correspond to the Beaufort Scale. Lincoln County has experienced all 12 categories listed below.

Table 5-13 Beaufort Scale

| Beaufort Number | Wind Speed (mph) | Description | Land Conditions |
|-----------------|------------------|-----------------|--|
| 0 | 0 | Calm | Calm. Smoke rises vertically. |
| 1 | 1-3 | Light air | Wind motion visible in smoke. |
| 2 | 4-7 | Light breeze | Wind felt on exposed skin. Leaves rustle. |
| 3 | 8-12 | Gentle breeze | Leaves and smaller twigs in constant motion. |
| 4 | 13-18 | Moderate breeze | Dust and loose paper rises. Small branches begin to move. |
| 5 | 19-24 | Fresh breeze | Smaller trees sway. |
| 6 | 25-31 | Strong breeze | Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult. |
| 7 | 32-38 | Near gale | Whole trees in motion. Effort needed to walk against the wind. |
| 8 | 39-46 | Gale | Twigs broken from trees. Cars veer on road. |
| 9 | 47-54 | Strong gale | Light structure damage. |

| | | | |
|-----------|-------|---------------|---|
| 10 | 55-63 | Storm | Trees uprooted. Considerable structural damage. |
| 11 | 64-73 | Violent storm | Widespread structural damage. |
| 12 | 73-95 | Hurricane | Considerable and widespread damage to structures. |

Windstorms are defined here as both high-velocity straight-line winds and violent wind gusts not associated with thunderstorms. Dust storms are strong windstorms that fill the air with thick dust, sometimes reducing visibility to resemble a dense fog. Other wind events include wet or dry microbursts that may produce damaging convective winds and dust devils, even on a clear and otherwise calm day.

Location and Extent

The majority of serious wind events occur in June and July. Spring and fall events are mostly associated with dry microbursts, when lower level moisture is often lacking. March, April, and May have a large number of events related to springtime winds. New Mexico has an average of more than ten wind events per year, equaling a probability of 100%. Dust storm probability is 27% per year.

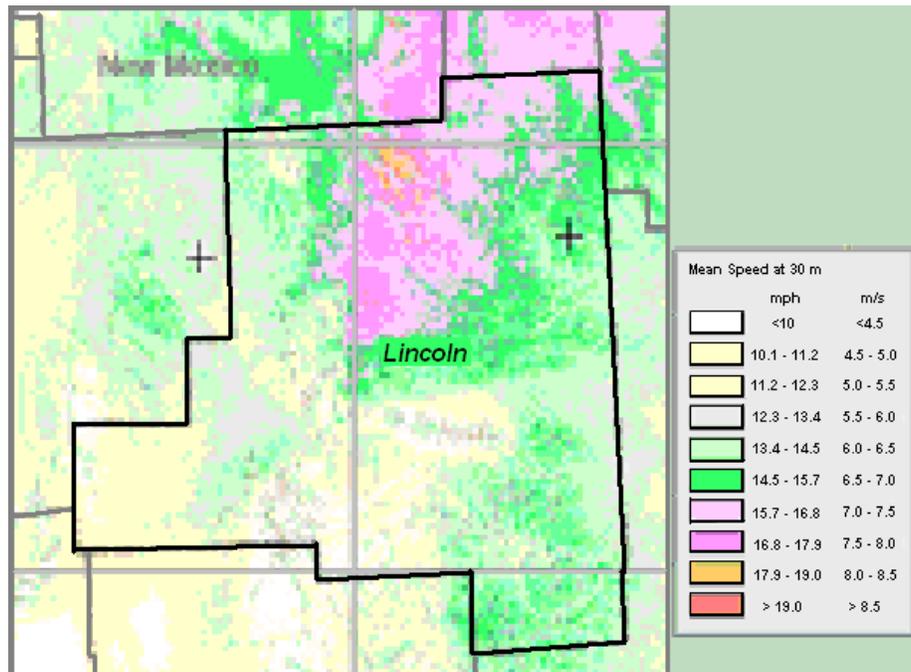
No areas of Lincoln County are immune from damaging high winds, especially in the spring, but extremely high-velocity wind over a prolonged period is rare. Such occurrences can result in downed power lines, roof damage, trees being blown down, and difficulty in controlling high-profile vehicles on the highways. Microburst wind damage is more common since it is often associated with powerful downdrafts originating from thunderstorms. These winds are of relatively short duration. Certain areas of Lincoln County are subject to hazardous dust storms when high winds blow over terrain that is relatively devoid of vegetation. Localized dust storms can arise unexpectedly when high winds pick up dust and debris from construction sites.

One type of wind event is the gap wind or canyon wind. This occurs as the wind rushes over mountain passes, “gaps,” in the ridgeline of a mountain chain. Wind speeds are generally strongest at narrow canyon openings. Another type of wind event is referred to as the spillover wind, which occurs when cold air to the east of the mountains has a sufficient depth (approximately 10,000 feet above sea level) to overtop mountain ranges and spill over to the west.

Large-scale dust storms occasionally occur in the White Sands region of New Mexico. Major dust events can transport mineral aerosols (dust) for long distances, obscuring vision for motorists and causing breathing problems for people with respiratory difficulties. These dust storms impact portions of Lincoln County, including the Carrizozo area.

The National Oceanic and Atmospheric Administration (NOAA) wind data from White Sands National Monument indicated winds at approximately 10,000 feet above ground level in excess of 50 knots. Reduced visibility continued long after the active production of blowing dust ended.

Figure 5-6 shows average wind speeds in Lincoln County.



Source:http://www.awstruewind.com/inner/windmaps/maps/NorthAmerica/UnitedStates/NewMexico/NM_SPD30m.pdf

Figure 5-6 Average Wind Speeds in Lincoln County

Historical Occurrences

A large dust storm was reported in March 1977 that originated in the White Sands area. Dust from White Sands was visible on the geostationary operational environmental satellite (GOES) imagery. It formed a plume more than 250 miles long and blew eastward through Roswell, across eastern New Mexico to Clovis and then into the Texas Panhandle, where it eventually dissipated.

Another major dust storm event occurred in the White Sands area on April 9, 1999, when large clouds of milky white dust were observed overtopping the nearby Sacramento Mountains and blowing to the northeast. The dust storm started quickly and lasted for more than 8 hours, with visibilities reduced to as low as 1.5 miles and winds gusting to at least 38 knots (44 mph).

In Corona on May 10, 2010, a quick moving upper level storm system and its associated cold front brought very strong winds to the state on that day. Strong winds started early in the morning, with most locations gusting near 60 mph before noon. The strong winds created areas of blowing dust with reduced visibility down to 2 miles or less at times. The gusty winds also took down power poles, broke tree limbs and tore a roof off a mobile home. This event caused \$20 K in property damage.

Probability of Occurrence

Table 5-14 provides probability data for severe hazard weather events in Lincoln County.

Table 5-14 Severe Hazard Weather Probability

| Hazard | n | N | T | P | Source/Comments |
|--------------------------------|----------------------|-------------------------------|--|--------------------------------|--|
| Severe Weather (Thunderstorms) | 29 | 19 | 0.655172 | 1.526316 | NCDC (includes High Winds and Tropical Storms) |
| Severe Weather (Lightning) | 3 | 4 | 1.333333 | 0.75 | NCDC |
| Severe Weather (Hail) | 62 | 47 | 0.758065 | 1.319149 | NCDC |
| Severe Weather (Winter Storm) | 26 | 14 | 0.538462 | 1.857143 | NCDC (recorded as snow and ice) |
| KEY | n = number of events | N = number of years in record | T = Recurrence Interval ($T = N/n$) | P = Probability ($P=1/T$) | |

5.2.3.2 *Thunderstorms*

Description

Thunderstorms are produced when warm moist air is overrun by dry cool air. As the warm air rises, thunderheads form and cause strong winds, lightning, hail, and heavy rains. Atmospheric instability can be caused by surface heating or by upper tropospheric (>50,000 feet) divergence. Rising air parcels can also result from airflows over mountainous areas. Generally, upper tropospheric “air mass” thunderstorms form on warm-season afternoons and are not severe. The latter “dynamically driven” thunderstorms, which generally form in association with a cold front or other regional atmospheric disturbance, can become severe, thereby producing strong winds, frequent lightning, hail, downburst winds, heavy rain, and occasional tornadoes.

Thunderstorms may have different characteristics in different regions of the state. Across the eastern plains, thunderstorms tend to be more organized, long-lived, and occasionally severe, producing large hail, high winds, and tornadoes. Thunderstorms in the western part of the state

tend to be less severe on average, occasionally producing life-threatening flash floods and small hail accumulations.

The National Weather Service (NWS) definition of a severe thunderstorm is a thunderstorm that produces any of the following: downbursts with winds of 58 miles (50 knots) per hour or more (often with gusts of 74 miles per hour or more), hail 0.75 of an inch in diameter or more, or a tornado. Typical thunderstorms can be 3 miles wide at the base, rise to 40,000 to 60,000 feet into the troposphere, and contain half a million tons of condensed water. Severe thunderstorms are reported each year in nearly all New Mexico counties.

Thunderstorm frequency is measured in terms of incidence of thunderstorm days or days on which thunderstorms are observed. The NCDC reports 29 thunderstorm events since July 1989 causing no deaths, 2 injuries, \$615,000 in property damage.

Lightning is defined as a sudden and violent discharge of electricity, usually from within a thunderstorm, due to a difference in electrical charges. Lightning is a flow of electrical current from cloud to cloud or cloud to ground. Nationwide, lightning causes extensive damage to buildings and structures kills or injures people and livestock, starts forest and wildfires, and disrupts electromagnetic transmissions. Lightning is extremely dangerous during dry lightning storms because people often remain outside rather than taking shelter. To the general public, lightning is often perceived as a minor hazard. However, lightning-caused damage, injuries, and deaths establish lightning as a significant hazard associated with any thunderstorm.

Damage from lightning occurs four ways:

1. Electrocutation or severe shock of humans and animals;
2. Vaporization of materials along the path of the lightning strike;
3. Fire caused by the high temperatures (10,000 to 60,000°F); and
4. A sudden power surge that can damage electrical or electronic equipment.

Large outdoor gatherings (sporting events, concerts, campgrounds, etc.) are particularly vulnerable to lightning strikes. New Mexico ranks sixth in the nation in lightning fatalities with 0.55 deaths per million people annually.

The NCDC reports three lightning events between the years of 2010 and 2015, which caused 11 injuries: 8 in Alto and 3 in Capitan. Although only three events were recorded with the NCDC, it is assumed that more lightning events occur each year in Lincoln County.

While the entire state is at risk for lightning events, some areas of the state have higher concentrations of these events Figure 5-7 shows areas of lightning density in the state. According to the figure, Lincoln County lies within an area that has mean annual flash density levels of over $3 \text{ km}^2\text{yr}^{-1}$.

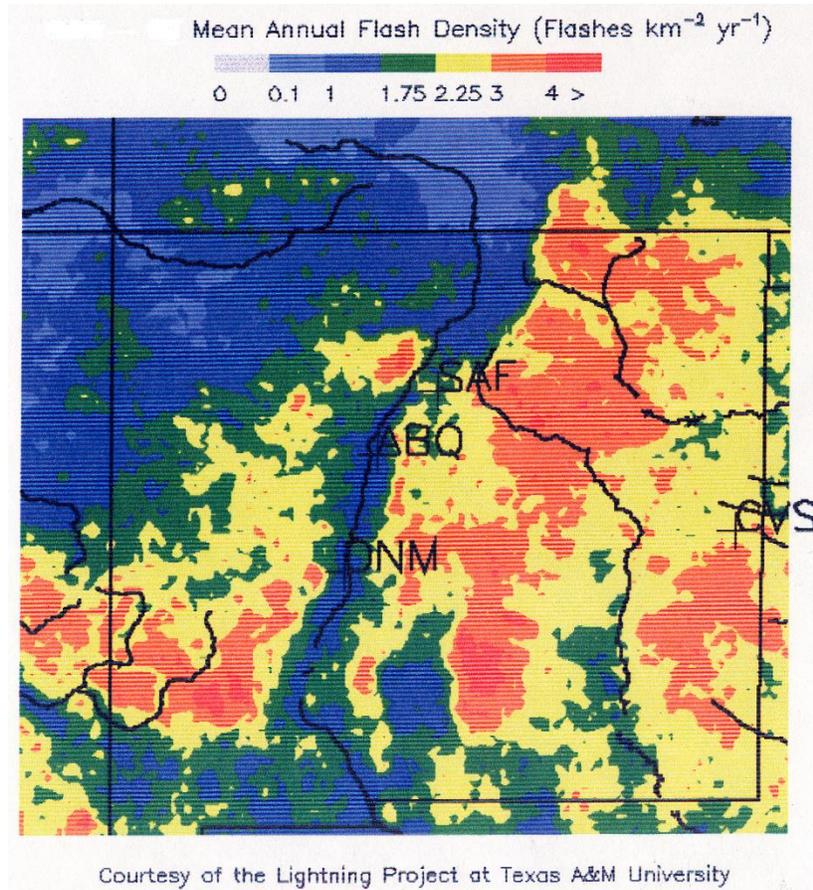


Figure 5-7 Lightning Density

The frequency and character of cloud-to-ground lightning can be categorized on a scale of 1 to 6 (Table 5-15). Lincoln County consistently experiences storms rating 5 or higher, and it is unlikely that this trend will change.

Table 5-15 Lightning Activity Level

| Category of Severity | Cloud and Storm Development | Counts of cloud-to-ground strikes every 5 minutes | Counts of cloud-to-ground strikes every 15 min | Average cloud-to-ground strikes per minute |
|----------------------|-----------------------------|---|--|--|
| 1 | No thunderstorms | - | - | - |

Table 5-15 Lightning Activity Level

| Category of Severity | Cloud and Storm Development | Counts of cloud-to-ground strikes every 5 minutes | Counts of cloud-to-ground strikes every 15 min | Average cloud-to-ground strikes per minute |
|----------------------|--|---|--|--|
| 2 | Cumulus clouds are common but only a few reach the towering stage. A single thunderstorm must be confirmed in the rating area. The clouds mostly produce virga but light rain will occasionally reach ground. Lightning is very infrequent. | 1-5 | 1-8 | <1 |
| 3 | Cumulus clouds are common. Swelling and towering cumulus cover less than two-tenths of the sky. Thunderstorms are few, but two to three storms occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent. | 6-10 | 9-15 | 1-2 |
| 4 | Swelling cumulus and towering cumulus cover two-tenths to three-tenths of the sky. Thunderstorms are scattered but more than three must occur within the observation area. Moderate rain is commonly produced, and lightning is frequent. | 11-15 | 16-25 | 2-3 |
| 5 | Towering cumulus and thunderstorms are numerous, covering more than three-tenths of the sky and occasionally obscuring the sky. Rain is moderate to heavy, and lightning is frequent and intense. | >15 | >25 | >3 |
| 6 | Dry lightning outbreak. (LAL of 3 or greater with majority of storms producing little or no rainfall.) | - | - | - |

Source: <http://www.crh.noaa.gov/gid/?n=fwfintro>

Hail is frozen water droplets formed inside a thunderstorm cloud during the strong updrafts of warm air and downdrafts of cold air, when the water droplets are carried well above the freezing level to temperatures below 32°F; the frozen droplet begins to fall, carried by cold downdrafts, and may begin to thaw as it moves into warmer air toward the bottom of the thunderstorm. This movement up and down inside the cloud through cold then warmer temperatures causes the droplet to add layers of ice, sometimes becoming quite large, sometimes round or oval shaped and sometimes irregularly shaped, before it finally falls to the ground as hail.

Hail usually occurs during severe thunderstorms, which also produce frequent lightning, flash flooding, and strong winds, with the potential of tornadoes. The hail size ranges from smaller than a pea to as large as a softball and can be very destructive to buildings, vehicles, and crops. Even small hail can cause significant damage to young and tender plants. Hail usually lasts an average of 10 to 20 minutes but may last much longer in some storms. Hail causes \$1 billion in damage to crops and property each year in the U.S.

Location and Extent

No part of the state is immune from hailstorms. According to The National Climatic Data Center, Lincoln County had 30 reported hail events between 2010 and January 2016. There were no reported deaths, injuries or damages in dollar estimates. Once the summer monsoon starts, thunderstorms often develop in the afternoons and evenings. Mountainous areas usually see more storms than the plains and desert, although mountain storms tend to be less severe and produce smaller hail. In the plains and over the desert, monsoon thunderstorms sometimes reach severe levels and can produce large hail. Table 5-16 shows hail sizes and possible damages from hail events.

| Table 5-16 Combined National Oceanic and Atmospheric Administration (NOAA)/ Tornado and Storm Research Organization (TORRO) Hailstorm Intensity Scales | | | | |
|---|---------------------------|---------------------------------------|-------------------------|---|
| Size Code | Intensity Category | Typical Hail Diameter (inches) | Approximate Size | Typical Damage Impacts |
| H0 | Hard Hail | Up to 0.33 | Pea | No damage |
| H1 | Potentially Damaging | 0.33 to 0.60 | Marble or Mothball | Slight damage to plants, crops |
| H2 | Potentially Damaging | 0.60 to 0.80 | Dime or grape | Significant damage to fruit, crops, vegetation |
| H3 | Severe | 0.80 to 1.20 | Nickel to Quarter | Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored |

| | | | | |
|-----|------------------|------------|-------------------------------|--|
| H4 | Severe | 1.2 to 1.6 | Half Dollar to Ping Pong Ball | Widespread glass damage, vehicle bodywork damage |
| H5 | Destructive | 1.6 to 2.0 | Silver dollar to Golf Ball | Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries |
| H6 | Destructive | 2.0 to 2.4 | Lime or Egg | Aircraft bodywork dented, brick walls pitted |
| H7 | Very destructive | 2.4 to 3.0 | Tennis ball | Severe roof damage, risk of serious injuries |
| H8 | Very destructive | 3.0 to 3.5 | Baseball to Orange | Severe damage to aircraft bodywork |
| H9 | Super Hailstorms | 3.5 to 4.0 | Grapefruit | Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open |
| H10 | Super Hailstorms | 4.0+ | Softball and up | Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open |

Sources: www.noaa.gov and www.torro.org

Historical Occurrences

The size of hail stones in Corona on June 7, 2014 was 2.75 inches. A back door cold front moved into the northeast and east central portions of the state throughout the morning then nudged up against the central mountain chain by the afternoon hours. Deep moisture and instability aided in the development of supercell thunderstorms during the afternoon and evening hours along the east slopes of the central mountain chain that moved into the eastern plains. Large, damaging hail, strong winds, heavy downpours, and tornadoes were reported. Hail ranging from 2 to 4 inches in diameter caused significant damage to windows and vehicles as well as livestock and homes around Corona and Clovis. A tornado was also reported in Corona with only damage to open rangeland. Another thunderstorm that moved through Ranchvale and Clovis produced widespread wind damage. Lots of reports of hail damage across the village of Corona. Numerous homes observed window, skylight, siding, and vehicle damage. Damage primarily occurred on north side of structures. Some livestock was also killed, including four chickens. Most impressive was an almost perfectly circular hole in the back pane of a home window. The total cost in damage to Lincoln County from this storm was \$50,000.

Hail as large as 2.75 inches has been reported in Lincoln County, but Lincoln County should expect to have hail the sizes of the entire TORRO range.

Probability of Occurrence

Table 5-17 provides probability data for severe weather events in Lincoln County.

Table 5-17 Severe Hazard Weather Probability (Thunderstorms)

| Hazard | n | N | T | P | Source/Comments |
|--------------------------------|----------------------|-------------------------------|--|--------------------------------|--|
| Severe Weather (Thunderstorms) | 29 | 19 | 0.655172 | 1.526316 | NCDC (includes High Winds and Tropical Storms) |
| Severe Weather (Lightning) | 3 | 4 | 1.333333 | 0.75 | NCDC |
| Severe Weather (Hail) | 62 | 47 | 0.758065 | 1.319149 | NCDC |
| Severe Weather (Winter Storm) | 26 | 14 | 0.538462 | 1.857143 | NCDC (recorded as snow and ice) |
| KEY | n = number of events | N = number of years in record | T = Recurrence Interval ($T = N/n$) | P = Probability ($P=1/T$) | |

5.2.3.3 *Winter Storms*

Description

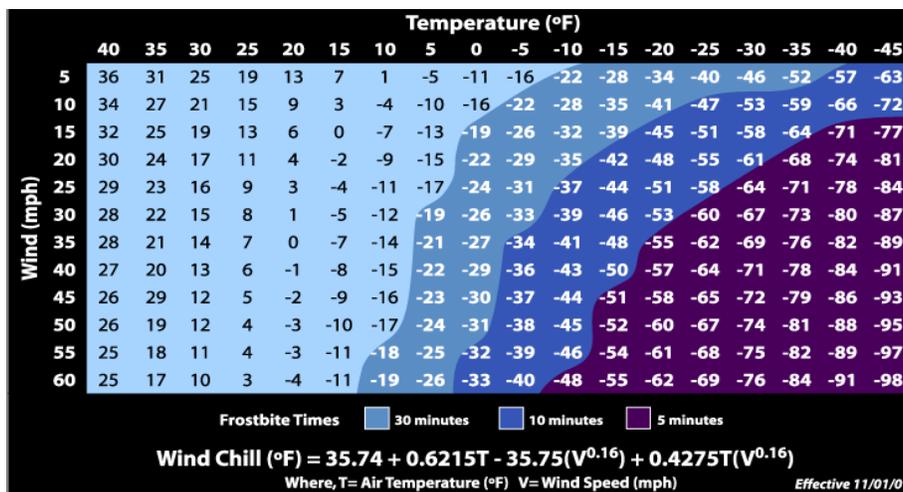
Severe winter storms can vary in size and strength and include heavy snowstorms, blizzards, ice storms, freezing drizzle or rain, sleet, and blowing and drifting snow. Extremely cold temperatures accompanied by strong winds result in potentially lethal wind chills.

A variety of weather phenomena and conditions can occur during winter storms. The following are NWS-approved definitions of winter storm elements:

- **Heavy snowfall** - the accumulation of 6 or more inches of snow in a 12-hour period or 8 or more inches in a 24-hour period.
- **Blizzard** - the occurrence of sustained wind speeds in excess of 35 mph accompanied by heavy snowfall or large amounts of blowing or drifting snow.
- **Ice storm** - an occurrence where rain falls from warmer upper layers of the atmosphere to the colder ground, freezing upon contact with the ground and exposed objects near the ground.

- **Freezing drizzle/freezing rain** - the effect of drizzle or rain freezing upon impact on objects that have a temperature of 32° F or below.
- **Sleet** - solid grains or pellets of ice formed by the freezing of raindrops or the refreezing of largely melted snowflakes. This ice does not cling to surfaces.
- **Wind chill** - an apparent temperature that describes the combined effect of wind and low air temperatures on exposed skin.

The wind chill temperature is a measure of how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a blustery 30° day would feel just as cold as a calm day with 0° temperatures. On November 1, 2001, the NWS released a scientifically accurate equation, which is used for calculating wind chill. (Figure 5-8: Please note that it is not applicable in calm winds or when the temperature is more than 50°F.)



Source: National Weather Service and NOAA

Figure 5-8 Wind Chill Chart

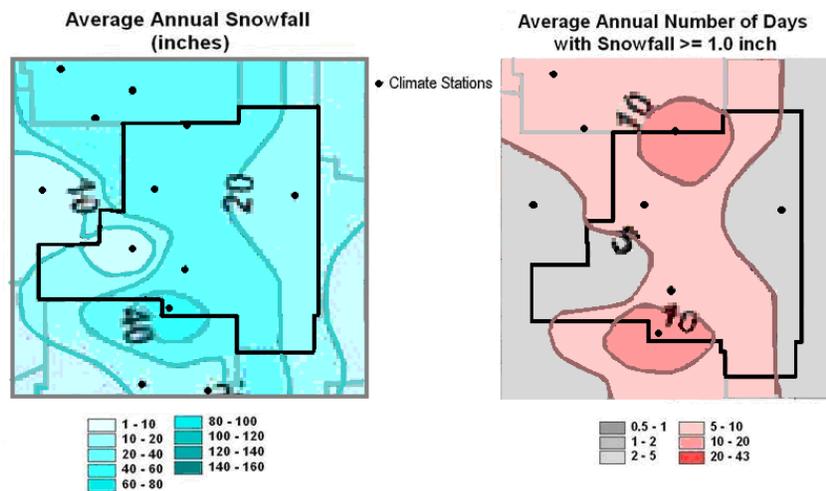
Location and Extent

A severe winter storm for Lincoln County as defined by the NWS is 4 or more inches of snowfall below 7,500 feet elevation or 6 or more inches of snowfall above 7,500 feet elevation in a 12- hour period, or 6 or more inches of snowfall below 7,500 feet elevation or 9 inches of snowfall above 7,500 feet elevation in a 24-hour period.

Most winter precipitation in New Mexico is associated with Pacific Ocean storms as they move across the state from west to east. As the storms move inland, moisture falls on the coastal

and inland mountain ranges of California, Nevada, Arizona, and Utah. If conditions are right, the remaining moisture falls on the slopes of New Mexico’s high mountain chains.

Much of the precipitation that falls as snow in the mountain areas may occur as either rain or snow in the valleys. The average annual snowfall ranges from about 3 inches in the southern desert and southeastern plains to more than 100 inches in the northern mountains (Figure 5-9). It can, on rare occasions, exceed 300 inches in the highest mountains. January is usually the coldest month, with average daytime temperatures ranging from the middle 50s in the southern and central valleys to the middle 30s in the higher elevations. Minimum temperatures below freezing are common in all sections of the state during the winter. Subzero temperatures are rare, except in the mountains. The lowest temperature ever officially recorded was -50° F at Gavilan on February 1, 1951. An unofficial low temperature of -57° F at Ciniza was reported by the press on January 13, 1963.¹ <http://www.wrcc.dri.edu/narratives/NEWMEXICO.htm>



Source: National Weather Service, Albuquerque Office

Figure 5-9 Lincoln County Snowfall Distributions

Historical Occurrences

The NCDC has reported 26 severe winter weather events in Lincoln County between 1995 and 2009, and 5 more severe winter storms between 2010 and 2015. These storms resulted in a total of 4 deaths, 6 injuries, and over \$5.25 million in property damage and over \$5.27 million in crop damage. Figure 5-10 shows the average snowfall and hail events from 1955 – 2009.

In December 1997, a series of heavy snow events produced totals of 15 to 30 inches across eastern and central New Mexico just before Christmas. Periods of light snow actually began about the 20th and then intensified during the 22nd through the 25th as tropical moisture began to feed a large, nearly stationary upper level low over southwest New Mexico. Lincoln County experienced road closures that lasted 2 weeks, into January. The total damages, including that of other counties, exceeded \$6.5 million but indirect damages exceeded \$20 million.

In December 2015, heavy snow and high winds paralyzed much of eastern Lincoln County through the 30th. Snowfall amounts averaged 12 to 15 inches. The entire stretch of Interstate 40 from Albuquerque to Amarillo was shut down for nearly 36 hours. A Civil Emergency was declared for Quay, Curry, Roosevelt, De Baca, Chaves, and eastern Lincoln counties as dozens of motorists were stranded in their vehicles in 6 to 10 foot snow drifts. Department of Public Safety assisted a total of 455 motorists. Emergency response personnel were even stranded trying to reach these motorists. Residents were blockaded in their homes with drifts up to the top of roofs. Xcel Energy reported power outages in at least 14,200 residences across eastern New Mexico and at least 30,000 residential disruptions during the storm. Numerous trees and power lines were downed as well as several structures due to the weight of heavy snow. Snowfall accumulations of 15 to 30 inches were common from the central mountain chain eastward across much of the plains. Ski Apache reported a whopping 41 inches. Department of Agriculture reported around 12,000 adult milking cows perished in the storm and between 30,000 and 50,000 young livestock died. A couple of 1-day snowfall records were broken with this event. One person died from exposure in Albuquerque and another while shoveling snow in Roswell. The New Mexico EOC coordinated with the National Guard to assist several counties with disaster operations.

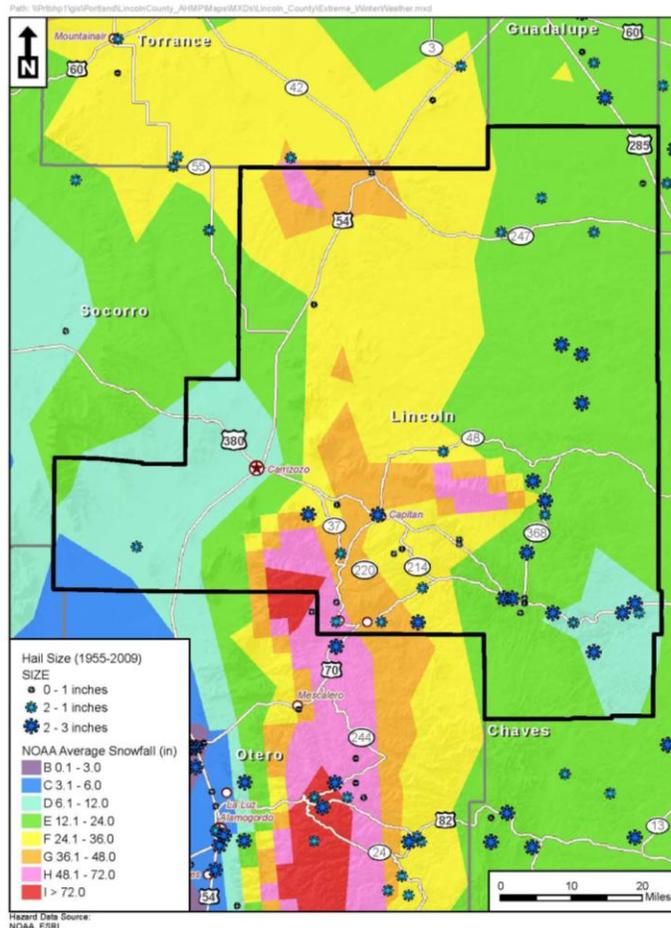


Figure 5-10 Average Snowfall and Hail Events

Probability of Occurrence

No part of Lincoln County is immune from the hazard of severe winter storm, whether extreme cold, heavy snow, ice storm, or other cold weather conditions. The mountainous areas of Lincoln County are more likely to receive snow and cold than the plains and desert, but residents of high altitude areas are more likely to be prepared for these conditions, even if they become extreme. Severe winter weather is much more likely to have a serious impact on major population centers and transportation routes, most of which are not located in the high mountains. The plains and desert areas are more susceptible to high winds that contribute to the drifting of snow, and a snow storm that would hardly be noticed in the higher altitudes could present a serious hazard to people in the lower altitudes. If a severe winter storm were to cause a power failure, as would be likely with an ice storm, the effect could be very serious. Any accumulation of ice or snow on the roads is a hazardous situation and can lead to widespread road and highway closures that can strand motorists.

The regulations regarding road closure are found in Section 66-7-11 NMSA 2005. New Mexico State Police have the power to close certain highways in emergencies. “Notwithstanding any rule, regulation, or agreement of the state highway department, the New Mexico State Police, in cases of emergency where the condition of a state highway presents a substantial danger to vehicular travel by reason of storm, fire, accident, spillage of hazardous materials or other unusual or dangerous conditions, may close the highway to vehicular travel until the New Mexico State Police determines otherwise. The state highway department shall be notified of the highway closure as soon as practicable.”

This regulation is broad enough to allow for closure for any type of winter storm event, but it is also difficult to define what constitutes “dangerous conditions.” Table 5-18 provides probability data for severe weather events in Lincoln County.

Table 5-18 Severe Hazard Weather Probability (Winter Storms) in Lincoln County

| Hazard | n | N | T | P | Source/Comments |
|--------------------------------|----|----|----------|----------|--|
| Severe Weather (Thunderstorms) | 29 | 19 | 0.655172 | 1.526316 | NCDC (includes High Winds and Tropical Storms) |
| Severe Weather (Lightning) | 3 | 4 | 1.333333 | 0.75 | NCDC |
| Severe Weather (Hail) | 62 | 47 | 0.758065 | 1.319149 | NCDC |

Table 5-18 Severe Hazard Weather Probability (Winter Storms) in Lincoln County

| Hazard | n | N | T | P | Source/Comments |
|-------------------------------|----------------------|-------------------------------|--|--------------------------------|---------------------------------|
| Severe Weather (Winter Storm) | 26 | 14 | 0.538462 | 1.857143 | NCDC (recorded as snow and ice) |
| KEY | n = number of events | N = number of years in record | T = Recurrence Interval ($T = N/n$) | P = Probability ($P=1/T$) | |

5.2.3.4 *Extreme Heat*

Description

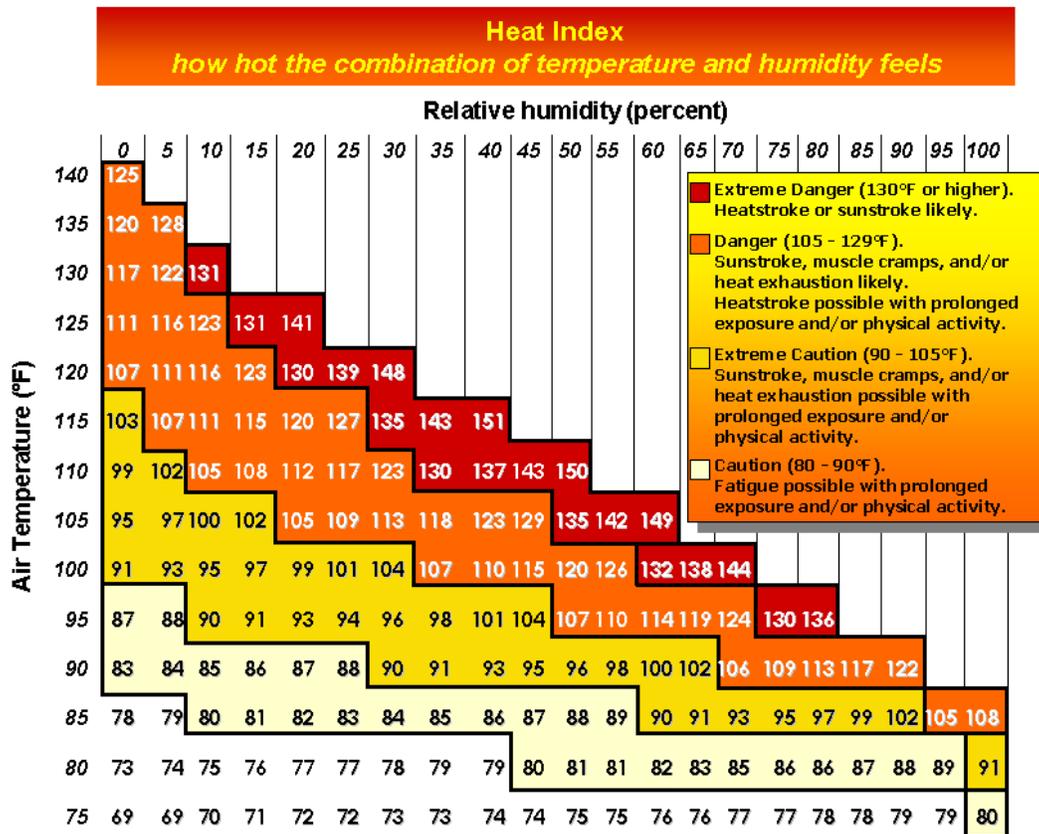
Extreme heat, or heat wave, is defined by the NWS as a temperature of 10° or more above the average high temperature for the region, lasting for several weeks. This condition is definitely a public health concern. During extended periods of very high temperatures or high temperatures with high humidity, individuals can suffer a variety of ailments, including heatstroke, heat exhaustion, heat syncope, and heat cramps.

- **Heatstroke** is a life-threatening condition that requires immediate medical attention. It exists when the body’s core temperature rises above 105°F as a result of environmental temperatures. Patients may be delirious, stuporous, or comatose. The death-to-care ratio in reported cases in the U.S. averages about 15%.
- **Heat exhaustion** is much less severe than heatstroke. The body temperature may be normal or slightly elevated. A person suffering from heat exhaustion may complain of dizziness, weakness, or fatigue. The primary cause of heat exhaustion is fluid and electrolyte imbalance. The normalization of fluids will typically alleviate the situation.
- **Heat syncope** is typically associated with exercise by people who are not acclimated to exercise. The symptom is a sudden loss of consciousness. Consciousness returns promptly when the person lies down. The cause is primarily associated with circulatory instability because of heat. The condition typically causes little or no harm to the individual.
- **Heat cramps** are typically a problem for individuals who exercise outdoors but are unaccustomed to heat. Similar to heat exhaustion, it is thought to be a result of a mild imbalance of fluids and electrolytes.

The elderly, disabled, and debilitated are especially susceptible to heat stroke. Large and highly urbanized cities can create an island of heat that can raise the area’s temperature by 3°F to 5°F. Therefore, urban communities with substantial populations of elderly, disabled, and debilitated people could face a significant medical emergency during an extended period of

excessive heat. The highest temperature recorded in New Mexico was 122°F on June 27, 1994 at the Waste Isolation Pilot Plant (WIPP) site.

In 1979, meteorologist R.G. Steadman developed a heat index to illustrate the risks associated with extreme summer heat. The heat index shows the relationship of the ambient air temperature and relative humidity to the apparent temperature of exposed skin.¹ (see Figure 5-11).



Source: <http://www.ima.army.mil/southwest/sites/divisions/Safety/Heat%20Index.gif>

Figure 5-11 Heat Index

Location and Extent

All of Lincoln County has the potential to be impacted by extreme heat often reaching Extreme Caution or Danger levels, however in review of history and average temperature, it seems most likely that extreme heat events would occur in the eastern or western panhandle portions of the County. Figure 5-10 illustrates these areas as the areas with the highest average temperature in the County (red and yellow). New Mexico is partially an arid desert state, and summer temperatures often exceed 100°F under normal conditions.

¹ <http://www.srh.noaa.gov/ffc/html/gloss1.shtml>

Nighttime temperatures are typically cool due to low humidity, and even though daytime temperatures may be high, people experience relief at night. Heat waves in which daily high temperatures exceed 110° F for many days in a row are rare. Such a heat wave in the higher altitudes would probably have a more damaging effect because people would not be expecting such hot conditions. However, any part of the state that experienced the humidity/temperature combination could suffer ill effects from the event. A heat wave would also have a drying effect on vegetation, facilitating the ignition of wildfires. If a heat wave were coupled with a power failure, the effect on the population would be much more severe because air conditioning systems would fail. In fact, periods of excessive heat usually result in high electrical consumption for air conditioning, which in turn can cause power outages and brownouts. While the Public Service Company of New Mexico (PNM) reports no widespread power failures due to overuse, the large numbers of new homes and conversion to air conditioning from evaporative coolers, could put a strain on the electrical grid.

In general, it is safe to say that there is no area of the state that is immune from the hazards of a heat wave.

A unique aspect of the effects of extreme heat in New Mexico is the fact that UVB radiation also increases with increasing altitude, or distance above the surface of the earth. For every 1,000 feet of altitude, the UV radiation increases by about 4%. This means that approximately 20% more UV radiation reaches the earth's surface in Santa Fe than in a city that is at similar latitude but at sea level. This can exacerbate heat effects at high altitude.

Probability of Occurrence

The NCDC reports 4 events of extreme heat from 1994 – 2010. Figure 5-10 presents average high temperatures for the SE corner of New Mexico). There were no deaths, injuries, or monetary losses reported with these events but they cause areas to be much more susceptible to other hazards such as drought and wildfires.

According to the Office of the Medical Investigator, there are no recorded events of extreme heat causing death or injury within Lincoln County or the state of New Mexico. Table 5-19 provides probability data for extreme heat events in Lincoln County.

Table 5-19 Extreme Heat Hazard Probability

| Hazard | n | N | T | P | Source/Comments |
|--------------|----------------------|-------------------------------|-----------------------------------|-------------------------|-----------------|
| Extreme Heat | 4 | 15 | 3.75 | 0.266667 | NCDC |
| KEY | n = number of events | N = number of years in record | T = Recurrence Interval (T = N/n) | P = Probability (P=1/T) | |

Climate Change Impacts

The NCA report (Garfin, et.al., 2014) is silent regarding the impact of climate change on severe wind events in the Southwest and no other sources were found that address a correlation of climate change to severe wind events in the Southwest region. Until such time as data or studies are available, no adjustments or extra consideration will be given to climate change impacts to severe wind events in the county.

Increased temperatures and durations associated with extreme heat events due to climate change is one of the “Key Messages” of the NCA report (Garfin, et.al., 2014). If current predictions are valid, the increase in both temperature and durations of extreme heat days within the urbanized areas of the county will magnify the current extreme heat related challenges faced by the county and participating jurisdictions. Extreme heat mitigation measures should probably consider that durations of events will be longer and the overall duration of hot summer temperatures is anticipated to lengthen as well.

5.2.4 *Drought*

Description

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. 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 is defined as a 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 soil moisture is inadequate and does not 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.
- **Socioeconomic** 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.

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 effects of an event after its apparent end. Second, the lack of an exact and universally accepted definition adds to the confusion of its existence and severity. Third, in contrast to 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.

Location and Extent

Lincoln County, along with the rest of New Mexico, is entering the fifth year of a drought, which magnifies the challenge of balancing limited water supplies with growing demand. A drought is caused by a variety of factors. Scientists who study climate changes believe that conditions in the North Atlantic Ocean and the Eastern Pacific Ocean play a significant role in determining the amount of precipitation that New Mexico and the rest of the country receive. Studies show current conditions in those two oceans are similar to conditions that existed during the severe drought of the late 1940s and 1950s in New Mexico.

Drought is a regular event in all areas of Lincoln County, occurring in recurring cycles. Experts predict that drought conditions are likely to continue for the foreseeable future. The vegetation condition across the County may range from pre-drought to severe drought conditions.

Approximately 80% of the County (unincorporated Lincoln County) is reliant on wells for water supply which may be impacted by severe drought conditions.

In every drought, agriculture is adversely impacted, 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. There is increased danger of forest and wildland fires. Loss of forests and trees increases erosion, causing serious damage to aquatic life, irrigation, and power development by heavy silting of streams, reservoirs, and rivers. Primary areas of concern for droughts impact on agriculture are north Highway 380 and the Hondo Valley.

Drought status is calculated using several indices that measure how much precipitation for a given period of time has deviated from historically established norms. The Palmer drought

severity index (PDSI) is used by the U.S. Department of Agriculture (USDA) to determine allocations of grant funds for emergency drought assistance.

The Palmer index (Table 5-20) is based on the supply-and-demand concept of the water balance equation, taking into account more than the precipitation deficit at specific locations. The PDSI provides a measurement of moisture conditions that are “standardized” so that comparisons using the index can be made between locations and months.

Table 5-20 Palmer Drought Severity Index

| PDSI Classifications | |
|-----------------------------|---------------------|
| 4.00 or more | Extremely wet |
| 3.00 to 3.99 | Very wet |
| 2.00 to 2.99 | Moderately wet |
| 1.00 to 1.99 | Slightly wet |
| 0.50 to 0.99 | Incipient wet spell |
| 0.49 to -0.49 | Near normal |
| -0.50 to -0.99 | Incipient dry spell |
| -1.00 to -1.99 | Mild drought |
| -2.00 to -2.99 | Moderate drought |
| -3.00 to -3.99 | Severe drought |
| -4.00 or less | Extreme drought |

Source: <http://drought.unl.edu/whatis/indices.htm>

According to the New Mexico Drought Plan, the latest predictions call for a deepening of the drought in the next few years, even though 2006 was one of the wettest years on record. It is expected that Lincoln County could experience normal to extreme drought conditions.

One final measurement of drought, although one that is highly temporal is the Vegetation Drought Response Index (VegiDRI) which is available for two-week intervals, and can be found at <https://www.ncdc.noaa.gov/sotc/drought/201108>.

Historical Occurrences

Drought events during 2010 through 2015 for Lincoln County have been recorded by the NCDC, but no deaths, injuries, or estimated monetary damages were recorded. Even though the details regarding these events were lacking in the NCDC data, according to the MPT, Lincoln County has experienced losses from drought events.

Probability of Occurrence

Over the past 10 years (120 months), New Mexico has had 50 months of drought. Based on this, Lincoln County can anticipate at least some drought conditions every other year (42% probability). Source: http://www.seo.state.nm.us/faq_index.html. Table 5-21 provides probability data for drought events in Lincoln County.

Table 5-21 Drought Hazard Probability

| Hazard | n | N | T | P | Source/Comments |
|---------|----------------------|-------------------------------|--------------------------------------|----------------------------|-----------------|
| Drought | 3.5 | 13 | 3.714286 | 0.269231 | NCDC |
| KEY | n = number of events | N = number of years in record | T = Recurrence Interval (T = N/n) | P = Probability (P=1/T) | |

Climate Change Impacts

Increased severity and duration of drought due to climate change is one of the “Key Messages” of the NCA report (Garfin, et.al., 2014). If current predictions are valid, the increase in drought will only magnify the current drought related challenges faced by the county. Accordingly, drought planning and contingencies for mitigating the impacts of drought should factor in longer than expected durations and possibly more frequent drought cycles.

5.2.5 *Dam Failure*

Description

Another flood hazard that can affect parts of Lincoln County is dam failure. A dam impounds water in an upstream area or reservoir. The amount of water impounded is measured in acre-feet (i.e., the volume of water that covers an acre of land to a depth of 1 foot).

Any malfunction or abnormality outside the design assumptions and parameters that adversely affects a dam’s primary function is considered a dam failure. A catastrophic dam failure is characterized by a sudden, rapid, and uncontrolled release of impounded water. The sudden release of water may result in downstream flooding affecting life, property, or both. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction, vandalism, or acts of terrorism can cause dam failures. The sudden release of the impounded water can occur during a flood that overtops or damages a dam, or it can occur on a clear day if the dam has not been properly constructed or maintained. The threat of a dam failure increases as existing dams get older.

Many dams have been built as retention basins and amenity ponds in new developments. Many small dams are on streams or drainages that are not mapped as floodplains or subject to floodplain regulations. Even when the stream is mapped, the floodplain is usually not based on a dam-breach inundation map, leaving downstream residents unaware of the potential dangers.

The Office of the State Engineer, Dam Safety Bureau regulates the design, construction, reconstruction, modification, removal, abandonment, inspection, operation, and maintenance of dams more than 10 feet high or dams that store more than 10 acre-feet of water. Federal dam owners are required to obtain a permit for a new dam; however, the Office of the State Engineer by law does regulate the continued safety of federal dams. Dams 10 feet or less in height, or dams that store 10 acre-feet or less, generally are not regulated and are considered non-jurisdictional dams. However, if a non-jurisdictional dam threatens life and property due to an unsafe condition, the state engineer can issue a safety order to the owner requiring action to remove the threat.

Standard practice among federal and state dam safety offices is to classify a dam according to the potential impact a dam failure (breach) or mis-operation (unscheduled release) would have on downstream areas. The hazard potential classification system categorizes dams based on the probable loss of human life and the impacts on economic, environmental, and lifeline facilities, such as critical transportation systems and utilities. The Dam Hazard Potential Classification definitions are shown in Table 5-22.

Table 5-22 Dam Hazard Potential Classifications

| Category | Loss of Life | State Ranking |
|-------------|---------------|---|
| Low | None Expected | Low economic or environmental losses. Losses principally limited to dam owner's property |
| Significant | None Expected | Economic loss, environmental damage and disruption of lifeline facilities. Predominantly located in rural areas |
| High | Expected | Based only on loss of life |

Location and Extent

Of the 495 dams in the state, 395 dams come under the jurisdiction of the Office of the State Engineer, Dam Safety Bureau. Of these, 178 dams are classified as having a high hazard potential and 88 dams are classified as having a significant hazard potential. The remaining 100 dams are under federal jurisdiction, including the Bureau of Indian Affairs (BIA), the Bureau of Reclamations, and the U.S. Army Corps of Engineers (USACE).

According to the National Inventory of Dams (NID) there are 4 dams located in Lincoln County. Dams in neighboring jurisdictions that may also impact Lincoln County include the Lake Mescalero Dam. Table 5-23 provides an overview of those facilities using data from the NID. No dam hazard potential classifications were provided in the data but information provided by County

Emergency Services classifies all dam structures in the County as High hazard for planning purposes.

Table 5-23 Overview of Dams in Lincoln County

| Name | River | Owner | Purpose | EAP? (Y/N) | Classification |
|--------------------------------|------------------------------------|--|--------------------------|-----------------------|-----------------------|
| Bonito Dam | Rio Bonito | City of Alamogordo | Water Supply | N | Not provided |
| Alto Lake Dam | Eagle Creek | Village of Ruidoso | Water Supply | N | Not provided |
| Grindstone Canyon Dam | Grindstone Canyon | Village of Ruidoso | Water Supply | N | Not provided |
| Upper Rio Hondo Site No. 1 Dam | Salado Creek and Gyp Spring Canyon | Upper Rio Hondo Soil & Water Conservation District | Flood Control | N | Not provided |
| Lake Mescalero | N/A | BIA | Water Supply, Recreation | Y | High |

The location of these dams are illustrated in Figure 5-12.

In 2010, the Office of the State Engineer adopted new regulations for dams. The regulations address the requirements for design and construction of new dams, modifications, or alterations to existing dams and the continued safe operation and maintenance of existing dams.

Downstream impacts from a dam failure incident may be severe. As noted in the flood portion of this section, the worst case scenario for flooding would result from failure of the Lake Mescalero and Grindstone Canyon dams which would result in the water flow in the Rio Ruidoso increasing to 40 feet above the streambed through Ruidoso and Ruidoso Downs. After Ruidoso Downs it would be 20 feet above the streambed through the Hondo Valley. The extent of potential impact of a dam failure is described in dam-specific Emergency Action Plans (EAP) that are maintained by the facility and should be provided to County Emergency Services. A new requirement for owners of dams that are classified as having a high or significant hazard potential is preparation, maintenance, and exercise of an EAP. An EAP identifies defensive action to prevent or minimize property damage, injury, or loss of life due to an emergency at the dam. Dam owners who have not developed EAPs will need assistance in fulfilling this new requirement. Both the Lake Mescalero and Grindstone Dams have EAPs, but those documents are not included in this plan as they are case sensitive and not for public viewing. The County does not own any of the identified dams, and at the date of adoption of this plan has not received additional data on impacts resulting from a dam failure at each facility.

Historical Occurrence

There have been no recorded Dam Failure events in Lincoln County.

Probability of Occurrence

There is a low probability of a dam failure incident in Lincoln County, however the presence of dam facilities in the jurisdiction drove the hazards inclusion in this planning document. Table 5-24 provides probability data for drought events in Lincoln County.

Table 5-24 Dam Failure Hazard Probability

| Hazard | n | N | T | P | Source/Comments |
|-------------|----------------------|-------------------------------|--|--------------------------------|-----------------|
| Dam Failure | 0 | 59 | | | None Recorded |
| KEY | n = number of events | N = number of years in record | T = Recurrence Interval ($T = N/n$) | P = Probability ($P=1/T$) | |

5.2.6 *Earthquake*

Description

An earthquake is a shaking of the earth resulting from the release of energy due to sudden slip along a fault, which initiates at the earthquake hypocenter. This energy release propagates as elastic seismic waves that transport energy to the earth’s surface.

Earthquakes typically strike without warning and may range in intensity from tiny motions only detectable by sensitive instruments to slight tremors to highly damaging shocks. The perceived motion in felt earthquakes can last from a few seconds to more than 5 minutes, and damaging earthquakes can produce aftershocks that persist from weeks to years. The actual movement of the ground in an earthquake is seldom the direct cause of injury or death. Casualties typically result from falling objects and debris or from forces that damage or demolish buildings and other structures. Disruption of communications, electrical power supplies, and gas, sewer, and water lines should be expected in a large earthquake. Earthquakes can trigger fires, dam failures, landslides, or releases of hazardous material, compounding their hazards.

The vibration or shaking of the ground during an earthquake is described by the time history of its ground motion (when recorded, this history is called a seismogram). The severity of ground motion generally increases with the amount of energy released and decreases with distance from the earthquake hypocenter. Earthquakes generate elastic waves, both in the earth’s interior (body waves) and along the earth’s surface (surface waves). P (primary) waves in the

earth's interior are physically similar in character to sound waves in air. P waves have a back-and-forth (longitudinal) motion along their direction of travel. They move through the shallow earth at speeds between approximately 1 to 4 km/s (roughly 2,000 to 9,000 miles/hour). P waves typically produce predominantly vertical forces on buildings. S (secondary) waves, also known as shear waves, have a side-to-side motion relative to their direction of travel. S waves are slower (by about a factor of 0.6) than P waves. S waves can cause significantly more damage than P waves because their amplitudes are typically larger and their shear motion produces horizontal forces on buildings, which are typically much less able to sustain without damage. Surface waves generate both shear and vertical forces and can be highly damaging in areas where development has occurred in low-seismic velocity basins (Mexico City is an example of this).

Earthquakes are commonly described in terms of magnitude and intensity. Magnitude is a fixed property of the earthquake source estimated from seismograms and is proportional to the logarithm of the total energy released (an increase of 1 in earthquake magnitude indicates an approximately 32-fold increase in energy). Intensity, in contrast, varies spatially and with local geology and describes the effects of ground motion at specific locations. Thus, a large, distant earthquake can generate the same intensity at a given site than a much smaller, local earthquake.

There are several generally consistent magnitude scales used by the scientific and hazard community, based on different observable characteristics of seismic waves. The Richter Scale is the original magnitude scale and is technically applicable only to southern California. The three extensively quoted scales are the body wave magnitude, m_b , the surface wave magnitude, M_s , and the moment magnitude, m_w . Body and surface wave magnitudes vary because they are based on the amplitudes of observed body and surface waves, respectively, which can vary in relative size for a given earthquake. (For example, earthquakes with shallower hypocenters generally produce corresponding larger surface waves than those with deeper hypocenters.) The moment magnitude is based on the fundamental forces produced by the earthquake fault motion and is coming into increasing use as the de facto measure of earthquake size. All three magnitudes usually agree to within 0.5 of a magnitude unit, with large departures only commonly occurring for very large earthquakes (magnitudes in excess of 7.5).

The commonly used Modified Mercalli Intensity (MMI) scale is based on the amount of shaking and specific kinds of damage to manmade objects or structures. This scale has 12 classes and ranges from I (not felt) to XII (total destruction).

A quantitative method of expressing an earthquake's severity is to compare its acceleration history (commonly the peak acceleration) to the normal acceleration due to gravity ($g = 9.8$ meters per second squared or 980 cm/sec/sec). Peak ground acceleration (PGA) measures the rate of change of motion relative to the rate of acceleration due to gravity and is proportional to the forces exerted on a structure. For example, an acceleration of the ground surface of 244 cm/sec/sec equals a PGA of 25.0 percent. A higher PGA means a higher level of ground acceleration and a higher probability of structural damage. Ordinary structures typically begin to be damaged structurally at about 10% PGA. Figure 5-13 shows the PGA with a 10% probability over the next 50 years for Lincoln County. Table 5-25 illustrates the comparison of scales of magnitude and intensity.

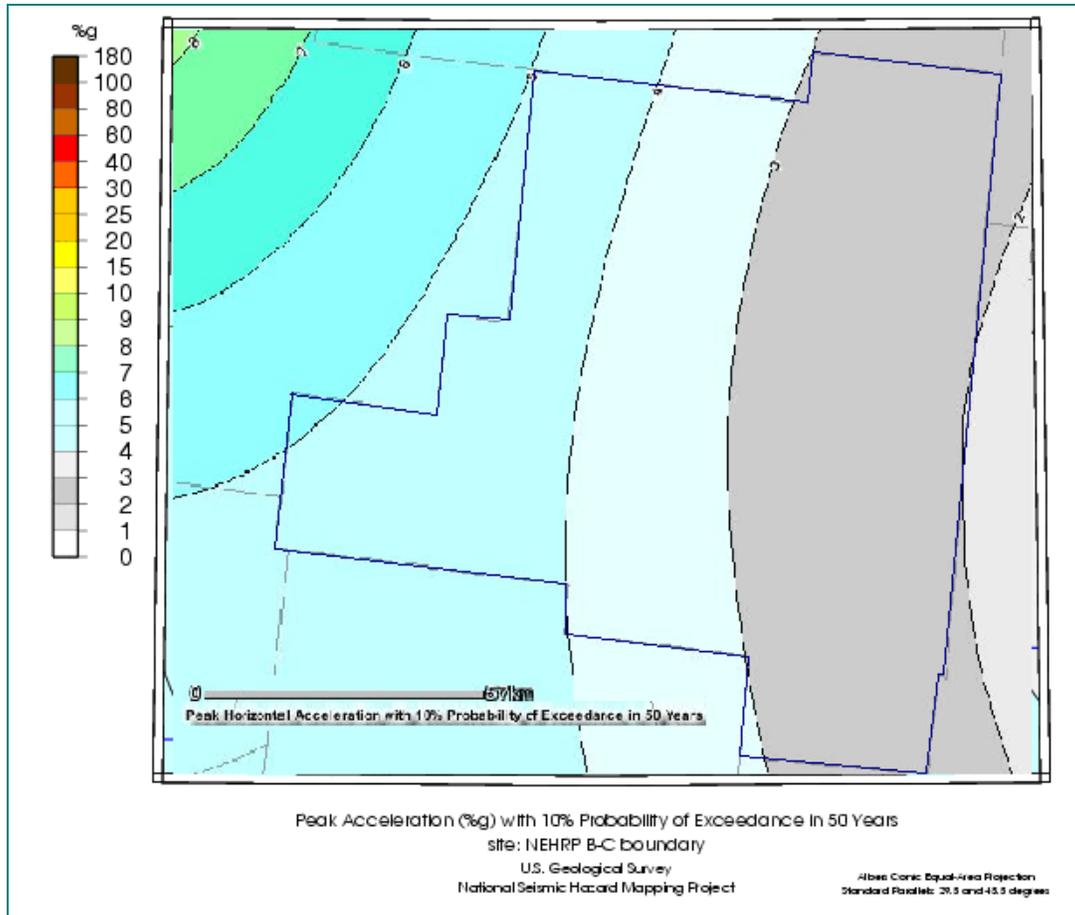


Figure 5-13 Lincoln County Projected Ground Acceleration (PGA) with a 10% Probability Over the Next 50 Years

Table 5-25 Peak Ground Acceleration (PGA) /Modified Mercalli Intensity (MMI) Comparison

| Mercalli Scale | PGA (g) | Full Description |
|----------------|-------------|---|
| I. | <0.17 | Not felt. Marginal and long period effects of large earthquakes. |
| II. | 0.17 to 1.4 | Felt by persons at rest, on upper floors, or favorably placed. |
| III. | | Felt indoors. Hanging objects swing. Vibration similar to passing of light trucks. Duration estimated. May not be recognized as an earthquake. |
| IV. | 1.4 to 3.9 | Hanging objects swing. Vibration similar to passing of heavy trucks. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink in the upper range of IV, wooden walls and frame creak. |

| Mercalli Scale | PGA (g) | Full Description |
|----------------|------------|--|
| V. | 3.9 to 9.2 | Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Pendulum clocks stop, start. |
| VI. | 9.2 to 18 | Felt by all. Many people are frightened and run outdoors. People walk unsteadily. Windows, dishes, glassware broken. Books, etc., fall off shelves. Pictures fall off walls. Furniture moved. Weak plaster and masonry D cracked. Small bells ring. Trees, bushes shaken. |
| VII. | 18 to 34 | Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roofline. Fall of plaster, loose bricks, stones, tiles, cornices. Some cracks in masonry C. Waves on ponds. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged. |
| VIII. | 34 to 65 | Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes. |
| IX. | 65 to 124 | General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations.) Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters. |
| X. | >124 | Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly. |
| XI. | | Rails bent greatly. Underground pipelines completely out of service. |
| XII. | | Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air. |

Source: <http://www.abag.ca.gov/bayarea/eqmaps/doc/mmigif/m10.html>

Masonry A: Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete,
Masonry B: Good workmanship and mortar; reinforced but not designed in detail to resist lateral forces.
Masonry C: Ordinary workmanship and mortar; no extreme weaknesses such as failing to tie in at corners, but neither reinforced nor designed against horizontal forces.
Masonry D: Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.

Location and Extent

Earthquakes may occur anywhere within Lincoln County. The tectonic map (Figure 5-14) of Southern New Mexico illustrates the major uplifts, basins and faults in the region. Fault lines that touch the Lincoln County area are shown in Figure 5-15.

Lincoln County lies on the Pecos Slope but includes the northern parts of the Tularosa Basin, Obscura Uplift and the Carrizozo Volcanic Field. Several intrusions form the foundations for the various mountains visible in Lincoln County: Sierra Blanca, Capitan Mountains, etc.

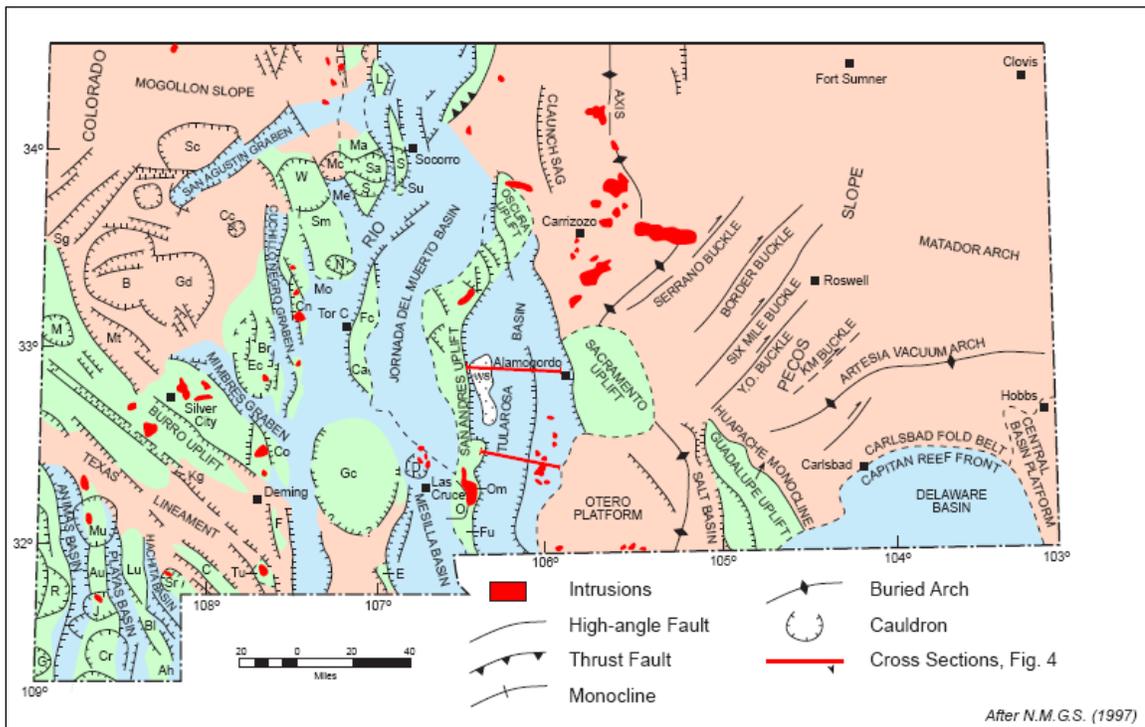


Figure 5-14 Tectonic Map of Southeast New Mexico

Source: NM Geologic Survey, 1997

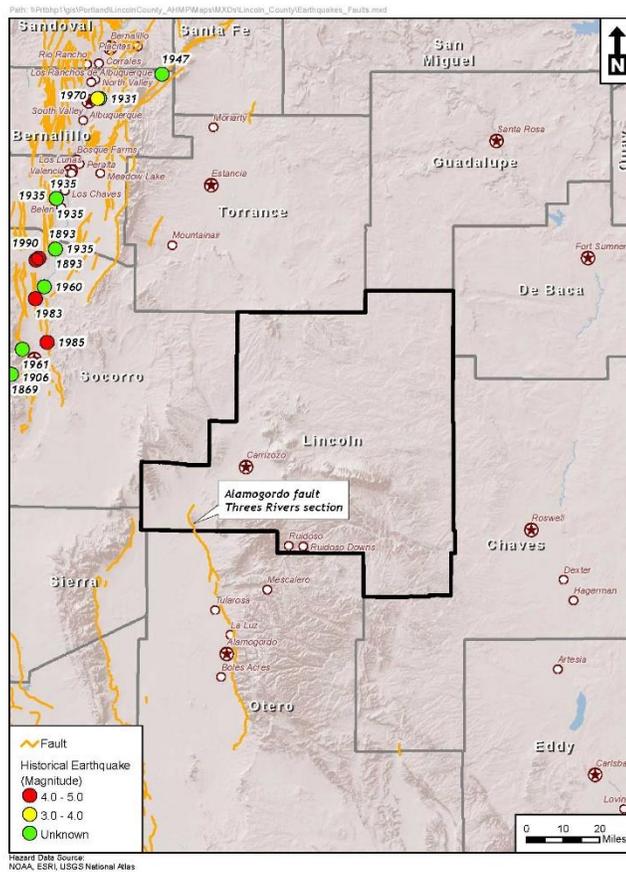


Figure 5-15 Fault Lines in Lincoln County

Historical Occurrences

The NCDC has not recorded an earthquake in Lincoln County in the recent past nor have any been included in any federally declared disasters relating to earthquakes.

Probability of Occurrence

Since there are no recorded events, the probability for this event in Lincoln County is low; however, if Lincoln County is affected by any earthquake, this plan should be updated to read as such. Table 5-26 provides probability data for Earthquake events in Lincoln County.

Table 5-26 Earthquake Hazard Probability

| Hazard | n | N | T | P | Source/Comments |
|-------------|----------------------|-------------------------------|--|--------------------------------|--|
| Earthquakes | 1 | 500 | | | USGS estimates a 10% chance for a 5%g (PGA) quake in the next 50 years |
| KEY | n = number of events | N = number of years in record | T = Recurrence Interval ($T = N/n$) | P = Probability ($P=1/T$) | |

5.2.7 *Tornadoes*

Description

A tornado is an intense rotating column of air, extending from a thunderstorm cloud system. Average winds in a tornado, although never accurately measured, are thought to range between 100 and 200 mph, but some may exceed 300 mph. The following are NWS definitions of a tornado and associated terms:

- **Tornado** - A violently rotating column of air that is touching the ground.
- **Funnel cloud** - A rapidly rotating column of air that does not touch the ground.
- **Downburst** - A strong downdraft, initiated by a thunderstorm that induces an outburst of straight-line winds on or near the ground. They may last anywhere from a few minutes in small-scale microbursts to 20 minutes in larger, longer macro-bursts. Wind speeds in downbursts can reach 150 mph and therefore can result in damages similar to tornado damages.

Tornadoes are classified by the degree of damage they cause. On February 1, 2007, the Fujita scale was replaced by the more accurate Enhanced Fujita Scale (Table 5-26). The **Enhanced Fujita Scale**, or **EF Scale**, rates the strength of tornadoes in the United States by the damage they cause. Implemented in place of the Fujita scale, it was used starting February 1, 2007. The scale has the same basic design as the original Fujita scale, with six categories from 0 to 5 representing increasing degrees of damage. It was revised to reflect better examinations of tornado damage surveys and to align wind speeds more closely with associated storm damage. The new scale takes into account how most structures are designed and is thought to be a much more accurate representation of the surface wind speeds in the most violent tornadoes. Source: <http://www.spc.noaa.gov/efscale/>. However, because none of the tornadoes recorded on or before January 31, 2007 will be re-categorized, maintaining the Fujita scale will be necessary when referring to previous events (Source <http://www.spc.noaa.gov/efscale/>)

Table 5-26 Enhanced Fujita (EF) Scale

| Enhanced Fujita Category | Wind Speed (mph) | Potential Damage |
|--------------------------|------------------|--|
| EF0 | 65 to 85 | Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. |
| EF1 | 86 to 110 | Moderate damage. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken. |
| EF2 | 111 to 135 | Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground. |
| EF3 | 136 to 165 | Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance. |
| EF4 | 166 to 200 | Devastating damage. Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated. |
| EF5 | >200 | Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air more than 109 yards; high-rise buildings have significant structural deformation; incredible phenomena will occur. |

source: <http://www.spc.noaa.gov/efscale/>

A tornado path averages 4 miles, but on rare occasions may reach up to 300 miles in length. Widths average 300 to 400 yards, but severe tornadoes have cut swaths a mile or more in width or have formed groups of two or three funnels traveling together. On average, tornadoes move between 25 and 45 mph, but speeds of up to 70 mph over land have been reported. Tornadoes rarely last more than a couple of minutes over a spot or more than 15 to 20 minutes in a 10-square mile area.

Damages from tornadoes result from extreme wind pressure and windborne debris. Because tornadoes are generally associated with severe storm systems, they are often accompanied by hail, torrential rain, and intense lightning. Depending on their intensity, tornadoes can uproot trees, bring down power lines, and destroy buildings. Flying debris is the main cause of serious injury and death.

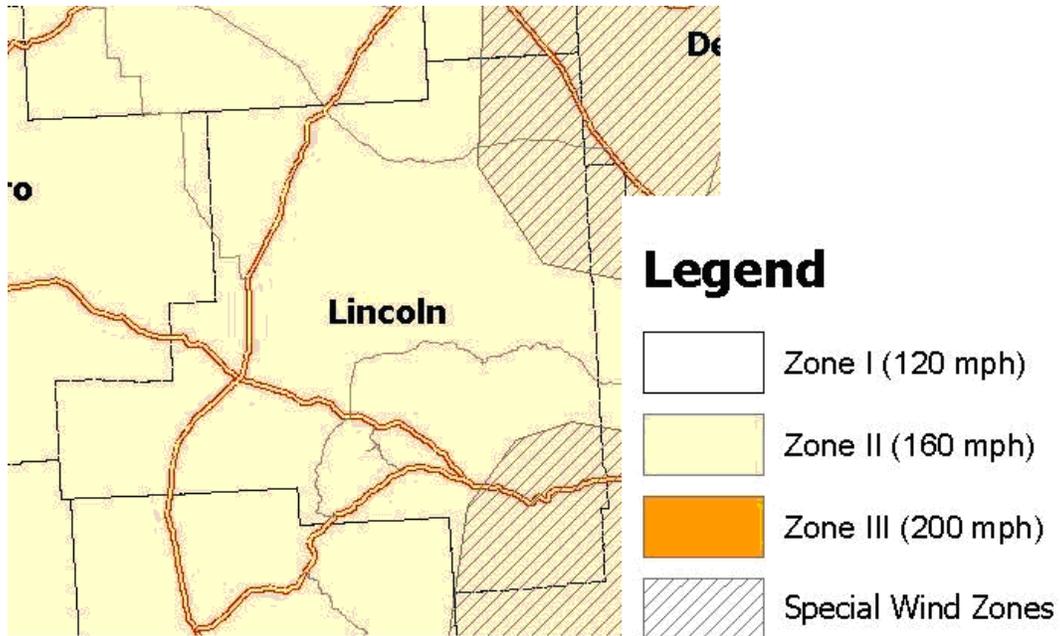
Nearly 70% of the deaths from tornadoes occur inside residential structures. Of these, more than 40% are in mobile homes, which are easily overturned and destroyed due to the low wind resistance of the structure.

Location and Extent

New Mexico lies along the southwestern edge of the nation’s maximum frequency belt for tornadoes, often referred to as “tornado alley,” which extends from the Great Plains through the central portion of the U.S. Broadly speaking, the eastern portions of New Mexico have a higher frequency of tornadoes; however, every county in the state has the potential to experience tornadoes. Table 5-28 shows relationship of wind speeds to the number of recorded tornadoes and the resultant risk. The publication “FEMA 320 Taking Shelter from the Storm” (March 2004) describes how residents can determine their tornado risk.

Table 5-28 Tornado Risk Table

| | | Wind Zone | | | |
|--|---|-----------|---------------|-----------|---------------|
| | | I | II | III | IV |
| Number of Tornadoes per 3,700 Square Miles | <1 | Low Risk | Low Risk | Low Risk | Moderate Risk |
| | 1-5 | Low Risk | Moderate Risk | High Risk | High Risk |
| | 6-10 | Low Risk | Moderate Risk | High Risk | High Risk |
| | 11-15 | High Risk | High Risk | High Risk | High Risk |
| | >15 | High Risk | High Risk | High Risk | High Risk |
| Low Risk | High-wind shelters are a matter of homeowner preference | | | | |
| Moderate Risk | Shelter should be considered for protection from high winds | | | | |
| High Risk | Shelter is the preferred method of protection from high winds | | | | |



NOTE: SPECIAL WIND ZONE denotes special wind regions that, along with mountainous terrain and gorges, should be examined for unusual wind conditions.

Figure 5-16 Lincoln County Wind Zones

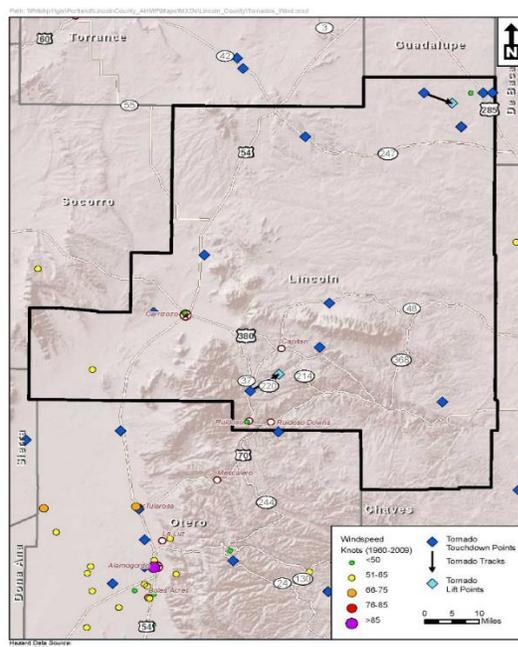


Figure 5-17 Tornado Events in Lincoln County

Historical Occurrences

NCDC reported 4 tornado events between January 2010 and January 2016 that have caused no injuries or deaths and \$101,500 in property damage in Lincoln County.

In Encinosa in June 8, 2014, numerous thunderstorms with strong winds, tornadoes, large hail, and heavy rainfall impacted New Mexico on this date in a series of significant severe weather days. Thunderstorms developed along the central mountain chain early in the afternoon then moved slowly east southeast across the plains. Several small short-lived tornadoes developed along the high plains, in particular around Maxwell, Wagon Mound, Valmora, Springer, and Encinosa. The Encinosa tornado destroyed 2 homes and severely damaged 2 others. Many reports of quarter to baseball size hail were also reported with these storms. The largest hail reported was around 3 inches in diameter east of Interstate 25 near Valmora.

Supercell thunderstorm near Encinosa spawned a tornado along Highway 246 at Richardson Canyon Road. The tornado traveled east-southeast down Richardson Canyon Road, snapping off the tops of trees and breaking numerous branches of Ponderosa pine. The tornado intensified as it approached 2 homes. A single wide mobile home from the 1970s was completely destroyed as the undercarriage was moved about 20 feet and all walls. The damage costs from this event to Lincoln County was \$101,500.

Probability of Occurrence

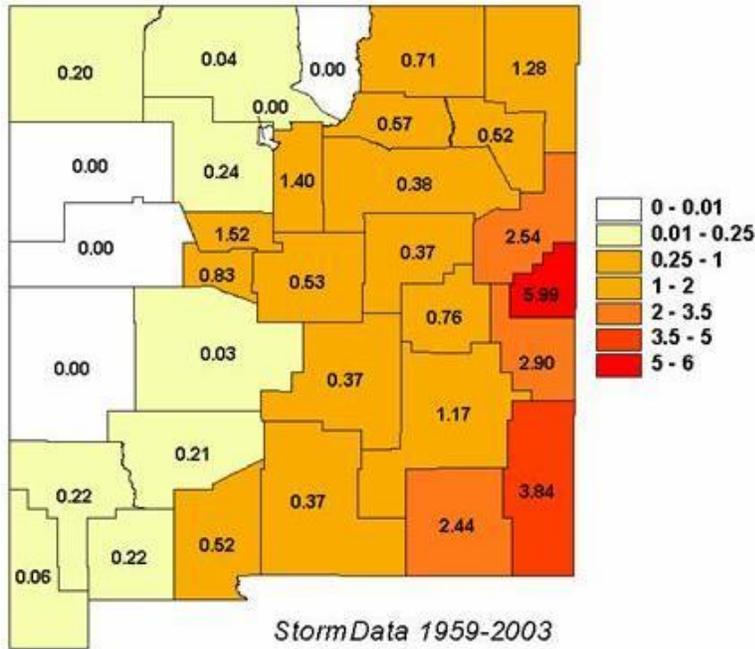
Figure 5-16 shows that Lincoln County lies within two different tornado risk zones. The far eastern portion of the state along the Texas border is in Wind Zone III. This means that portions of Lincoln County could see wind speeds of 160 to 199 mph, which correspond to an EF4 tornado classification.

Figure 5-18 shows that the number of tornadoes approximates the wind zone map above. Table 5-29 provides probability data for tornado events in Lincoln County.

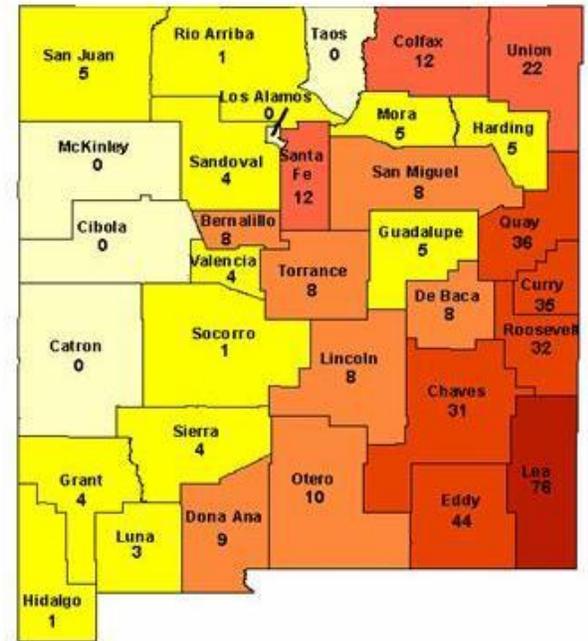
Table 5-29 Tornado Hazard Probability

| Hazard | n | N | T | P | Source/Comments |
|-----------|----------------------|-------------------------------|------------------------------------|----------------------------|-----------------|
| Tornadoes | 11 | 41 | 3.727273 | 0.268293 | NCDC |
| KEY | n = number of events | N = number of years in record | T = Recurrence Interval T = N/n | P = Probability (P=1/T) | |

Average Number of Tornados by County per Year per 10,000 sq. mi.



Tornadoes By County



Source: National Weather Service, Albuquerque Office

Figure 5-18 County Distribution of Tornadoes

5.2.8 *Hazardous Materials*

Description

The possibility exists for a transportation-related hazardous materials release primarily on US Route 54, a north-south roadway, which runs from El Paso, through Carrizozo, north to Corona, and continues northeast through several states. Also passing through Lincoln County in the US 54 corridor is the Union Pacific railroad. No recent spills relating to transportation are reported by county emergency services. In the event of a significant incident, this section may need revision.

Probability of Occurrence

Table 5-30 provides probability data for hazardous material events in Lincoln County.

Table 5-30 Hazardous Materials Incident Probability

| Hazard | n | N | T | P | Source/Comments |
|---------------------|----------------------|-------------------------------|--|--------------------------------|---|
| Hazardous Materials | 0 | 40 | | | None noted since record keeping initiated (over the past ~40 years) |
| KEY | n = number of events | N = number of years in record | T = Recurrence Interval ($T = N/n$) | P = Probability ($P=1/T$) | |

5.2.9 *Terrorism*

Description

The active shooter profile according to the U.S. Department of Homeland Security, an Active Shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area; in most cases, active shooters use firearms(s) and there is no pattern or method to their selection of victims. Active shooter situations are unpredictable and evolve quickly. Typically, the immediate deployment of law enforcement is required to stop the shooting and mitigate harm to victims. Because active shooter situations are often over within 10 to 15 minutes, before law enforcement arrives on the scene, individuals must be prepared both mentally and physically to deal with an active shooter situation.¹

According to the FEMA’s *Integrating Man-made Hazards into Mitigation Planning Guide*: The term “terrorism” refers to intentional, criminal, malicious acts. There is no single, universally accepted definition of terrorism, and it can be interpreted in many ways. Officially, terrorism is defined in the Code of Federal Regulations as “...the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives.” (28 CFR, Section 0.85). The Federal Bureau of Investigation (FBI) further characterizes terrorism as either domestic or international, depending on the origin, base, and objectives of the terrorist organization; however, the origin of the terrorist or person causing the hazard is far less relevant to mitigation planning than the hazard itself and its consequences. For the purposes of this guide, “terrorism” refers to the use of Weapons of Mass Destruction (WMD), including biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and “cyberterrorism.” Within these general categories, however, there are many variations. Particularly in the area of biological and chemical weapons, there are a wide variety of agents and ways for them to be disseminated.

¹http://www.alerts.si.edu/docs/DHS_ActiveShooterBook.pdf

The Federal Bureau of Investigation classifies two types of terrorism in the United States, domestic terrorism and international terrorism. Domestic terrorism involves individuals or groups whose activities are directed at elements of our population or government without a foreign objective; and international terrorism which involves individuals or groups who are foreign based and whose activities transcend national boundaries. In addition, some acts conducted by people or gangs involved in civil unrest, activists or radical groups, and people involved in illegal drug trade could also be categorized as terrorism. An act of terrorism can involve several forms, depending on the means available to the terrorist, the type of political issue influencing the act and the points of weakness of the terrorism target. Possibilities of terrorist action are briefly described below.

Bombing

In the United States, most terrorist incidents have involved bombs, detonated and undetonated explosive devices, pipe and firebombs, tear gas, and rocket attacks. Often the capacity existed for mass amounts of casualties and/or large-scale damage. An example is the Boston Marathon bombing that took place on April 15, 2013, which killed 3 and injured more than 180 people. The type of materials that were used and the method of delivery orchestrated in this bombing attack are readily accessible to a potential terrorist. Due to the availability of such materials, the potential for large scale casualties, and experiences to date in the nation, it is expected that of the various types of Weapons of Mass Destruction (WMD) explosive weapons have a great potential for use in the United States.

Airline Attack

Many questions were raised after the September 11, 2001 events, regarding the effectiveness of airline security. Since those attacks on September 11th, the security for airports and onboard airliners has increased tremendously. The changes to airport security include the supervision of baggage and passenger screening by the Transport Security Administration, restrictions pertaining to the articles that can be taken onboard airliners, boarding areas being restricted to passengers, deployment of additional Federal air marshals on airliners, and upgrades to cockpit security. Despite all these efforts, it is still not 100 percent affective that attacks will not occur. Such attacks could include airport or airplane bombings, hijacking, airport shootings, or possible the tampering with air navigation which could result in plane crashes.

Chemical/Biological/Nuclear Attack

Terrorists can use chemical and biological agents or weapons to either extort or deliberately try to kill in order to further political goals. Toxins or even some radiological materials, such as water-soluble plutonium chloride, could become a credible threat to municipal water supplies. An example of this would be the gas attack on the Tokyo subway system that occurred in March 1995. In addition, the taking of hostages can provide terrorist groups publicity for their political or social objectives, allow negotiation for furtherance of their aims or result in events which are designed to invoke sympathy for their causes. The main goal of response agencies is to end the incident, with the absolute minimum loss of innocent lives as possible.

Infrastructure Attack

An individual or group of terrorists could coordinate an attack against utilities and other public services such as electric power generation, telephone service and water supply. Another form of infrastructure attack is against computer resources such as networks, databanks and software by infiltrating computer networks and altering, stealing or destroying programs and data. As society becomes more dependent on computers, this form of cyber-terrorism is a legitimate concern. The emergency management community in the United States must accept that national security and intelligence organizations may not always be successful in preventing terrorist incidents. It is up to State and local emergency management personnel and services to respond should these attacks occur. The ramifications of responding to a terrorist incident may not be the same as traditional large-scale emergencies. The safety of emergency service providers must be an early, primary consideration. The media will take an active interest in this type of incident. The public has high expectations for emergency managers and service providers in a terrorist situation and extraordinary efforts are demanded. Federal and State government agencies depend directly on local managers and emergency response personnel and their initial and follow-up actions during any terrorist incident.

History

Specific threats of terrorism have not been made against any critical infrastructure within Lincoln County.

Location and Extent

A review of the community assets described in this plane indicate the potential for significant terrorism-related hazard impacts to: 1) a variety of residential, commercial, and other developed land uses; 2) roadway transportation system; 3) utilities; 4) critical community facilities; and 5) historic sites in the vicinity of the incident. It is safe to assume that any type of facility on which a terrorist attack could generate desired publicity or further terrorism objectives could be classified as a potential target for terrorist activity including large-scale public events, such as a county fair.

5.2.10 Active Shooter

Description

The active shooter profile according to the U.S. Department of Homeland Security, an Active Shooter is an individual actively engaged in killing or attempting to kill people in a confined and populated area; in most cases, active shooters use firearms(s) and there is no pattern or method to their selection of victims. Active shooter situations are unpredictable and evolve quickly. Typically, the immediate deployment of law enforcement is required to stop the shooting and mitigate harm to victims. Because active shooter situations are often over within 10 to 15 minutes, before law enforcement arrives on the scene, individuals must be prepared both mentally and physically to deal with an active shooter situation.¹

¹http://www.alerts.si.edu/docs/DHS_ActiveShooterBook.pdf

History

The FBI recently released, “A Study of Active Shooter Incidents in the United States Between 2000 and 2013” contains a full list of the 160 incidents used in study, including those that occurred at Virginia Tech, Sandy Hook Elementary School, the U.S. Holocaust Memorial Museum, Fort Hood, the Aurora (Colorado) Cinemark Century 16 movie theater, the Sikh Temple of Wisconsin, and the Washington Navy Yard, as well as numerous other tragic shootings. Here are some of the study’s findings:

- Active shooter incidents are becoming more frequent—the first seven years of the study show an average of 6.4 incidents annually, while the last seven years show 16.4 incidents annually.
- These incidents resulted in a total of 1,043 casualties (486 killed, 557 wounded—excluding the shooters).
- All but six of the 160 incidents involved male shooters (and only two involved more than one shooter).
- More than half of the incidents—90 shootings—ended on the shooter’s initiative (i.e., suicide, fleeing), while 21 incidents ended after unarmed citizens successfully restrained the shooter.
- In 21 of the 45 incidents where law enforcement had to engage the shooter to end the threat, nine officers were killed and 28 were wounded.
- The largest percentage of incidents—45.6 percent—took place in a commercial environment (73 incidents), followed by 24.3 percent that took place in an educational environment (39 incidents). The remaining incidents occurred at the other location types specified in the study—open spaces, military and other government properties, residential properties, houses of worship, and health care facilities.¹

5.2.11 Communicable Disease Outbreak

Description

A disease outbreak is the occurrence of cases of disease in excess of what would normally be expected in a defined community, geographical area or season. An outbreak may occur in a restricted geographical area, or may extend over several countries. It may last for a few days or weeks, or for several years. Infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi; the diseases can be spread, directly or indirectly, from one person to another. Zoonotic diseases are infectious diseases of animals that can cause disease when transmitted to humans.

A single case of a communicable disease long absent from a population, or caused by an agent (e.g. bacterium or virus) not previously recognized in that community or area, or the emergence of a previously unknown disease, may also constitute an outbreak and should be reported and investigated.² Health emergencies may occur naturally or as the result of

¹ <http://www.fbi.gov/news/stories/fbi-releases-study-on-active-shooter-incidents>

² http://www.who.int/topics/disease_outbreaks/en/

actions by a person or persons who wish to harm others. Each intentional health emergency will differ in the population of people affected, the number of people affected, and the type and severity of illness in the affected persons.

Communicable Diseases are transmitted in the following ways:

- Airborne, Droplet-borne
- Person-to-person
- Foodborne, Waterborne
- Vehicle-borne
- Sexually transmitted
- Bloodborne
- Zoonotic

History

The New Mexico Department of Health (NMDOH) provided historical information regarding previous occurrences and losses associated with disease outbreak events throughout New Mexico, including Lincoln County. The NMDOH tracks outbreaks and conducts investigations to protect the health of New Mexicans and for reporting to the Centers for Disease Control and Prevention (CDC). In addition to outbreaks of notifiable diseases, suspected foodborne or waterborne illness, acute illness of any type involving many people in the same geographical area, and any illness of public health significance also are investigated under the New Mexico (NM) Administrative Code 7.4.3.13.

TABLE 5-31 shows the summary of selective notifiable diseases in New Mexico in 2014, including foodborne diseases, vaccine preventable diseases, bacterial invasive diseases, zoonotic diseases, bloodborne diseases, and respiratory diseases. TABLE 5-32 shows the 2003 Lincoln County Health Profile of infectious diseases.

¹ <https://nmhealth.org/data/view/infectious/1856/>

Table 5-31 New Mexico Health Profile of Infectious Diseases

Summary of Select Notifiable Diseases, New Mexico, 2014

| | Number | Rate (per 100,000 population) |
|--|--------|-------------------------------------|
| Foodborne Diseases | | |
| Botulism, foodborne | 0 | 0.0 |
| Botulism, infant | 1 | 0.05 |
| Botulism, wound | 1 | 0.05 |
| Campylobacteriosis | 376 | 18.0 |
| Cholera | 0 | 0.0 |
| Cryptosporidiosis | 86 | 4.1 |
| Cyclosporiasis | 0 | 0.0 |
| Giardiasis | 101 | 4.8 |
| Hepatitis A, acute | 8 | 0.4 |
| Listeriosis | 9 | 0.4 |
| Salmonellosis | 329 | 15.8 |
| Shiga toxin-producing <i>Escherichia coli</i> (STEC) | 47 | 2.3 |
| Shigellosis | 63 | 3.0 |
| Typhoid fever (<i>Salmonella typhi</i>) | 0 | 0.0 |
| <i>Vibrio parahaemolyticus</i> | 1 | 0.05 |
| <i>Vibrio</i> species, non-toxigenic | 0 | 0.0 |
| Yersiniosis | 1 | 0.05 |
| Vaccine Preventable Diseases | | |
| Measles (Rubeola) | 1 | 0.05 |
| Mumps | 2 | 0.10 |
| Pertussis | 370 | 17.7 |
| Tetanus | 0 | 0.0 |
| Varicella (Chickenpox) | 75 | 3.6 |

Bacterial Invasive Diseases

| | | |
|---|-----|------|
| Group A <i>Streptococcus</i> , invasive | 179 | 8.6 |
| Group B <i>Streptococcus</i> , invasive | 202 | 9.7 |
| <i>Haemophilus influenzae</i> , invasive | 50 | 2.4 |
| Necrotizing fasciitis | 14 | 0.67 |
| <i>Neisseria meningitides</i> (meningococcal disease) | 2 | 0.1 |
| <i>Streptococcus pneumoniae</i> , invasive | 299 | 14.3 |

Zoonotic Diseases

| | | |
|---|----|------|
| Brucellosis | 0 | 0.0 |
| Dengue virus infection | 0 | 0.0 |
| Lyme disease | 0 | 0.0 |
| Hantavirus pulmonary syndrome | 6 | 0.29 |
| Malaria | 3 | 0.14 |
| Plague | 2 | 0.10 |
| Tularemia, human | 5 | 0.24 |
| Rabies, animal | 12 | 0.58 |
| West Nile virus neuroinvasive disease | 19 | 0.91 |
| West Nile virus non-neuroinvasive disease | 5 | 0.24 |

Bloodborne Diseases

| | | |
|---|------|-------|
| Hepatitis B virus infection, chronic | 119 | 5.7 |
| Hepatitis B virus infection, acute | 2 | 0.10 |
| Hepatitis C virus infection, chronic or resolved* | 2685 | 128.4 |
| Hepatitis C virus infection, acute | 16 | 0.77 |

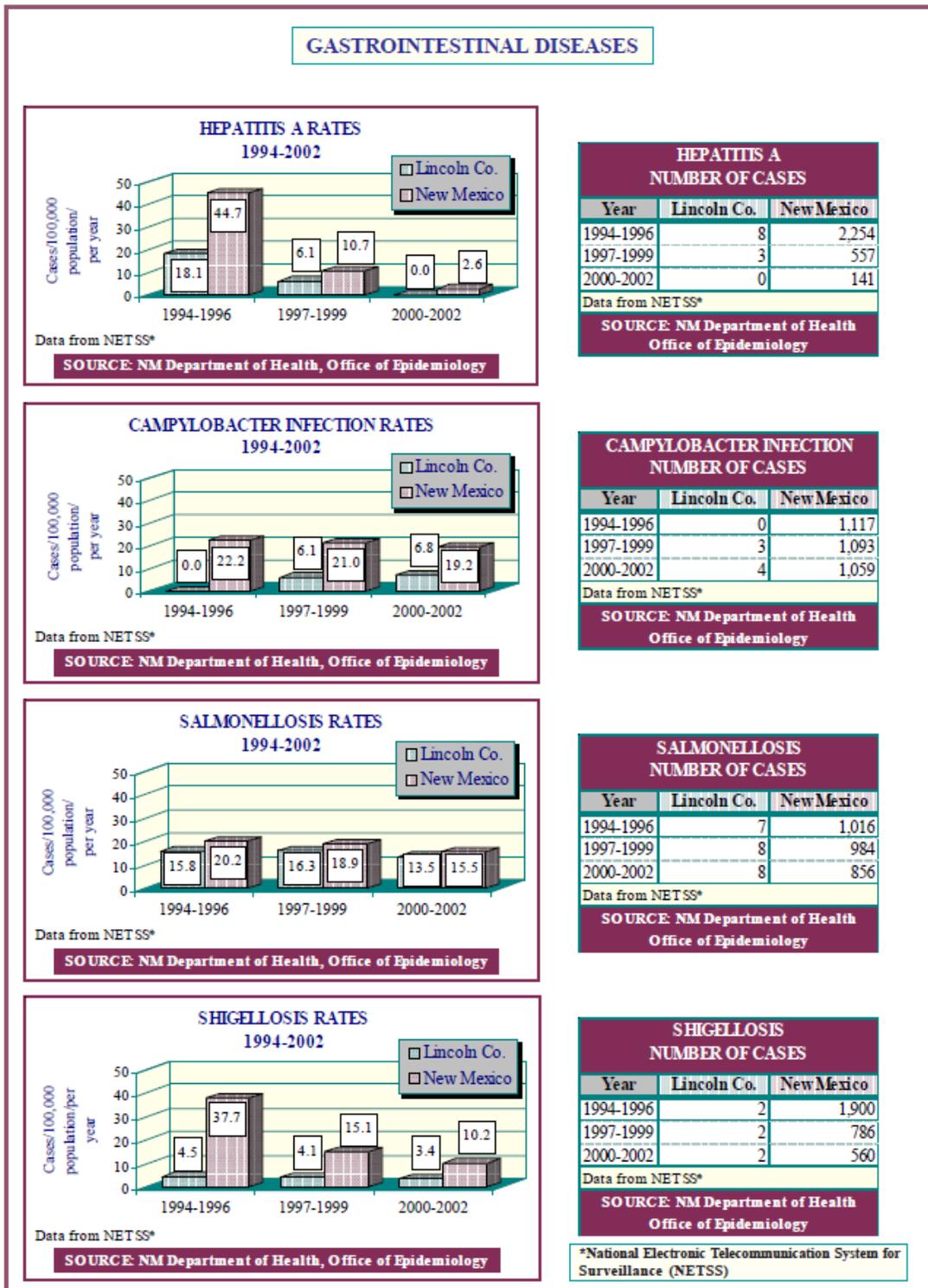
Respiratory Diseases

| | | |
|--------------------|----|------|
| Coccidioidomycosis | 39 | 1.9 |
| Legionellosis | 8 | 0.38 |

Infectious Diseases in New Mexico Annual Report 2015

Table 5-32 Lincoln County Health Profile 2003 Infectious Diseases

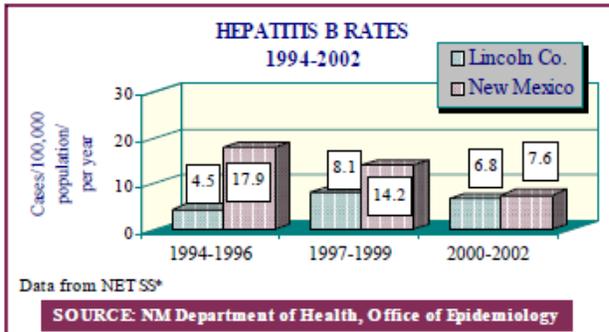
INFECTIOUS / COMMUNICABLE DISEASE - GASTROINTESTINAL DISEASES



Source <https://nmhealth.org>

INFECTIOUS / COMMUNICABLE DISEASE - BLOODBORNE & RESPIRATORY DISEASES

BLOODBORNE DISEASES

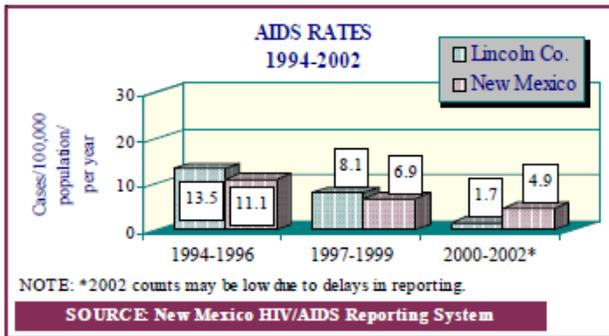


HEPATITIS B NUMBER OF CASES

| Year | Lincoln Co. | New Mexico |
|-----------|-------------|------------|
| 1994-1996 | 2 | 905 |
| 1997-1999 | 4 | 736 |
| 2000-2002 | 4 | 419 |

Data from NET SS*
SOURCE: NM Department of Health Office of Epidemiology

*National Electronic Telecommunication System for Surveillance (NETSS)

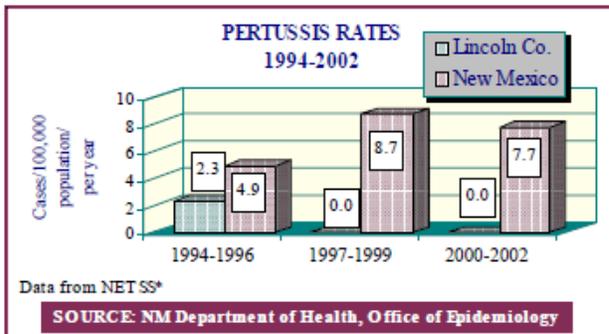


HIV/AIDS NUMBER OF CASES

| Year | Lincoln Co. | New Mexico |
|------------|-------------|------------|
| 1994-1996 | 6 | 559 |
| 1997-1999 | 4 | 357 |
| 2000-2002* | 1 | 270 |

NOTE: *2002 counts may be low due to delays in reporting.
SOURCE: New Mexico HIV/AIDS

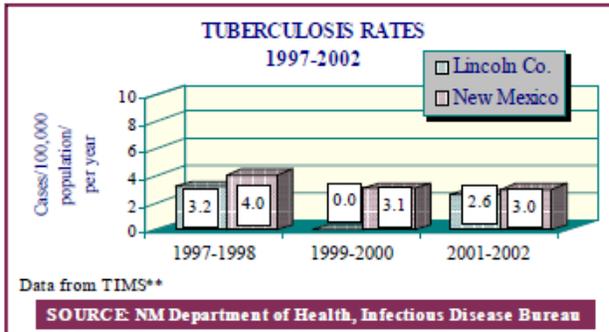
RESPIRATORY DISEASES



PERTUSSIS NUMBER OF CASES

| Year | Lincoln Co. | New Mexico |
|-----------|-------------|------------|
| 1994-1996 | 1 | 247 |
| 1997-1999 | 0 | 453 |
| 2000-2002 | 0 | 426 |

Data from NET SS*
SOURCE: NM Department of Health Office of Epidemiology



TUBERCULOSIS NUMBER OF CASES

| Year | Lincoln Co. | New Mexico |
|-----------|-------------|------------|
| 1997-1998 | 1 | 139 |
| 1999-2000 | 0 | 110 |
| 2001-2002 | 1 | 111 |

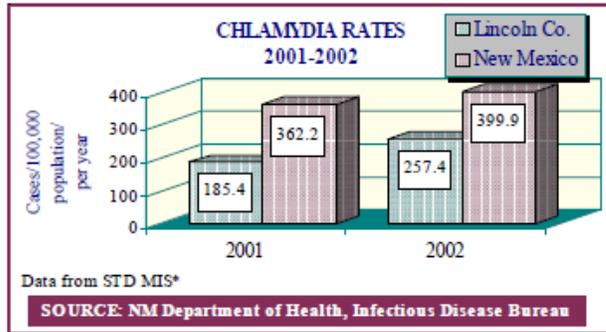
Data from TIMS**
SOURCE: NM Department of Health Infectious Disease Bureau

**Tuberculosis Information Management System (TIMS)

Source <https://nmhealth.org>

INFECTIOUS / COMMUNICABLE DISEASE - SEXUALLY TRANSMITTED DISEASES

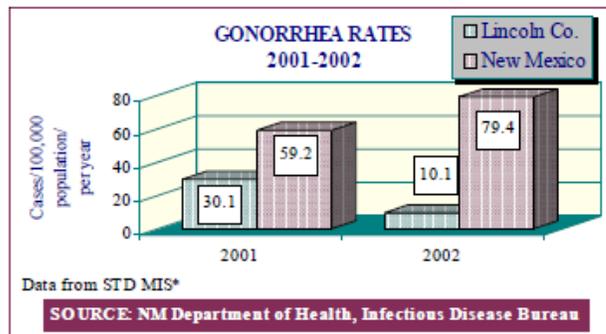
SEXUALLY TRANSMITTED DISEASES



CHLAMYDIA NUMBER OF CASES

| Year | Lincoln Co. | New Mexico |
|------|-------------|------------|
| 2001 | 37 | 6,669 |
| 2002 | 51 | 7,419 |

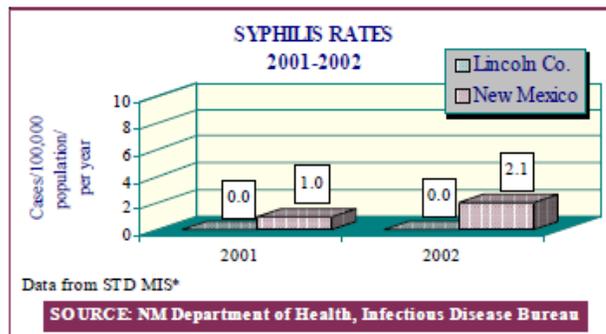
Data from STD MIS*
SOURCE: NM Department of Health Infectious Disease Bureau



GONORRHEA NUMBER OF CASES

| Year | Lincoln Co. | New Mexico |
|------|-------------|------------|
| 2001 | 6 | 1,090 |
| 2002 | 2 | 1,472 |

Data from STD MIS*
SOURCE: NM Department of Health Infectious Disease Bureau



SYPHILIS NUMBER OF CASES

| Year | Lincoln Co. | New Mexico |
|------|-------------|------------|
| 2001 | 0 | 19 |
| 2002 | 0 | 39 |

Data from STD MIS*
SOURCE: NM Department of Health Infectious Disease Bureau

NOTE: The scales on the above graphs are not comparable.

*Sexually Transmitted Diseases Management Information Systems (STD MIS)

Source <https://nmhealth.org/search/?keyword=Lincoln+County&search=search>

Location and Extent

It is difficult to predict the next disease outbreak in Lincoln County. There are several factors that increase the probability of future occurrences that include population growth and increase of populations that do not have access to healthcare.

Climate Change

The relationship between climate change and infectious diseases is still somewhat controversial. For instance, the belief that rising temperatures will increase the number of mosquitoes that can transmit malaria among humans (rather than just shift their range) has been in question over the past decade. Some believe that climate change may affect the spread of disease, while others are not convinced. However, according to the World Health Organization, “changes in infectious disease transmission patterns are a likely major consequence of climate change. We need to learn more about the underlying complex causal relationships, and apply this information to the prediction of future impacts, using more complete, better validated, integrated, models.”¹

5.3 Vulnerability Analysis Methodology

5.3.1 General

The following sections summarize the methodologies used to perform the vulnerability analysis portion of the risk assessment. For this update, the entire vulnerability analysis was either revised or updated to reflect the availability of new hazard and census data. Specific changes are noted below and/or in Section 5.2.

For the purposes of this vulnerability analysis, the Priority Risk Index (PRI) Evaluation and the loss exposure were used by the MPT for the plan update. Hazard profile categories of HIGH, LOW, and/or MEDIUM were used and were subjectively assigned based on the factors discussed in Probability and Magnitude sections below. Within the context of the county limits, the other hazards do not exhibit significant geographic variability and will not be categorized as such.

Unless otherwise specified in this Plan, the general cutoff date for new historic or hazard profile data is the end of January 2016.

5.3.2 Priority Risk Index (PRI) Evaluation

The first step in the vulnerability analysis (VA) is to assess the perceived overall risk for each of the plan hazards using a tool called the Priority Risk Index³⁰ (PRI). The PRI value is obtained by assigning varying degrees of risk to four (4) categories for each hazard, and then calculating an index value based on a weighting scheme. Table 5-33 summarizes the PRI risk categories and provides guidance regarding the assignment of values and weighting factors for each category. Table 5-34 shows the PRI per hazard for each jurisdiction.

¹ <http://www.who.int/globalchange/environment/en/chapter6.pdf>

Application of the PRI is illustrated by the following example below. Assume that the project team is assessing the hazard of flooding, and has decided that the following assignments best describe the flooding hazard for their community:

- Probability = Likely
- Impact = Critical
- Spatial Extent = small
- Warning Time = 12-24 hours
- Duration = Less than 6 hours

The PRI for the flooding hazard would then be:

$$PRI = [(3*0.30)+(3*0.30)+(2*0.20)+ (2*0.10+(2*0.10))]$$

$$PRI = 2.6$$

Table 5-33 Priority Risk Index Calculator Template

| PRIORITY RISK INDEX CALCULATOR | | | | | | |
|--------------------------------|--------------------|---|-------------|-----------------|------------------|--------------|
| HAZARD: | | COMMUNITY: | | | | |
| PRI Category | Level | Criteria | Index Value | Assigned Weight | Index Value | PRI/Category |
| Probability | Unlikely | Less than 1% annual probability | 1 | 0.30 | 0 | 0.00 |
| | Possible | Between 1 and 10% annual probability | 2 | | | |
| | Likely | Between 10 and 100% annual probability | 3 | | | |
| | Highly Likely | 100% annual probability | 4 | | | |
| Impact | Minor | Very few injuries, only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities | 1 | 0.30 | 0 | 0.00 |
| | Limited | Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day | 2 | | | |
| | Critical | Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shut down of critical facilities for more than one week | 3 | | | |
| | Catastrophic | High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more. | 4 | | | |
| Spatial Extent | Negligible | Less than 1% of area affected | 1 | 0.20 | 0 | 0.00 |
| | Small | Between 1 and 10% of area affected | 2 | | | |
| | Moderate | Between 10 and 50% of area affected | 3 | | | |
| | Large | Between 50 and 100% of area affected | 4 | | | |
| Warning Time | More than 24 hours | Self explanatory | 1 | 0.10 | 0 | 0.00 |
| | 12 to 24 hours | Self explanatory | 2 | | | |
| | 6 to 12 hours | Self explanatory | 3 | | | |
| | Less than 6 hours | Self explanatory | 4 | | | |
| Duration | Less than 6 hours | Self explanatory | 1 | 0.10 | 0 | 0.00 |
| | Less than 24 hours | Self explanatory | 2 | | | |
| | Less than one week | Self explanatory | 3 | | | |
| | More than one week | Self explanatory | 4 | | | |
| | | | | | PRI VALUE | 0.00 |

Table 5-34 PRI Summary by Jurisdiction

| PRI SUMMARY | | | | | | | |
|---------------------------|----------------|-------------|--------------|----------------|--------------|----------|-----|
| COMMUNITY: LINCOLN COUNTY | | | | | | | |
| PRIORITY | HAZARD | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | PRI |
| 1 | WILDFIRE | LIKELY | CATASTROPHIC | MODERATE | < 6 HRS | > WEEK | 3.5 |
| 2 | SEVERE WEATHER | LIKELY | LIMITED | MODERATE | 6 - 12 HRS | < WEEK | 3.2 |
| 3 | FLOOD | LIKELY | CRITICAL | MODERATE | < 6 HRS | < WEEK | 3.1 |
| 4 | DROUGHT | LIKELY | LIMITED | LARGE | > 24 HRS | > WEEK | 2.8 |
| 7 | DAM FAILURE | UNLIKELY | CRITICAL | MODERATE | < 6 HRS | < 24 HRS | 2.4 |
| 8 | EARTHQUAKE | UNLIKELY | CRITICAL | MODERATE | < 6 HRS | < 6 HRS | 2.3 |
| 9 | HAZ MAT | UNLIKELY | LIMITED | SMALL | < 6 HRS | < 6 HRS | 1.8 |
| 11 | TORNADO | UNLIKELY | LIMITED | SMALL | < 6 HRS | < 6 HRS | 1.8 |

| PRI SUMMARY | | | | | | | |
|-------------------------------|----------------|---------------|--------------|----------------|--------------|----------|-----|
| COMMUNITY: VILLAGE OF RUIDOSO | | | | | | | |
| PRIORITY | HAZARD | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | PRI |
| 1 | WILDFIRE | HIGHLY LIKELY | CATASTROPHIC | MODERATE | < 6 HRS | < WEEK | 3.7 |
| 2 | DAM FAILURE | POSSIBLE | CATASTROPHIC | MODERATE | < 6 HRS | > WEEK | 3.2 |
| 3 | SEVERE WINTER | LIKELY | LIMITED | MODERATE | > 24 HRS | < WEEK | 3.0 |
| 4 | FLOOD | LIKELY | CRITICAL | SMALL | 24-Dec | < WEEK | 2.7 |
| 5 | HAZ MAT | POSSIBLE | CRITICAL | SMALL | < 6 HRS | < 24 HRS | 2.5 |
| 8 | DROUGHT | POSSIBLE | LIMITED | SMALL | > 24 HRS | > WEEK | 2.1 |
| 12 | EARTHQUAKE | UNLIKELY | MINOR | SMALL | > 24 HRS | < WEEK | 1.5 |
| 13 | TORNADO | UNLIKELY | MINOR | NEGLIGIBLE | < 6 HRS | < 6 HRS | 1.3 |
| 14 | ACTIVE SHOOTER | UNLIKELY | MINOR | NEGLIGIBLE | < 6 HRS | < 6 HRS | 1.3 |
| 15 | TERRORISM | UNLIKELY | MINOR | NEGLIGIBLE | < 6 HRS | < 6 HRS | 1.3 |
| 16 | OUTBREAK | UNLIKELY | MINOR | NEGLIGIBLE | < 6 HRS | < 6 HRS | 1.3 |

| PRI SUMMARY | | | | | | | |
|--------------------------|----------------|-------------|---------|----------------|--------------|----------|-----|
| COMMUNITY: RUIDOSO DOWNS | | | | | | | |
| PRIORITY | HAZARD | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | PRI |
| 1 | WILDFIRE | LIKELY | LIMITED | MODERATE | < 6 HRS | < WEEK | 2.8 |
| 3 | DAM FAILURE | UNLIKELY | LIMITED | MODERATE | < 6 HRS | > WEEK | 2.3 |
| 4 | HAZ MAT | POSSIBLE | LIMITED | SMALL | < 6 HRS | < WEEK | 2.3 |
| 5 | SEVERE WEATHER | LIKELY | LIMITED | MODERATE | 12 - 24 HRS | < WEEK | 2.2 |
| 6 | FLOOD | POSSIBLE | LIMITED | SMALL | 6 - 12 HRS | < WEEK | 2.2 |
| 8 | TERRORISM | POSSIBLE | LIMITED | SMALL | < 6 HRS | < 24HRS | 2.2 |
| 9 | DROUGHT | POSSIBLE | MINOR | LARGE | > 24 HRS | > WEEK | 2.2 |
| 11 | EARTHQUAKE | UNLIKELY | MINOR | LARGE | < 6 HRS | < 6 HRS | 1.9 |
| 12 | ACTIVE SHOOTER | POSSIBLE | MINOR | NEGLIGIBLE | < 6 HRS | < 6 HRS | 1.6 |
| 13 | TORNADO | UNLIKELY | MINOR | SMALL | < 6 HRS | < 6 HRS | 1.5 |

| PRI SUMMARY | | | | | | | |
|--------------------|----------------|-------------|---------|----------------|--------------|----------|-----|
| COMMUNITY: CAPITAN | | | | | | | |
| PRIORITY | HAZARD | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | PRI |
| 1 | WILDFIRE | LIKELY | LIMITED | SMALL | < 6 HRS | < 24 HRS | 2.5 |
| 2 | SEVERE WEATHER | POSSIBLE | LIMITED | MODERATE | 6-12 HRS | < WEEK | 2.3 |
| 4 | DROUGHT | UNLIKELY | LIMITED | LARGE | > 24 HRS | > WEEK | 2.2 |
| 5 | HAZ MAT | UNLIKELY | LIMITED | SMALL | < 6 HRS | > WEEK | 2.1 |
| 8 | FLOOD | POSSIBLE | MINOR | SMALL | < 6HRS | < 6 HRS | 1.8 |
| 9 | EARTHQUAKE | UNLIKELY | LIMITED | SMALL | < 6 HRS | < 6 HRS | 1.8 |
| 10 | OUTBREAK | UNLIKELY | MINOR | NEGLIGIBLE | < 6 HRS | > WEEK | 1.6 |
| 11 | TORNADO | UNLIKELY | MINOR | SMALL | < 6 HRS | < 6 HRS | 1.5 |
| 12 | TERRORISM | UNLIKELY | MINOR | NEGLIGIBLE | < 6 HRS | < 6 HRS | 1.3 |
| 13 | ACTIVE SHOOTER | UNLIKELY | MINOR | NEGLIGIBLE | < 6 HRS | < 6 HRS | 1.3 |

| PRI SUMMARY | | | | | | | |
|----------------------|----------------|-------------|----------|----------------|--------------|----------|-----|
| COMMUNITY: CARRIZOZO | | | | | | | |
| PRIORITY | HAZARD | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | PRI |
| 1 | HAZ MAT | POSSIBLE | CRITICAL | MODERATE | < 6 HRS | < WEEK | 2.8 |
| 3 | DROUGHT | LIKELY | MINOR | MODERATE | < 24 | > WEEK | 2.3 |
| 5 | SEVERE WEATHER | LIKELY | LIMITED | MODERATE | 12 - 24 HRS | < WEEK | 2.0 |
| 7 | EARTHQUAKE | UNLIKELY | LIMITED | MODERATE | < 6 HRS | < 6 HRS | 2.0 |
| 8 | TORNADO | UNLIKELY | LIMITED | SMALL | 6 - 12 HRS | < 6 HRS | 1.7 |
| 9 | WILDFIRE | UNLIKELY | LIMITED | NEGLIGIBLE | 6 - 12 HRS | < 24 HRS | 1.6 |
| 10 | TERRORISM | UNLIKELY | LIMITED | NEGLIGIBLE | < 6 HRS | < 6HRS | 1.6 |
| 11 | ACTIVE SHOOTER | UNLIKELY | LIMITED | NEGLIGIBLE | < 6 HRS | < 6HRS | 1.6 |
| 12 | OUTBREAK | UNLIKELY | LIMITED | NEGLIGIBLE | < 6 HRS | < 6HRS | 1.6 |

| PRI SUMMARY | | | | | | | |
|-------------------|----------------|-------------|---------|----------------|--------------|----------|-----|
| COMMUNITY: CORONA | | | | | | | |
| PRIORITY | HAZARD | PROBABILITY | IMPACT | SPATIAL EXTENT | WARNING TIME | DURATION | PRI |
| 1 | WILDFIRE | LIKELY | LIMITED | MODERATE | < 6 HRS | > WEEK | 2.9 |
| 2 | SEVERE WEATHER | POSSIBLE | LIMITED | MODERATE | 12 - 24 HRS | < WEEK | 2.3 |
| 3 | HAZ MAT | POSSIBLE | LIMITED | MODERATE | < 6 HRS | < WEEK | 2.5 |
| 5 | DROUGHT | LIKELY | MINOR | MODERATE | > 24 HRS | > WEEK | 2.3 |
| 8 | EARTHQUAKE | UNLIKELY | MINOR | MODERATE | < 6 HRS | < 6 HRS | 1.7 |
| 9 | TORNADO | UNLIKELY | LIMITED | SMALL | 6 - 12 HRS | < 6 HRS | 1.7 |
| 10 | TERRORISM | UNLIKELY | LIMITED | NEGLIGIBLE | < 6 HRS | < 6HRS | 1.6 |
| 11 | ACTIVE SHOOTER | UNLIKELY | LIMITED | NEGLIGIBLE | < 6 HRS | < 6HRS | 1.6 |
| 12 | OUTBREAK | UNLIKELY | LIMITED | NEGLIGIBLE | < 6 HRS | < 6HRS | 1.6 |

5.3.3 Asset Inventory

With this update, the 2012 Plan detailed asset inventory was reviewed and updated to reflect the current status, replacement cost information, and the applicable information for the added jurisdictions.

The 2013 New Mexico State Plan defines assets as:

Any natural or human-caused feature that has value, including, but not limited to people; buildings; infrastructure like bridges, roads, and sewer and water systems; lifelines like electricity and communication resources; or environmental, cultural, or recreational features like parks, dunes, wetlands, or landmarks.

The asset inventory is generally tabularized into **critical** and **non-critical** categories. **Critical facilities and infrastructure** are systems, structures and infrastructure within a community whose incapacity or destruction would:

- Have a debilitating impact on the defense or economic security of that community.
- Significantly hinder a community's ability to recover following a disaster.

Critical facilities are vital to health, safety and well-being of New Mexicans during time of natural disasters. The following general categories define critical facilities and infrastructure that the MPT used as a guideline for the update.

- Essential facilities vital to the response effort (Emergency Service Facilities, such as police stations, fire stations, rescue squads, public works facilities, hospitals, evacuation shelters, etc.)
- Facilities that house populations requiring special consideration (nursing homes, prisons, juvenile detention centers, schools, secondary education facilities, child care centers, hospitals and facilities, health clinics, and the Office of Medical Investigation, etc.)
- Locations where public health and safety functions are performed or coordinated (State Police District Offices, Emergency Operations Centers, staging areas for emergency operations, Office of Medical Investigator, housing for communications and computer systems, food/medical distribution centers, etc.)
- Communications networks (telephones, emergency medical radio communication system, emergency service radio systems, towers and repeater sites and base stations, television and radio stations, etc.).
- Water supply system/facilities, to include waste water treatment.
- Utilities (power plants, substations, power lines, etc.)
- Transportation networks (roads, bridges, airports, rail terminals, etc.)
- Facilities that can create secondary hazards, such as nuclear power plants and hazardous materials production or storage facilities

Non-critical facilities and infrastructures that are seen as assets such as public libraries, schools, museums, parks, recreational facilities, historic buildings or sites, churches, residential and/or commercial subdivisions, apartment complexes, and so forth, have also been considered by the MPT.

Table 5-5: Summary of Critical and Non-Critical Facility counts by category and jurisdiction

| Participating Jurisdiction | Critical Facilities and Infrastructure | | | | | | | | Non-Critical Facilities and Infrastructure | | | | |
|----------------------------|--|--------------------------|------------------------|----------------------------------|-------------------------|----------------------|---------------------|--------------------|--|----------|----------|-------------|--------------|
| | Communications Infrastructure | Electrical Power Systems | Gas and Oil Facilities | Banking and Finance Institutions | Transportation Networks | Water Supply Systems | Government Services | Emergency Services | Educational | Cultural | Business | Residential | Recreational |
| Lincoln County | 6 | 3 | 3 | 0 | 7 | 0 | 5 | 8 | 1 | 5 | 2 | 6,115 | 6 |
| Ruidoso | 3 | 1 | 5 | 10 | 2 | 5 | 5 | 5 | 5 | 2 | - | - | 2 |
| Ruidoso Downs | 3 | 2 | 3 | 1 | 1 | 2 | 3 | 3 | 1 | 0 | - | - | 2 |
| Carrizozo | 3 | 1 | 2 | 1 | 0 | 2 | 2 | 3 | 1 | 0 | - | - | 1 |
| Capitan | 3 | 1 | 2 | 1 | 0 | 2 | 4 | 4 | 1 | 1 | - | - | 1 |
| Corona | 2 | 1 | 2 | 0 | 0 | 2 | 3 | 2 | 1 | 0 | 5 | - | 0 |
| | | | | | | | | | | | | | |

5.3.4 Loss/Exposure Estimations

In the 2012 Plan, economic loss and human exposure estimates for each of the final hazards identified began with an assessment of the potential exposure of critical and non-critical assets and human populations to those hazards. Estimates of exposure to critical and non-critical assets identified by the community was accomplished by intersecting the asset inventory with the hazard profiles. Human or population exposures were estimated by intersecting the same hazards with 2000 Census Data population statistics that had been re-organized into GIS compatible databases and distributed with HAZUS-MH¹¹. Additional exposure estimates for general residential, commercial, and industrial building stock not specifically identified with the asset inventory, were also accomplished using the HAZUS-MH database, wherein the developers of the HAZUS-MH database have made attempts to correlate building/structure counts to census block data.

Loss estimates for this Plan, see Table 5-36 below, reflect an updated asset inventory, and the use of Census 2010 block level data for estimating the human (population) and residential structure impacts for each jurisdiction. The procedures for developing loss estimates for this Plan are discussed below.

Economic loss and human exposure estimates for each of the final hazards identified in Section 5.1 begins with an assessment of the potential exposure of assets (PRI), human populations, and residential structures to those hazards. Asset exposure estimates are accomplished by intersecting the asset inventory with the hazard profiles in Section 5.2 and compiling the exposed facility count and replacement values by jurisdiction. Similarly, human population and residential unit exposures are estimated by intersecting the same hazards with the 2010 Census block population and residential unit count data sets. Structure and content

replacement costs for assets were assigned to each facility by the corresponding jurisdiction. Structure and content replacement costs for the residential housing counts were geographically assigned based on census data places and average housing cost unit values data from the 2010 U.S. Census database.¹

Combining the exposure and/or loss results from the asset inventory and 2010 Census database provides a comprehensive depiction of the overall exposure of critical facilities, human population, and residential building stock and the two datasets are considered complimentary and not redundant.

Economic losses to structures and facilities are estimated by multiplying the exposed facility replacement cost estimates by an assumed loss to exposure ratio for the hazard. The loss to exposure ratios used in this Plan are summarized by hazard in Section 5.3. It is important to note the following when reviewing the loss estimate results:

- The loss to exposure ratios are subjective and the estimates are solely intended to provide an understanding of relative risk from the hazards and potential magnitude of losses.
- Potential losses reported in this Plan represent an inherent assumption that the hazard occurs county-wide to the magnitude shown on the hazard profile map. The results are intended to present a county-wide loss potential. Any single hazard event will likely only impact a portion of the county and the actual losses would be some fraction of those estimated herein.

Table 5-36 Loss / Exposure Estimates per Hazard for Each Jurisdiction

| LOSS / EXPOSURE | | | | | | | | | |
|---------------------------|---------|----------------------|--------------------------|------------------------------------|--------------------------|--------------------------------|---------------------|--------------------|--------------------|
| COMMUNITY: LINCOLN COUNTY | | | POPULATION VULNERABILITY | | | | | | |
| HAZARD | HOUSING | % DAMAGED /DESTROYED | MEDIAN VALUE | HOUSING ESTIMATED REPLACEMENT COST | TOTAL POPULATION EXPOSED | SECOND HOME/LODGING POPULATION | DISABLED POPULATION | ELDERLY POPULATION | POVERTY POPULATION |
| WILDFIRE | 6115 | 0.75 | \$155,400.00 | 712,703,250 | 3498 | 770 | 455 | 770 | 700 |
| SEVERE WEATHER | 6115 | 0.75 | \$155,400.00 | 712,703,250 | 1749 | 392 | 227 | 385 | 350 |
| FLOOD | 6115 | 0.75 | \$155,400.00 | 712,703,250 | 1749 | 392 | 227 | 385 | 350 |
| DROUGHT | 6115 | 0.75 | \$155,400.00 | 712,703,250 | 700 | 157 | 91 | 154 | 140 |
| DAM FAILURE | 6115 | 0.25 | \$155,400.00 | 237,567,750 | 1749 | 392 | 227 | 385 | 350 |
| EARTHQUAKE | 6115 | 0.10 | \$155,400.00 | 95,027,100 | 1749 | 392 | 227 | 385 | 350 |
| HAZ MAT | 6115 | 0.10 | \$155,400.00 | 95,027,100 | 700 | 157 | 91 | 154 | 140 |
| TORNADO | 6115 | 0.10 | \$155,400.00 | 95,027,100 | 700 | 157 | 91 | 154 | 140 |

¹Census Bureau website accessed at: http://quickfacts.census.gov/qfd/meta/long_HSG495213.htm

| LOSS / EXPOSURE | | | | | | | | | |
|-------------------------------|---------|----------------------|--------------|------------------------------------|--------------------------|--------------------------------|---------------------|--------------------|--------------------|
| COMMUNITY: VILLAGE OF RUIDOSO | | | | POPULATION VULNERABILITY | | | | | |
| HAZARD | HOUSING | % DAMAGED /DESTROYED | MEDIAN VALUE | HOUSING ESTIMATED REPLACEMENT COST | TOTAL POPULATION EXPOSED | SECOND HOME/LODGING POPULATION | DISABLED POPULATION | ELDERLY POPULATION | POVERTY POPULATION |
| WILDFIRE | 8428 | 0.75 | \$161,300.00 | 1,019,577,300 | 4014 | 1084 | 441 | 963 | 522 |
| DAM FAILURE | 8428 | 0.75 | \$161,300.00 | 1,019,577,300 | 4014 | 1084 | 441 | 963 | 522 |
| SEVERE WEAT | 8428 | 0.25 | \$161,300.00 | 339,859,100 | 2007 | 542 | 221 | 482 | 261 |
| FLOOD | 8428 | 0.25 | \$161,300.00 | 339,859,100 | 2007 | 542 | 221 | 482 | 261 |
| HAZ MAT | 8428 | 0.25 | \$161,300.00 | 339,859,100 | 2007 | 542 | 221 | 482 | 261 |
| DROUGHT | 8428 | 0.10 | \$161,300.00 | 135,943,640 | 803 | 217 | 88 | 193 | 104 |
| EARTHQUAKE | 8428 | 0.10 | \$161,300.00 | 135,943,640 | 80 | 22 | 9 | 19 | 10 |
| TORNADO | 8428 | 0.10 | \$161,300.00 | 135,943,640 | 80 | 22 | 9 | 19 | 10 |
| ACTIVE SHOO | 8428 | 0.01 | \$161,300.00 | 13,594,364 | 80 | 22 | 9 | 19 | 10 |
| TERRORISM | 8428 | 0.01 | \$161,300.00 | 13,594,364 | 80 | 22 | 9 | 19 | 10 |
| OUTBREAK | 8428 | 0.01 | \$161,300.00 | 13,594,364 | 80 | 22 | 9 | 19 | 10 |

| LOSS / EXPOSURE | | | | | | | | | |
|--------------------------|---------|----------------------|--------------|------------------------------------|--------------------------|--------------------------------|---------------------|--------------------|--------------------|
| COMMUNITY: RUIDOSO DOWNS | | | | POPULATION VULNERABILITY | | | | | |
| HAZARD | HOUSING | % DAMAGED /DESTROYED | MEDIAN VALUE | HOUSING ESTIMATED REPLACEMENT COST | TOTAL POPULATION EXPOSED | SECOND HOME/LODGING POPULATION | DISABLED POPULATION | ELDERLY POPULATION | POVERTY POPULATION |
| WILDFIRE | 1550 | 0.30 | \$115,144.00 | 53,541,960 | 704 | 70 | 35 | 176 | 176 |
| DAM FAILURE | 1550 | 0.30 | \$115,144.00 | 53,541,960 | 282 | 28 | 14 | 71 | 71 |
| HAZ MAT | 1550 | 0.30 | \$115,144.00 | 53,541,960 | 282 | 28 | 14 | 71 | 71 |
| SEVERE WEATHER | 1550 | 0.30 | \$115,144.00 | 53,541,960 | 282 | 28 | 14 | 71 | 71 |
| FLOOD | 1550 | 0.20 | \$115,144.00 | 35,694,640 | 282 | 28 | 14 | 71 | 71 |
| TERRORISM | 1550 | 0.20 | \$115,144.00 | 35,694,640 | 282 | 70 | 35 | 176 | 176 |
| DROUGHT | 1550 | 0.20 | \$115,144.00 | 35,694,640 | 28 | 3 | 1 | 7 | 7 |
| EARTHQUAKE | 1550 | 0.20 | \$115,144.00 | 35,694,640 | 28 | 3 | 1 | 7 | 7 |
| ACTIVE SHOOTER | 1550 | 0.00 | \$115,144.00 | 0 | 28 | 3 | 1 | 7 | 7 |

| LOSS / EXPOSURE | | | | | | | | | |
|----------------------|---------|----------------------|--------------|------------------------------------|--------------------------|--------------------------------|---------------------|--------------------|--------------------|
| COMMUNITY: CARRIZOZO | | | | POPULATION VULNERABILITY | | | | | |
| HAZARD | HOUSING | % DAMAGED /DESTROYED | MEDIAN VALUE | HOUSING ESTIMATED REPLACEMENT COST | TOTAL POPULATION EXPOSED | SECOND HOME/LODGING POPULATION | DISABLED POPULATION | ELDERLY POPULATION | POVERTY POPULATION |
| HAZ MAT | 558 | 0.25 | \$82,200.00 | 11,466,900 | 249 | 0 | 7 | 45 | 95 |
| DROUGHT | 558 | 0.10 | \$82,200.00 | 4,586,760 | 10 | 0 | 0 | 2 | 4 |
| SEVERE WEATHER | 558 | 0.10 | \$82,200.00 | 4,586,760 | 100 | 0 | 3 | 18 | 38 |
| EARTHQUAKE | 558 | 0.10 | \$82,200.00 | 4,586,760 | 10 | 0 | 0 | 2 | 4 |
| TORNADO | 558 | 0.10 | \$82,200.00 | 4,586,760 | 10 | 0 | 0 | 2 | 4 |
| WILDFIRE | 558 | 0.30 | \$82,200.00 | 13,760,280 | 10 | 0 | 0 | 2 | 4 |
| TERRORISM | 558 | 0.01 | \$82,200.00 | 458,676 | 10 | 0 | 0 | 2 | 4 |
| ACTIVE SHOOTER | 558 | 0.01 | \$82,200.00 | 458,676 | 10 | 0 | 0 | 2 | 4 |
| OUTBREAK | 558 | 0.01 | \$82,200.00 | 458,676 | 10 | 0 | 0 | 2 | 4 |

| LOSS / EXPOSURE | | | | | | | | | |
|--------------------|---------|----------------------|--------------------------|------------------------------------|--------------------------|--------------------------------|---------------------|--------------------|--------------------|
| COMMUNITY: CAPITAN | | | POPULATION VULNERABILITY | | | | | | |
| HAZARD | HOUSING | % DAMAGED /DESTROYED | MEDIAN VALUE | HOUSING ESTIMATED REPLACEMENT COST | TOTAL POPULATION EXPOSED | SECOND HOME/LODGING POPULATION | DISABLED POPULATION | ELDERLY POPULATION | POVERTY POPULATION |
| WILDFIRE | 804 | 0.50 | \$111,241.00 | 44,718,882 | 149 | 15 | 4 | 13 | 18 |
| SEVERE WEATHER | 804 | 0.30 | \$111,241.00 | 26,831,329 | 15 | 2 | 0 | 1 | 2 |
| DROUGHT | 804 | 0.20 | \$111,241.00 | 17,887,553 | 149 | 15 | 4 | 13 | 18 |
| HAZ MAT | 804 | 0.20 | \$111,241.00 | 17,887,553 | 149 | 15 | 4 | 13 | 18 |
| FLOOD | 804 | 0.10 | \$111,241.00 | 8,943,776 | 15 | 2 | 0 | 1 | 2 |
| EARTHQUAKE | 804 | 0.10 | \$111,241.00 | 8,943,776 | 149 | 2 | 0 | 1 | 2 |
| OUTBREAK | 804 | 0.01 | \$111,241.00 | 894,378 | 15 | 2 | 0 | 1 | 2 |
| TORNADO | 804 | 0.01 | \$111,241.00 | 894,378 | 15 | 2 | 0 | 1 | 2 |
| TERRORISM | 804 | 0.01 | \$111,241.00 | 894,378 | 15 | 2 | 0 | 1 | 2 |
| ACTIVE SHOOTER | 804 | 0.01 | \$111,241.00 | 894,378 | 15 | 2 | 0 | 1 | 2 |

| LOSS / EXPOSURE | | | | | | | | | |
|-------------------|---------|----------------------|--------------------------|------------------------------------|--------------------------|--------------------------------|---------------------|--------------------|--------------------|
| COMMUNITY: CORONA | | | POPULATION VULNERABILITY | | | | | | |
| HAZARD | HOUSING | % DAMAGED /DESTROYED | MEDIAN VALUE | HOUSING ESTIMATED REPLACEMENT COST | TOTAL POPULATION EXPOSED | SECOND HOME/LODGING POPULATION | DISABLED POPULATION | ELDERLY POPULATION | POVERTY POPULATION |
| WILDFIRE | 120 | 0.40 | \$101,000.00 | 4,848,000 | 17 | 2 | 1 | 7 | 4 |
| SEVERE WEATHER | 120 | 0.30 | \$101,000.00 | 3,636,000 | 17 | 2 | 1 | 7 | 4 |
| HAZ MAT | 120 | 0.30 | \$101,000.00 | 3,636,000 | 17 | 2 | 1 | 7 | 4 |
| DROUGHT | 120 | 0.30 | \$101,000.00 | 3,636,000 | 2 | 0 | 0 | 1 | 1 |
| EARTHQUAKE | 120 | 0.10 | \$101,000.00 | 1,212,000 | 2 | 0 | 0 | 1 | 1 |
| TORNADO | 120 | 0.10 | \$101,000.00 | 1,212,000 | 17 | 2 | 1 | 7 | 4 |
| TERRORISM | 120 | 0.01 | \$82,200.00 | 98,640 | 17 | 2 | 1 | 7 | 4 |
| ACTIVE SHOOTER | 120 | 0.01 | \$82,200.00 | 98,640 | 17 | 2 | 1 | 7 | 4 |
| OUTBREAK | 120 | 0.01 | \$82,200.00 | 98,640 | 17 | 2 | 1 | 7 | 4 |

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SECTION 6: MITIGATION STRATEGY

§201.6(c)(3): *[The plan shall include...] (3) 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:*

- (i) A description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*
- (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.*
- (iii) An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section 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.*
- (iv) For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction*

The mitigation strategy provides the “what, when, and how” of actions that will reduce or possibly remove the community’s exposure to hazard risks. According to DMA 2000, the primary components of the mitigation strategy are generally categorized into the following:

- **Goals and Objectives**
- **Capability Assessment**
- **Mitigation Actions/Projects and Implementation Strategy**

The entire 2012 Plan mitigation strategy was reviewed and updated by the MPT, including the addition or augmentation of the section describing National Flood Insurance Program (NFIP) compliance. Specifics of the changes and updates are discussed in the subsections below.

6.1 Hazard Mitigation Goals and Objectives

The ultimate mission of all hazard mitigation is the protection and preservation of life and property from the effects of the occurrence of natural hazards. Local governments can make progress toward this goal through coordinated planning and financing to achieve the specific objectives set forth in their hazard mitigation plans. To this end, the MPG’s strategy has been to develop several methods for mitigating the hazards identified in Section 5, Risk Assessment, as the most likely hazards to have severe consequences in Lincoln County and the participating jurisdictions.

The 2012 Plan goals and objectives were reviewed by the MPT and were determined to be adequate and current with the overall mitigation planning goals of all the participating jurisdictions. No changes were made to the goals, so the goals that will be carried forward for the Plan are as follows:

- ◆ Reduce or eliminate risks hazardous conditions that cause loss of life or inflict injury;
- ◆ Reduce or eliminate hazardous conditions that cause property damage;
- ◆ Reduce or eliminate hazardous conditions that degrade important natural resources; and

- ◆ Reduce or eliminate hazardous conditions that impact the community's recovery time in emergency response.

Mitigation strategies in this Hazard Mitigation Plan address critical facilities and any known repetitive-loss structures. Preparedness, response, and recovery measures that were identified to support the concept of mitigation and may directly support identified mitigation actions by the following mitigation objectives:

1. *Increasing awareness of hazards and their effects;*
2. *Decreasing the possibility of impact from the most significant threats;*
3. *Decreasing the vulnerability of critical and non-critical facilities;*
4. *Increasing established response mechanisms by enhancing partnerships; and*
5. *Increasing coordination and communication between levels of government regarding incidents and response mechanisms.*

Mitigation strategy objectives were also address and evaluated from the 2012 plan. The MPT decided from prior discussions emphasizing unified communications amongst the communities, that Objective 5 will be reworded to include, *and communication*, to the prior objective.

The HMP is intended to facilitate these goals and actions and to focus on the county's top priorities for hazard mitigation projects and action items. If other hazards that currently are not deemed significant do become significant in the future, updates to this plan will include mitigation strategies to address them. Critical facilities that lie within high-hazard areas will receive special attention, and especially property that has suffered repeated losses, regardless of whether or not the loss was during a state- or federal-declared disaster.

Mitigation strategies in this Hazard Mitigation Plan address critical facilities and any known repetitive-loss structures. Critical facilities that lie within high-hazard areas deserve special attention, and mitigation strategies need to be developed for property that has suffered repeated losses, regardless of whether or not the loss was during a state- or federal-declared disaster.

Strategies reflect what Lincoln County, state, and federal governmental agencies and non-governmental organizations (NGO) within Lincoln County would like to mitigate.

6.2 Capability Assessment

An important component of the Mitigation Strategy is a review of each participating jurisdiction's resources in order to identify, evaluate, and enhance the capacity of local resources to mitigate the effects of hazards. The capability assessment is comprised of several components:

- ✓ Legal and Regulatory Review – a review of the legal and regulatory capabilities, including ordinances, codes, plans, manuals, guidelines, and technical reports that address hazard mitigation activities.
- ✓ Technical Staff and Personnel – this assessment evaluates and describes the administrative and technical capacity of the jurisdiction's staff and personnel resources.
- ✓ Fiscal Capability – this element summarizes each jurisdiction's fiscal capability to provide the financial resources to implement the mitigation strategy.

- ✓ National Flood Insurance Program (NFIP) Participation – the NFIP contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Participation in the NFIP is voluntary for local governments, but the program is promoted by FEMA as a basic first step for implementing and sustaining an effective flood hazard mitigation program, and is a key indicator for measuring local capability as part of this assessment.

6.2.1 Jurisdictional Capabilities

Tables 6-1-1 through 6-1-6 summarize the legal and regulatory mitigation capability for each jurisdiction. Information provided includes a brief listing of current codes, mitigation relevant ordinances, plans, and studies/reports. Tables 6-2-1 through 6-2-6 summarize the staff and personnel resources employed by each jurisdiction that serve as a resource for hazard mitigation. Tables 6-3-1 through 6-3-6 summarize the fiscal capability and budgetary tools available to each participating jurisdiction. Each of these three tables are listed below by jurisdiction.

| Table 6-1-1: Legal and regulatory capabilities for Lincoln County | | |
|--|--|---|
| Regulatory Tools for Hazard Mitigation | Description | Responsible Department/Agency |
| CODES | <ul style="list-style-type: none"> • International Building Code | <ul style="list-style-type: none"> • NM State Construction Industries Division |
| ORDINANCES | <ul style="list-style-type: none"> • Floodplain Management Ordinance • Subdivision/Zoning Ordinance | <ul style="list-style-type: none"> • Planning Department • Planning Department |
| PLANS, MANUALS, and/or GUIDELINES | <ul style="list-style-type: none"> • Comprehensive Master Plan 2011 • CIP Plan 2016 • Local Emergency Operations Plan 2012 • CWPP 2014 | <ul style="list-style-type: none"> • Planning Department • Lincoln County Manager • Lincoln County Emergency Manager • Lincoln County Emergency Manager |

| Table 6-1-2: Technical staff and personnel capabilities for Lincoln County | | |
|---|-------------------------------------|-------------------------------------|
| Staff/Personnel Resources | <input checked="" type="checkbox"/> | Department/Agency - Position |
| Planner(s) or engineer(s) with knowledge of land development and land management practices | <input type="checkbox"/> | Contract personnel |
| Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure | <input type="checkbox"/> | Contract personnel |
| Planner(s) or engineer(s) with an understanding of natural and/or human-caused hazards | <input type="checkbox"/> | Contract personnel |
| Floodplain Manager | <input checked="" type="checkbox"/> | Managed by Lincoln County |
| Surveyors | <input type="checkbox"/> | Contract personnel |

| | | |
|--|-------------------------------------|---|
| Staff with education or expertise to assess the community's vulnerability to hazards | <input checked="" type="checkbox"/> | Lincoln County Emergency Services Director Fire Chief EMS |
| Personnel skilled in GIS and/or HAZUS | | Contract personnel |
| Scientists familiar with the hazards of the community | | Contract personnel |
| Emergency manager | <input checked="" type="checkbox"/> | Lincoln County Emergency Services Director |
| Grant writer(s) | | Contract personnel |
| Others | | |

Table 6-3-1: Fiscal capabilities for Lincoln County

| Financial Resources | Accessible or Eligible to Use (Yes, No, Don't Know) | Comments |
|--|---|--------------------------------|
| Community Development Block Grants | Yes | Senior Citizen centers project |
| Capital Improvements Project funding | Yes | Fire Department improvement |
| Authority to levy taxes for specific purposes | Yes | Hospital |
| Fees for water, sewer, gas, or electric service | No | |
| Impact fees for homebuyers or new developments/homes | No | |
| Incur debt through general obligation bonds | Yes | |
| Incur debt through special tax bonds | Yes | |
| Other | Yes | USDA, Rural Development, |

Table 6-1-2: Legal and regulatory capabilities for Village of Ruidoso

| Regulatory Tools for Hazard Mitigation | Description | Responsible Department/Agency |
|--|--|---|
| CODES | <ul style="list-style-type: none"> International Building Code | <ul style="list-style-type: none"> Planning Department |
| ORDINANCES | <ul style="list-style-type: none"> Floodplain Management Ordinance Subdivision/Zoning Ordinance | <ul style="list-style-type: none"> Lincoln County Floodplain Director Planning Department |
| PLANS, MANUALS, and/or GUIDELINES | <ul style="list-style-type: none"> Comprehensive Master Plan CIP Plan EOP CWPP | <ul style="list-style-type: none"> Planning Department City Manager Fire Chief Fire Chief |

Table 6-2-2: Technical staff and personnel capabilities for Village of Ruidoso

| Staff/Personnel Resources | <input checked="" type="checkbox"/> | Department/Agency - Position |
|--|-------------------------------------|------------------------------|
| Planner(s) or engineer(s) with knowledge of land development and land management practices | <input checked="" type="checkbox"/> | Planning Department |

| | | |
|---|-------------------------------------|-----------------------------------|
| Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure | | Contract personnel |
| Planner(s) or engineer(s) with an understanding of natural and/or human-caused hazards | | Contract personnel |
| Floodplain Manager | <input checked="" type="checkbox"/> | Floodplain Manager |
| Surveyors | | Contract personnel |
| | | |
| Staff with education or expertise to assess the community's vulnerability to hazards | <input checked="" type="checkbox"/> | EMS Fire Chief Police Chief |
| Personnel skilled in GIS and/or HAZUS | | Contract personnel |
| Scientists familiar with the hazards of the community | | Contract personnel |
| Emergency manager | <input checked="" type="checkbox"/> | Fire Chief |
| Grant writer(s) | | Contract personnel |
| Others | | |

Table 6-3-2: Fiscal capabilities for Village of Ruidoso

| Financial Resources | Accessible or Eligible to Use (Yes, No, Don't Know) | Comments |
|--|---|----------|
| Community Development Block Grants | Yes | |
| Capital Improvements Project funding | Yes | |
| Authority to levy taxes for specific purposes | Yes | |
| Fees for water, sewer, gas, or electric service | Yes | |
| Impact fees for homebuyers or new developments/homes | Yes | |
| Incur debt through general obligation bonds | Yes | |
| Incur debt through special tax bonds | Yes | |
| Other | Yes | |

Table 6-1-3: Legal and regulatory capabilities for City of Ruidoso Downs

| Regulatory Tools for Hazard Mitigation | Description | Responsible Department/Agency |
|--|---|---|
| CODES | <ul style="list-style-type: none"> International Building Code | <ul style="list-style-type: none"> NM State Construction Industries Division |
| ORDINANCES | <ul style="list-style-type: none"> Floodplain Management Ordinance Subdivision/Zoning Ordinance | <ul style="list-style-type: none"> Lincoln County Floodplain Manager Planning and Zoning Department |
| PLANS, MANUALS, and/or GUIDELINES | <ul style="list-style-type: none"> Comprehensive Master Plan 2004 CIP Plan | <ul style="list-style-type: none"> City Manager City Manager |

| Table 6-2-3: Technical staff and personnel capabilities for City of Ruidoso Downs | | |
|---|-------------------------------------|------------------------------|
| Staff/Personnel Resources | <input checked="" type="checkbox"/> | Department/Agency - Position |
| Planner(s) or engineer(s) with knowledge of land development and land management practices | <input checked="" type="checkbox"/> | Planning and Zoning Director |
| Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure | | Contract personnel |
| Planner(s) or engineer(s) with an understanding of natural and/or human-caused hazards | | Contract personnel |
| Floodplain Manager | <input checked="" type="checkbox"/> | Floodplain Manager |
| Surveyors | | Contract personnel |
| | | |
| Staff with education or expertise to assess the community's vulnerability to hazards | <input checked="" type="checkbox"/> | Fire Chief EMS |
| Personnel skilled in GIS and/or HAZUS | | Contract personnel |
| Scientists familiar with the hazards of the community | | Contract personnel |
| Emergency manager | <input checked="" type="checkbox"/> | Fire Chief |
| Grant writer(s) | | Contract personnel |
| Others | | |

| Table 6-3-3: Fiscal capabilities for City of Ruidoso Downs | | |
|--|---|----------|
| Financial Resources | Accessible or Eligible to Use (Yes, No, Don't Know) | Comments |
| Community Development Block Grants | Yes | |
| Capital Improvements Project funding | Yes | |
| Authority to levy taxes for specific purposes | Yes | |
| Fees for water, sewer, gas, or electric service | Yes | |
| Impact fees for homebuyers or new developments/homes | No | |
| Incur debt through general obligation bonds | Yes | |
| Incur debt through special tax bonds | Yes | |
| Other | Yes | |

| Table 6-1-4: Legal and regulatory capabilities for Town of Carrizozo | | |
|--|---|---|
| Regulatory Tools for Hazard Mitigation | Description | Responsible Department/Agency |
| CODES | <ul style="list-style-type: none"> International Building Code | <ul style="list-style-type: none"> NM State Construction Industries Division |

| | | |
|-----------------------------------|---|---|
| ORDINANCES | <ul style="list-style-type: none"> Floodplain Management Ordinance | <ul style="list-style-type: none"> Lincoln County Floodplain Manager |
| PLANS, MANUALS, and/or GUIDELINES | <ul style="list-style-type: none"> Comprehensive Master Plan | <ul style="list-style-type: none"> Mayor |

Table 6-2-4: Technical staff and personnel capabilities for Town of Carrizozo

| Staff/Personnel Resources | <input checked="" type="checkbox"/> | Department/Agency - Position |
|---|-------------------------------------|--|
| Planner(s) or engineer(s) with knowledge of land development and land management practices | | Contract personnel |
| Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure | | Contract personnel |
| Planner(s) or engineer(s) with an understanding of natural and/or human-caused hazards | | Contract personnel |
| Floodplain Manager | <input checked="" type="checkbox"/> | Managed by Lincoln County Floodplain Manager |
| Surveyors | | Contract personnel |
| | | |
| Staff with education or expertise to assess the community's vulnerability to hazards | <input checked="" type="checkbox"/> | Fire Chief EMS |
| Personnel skilled in GIS and/or HAZUS | | Contract personnel |
| Scientists familiar with the hazards of the community | | Contract personnel |
| Emergency manager | <input checked="" type="checkbox"/> | Fire Chief |
| Grant writer(s) | | Contract personnel |
| Others | | |

Table 6-3-4: Fiscal capabilities for Town of Carrizozo

| Financial Resources | Accessible or Eligible to Use (Yes, No, Don't Know) | Comments |
|--|---|----------|
| Community Development Block Grants | Yes | |
| Capital Improvements Project funding | Yes | |
| Authority to levy taxes for specific purposes | No | |
| Fees for water, sewer, gas, or electric service | No | |
| Impact fees for homebuyers or new developments/homes | No | |
| Incur debt through general obligation bonds | No | |
| Incur debt through special tax bonds | Yes | |
| Other | | |

Table 6-1-5: Legal and regulatory capabilities for Village of Capitan

| Regulatory Tools for Hazard Mitigation | Description | Responsible Department/Agency |
|--|---|---|
| CODES | <ul style="list-style-type: none"> International Building Code | <ul style="list-style-type: none"> NM State Construction Industries Division |
| ORDINANCES | <ul style="list-style-type: none"> Floodplain Management Ordinance | <ul style="list-style-type: none"> Lincoln County Floodplain Manager |
| PLANS, MANUALS, and/or GUIDELINES | <ul style="list-style-type: none"> Comprehensive Master Plan | <ul style="list-style-type: none"> Mayor |

Table 6-2-5: Technical staff and personnel capabilities for Village of Capitan

| Staff/Personnel Resources | <input checked="" type="checkbox"/> | Department/Agency - Position |
|---|-------------------------------------|--|
| Planner(s) or engineer(s) with knowledge of land development and land management practices | | Contract personnel |
| Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure | | Contract personnel |
| Planner(s) or engineer(s) with an understanding of natural and/or human-caused hazards | | Contract personnel |
| Floodplain Manager | <input checked="" type="checkbox"/> | Managed by Lincoln County Floodplain Manager |
| Surveyors | | Contract personnel |
| | | |
| Staff with education or expertise to assess the community's vulnerability to hazards | <input checked="" type="checkbox"/> | Fire Chief |
| Personnel skilled in GIS and/or HAZUS | | Contract personnel |
| Scientists familiar with the hazards of the community | | Contract personnel |
| Emergency manager | <input checked="" type="checkbox"/> | Fire Chief |
| Grant writer(s) | | Contract personnel |
| Others | | |

Table 6-3-5: Fiscal capabilities for Village of Capitan

| Financial Resources | Accessible or Eligible to Use (Yes, No, Don't Know) | Comments |
|---|---|----------|
| Community Development Block Grants | Yes | |
| Capital Improvements Project funding | Yes | |
| Authority to levy taxes for specific purposes | Yes | |
| Fees for water, sewer, gas, or electric service | Yes | |

| | | |
|--|------------|--|
| Impact fees for homebuyers or new developments/homes | Don't know | |
| Incur debt through general obligation bonds | Yes | |
| Incur debt through special tax bonds | Yes | |
| Other | Yes | |

Table 6-1-6: Legal and regulatory capabilities for Village of Corona

| Regulatory Tools for Hazard Mitigation | Description | Responsible Department/Agency |
|---|---|---|
| CODES | <ul style="list-style-type: none"> International Building Code | <ul style="list-style-type: none"> NM State Construction Industries Division |
| ORDINANCES | <ul style="list-style-type: none"> Floodplain Management Ordinance | <ul style="list-style-type: none"> Lincoln County Floodplain Manager |
| PLANS, MANUALS, and/or GUIDELINES | <ul style="list-style-type: none"> Comprehensive Master Plan | <ul style="list-style-type: none"> Mayor |

Table 6-2-6: Technical staff and personnel capabilities for Village of Corona

| Staff/Personnel Resources | <input checked="" type="checkbox"/> | Department/Agency - Position |
|---|-------------------------------------|--|
| Planner(s) or engineer(s) with knowledge of land development and land management practices | | Contract personnel |
| Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure | | Contract personnel |
| Planner(s) or engineer(s) with an understanding of natural and/or human-caused hazards | | Contract personnel |
| Floodplain Manager | <input checked="" type="checkbox"/> | Managed by Lincoln County Floodplain Manager |
| Surveyors | | Contract personnel |
| Staff with education or expertise to assess the community's vulnerability to hazards | <input checked="" type="checkbox"/> | Fire Chief |
| Personnel skilled in GIS and/or HAZUS | | Contract personnel |
| Scientists familiar with the hazards of the community | | Contract personnel |
| Emergency manager | <input checked="" type="checkbox"/> | Fire Chief |
| Grant writer(s) | | Contract personnel |
| Others | | |

| Table 6-3-6: Fiscal capabilities for Corona | | |
|--|--|-----------------|
| Financial Resources | Accessible or Eligible to Use (Yes, No, Don't Know) | Comments |
| Community Development Block Grants | Yes | |
| Capital Improvements Project funding | Yes | |
| Authority to levy taxes for specific purposes | Yes | |
| Fees for water, sewer, gas, or electric service | No | |
| Impact fees for homebuyers or new developments/homes | No | |
| Incur debt through general obligation bonds | Yes | |
| Incur debt through special tax bonds | Yes | |
| Other | Yes | |

6.2.2 National Flood Insurance Program Participation

Participation in the NFIP is a key element of any community’s local floodplain management and flood mitigation strategy. Lincoln County and all 5 incorporated jurisdictions participate in the NFIP at varying levels. Joining the NFIP requires the adoption of a floodplain management ordinance that requires jurisdictions to follow established minimum standards set forth by FEMA and the State of New Mexico when developing in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings will be protected from damage by the 100-year flood, and that new floodplain development will not aggravate existing flood problems or increase damage to other properties.

Lincoln County and some other communities, have adopted standards that are more stringent than the federal minimum to ensure better flood mitigation practices. As a participant in the NFIP, communities also benefit from having Flood Insurance Rate Maps (FIRM) that map identified flood hazard areas and can be used to assess flood hazard risk, regulate construction practices and set flood insurance rates. FIRMs are also an important source of information to educate residents, government officials and the private sector about the likelihood of flooding in their community.

Table 6-7 on the following page summarizes the NFIP status and statistics for each of the jurisdictions participating in this Plan. It is noted that there are no identified repetitive-loss properties in Lincoln County, Village of Ruidoso, Ruidoso Downs, Carrizozo, Capitan, or Corona, at present.

Table 6-7: NFIP status and statistics for Lincoln County and participating jurisdictions

| Jurisdiction | Community ID | NFIP Entry Date | Current Effective Map Date | Number of Policies | Amount of Coverage | Floodplain Management |
|--|--------------|-----------------|----------------------------|--------------------|--------------------|---|
| Lincoln County | 350122 | 6/2004 | 11/16/2011 | 89 | \$20,330,400 | Provides floodplain management for the Unincorporated County with a CFM |
| Village of Ruidoso | 350098 | 6/7/1974 | 11/5/2014 | 211 | \$40,341,100 | Floodplain management provided by the Village of Ruidoso CFM |
| Ruidoso Downs | 350034 | 5/31/1974 | 11/5/2014 | 6 | \$1,399,500 | Floodplain management provided by the City of Ruidoso Downs CFM |
| Carrizozo | 350110 | 6/2/2010 | 11/16/2011 | 1 | \$74,800 | Floodplain management provided by MOU with Lincoln County |
| Capitan | 350098 | 11/19/2008 | 11/16/2011 | 2 | \$128,600 | Floodplain management provided by MOU with Lincoln County |
| Corona | 350099 | N/A | 11/16/2011 | 0 | 0 | NOT A PARTICIPATING NFIP COMMUNITY |
| At present, there are no identified repetitive-loss properties in Lincoln County, Village of Ruidoso, Ruidoso Downs, Carrizozo, Capitan, or Corona. | | | | | | |

Each of the participating jurisdictions performed an overall assessment of their participation in the NFIP program by responding to the following questions:

- Question 1:** Describe your jurisdiction’s current floodplain management / regulation process for construction of new or substantially improved development within your jurisdiction.
- Question 2:** Describe the status and/or validity of the current floodplain hazard mapping for your jurisdiction.
- Question 3:** Describe any community assistance activities (e.g. – help with obtaining Elevation Certificates, flood hazard identification assistance, flood insurance acquisition guidance, public involvement activities, etc.)
- Question 4:** Describe identified needs in your floodplain management program. This could include things like updating the floodplain management code/regulation, establishing written review procedures, modifying or adding flood hazard area mapping, etc.

Responses were provided by all jurisdictions regardless of their participation status in the NFIP program. Table 6-8 below summarizes the responses provided by each of the currently participating jurisdictions.

Table 6-8: NFIP program assessment for Lincoln County and participating jurisdictions

| Jurisdiction | Responses to Questions 1-4 | |
|--|----------------------------|---|
| Lincoln County, Carrizozo, Capitan (Corona does not participate) | Q1 | Any development is regulated by an ordinance approved by the elected officials. Permit forms, certified site plans and engineered footing plans are required to be approved for any development in the floodplain. The floodplain is administered to by a Certified Floodplain Manager (CFM). |
| | Q2 | Flood Insurance Rate Maps (FIRM's) for floodplain do not have enough detailed information, and require the property owner to hire a Surveyor/Engineer to give the correct Base Flood Elevations (BFE) and delineate the floodplain in all zones. |
| | Q3 | Community assistance includes issuance of flood information letters, information on flood insurance along with hazard identification services. |
| | Q4 | Needs include complete FIRM's for all locations |
| Ruidoso Downs | Q1 | The City of Ruidoso Downs follows a pre development review process that determines if a proposed development will be affected by the FEMA floodplain. The City follows chapter 154 (Flood Hazard Regulations) of the land use ordinance to mitigate potential flood hazards in all areas of development. All building and manufactured home placement are regulated and signed off by the Floodplain Administrator prior to the work being started. |
| | Q2 | The City of Ruidoso Downs adopted the recently revised and approved FEMA flood maps that were effective on November 5, 2014. |
| | Q3 | The City of Ruidoso Downs through the Planning Department provides assistance with obtaining elevation certificates and flood determinations where possible. We also educate and inform property owners of insurance opportunities and provide written information in the form of a library of handouts and pamphlets. We also have an informational bulletin board and web site information for the citizens to use. |
| | Q4 | The City of Ruidoso Downs will probably look at increasing our freeboard requirement to one foot above base flood elevation as an added safety measure in our development requirements. |
| Village of Ruidoso | Q1 | Properties that seek permits are check for flood zone. All properties in an AE or A (Villages only flood hazard zones), are than required to fill out a Floodplain application to determine extent of construction. Construction of additions or of new or substantially improved development is required by ordinance to provide an Elevation Certification for project. Than using this, the project is to comply with FEMA requirements for compliance for new work and the existing as may be required. |
| | Q2 | FEMA floodplain maps last updated 11-4-15 See Ruidoso Municipal code |
| | Q3 | We will provide a FIRMette upon request for properties to show property is in or out of a flood hazard zones |
| | Q4 | Clear and accurate flood map for flood zones. FEMA maps not good for most projects, and the county GIS map lot lines are not accurate and so the FEMA overlay for GIS is not correct. |

6.3 Mitigation Actions/Projects and Implementation Strategy

Mitigation actions/projects (A/P) are those activities identified by a jurisdiction that, when implemented, will have the effect of reducing the community's exposure and risk to the particular hazard or hazards being mitigated. The implementation strategy addresses the "how, when, and by whom?" questions related to implementing an identified A/P.

The update process for defining the new list of mitigation A/Ps for the Plan was accomplished in three steps. First, an assessment of the actions and projects of the 2012 Plan was performed. Second, a new list of A/Ps for the Plan was developed by combining the carry forward results from the

assessment with new A/Ps. Third, an implementation strategy for the combined list of A/Ps was formulated. Details of each step and the results of the process are summarized in the following sections.

6.3.1 Previous Mitigation Actions/Projects Assessment

The MPT and representatives reviewed and assessed the previous actions and projects listed in Table 6-9 of the 2012 Plan. The assessment included evaluating and classifying each of the previously identified A/Ps based on the following criteria:

| <i>STATUS</i> | | <i>DISPOSITION</i> | |
|----------------------|--|--------------------|--------------------------|
| Classification | Explanation Requirement: | Classification | Explanation Requirement: |
| <i>“No Action”</i> | Reason for no progress | <i>“Keep”</i> | None required |
| <i>“In Progress”</i> | What progress has been made | <i>“Revise”</i> | Revised components |
| <i>“Complete”</i> | Date of completion and final cost of project (if applicable) | <i>“Delete”</i> | Reason(s) for exclusion. |

Any A/P with a disposition classification of “Keep” or “Revise” was carried forward to become part of the new A/P list for the Plan. The results of the assessment for each of the 2012 Plan A/Ps are summarized in Table 6-9 and Table 6-11.

| Table 6-9 PREVIOUS LINCOLN COUNTY PROJECT LISTS | | | | |
|--|---|---|---|--------------------------------|
| Community | Hazards | Project Title | Project Descriptions | Status/ Disposition |
| Lincoln County | Wildfire, flood, dam failure, severe weather, | Public Awareness | Public education campaign focusing on public service announcements (PSA) addressing challenges to homeowners during hazard events including focus on seasonal populations and coordination of care when not present in the community. | In Progress/ Keep |
| Lincoln County | Wildfire | Electrical providers right of way maintenance | Work with the major electrical services providers to assure routine maintenance of right of ways. Ongoing activity. | In Progress/ Keep |

| Table 6-9 PREVIOUS LINCOLN COUNTY PROJECT LISTS | | | | |
|---|---------|--|---|------------------------|
| Community | Hazards | Project Title | Project Descriptions | Status/ Disposition |
| Lincoln County | Flood | Floodplain management & construction/use ordinance | Improved floodplain management, including land-use planning, zoning and enforcement at the local level can reduce flood related damages. Utilize the National Flood Insurance Program (NFIP) is critical to the reduction of future flood damage costs to the taxpayer. 1) Restricting or prohibiting uses that are dangerous to health, safety or property in times of flood or cause excessive increases in flood heights or velocities. 2) Requiring that uses vulnerable to floods including critical facilities be protected against flood damage at the time of initial construction. 3) Controlling the alteration of natural floodplains, stream channels and natural protective barriers, which are involved in the accommodation of flood waters. 4) Controlling filling, grading, dredging and other development which may increase flood damage. 5) Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands. 6) Review and seek elimination of low water crossings based on prioritization that is driven from emergency needs. 7) Review and seek improvement of roads repetitively subjected to washouts. | In Progress/ Keep |
| Lincoln County | All | Response Process Improvement | Improved response processes decrease the severity of community emergencies such as floods and wildfires, as well as personal emergencies such as ambulance runs and household fires. 1) All jurisdictions are in constant need for response process improvement. 2) Better understand the nature of hazards and the necessary responses (flooding, hazardous material spills, dam failure, water rescue capability, etc. 3) Working in concert with Otero County and Mescalero Tribe to improve coordination of monitoring and reporting process improvements adjoining lakes and dams. 4) Emergency response organizations will seek to improve coordination of efforts specifically with the VOR's water department as it bears management/ operational responsibility for Grindstone dam. 5) Response organizations will pursue cross training of personnel not normally involved in emergency response. | In Progress/ Keep |

| Table 6-9 PREVIOUS LINCOLN COUNTY PROJECT LISTS | | | | |
|---|----------------------------|--|--|------------------------|
| Community | Hazards | Project Title | Project Descriptions | Status/ Disposition |
| Lincoln County | Hazardous Materials spills | Protection of the public from Man-Made Hazards | Lincoln County will seek funding and conduct a hazardous materials flow study. The ultimate goal of this effort is to allow Lincoln County emergency management and response organizations to better understand the nature of the hazardous material spill threat and offer the county the tools necessary to evaluate routing of these shipments through the county. | In Progress/ Keep |
| Lincoln County | All | Improve Communication | Develop a Multi-jurisdictional Communications Plan (CP) | In Progress/ Keep |
| Lincoln County | All | Early Warning | With sufficient warning of hazards, a community and its residents can take protective measures to move personal property, vehicles, and people out of harms way. 1) Conduct a study on the best and most cost effective placement and notification sirens for Lincoln County. Utilize reverse 911. 2) Specific to the threats posed by close proximity dams (Mescalero lake, Grindstone Lake and Bonito Lake), work with those jurisdictions to create early warning, utilize existing remote monitoring and alerting systems on nearby dams that have impact on Lincoln County. | In Progress/ Keep |

6.3.2 Evaluation Methodology used by previous MPT

In order to evaluate potential actions, the previous MPT used the STAPLEE criteria, outlined in FEMA’s *Developing the Mitigation Plan*, which provides a systematic approach to weighing the pros and cons of potential mitigation actions. STAPLEE stands for Social, Technical, Aministrative, Political, Legal, Economic, and Environmental. Each of these criteria consist of several factors that was considered when evaluating the appropriateness of each potential action.

Table 6-10 listed below indicates STAPLEE category, description, and the evaluation criteria that had been considered in the previous 2012 HMP.

| Table 6-10 STAPLEE CRITERIA | | |
|-----------------------------|---|---|
| STAPLEE CATEGORY | CATEGORY DESCRIPTION | EVALUATION CRITERIA |
| Administrative | Availability of anticipated administrative capabilities including staffing, funding, and maintenance requirements for the proposed mitigation action. | <ul style="list-style-type: none"> • Current administrative capability (staff, technical experts, and/or funding) to implement the action, or whether it can be readily obtained. • Ability to maintain projects. |
| Political | Current community and state political support related to the environment, economic development, safety, and emergency management. | <ul style="list-style-type: none"> • Political support for implementation and monitoring • Availability of department, agency or representative willing to help see the action to completion • Public support to ensure the success of the action. |
| Legal | Legal authority at the state, tribal, or local level to implement the action. | <ul style="list-style-type: none"> • State, tribe, or community authority to implement the proposed action. • Potential legal consequences (liability) to the action. |
| Economic | Benefit and costs associated with proposed actions. | <ul style="list-style-type: none"> • Costs seen reasonable considering likely benefits • Probability of financial burden placed on the tax base or local economy to implement this action • Contribution to other community economic goals, such as capital improvements or economic development • Availability of outside sources of funding |
| Environmental | Impact on the environment consistent with sustainable and environmentally healthy communities | <ul style="list-style-type: none"> • Affect on the environment and natural resources • Affect on endangered species • Compliance with local, state, and federal environmental laws or regulations • Consistency with community environmental goals. |

Each potential mitigation action was assessed by ranking each factor in each of the categories (social, technical, administrative, political, etc.) and by then adding up the total score. Rankings were as follows:

0 = Poor: The mitigation method does not meet basic criteria established under the evaluation category.

1 = Fair: The mitigation method meets the basic criteria established under the evaluation category.

2 = Good: The mitigation method exceeds the basic criteria established under the evaluation category.

3 = Excellent: The mitigation method exceeds the basic established criteria in an innovative or new way.

The maximum score possible is 72:

- Social = 12 (4 factors ranked as excellent (3))
- Technical = 9 (3 factors ranked as excellent (3))
- Administrative = 9 (3 factors ranked as excellent (3))
- Political = 9 (3 factors ranked as excellent (3))
- Legal = 9 (3 factors ranked as excellent (3))
- Economic = 12 (4 factors ranked as excellent (3))
- Environmental = 12 (4 factors ranked as excellent (3))

| Table 6-11 Previous mitigation actions/projects and implementation strategy for Lincoln County | | | | | | | | |
|---|--|---|-------------------------------------|----------------|-----------------------|-----------------------------|--|---|
| Mitigation | | | | | Implementation | | | |
| STAPLEE Score/ Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) | Anticipated Completion Date | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| 42/1 | Leverage hazard mitigation funding to improve processes. County Emergency Services Director should increase awareness of hazard mitigation funding opportunities and leverage where possible to benefit response preparedness improvements. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time | None | Ongoing | County Emergency Services, County Response Agencies | County and State Budgets, grants, and FEMA |
| Status/Disposition: Laura Doth will give us an update on the PSA /thinning grant. | | | | | | | | |
| 42/2 | Low water crossing and bridge improvements. Review and eliminate low water crossings based on prioritization that is driven from emergency response impediment. Scope and eliminate repetitive washout for bridges and improvements that can be made to these areas. | Flood, Severe Weather | Both | Staff Time | None | Ongoing | Municipal, County and State highway/roads departments, County and Municipal emergency management, potentially sovereign nations, other stakeholders (such as emergency services and USFS). | County and State Budgets, grants, and FEMA grants |
| Status/Disposition: The low water crossings have been reviewed but there has not been any action to eliminate the crossings. | | | | | | | | |

Table 6-11 Previous mitigation actions/projects and implementation strategy for Lincoln County

| Mitigation | | | | | Implementation | | | |
|---|--|--------------------------|-------------------------------------|----------------|---|-----------------------------|--|---|
| STAPLEE Score/ Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) | Anticipated Completion Date | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| 42/3 | Repetitive loss roads and highway improvement. Review, scope and improve roads that pass through or along flood prone areas. | Flood, Severe Weather | Both | Staff Time | None | Ongoing | Municipal, County and State highway/roads departments, County and Municipal emergency management, potentially sovereign nations, other stakeholders (such as emergency services and USFS). | County and State Budgets, grants, and FEMA grants |
| Status/Disposition: King Industries and the Lincoln County Road department have reviewed and scoped the county roads that have repetitive losses during events. | | | | | | | | |
| 37/4 | Ensure that routine planned maintenance occurs on right-of-ways. The MPG can meet with Power New Mexico (PNM) to strengthen tree management planning. Together, they can review and update plans and decide on a routine schedule for maintaining rights-of-way. | Severe Weather, Wildfire | Both | Staff Time | Program is reviewed yearly and is ongoing | Ongoing | MPG, local emergency manager, PNM, other stakeholders (BLM, sovereign tribal nations, etc.). | County budget, participating organizational budgets |
| Status/Disposition: County Emergency Manager, Joe Kenmore, has met with both power companies on numerous occasions to discuss and establish a schedule to maintain the utility right of ways. Right-of-ways are continually being maintained and trees are either removed or trimmed. | | | | | | | | |
| 39/5 | Explore how hazardous material transportation routing impacts public safety within communities. Explore nature of hazardous materials transported through the County and determine if special HazMat route designation is applicable. | Hazardous Materials | Both | Staff Time | Program is reviewed yearly and is ongoing | Ongoing | MPG, local emergency manager, PNM, other stakeholders (BLM, sovereign tribal nations, etc.). | County budget, participating organizational budgets |
| Status/Disposition: County staff have inquired with the BNSF railroad and the NM State Police to see if they will notify the county on times that hazardous materials are being transported through the county. The county now does have contacts within the railroad and the NM State Police to ask when there may be HazMat being transported. | | | | | | | | |

Table 6-11 Previous mitigation actions/projects and implementation strategy for Lincoln County

| Mitigation | | | | | Implementation | | | |
|---|---|---|-------------------------------------|----------------|--|-----------------------------|--|---|
| STAPLEE Score/ Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) | Anticipated Completion Date | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| 42/6 | Develop alternative public service announcements ahead of time to bring to wildfire public outreach. Such announcements can be made via television and radio, pamphlets, training sessions, and demonstrated activities. Special populations such as non-English speaking populations and the homebound can be identified for specific messages. Topics covered could include personal property mitigation and evacuation procedures. | Wildfire | Both | Staff Time | Program is reviewed yearly and is ongoing | Ongoing | MPT members, local emergency manager, media outlets | County and State Budgets, grants, and FEMA grants |
| Status/Disposition: Laura Doth will provide information. | | | | | | | | |
| 40/7 | Notification systems and siren improvement. Improvement of alerting systems that recognizes the remoteness / clustering of population will only improve response to calls to evacuate in the face of hazards, saving lives, and increasing lead time for population to safeguard property. | Earthquake, Dam Failure, Severe Weather, Flood, Tornados | Both | Staff Time | Program is reviewed yearly and is ongoing | Ongoing | County Emergency Services Director | County and State Budgets, grants, and FEMA |
| Status/Disposition: The "Code Red" system is in place and had a few features added in the last 4 years. Email and text notifications have been added. | | | | | | | | |
| 41/8 | Initiate (re-establish) contact with Mescalero tribal government to determine who is the new emergency management coordinator, possibly utilizing responder to responder relationships (which are maintained) to improve emergency management to emergency management coordination. Seek out opportunities for emergency management of Lincoln and Otero Counties to participate jointly in planning with Mescalero emergency management. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time | Flight/noise patterns are reviewed with each new development | Ongoing | County Emergency Services Director, Otero County Emergency Manager, Mescalero Nation Emergency Manager, emergency response organizations, State and Federal agencies | County, State, and Tribal budgets, State grants, and Federal grants |
| Status/Disposition: The Lincoln County Emergency Manager has met with the Mescalero Fire Chief on numerous occasions to discuss response to emergencies (fire) and coordination of response. | | | | | | | | |

Table 6-11 Previous mitigation actions/projects and implementation strategy for Lincoln County

| Mitigation | | | | | Implementation | | | |
|--|--|--|-------------------------------------|---|--|-----------------------------|---|---|
| STAPLEE Score/ Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) | Anticipated Completion Date | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| 43/9 | Improve the warning system for Grindstone Dam. Grindstone Dam is subject to overtopping and flooding areas downriver. The current warning system should be upgraded. | Dam Failure, Flood | Both | Time and Materials (mainly county Employees and Voluntary Members of the LEPC) but Possibly a local or state Contractor to conduct studies and develop a plan for | Flight/noise patterns are reviewed with each new development | Ongoing | County and Local Transportation Agencies, State Transportation Agency, Local Emergency Manager, Other County and local agencies and personnel, and Local Emergency Planning Committee | County and State budgets, State grants, FEMA grants, DOT grants |
| Status/Disposition: No action has been completed. The Village of Ruidoso may have completed some actions on this project. | | | | | | | | |
| 40/10 | Hazardous materials technician capacity development. Continue development of tactical capacity for HazMat response with development of technicians with skills necessary. | Hazardous Materials | Both | Staff Time | None | Ongoing | MPT, County Emergency Services Director, other levels of government (particularly the Village of Ruidoso and its Water Depart, but also Federal, state, and local), sovereign nations within the County | Village, county and state budgets, State grants, and FEMA grants. |
| Status/Disposition: HazMat awareness and operations training for 8 county employees. County staff will continue to receive HazMat training in order to become more proficient and dealing with HazMat spills and events. | | | | | | | | |
| 40/11 | Establishing better working relationships between the County and Village of Ruidoso relative to the Grindstone Dam. By increasing mitigation efforts in conjunction with other levels of government and sovereign nations, some of the damages that arise from Grindstone Dam failure or overtopping can be reduced, therefore, reducing the level of impact received by the County. | Flood, Severe Weather, Dam Failure, Earthquake | Both | Staff Time | None | Ongoing | MPT, County Emergency Services Director, other levels of government (particularly the Village of Ruidoso and its Water Depart, but also Federal, state, and local), sovereign nations within the County | Village, county and state budgets, State grants, and FEMA grants. |
| Status/Disposition: No action has been taken. The County, VOR, Otero County and Mescalero Tribe will continue to make efforts to collaborate on the Dam safety in regards to Mescalero Dam, Grindstone Dam, Bonito Dam, Eagle Lakes Dams and Alto Dam. Currently the County has copies of the EAPs for Lake Mescalero Dam, and Eagle Creek # 1 Dam. | | | | | | | | |

| Table 6-11 Previous mitigation actions/projects and implementation strategy for Lincoln County | | | | | | | | |
|--|---|---|-------------------------------------|----------------|-----------------------|-----------------------------|--|--|
| Mitigation | | | | | Implementation | | | |
| STAPLEE Score/ Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) | Anticipated Completion Date | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| 40/12 | Water rescue capacity development/improvement. Develop capacity among local emergency responders for a water rescue team. | Flood | Both | Staff Time | None | Ongoing | County Emergency Services Director, County and City Fire Departments, other agencies with applicable resources (boats, etc.) | County and State budgets, State grants, and FEMA grants. |
| Status/Disposition: The County has created a "Swift Water Rescue team" and the team has received basic water rescue training. | | | | | | | | |
| 42/13 | Response process optimization. County response personnel all need to use the same methods to respond effectively to a disaster. Cross train County personnel for various response roles/responsibilities, initiate resource deployment planning, and conduct a needs and capability assessment for response processes. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time | None | Ongoing | Local emergency manager, LEPC members, and other county emergency response agencies. | County and State Budgets, grants, and FEMA grants |
| Status/Disposition: Ongoing cross training for all types of hazards continues with local, county and state teams. | | | | | | | | |
| 42/14 | Research funding opportunities for a vulnerability assessment to assist mitigation planning in the county. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time | None | Ongoing | County Emergency Services Director, others as funding is identified to act as support personnel. | County and State Budgets, grants, and FEMA grants |
| Status/Disposition: Ongoing research for funding opportunities continues by the county staff. This HMP update includes a vulnerability assessment. | | | | | | | | |
| 42/15 | Increase level of effort and proactively utilize county right to object in issuance of building permits by the state. : The county administration can work with the commission to formulate an approach and expense management of a more proactive review process as part of the state's building permit system for unincorporated parts of the county. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time | None | Ongoing | Local emergency manager, LEPC members, and other county emergency response agencies. | Local planning grants, and State funds |
| Status/Disposition: No progress on building codes however the County Flood manager requires a review of flood plain involvement prior to a permit being issued. | | | | | | | | |

Table 6-11 Previous mitigation actions/projects and implementation strategy for Lincoln County

| Mitigation | | | | | Implementation | | | |
|---|---|---|-------------------------------------|---|-----------------------|-----------------------------|---|---|
| STAPLEE Score/ Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) | Anticipated Completion Date | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| 38/15 | Clearing and widening of Rio Ruidoso between the confluence of Grindstone Canyon Creek and Rio Ruidoso (inside the Village of Ruidoso) and through to the Village of Ruidoso Downs corporate limits, a distance of approximately 15 miles. This area includes the confluence of intermittent streams of Gavilan Canyon, Cedar Creek and Cherokee Bill Canyon. | Flood, Dam Failure | Both | Pre-grant: \$5 to 10K. Project: \$250K - \$1M, depending on final length of river to be addressed and considerations for sustainable rehabilitation design. | None | Ongoing | County and community public works department, state and federal agencies (forestry and natural resources stakeholders) Village of Ruidoso staff | Grant Application: county or community government. Scoping of project may be a grant funded activity that can be supported by a contractor. Project planning and procurement. |
| Status/Disposition: There has not been any action on the stretch of river between Grindstone creek and the City of Ruidoso Downs. Ruidoso Downs placed Jersey barriers to mitigate excessive runoff and improved bar ditches and culverts. | | | | | | | | |
| 47/15 | Rerouting of a section of water and/or sewer lines in the Village of Ruidoso. Project description under development by the Village of Ruidoso however it involves removal of water and/or sewer lines from a crossing point of Rio Ruidoso to a route under Sudderth Avenue | Flood | Both | Pre-grant: \$5 to 10K for planning/scoping. Project: \$250K - \$1M, depending on whether design involves running lines deeper below Rio Ruidoso or rerouting. | None | Ongoing | Village of Ruidoso | Grant Application: county or community government. Scoping of project may be a grant funded activity that can be supported by a contractor. Project planning and procurement. |
| Status/Disposition: JR Bowman oversees this project. | | | | | | | | |
| n/a | Communications – Establish and prioritize needed improvements of key pre-disaster communications systems and critical response equipment. County response personnel all need to use the same equipment to respond effectively to a disaster. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | | Staff Time | | | Local emergency manager, LEPC members, and other county emergency response agencies. | County and State Budgets, grants, and FEMA grants |
| Status/Disposition: The County has upgraded the dispatch radios and console as well as added two new repeater pairs. | | | | | | | | |

Table 6-11 Previous mitigation actions/projects and implementation strategy for Lincoln County

| Mitigation | | | | | Implementation | | | |
|--|--|---|-------------------------------------|----------------|---|-----------------------------|---|---|
| STAPLEE Score/ Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) | Anticipated Completion Date | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| n/a | Conduct public meetings to raise awareness of threats and how citizens can mitigate the impact of disasters. This action can include a series of public meetings with local and visiting subject matter experts to educate the public on how to decrease their risk during a given disaster by understanding the hazard in question and the potential devastation it can create. The county can also team with home improvement stores to give classes to educate citizens on measures they can take to protect their own | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time | Program is reviewed yearly and is ongoing | Ongoing | MPT members, local emergency managers, Local Emergency Planning Committee (LEPC) members, county commissioners, other county agencies, the New Mexico DHSEM, and other state agencies with roles in emergency management. | County and State Budgets, grants, and FEMA |
| Status/Disposition: n/a | | | | | | | | |
| n/a | Establish and implement a process for activating cooling shelters in high risk communities during heat events. A program will be developed to include a process for identification and assessment of appropriate facilities, adoption of appropriate authorities and/or agreements to use the facilities, and protocols to equip, activate, operate and demobilize facilities that can be used as cooling shelters during an | Drought | | Staff Time | | | Local emergency manager, water district | County budget, participating organizational budgets |
| Status/Disposition: All the County Senior Citizen centers have been scoped and repairs and maintenance done in order to make that all the HVAC systems are adequate and working properly. | | | | | | | | |
| n/a | Develop public service announcements about specific threats for disseminations via the media. These announcements can be developed and kept on file to update and disseminate to the public as warranted. Such announcements can be made via television and radio, pamphlets, training sessions, and demonstrated activities. If the threat is an ongoing risk, the message can be relayed throughout the year to the county. Special populations such as non-English speaking populations and the homebound can be identified for specific messages. Topics covered that relate to many hazards would include evacuation and sheltering-in-place. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | | Staff Time | | | Local emergency manager and media outlets. | County and State Budgets, grants, and FEMA grants |

| Table 6-11 Previous mitigation actions/projects and implementation strategy for Lincoln County | | | | | | | | |
|--|--|---------------------|-------------------------------------|----------------|-----------------------|-----------------------------|---|-------------------|
| Mitigation | | | | | Implementation | | | |
| STAPLEE Score/ Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) | Anticipated Completion Date | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| | Status/Disposition: The County developed, through a contractor, “Ready, Set, Go” Your Personal Wildland Fire Action Guide pamphlet. 2500 copies were made and disseminated to the public. Numerous PSAs have been completed using KEDU radio in Ruidoso. KEDU staff have disseminated the info to other media outlets for broadcasting. | | | | | | | |

6.3.3 New Mitigation Actions / Projects and Implementation Strategy

The first step in developing new mitigation actions/projects for each participating jurisdiction was to conduct a brainstorming session at the Planning Team Meeting No. 4. Using the goals, results of the vulnerability analysis and capability assessment, and the Planning Team’s institutional knowledge of hazard mitigation needs in the county and jurisdictions, the MPT brainstormed to develop a comprehensive list of potential mitigation A/Ps that address the various hazards identified. Upon completion of the assessment, each jurisdiction met and developed a new list of A/Ps using the goals and objectives, results of the vulnerability analysis and capability assessment, and the planning team’s institutional knowledge of hazard mitigation needs in their community. For each A/P, the following elements were identified:

- **Description** – a brief description of the A/P including a supporting statement that tells the “what” and “why” reason for the A/P.
- **Hazard(s) Mitigated** – a list of the hazard or hazards mitigated by action.
- **Estimated Costs** – concept level cost estimates that may be a dollar amount or estimated staff time.

Once the full list of A/Ps was completed to the satisfaction of the LPT, the team then set to work developing the implementation strategy for those A/Ps. The implementation strategy addresses the “*priority, how, when, and by whom?*” questions related to the execution and completion of an identified A/P. Specific elements identified as part of the implementation strategy included:

- **Priority Ranking** – each A/P was assigned a priority ranking of either “High”, “Medium”, or “Low”. The assignments were subjectively made using a simple process that assessed how well the A/P satisfied the following considerations:
 - A favorable benefit versus cost evaluation, wherein the perceived direct and indirect benefits outweighed the project cost.
 - A direct beneficial impact on the ability to protect life and/or property from natural hazards.
 - A mitigation solution with a long-term effectiveness.
- **Planning Mechanism(s) for Implementation** – where applicable, a list of current planning mechanisms or processes under which the A/P will be implemented. Examples could include CIPs, General Plans, Area Drainage Master Plans, etc.
- **Anticipated Completion Date** – a realistic and general timeframe for completing the A/P. Examples may include a specific target date, a timeframe contingent upon other processes, or recurring timeframes.
- **Primary Agency and Job Title Responsible for Implementation** – this would be

the agency, department, office, or other entity and corresponding job title that will have responsibility for the A/P and its implementation.

- **Funding Source** – the source or sources of anticipated funding for the A/P.

Tables 6-12-1 through 6-12-6 summarize the updated mitigation A/P and implementation strategy for each participating Plan jurisdiction.

| Table 6-12-1: Mitigation actions/projects and implementation strategy for Lincoln County | | | | | | | | |
|--|--|---|-------------------------------------|------------------|---------------------------|-----------------------------|--|---|
| Mitigation | | | | | Implementation | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) for | Anticipated Completion Date | Primary Agency / Job Title Responsible | Funding Source(s) |
| High | Leverage hazard mitigation funding to improve processes. County Emergency Services Director should increase awareness of hazard mitigation funding opportunities and leverage where possible to benefit response preparedness improvements. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time \$10K | CIP CMP | | County Emergency Services, County Response Agencies | County and State Budgets, grants, and FEMA |
| High | Low water crossing and bridge improvements. Review and eliminate low water crossings based on prioritization that is driven from emergency response impediment. Scope and eliminate repetitive washout for bridges and improvements that can be made to these areas. | Flood, Severe Weather | Both | Staff Time \$1M | EOP CIP CMP | Ongoing | Municipal, County and State highway/roads departments, County and Municipal emergency management, potentially sovereign nations, other stakeholders (such as emergency services and USFS). | County and State Budgets, grants, and FEMA grants |

| Table 6-12-1: Mitigation actions/projects and implementation strategy for Lincoln County | | | | | | | | |
|--|---|--------------------------|-------------------------------------|-------------------|---------------------------|-----------------------------|--|---|
| Mitigation | | | | | Implementation | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) for | Anticipated Completion Date | Primary Agency / Job Title Responsible | Funding Source(s) |
| High | Repetitive loss roads and highway improvement. Review, scope and improve roads that pass through or along flood prone areas. | Flood, Severe Weather | Both | Staff Time \$2.5M | CIP CMP EOP | Ongoing | Municipal, County and State highway/roads departments, County and Municipal emergency management, potentially sovereign nations, other stakeholders (such as emergency services and USFS). | County and State Budgets, grants, and FEMA grants |
| Medium | Ensure that routine planned maintenance occurs on right-of-ways. The MPG can meet with Power New Mexico (PNM) to strengthen tree management planning. Together, they can review and update plans and decide on a routine schedule for maintaining rights-of-way. | Severe Weather, Wildfire | Both | Staff Time \$0 | EOP CMP | Ongoing | MPG, local emergency manager, PNM, other stakeholders (BLM, sovereign tribal nations, etc.). | County budget, participating organizational budgets |
| Medium | Explore how hazardous material transportation routing impacts public safety within communities. Explore nature of hazardous materials transported through the County and determine if special HazMat route designation is applicable. | Hazardous Materials | Both | Staff Time \$40K | EOP CMP | Ongoing | MPG, local emergency manager, PNM, other stakeholders (BLM, sovereign tribal nations, etc.). | County budget, participating organizational budgets |
| Medium | Develop alternative public service announcements ahead of time to bring to wildfire public outreach. Such announcements can be made via television and radio, pamphlets, training sessions, and demonstrated activities. Special populations such as non-English speaking populations and the homebound can be identified for specific messages. Topics covered could include personal property mitigation and evacuation procedures. | Wildfire | Both | Staff Time \$75K | EOP CMP CIP CP | Ongoing | MPT members, local emergency manager, media outlets | County and State Budgets, grants, and FEMA grants |

| Table 6-12-1: Mitigation actions/projects and implementation strategy for Lincoln County | | | | | | | | |
|--|---|---|-------------------------------------|--|---------------------------|-----------------------------|---|---|
| Mitigation | | | | | Implementation | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) for | Anticipated Completion Date | Primary Agency / Job Title Responsible | Funding Source(s) |
| Medium | Notification systems and siren improvement. Improvement of alerting systems that recognizes the remoteness / clustering of population will only improve response to calls to evacuate in the face of hazards, saving lives, and increasing lead time for population to safeguard property. | Earthquake, Dam Failure, Severe Weather, Flood, Tornados | Both | Staff Time \$500K | EOP CMP CIP CP | Ongoing | County Emergency Services Director | County and State Budgets, grants, and FEMA |
| Medium | Initiate (re-establish) contact with Mescalero tribal government to determine who is the new emergency management coordinator, possibly utilizing responder to responder relationships (which are maintained) to improve emergency management to emergency management coordination. Seek out opportunities for emergency management of Lincoln and Otero Counties to participate jointly in planning with Mescalero emergency management. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time \$0 | EOP CMP CIP CP | Ongoing | County Emergency Services Director, Otero County Emergency Manager, Mescalero Nation Emergency Manager, emergency response organizations, State and Federal agencies | County, State, and Tribal budgets, State grants, and Federal grants |
| Medium | Improve the warning system for Grindstone Dam. Grindstone Dam is subject to overtopping and flooding areas downriver. The current warning system should be upgraded. | Dam Failure, Flood | Both | Time and Materials (mainly county Employees and Voluntary Members of the LEPC) but Possibly a local or state Contractor to conduct studies and develop a plan for \$200K | EOP CMP CIP CP | Ongoing | County and Local Transportation Agencies, State Transportation Agency, Local Emergency Manager, Other County and local agencies and personnel, and Local Emergency Planning Committee | County and State budgets, State grants, FEMA grants, DOT grants |
| Low | Hazardous materials technician capacity development. Continue development of tactical capacity for Haz Mat response with development of technicians with skills necessary. | Hazardous Materials | Both | Staff Time \$25K | EOP CMP CP | Ongoing | MPT, County Emergency Services Director, other levels of government (particularly the Village of Ruidoso and its Water Depart, but also Federal, state, and local), sovereign nations | Village, county and state budgets, State grants, and FEMA grants. |

| Table 6-12-1: Mitigation actions/projects and implementation strategy for Lincoln County | | | | | | | | |
|--|--|---|-------------------------------------|---------------------|---------------------------|-----------------------------|---|---|
| Mitigation | | | | | Implementation | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) for | Anticipated Completion Date | Primary Agency / Job Title Responsible | Funding Source(s) |
| Low | Establishing better working relationships between the County and Village of Ruidoso relative to the Grindstone Dam. By increasing mitigation efforts in conjunction with other levels of government and sovereign nations, some of the damages that arise from Grindstone Dam failure or overtopping can be reduced, therefore, reducing the level of impact received by the County. | Flood, Severe Weather, Dam Failure, Earthquake | Both | Staff Time \$0 | EOP CMP CIP CP | Ongoing | MPT, County Emergency Services Director, other levels of government (particularly the Village of Ruidoso and its Water Depart, but also Federal, state, and local), sovereign nations | Village, county and state budgets, State grants, and FEMA grants. |
| Low | Water rescue capacity development/improvement. Develop capacity among local emergency responders for a water rescue team. | Flood | Both | Staff Time \$40K | EOP CMP CIP CP | Ongoing | County Emergency Services Director, County and City Fire Departments, other agencies with applicable resources (boats, etc.) | County and State budgets, State grants, and FEMA grants. |
| Low | Response process optimization. County response personnel all need to use the same methods to respond effectively to a disaster. Cross train County personnel for various response roles/responsibilities, initiate resource deployment planning, and conduct a needs and capability assessment for response processes. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time \$50K | EOP CMP CIP CP | Ongoing | Local emergency manager, LEPC members, and other county emergency response agencies. | County and State Budgets, grants, and FEMA grants |
| High | Research funding opportunities for a vulnerability assessment to assist mitigation planning in the county. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time \$0 | EOP CMP CIP CP | Ongoing | County Emergency Services Director, others as funding is identified to act as support personnel. | County and State Budgets, grants, and FEMA grants |

Table 6-12-1: Mitigation actions/projects and implementation strategy for Lincoln County

| Mitigation | | | | | Implementation | | | |
|------------------|---|---|-------------------------------------|--|---------------------------|-----------------------------|---|---|
| Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) for | Anticipated Completion Date | Primary Agency / Job Title Responsible | Funding Source(s) |
| High | Increase level of effort and proactively utilize county right to object in issuance of building permits by the state. The county administration can work with the commission to formulate an approach and expense management of a more proactive review process as part of the state's building permit system for unincorporated parts of the county. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time \$0 | EOP CMP CIP CP | Ongoing | Local emergency manager, LEPC members, and other county emergency response agencies. | Local planning grants, and State funds |
| High | Clearing and widening of Rio Ruidoso between the confluence of Grindstone Canyon Creek and Rio Ruidoso (inside the Village of Ruidoso) and through to the Village of Ruidoso Downs corporate limits, a distance of approximately 15 miles. This area includes the confluence of intermittent streams of Gavilan Canyon, Cedar Creek and Cherokee Bill Canyon. | Flood, Dam Failure | Both | Pre-grant: \$5 to 10K. Project: \$250K - \$1M, depending on final length of river to be addressed and considerations for sustainable rehabilitation design. | EOP CMP CIP CP | Ongoing | County and community public works department, state and federal agencies (forestry and natural resources stakeholders) Village of Ruidoso staff | Grant Application: county or community government. Scoping of project may be a grant funded activity that can be supported by a contractor. Project planning and procurement. |
| High | Rerouting of a section of water and/or sewer lines in the Village of Ruidoso. Project description under development by the Village of Ruidoso however it involves removal of water and/or sewer lines from a crossing point of Rio Ruidoso to a route under Sudderth Avenue | Flood | Both | Pre-grant: \$5 to 10K for plan/scope. Project: \$28M depending on whether design involves running lines deeper below Rio Ruidoso or rerouting around the area. | EOP CMP CIP CP | Ongoing | Village of Ruidoso | Grant Application: county or community government. Scoping of project may be a grant funded activity that can be supported by a contractor. Project planning and procurement. |

| Table 6-12-1: Mitigation actions/projects and implementation strategy for Lincoln County | | | | | | | | |
|--|---|---|-------------------------------------|---------------------|---------------------------|-----------------------------|---|---|
| Mitigation | | | | | Implementation | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) for | Anticipated Completion Date | Primary Agency / Job Title Responsible | Funding Source(s) |
| High | Develop a multi-jurisdictional communication Plan – Establish and prioritize needed improvements of key pre-disaster communications systems and critical response equipment. County response personnel all need to use the same equipment to respond effectively to a disaster. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | | Staff Time \$40K | EOP CMP CIP CP | | Local emergency manager, LEPC members, and other county emergency response agencies. | County and State Budgets, grants, and FEMA grants |
| Medium | Conduct public meetings to raise awareness of threats and how citizens can mitigate the impact of disasters. This action can include a series of public meetings with local and visiting subject matter experts to educate the public on how to decrease their risk during a given disaster by understanding the hazard in question and the potential devastation it can create. The county can also team with home improvement stores to give classes to educate citizens on measures they can take to protect their own | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Both | Staff Time \$0 | EOP CMP CIP CP | Ongoing | MPT members, local emergency managers, Local Emergency Planning Committee (LEPC) members, county commissioners, other county agencies, the New Mexico DHSEM, and other state agencies with roles in emergency | County and State Budgets, grants, and FEMA |
| Low | Establish and implement a process for activating cooling shelters in high risk communities during heat events. A program will be developed to include a process for identification and assessment of appropriate facilities, adoption of appropriate authorities and/or agreements to use the facilities, and protocols to equip, activate, operate and demobilize facilities that can be used as cooling shelters during an | Drought | | Staff Time \$0 | EOP CMP CP | | Local emergency manager, water district | County budget, participating organizational budgets |

| Table 6-12-1: Mitigation actions/projects and implementation strategy for Lincoln County | | | | | | | | |
|--|--|---|-------------------------------------|---------------------|---------------------------|-----------------------------|--|---|
| Mitigation | | | | | Implementation | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Community Assets Mitigated (Ex/New) | Estimated Cost | Planning Mechanism(s) for | Anticipated Completion Date | Primary Agency / Job Title Responsible | Funding Source(s) |
| Medium | Develop public service announcements about specific threats for disseminations via the media. These announcements can be developed and kept on file to update and disseminate to the public as warranted. Such announcements can be made via television and radio, pamphlets, training sessions, and demonstrated activities. If the threat is an ongoing risk, the message can be relayed throughout the year to the county. Special populations such as non-English speaking populations and the homebound can be identified for specific messages. Topics covered that relate to many hazards would include evacuation and sheltering-in-place. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | | Staff Time \$75K | EOP CMP CIP CP | | Local emergency manager and media outlets. | County and State Budgets, grants, and FEMA grants |

| Table 6-12-2: Mitigation actions/projects and implementation strategy for Village of Ruidoso | | | | | | | |
|--|---|---|---------------------|-----------------------------|---------------------------|---|---|
| Mitigation | | | | Implementation Strategy | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| Medium | Update Emergency Operations Plan. 1) Update the current EOP to reflect the current status of the Village. 2) Update the current Emergency Call lists. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Hazardous Materials, Terrorism, Active Shooter*, Communicabl | Staff Time \$20K | 11/30/2020 | CWPP CIP CMP EOP | Ruidoso Emergency Services, Ruidoso Response Agencies | Village and State Budgets, grants, and FEMA |

| Table 6-12-2: Mitigation actions/projects and implementation strategy for Village of Ruidoso | | | | | | | |
|--|---|--|--|-----------------------------|---------------------------|---|--|
| Mitigation | | | | Implementation Strategy | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| High | Public Awareness & Early Warning. Improved early warning and public awareness will give the community and its residents to take protective measures to move personal property, vehicles and people out of harms way. 1) Firewise projects. 2) Educate the Ruidoso citizens on the early warning system, evacuation routes. 3) Inform citizens on narrow roads, dead ends, evacuation routes and public transportation, utilizing all media and social media | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados*, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Materials, Supplies, Media Costs \$75K | Ongoing | CWPP CIP CMP EOP | Ruidoso Emergency Services, Ruidoso Response Agencies | Village and State Budgets, grants, and FEMA grants |
| High | Improve Communication. Develop a Multi-Jurisdictional Communications Plan (CP). | Wildfire, Flood, Drought, Dam Failure, Severe Weather*, Tornados, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$40K | 12/30/2021 | CWPP CIP CMP EOP | Ruidoso Emergency Services, Ruidoso Response Agencies | Village and State Budgets, grants, and FEMA grants |
| High | Leverage hazard mitigation funding to improve processes. Village Emergency Services Director should increase awareness of hazard mitigation funding opportunities and leverage where possible to benefit response preparedness improvements. | Wildfire*, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$10K | Ongoing | None | Ruidoso Emergency Services, Ruidoso Response Agencies | Village and State Budgets, grants, and FEMA |
| High | Develop alternative public service announcements ahead of time to bring to wildfire public outreach. Such announcements can be made via television and radio, pamphlets, training sessions, and demonstrated activities. Special populations such as non-English speaking populations and the homebound can be identified for specific messages. Topics covered could include personal property mitigation | Wildfire*, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$75K | Ongoing | EOP CWPP | Ruidoso Emergency Services, Ruidoso Response Agencies | Village and State Budgets, grants, and FEMA |

| Table 6-12-2: Mitigation actions/projects and implementation strategy for Village of Ruidoso | | | | | | | |
|--|---|------------------------|--|-----------------------------|---------------------|--|---|
| Mitigation | | | | Implementation Strategy | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| High | Low water crossing and bridge improvements. Review and eliminate low water crossings based on prioritization that is driven from emergency response impediment. Scope and eliminate repetitive washout for bridges and improvements that can be | Flood*, Severe Weather | Staff Time, Contractors, Materials, Equipment \$125K | 12/30/2021 | EOP | Ruidoso Emergency Services, Ruidoso Response Agencies, Public Works | Village and State Budgets, grants, and FEMA |
| Medium | Water rescue capacity development/improvement. Develop capacity among local emergency responders for a water rescue team. | Flood*, Severe Weather | Staff Time \$10K | Ongoing | EOP | Ruidoso Emergency Services, Ruidoso Response Agencies, Public | Village and State Budgets, grants, and FEMA |
| Low | Initiate (re-establish) contact with Mescalero tribal government to determine who is the new emergency management coordinator, possibly utilizing responder to responder relationships (which are maintained) to improve emergency management to emergency management coordination. Seek out opportunities for emergency management of the Lincoln County, Village of Ruidoso, Ruidoso Downs and Otero County to participate jointly in planning with Mescalero emergency management. | Dam Failure* | Staff Time \$0 | On-going | EOP | Ruidoso Emergency Services, Ruidoso Response Agencies, Lincoln County Emergency Services, Mescalero Emergency Services | Village and State Budgets, grants, Tribal, BIA and FEMA |
| Medium | Improve the warning system for Grindstone Dam and Mescalero Dam. The Dams are subject to overtopping and flooding areas downriver. The current warning system should | Dam Failure* | Staff Time, Contractors, Materials, Equipment \$250 | 12/30/2021 | EOP CMP | Ruidoso Emergency Services, Ruidoso Response Agencies | Village and State Budgets, grants, Tribal, BIA and FEMA |
| Medium | Repetitive loss roads and highway improvement. Review, scope and improve roads that pass through or along flood prone areas. | Severe Weather*, Flood | Staff Time, Contractors, Materials, Equipment \$1M | 12/30/2022 | EOP CMP | Ruidoso Emergency Services, Ruidoso Response Agencies, Public | Village and State Budgets, grants, and FEMA |

| Table 6-12-2: Mitigation actions/projects and implementation strategy for Village of Ruidoso | | | | | | | |
|--|---|--|---|-----------------------------|---------------------------|---|---|
| Mitigation | | | | Implementation Strategy | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| Medium | Response process optimization. Village response personnel all need to use the same methods to respond effectively to a disaster. Cross train Village personnel for various response roles/responsibilities, initiate resource deployment planning, and conduct a needs and capability assessment for response processes. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados*, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$20K | Ongoing | EOP CWPP CMP CIP | Ruidoso Emergency Services, Ruidoso Response Agencies, Public Works | Village and State Budgets, grants, and FEMA |
| Medium | Notification systems and siren improvement. Improvement of alerting systems that recognizes the remoteness / clustering of population will only improve response to calls to evacuate in the face of hazards, saving lives, and increasing lead time for population to safeguard property. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados, Earthquake*, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Contractors, Materials, Equipment \$150K | 12/30/2021 | EOP CWPP | Ruidoso Emergency Services, Ruidoso Response Agencies, Public Works | Village and State Budgets, grants, and FEMA |
| Low | Establishing better working relationships between the County, Ruidoso Downs, Mescalero Tribe and Village of Ruidoso relative to the Grindstone and Mescalero Dams. By increasing mitigation efforts in conjunction with other levels of government and sovereign nations, some of the damages that arise from Grindstone and Mescalero Dam failure or overtopping can be reduced, therefore, reducing the level of impact received by all | Flood, Severe Weather, Dam Failure, Earthquake* | Staff Time \$0 | Ongoing | CMP EOP | Ruidoso Emergency Services, Ruidoso Response Agencies, Public Works | Village and State Budgets, grants, and FEMA |
| Low | Explore how hazardous material transportation routing impacts public safety within the Village. Explore nature of hazardous materials transported through the Village and determine if special HazMat route | Hazardous Materials* | Staff Time \$0 | 12/30/2020 | CMP EOP | Ruidoso Emergency Services, Ruidoso Response Agencies, Public Works | Village and State Budgets, grants, and FEMA |

| Table 6-12-2: Mitigation actions/projects and implementation strategy for Village of Ruidoso | | | | | | | |
|--|--|---|--|-----------------------------|----------------------------------|---|---|
| Mitigation | | | | Implementation Strategy | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| Low | Hazardous materials technician capacity development. Continue development of tactical capacity for Haz Mat response with development of technicians with skills necessary. | Hazardous Materials* | Staff Time \$20K | Ongoing | EOP | Ruidoso Emergency Services, Ruidoso Response Agencies, Public | Village and State Budgets, grants, and FEMA |
| Low | Establish and implement a process for activating cooling shelters in high-risk areas during heat events. A program will be developed to include a process for identification and assessment of appropriate facilities, adoption of appropriate authorities and/or agreements to use the facilities, and protocols to equip, activate, operate and demobilize facilities that can be used as cooling shelters during an extreme heat event. | Drought*, Severe Weather | Staff Time \$10K | On-going | EOP CMP | Ruidoso Emergency Services, Ruidoso Response Agencies, Public Works | Village and State Budgets, grants, and FEMA |
| Low | Develop public service announcements about specific threats for disseminations via the media. Such announcements can be made via television and radio, pamphlets, training sessions, and demonstrated activities. Special populations such as non-English speaking populations and the homebound can be identified for specific messages. Topics covered that relate to many hazards would include | Wildfire, Flood, Drought*, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicabl | Staff Time, Materials, Printing, Contractors \$75 | On-going | EOP CMP CWPP CIP CMP | Ruidoso Emergency Services, Ruidoso Response Agencies, Public Works | Village and State Budgets, grants, and FEMA |

Table 6-12-3: Mitigation actions/projects and implementation strategy for City of Ruidoso Downs

| Mitigation | | | | Implementation Strategy | | | |
|------------------|---|--|--|-----------------------------|---------------------|--|---|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| High | Improve Communication. Develop a Multi-Jurisdictional Communications Plan (CP). | Wildfire*, Flood, Drought, Dam Failure, Severe Weather, Tornados, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$40K | 12/30/2021 | CMP EOP CIP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works, Contractor | City and State Budgets, grants, and FEMA grants |
| Medium | Develop Emergency plans. 1) Develop Emergency Operations plan (EOP). | Wild fire, Flood, Drought, Dam Failure*, Severe Weather, Tornados, Hazardous Materials, Terrorism, Active Shooter, Communicable | Staff Time, Contractor \$40K | 12/30/2020 | CMP EOP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works, Contractor | City and State Budgets, grants, and FEMA grants |
| High | Improve drainage and culvert capacity. Due to Wildfires, increased storm water runoff amounts over tax the existing drainage ditches and culverts. Increase the capacity of culverts and drainage ditches in the Ruidoso Gardens subdivision. | Flood*, Severe Weather | Staff Time, Equipment time, Materials Contractors \$500K | 06/30/2022 | CMP EOP CIP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works, Contractor | City and State Budgets, grants, and FEMA grants |
| High | Buffer zone improvement. Create a thinned buffer zone around the Turkey Canyon area. | Wildfire* | Staff Time, Contractors, Equipment \$500K | 06/30/2022 | EOP CMP CIP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works, Contractor | City and State Budgets, grants, and FEMA grants |

Table 6-12-3: Mitigation actions/projects and implementation strategy for City of Ruidoso Downs

| Mitigation | | | | Implementation Strategy | | | |
|------------------|--|--|--|-----------------------------|---------------------|---|---|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| Medium | Early Warning Improvement. Improved early warning will give the community and its residents to take protective measures to move personal property, vehicles and people out of harms way. 1) Add two more hazard siren. 2) Educate the Ruidoso Downs citizens on the early warning system. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados*, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Materials, Supplies, Media Costs, Contractors \$75K | 12/30/2020 | EOP CMP CIP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |
| High | Improve Rio Ruidoso capacity. During high water events (especially due to wildfires) the Rio Ruidoso cannot typically carry all the water therefore the river overflows the banks. 1) Remove silt where necessary. | Flood*, Severe Weather | Staff Time, Equipment time, Materials, Contractors \$2M | 06/30/2021 | EOP CMP CIP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works, USACE | City and State Budgets, grants, and FEMA grants |
| Medium | Notification systems and siren improvement. Improvement of alerting systems that recognizes the remoteness / clustering of population will only improve response to calls to evacuate in the face of hazards, saving lives, and increasing lead time for population to safeguard property. | Wildfire, Flood, Dam Failure*, Severe Weather, Tornados, Hazardous Materials, Terrorism, Active Shooter, Communicable | Staff Time, Equipment time, Materials, Contractors \$75K | 12/30/2020 | EOP CMP CIP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |
| Medium | Develop Emergency Action Plan (EAP). | Wildfire, Flood, Earthquake*, Drought, Dam Failure, Severe Weather, Tornados, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Contractor \$40K | 12/30/2020 | EOP CMP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |
| Medium | Repetitive loss roads and highway improvement. Review, scope and improve roads that pass through or along flood prone areas. | Severe Weather*, Flood | Staff Time, Equipment time, Materials, Contractors \$500K | 5/30/2022 | EOP CMP CIP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |

Table 6-12-3: Mitigation actions/projects and implementation strategy for City of Ruidoso Downs

| Mitigation | | | | Implementation Strategy | | | |
|------------------|--|--|--|-----------------------------|---------------------------|--|---|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| Medium | Develop public service announcements about specific threats for disseminations via the media. Such announcements can be made via television and radio, pamphlets, training sessions, and demonstrated activities. Special populations such as non-English speaking populations, tourists and the homebound can be identified for specific messages. Topics covered that relate to many hazards would include evacuation and sheltering-in-place. | Wildfire, Flood, Drought*, Dam Failure, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Materials, Printing, Contractors \$75K | 12/30/2020 | EOP EAP CWPP CMP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |
| Low | Establish and implement a process for activating cooling shelters in high-risk communities during heat events. A program will be developed to include a process for identification and assessment of appropriate facilities, adoption of appropriate authorities and/or agreements to use the facilities, and protocols to equip, activate, operate and demobilize facilities that can be used as cooling shelters during an extreme heat event and drought. | Drought*, Severe Weather | Staff Time \$10K | On-going | EOP EAP CWPP CMP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |
| High | Leverage hazard mitigation funding to improve processes. Ruidoso Downs Emergency Services Director should increase awareness of hazard mitigation funding opportunities and leverage where possible to benefit response preparedness improvements. | Wildfire, Flood, Drought, Dam Failure, Severe Weather*, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$10K | On-going | EOP EAP CWPP CMP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |

Table 6-12-3: Mitigation actions/projects and implementation strategy for City of Ruidoso Downs

| Mitigation | | | | Implementation Strategy | | | |
|------------------|--|--|---------------------------------|-----------------------------|---------------------------|--|---|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible for Implementation | Funding Source(s) |
| Low | Establishing better working relationships between the County, Village of Ruidoso, Mescalero Tribe and City of Ruidoso Downs relative to the Grindstone Dam and Mescalero Dam. By increasing mitigation efforts in conjunction with other levels of government and sovereign nations, some of the damages that arise from dam failure or overtopping can be reduced, therefore, reducing the level of impact received by the jurisdictions. | Earthquake*, Dam Failure, Flood, Severe Weather, Tornado | Staff Time \$0 | On-going | EOP EAP CWPP CMP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |
| Medium | Response process optimization. Ruidoso Downs response personnel all need to use the same methods to respond effectively to a disaster. Cross train Ruidoso Downs personnel for various response roles/responsibilities, initiate resource deployment planning, and conduct a needs and capability assessment for response processes. | Wildfire, Flood, Drought, Dam Failure, Severe Weather, Tornados*, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Contractor \$20K | On-going | EOP EAP CWPP CMP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |
| Low | Hazardous materials technician capacity development. Continue development of tactical capacity for Haz Mat response with development of technicians with skills necessary. | Hazard Materials* | Staff Time, Contractor \$10K | On-going | EOP EAP CMP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |
| Low | Explore how hazardous material transportation routing impacts public safety within Ruidoso Downs. Explore nature of hazardous materials transported through Ruidoso Downs and determine if special HazMat route | Hazard Materials* | Staff Time \$0 | 12/30/2019 | EOP EAP CMP | Ruidoso Downs Emergency Services, Ruidoso Downs Fire Chief, Police Chief, Public Works | City and State Budgets, grants, and FEMA grants |

Table 6-12-4: Mitigation actions/projects and implementation strategy for Town of Carrizozo

| Mitigation | | | | Implementation Strategy | | | |
|------------------|---|--|--|-----------------------------|---------------------|---|---|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| High | Hazardous materials technician capacity development. Continue development of tactical capacity for Haz Mat response with development of technicians with skills necessary. | Hazard Materials* | Staff Time, Contractor \$20K | On-going | EOP CMP | Carrizozo Mayor, Fire Chief, Police Chief, Public Works | Town and State Budgets, grants, and FEMA grants |
| High | Explore how hazardous material transportation routing impacts public safety within Carrizozo. Explore nature of hazardous materials transported through Carrizozo and determine if special HazMat route designation is applicable | Hazard Materials* | Staff Time \$0 | 12/30/19 | CMP | Carrizozo Mayor, Fire Chief, Police Chief, Public Works | Town and State Budgets, grants, and FEMA grants |
| High | Improve Communication. Develop a Multi-Jurisdictional Communications Plan (CP). | Drought, Severe Weather*, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$40K | 12/30/2021 | EOP CMP CP | Carrizozo Mayor, Carrizozo Fire Chief, Carrizozo Police Chief | Town and State Budgets, grants, and FEMA grants |
| Medium | Update Emergency Operations Plan. Update EOP. | Drought, Severe Weather, Tornados, Earthquake*, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$40K | 12/30/2022 | EOP CMP | Carrizozo Mayor, Carrizozo Fire Chief, Carrizozo Police Chief | Town and State Budgets, grants, and FEMA grants |
| Medium | Public Awareness & Early Warning. Improved early warning and public awareness will give the community and its residents the opportunity to take protective measures to move personal property, vehicles and people out of harms way. 1) Educate citizens on the early warning system, evacuation routes and transportation, utilizing all media and social media options. | Drought, Severe Weather, Tornados*, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Materials, Supplies, Media Costs \$75K | 12/30/2020 | EOP CMP | Carrizozo Mayor, Carrizozo Fire Chief, Carrizozo Police Chief, Public Works | Town and State Budgets, grants, and FEMA grants |

Table 6-12-4: Mitigation actions/projects and implementation strategy for Town of Carrizozo

| Mitigation | | | | Implementation Strategy | | | |
|------------------|---|---|--|-----------------------------|---------------------|--|---|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| Low | Establish and implement a process for activating cooling shelters in high-risk communities during heat events. A program will be developed to include a process for identification and assessment of appropriate facilities, adoption of appropriate authorities and/or agreements to use the facilities, and protocols to equip, activate, operate and demobilize facilities that can be used as cooling shelters during an extreme heat event or drought. | Drought,* Severe Weather | Staff Time \$0 | On-going | EOP CMP | Carrizozo Mayor, Carrizozo Fire Chief, Carrizozo Police Chief, Public Works | Town and State Budgets, grants, and FEMA grants |
| High | Leverage hazard mitigation funding to improve processes. Carrizozo Mayor should increase awareness of hazard mitigation funding opportunities and leverage where possible to benefit response preparedness improvements. | Drought, Severe Weather*, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$10K | On-going | EOP CMP | Carrizozo Mayor, Carrizozo Fire Chief, Carrizozo Police Chief, Public Works | Town and State Budgets, grants, and FEMA grants |
| Medium | Develop public service announcements about specific threats for disseminations via the media. Such announcements can be made via television and radio, pamphlets, training sessions, and demonstrated activities. Special populations such as non-English speaking populations, tourists and the homebound can be identified for specific messages. Topics covered that relate to many hazards would include evacuation and sheltering-in-place. | Drought*, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Materials, Printing, Contractors \$50K | On-going | EOP CMP | Carrizozo Mayor, Carrizozo Fire Chief, Carrizozo Police Chief, Public Works | Town and State Budgets, grants, and FEMA grants |
| Medium | Response process optimization. Carrizozo response personnel all need to use the same methods to respond effectively to a disaster. Cross train Carrizozo personnel for various response roles/responsibilities, initiate resource deployment planning, and conduct a needs and capability assessment for response processes. | Drought, Severe Weather, Tornados*, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Contractor \$20K | 12/30/2019 | EOP CMP | Carrizozo Mayor, Carrizozo Fire Chief, Carrizozo Police Chief, Public Works | Town and State Budgets, grants, and FEMA grants |

Table 6-12-4: Mitigation actions/projects and implementation strategy for Town of Carrizozo

| Mitigation | | | | Implementation Strategy | | | |
|------------------|--|--|-------------------------------|-----------------------------|---------------------|---|---|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| Medium | Notification systems and siren improvement. Improvement of alerting systems that recognizes the remoteness / clustering of population will only improve response to calls to evacuate in the face of hazards, saving lives, and increasing lead time for population to safeguard property. | Drought, Severe Weather, Tornados, Earthquake*, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Contractor \$200K | 12/30/2020 | EOP CMP | Carrizozo Mayor, Carrizozo Fire Chief, Carrizozo Police Chief, Public Works | Town and State Budgets, grants, and FEMA grants |

Table 6-12-5: Mitigation actions/projects and implementation strategy for Village of Capitan

| Mitigation | | | | Implementation Strategy | | | |
|------------------|---|---|------------------------------------|-----------------------------|---------------------|---|--|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| High | Improve Emergency Response. During emergency events that cause power outages, water and waste water services must be restored timely. 1) Purchase Generators to power drinking water systems and waste water plant. | Wildfire, Flood, Severe Weather*, Tornados, Earthquake, Hazardous Materials, Terrorism, | Staff Time, Generator costs, \$30K | 12/30/2020 | CMP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA |
| High | Improve Communication. Develop a Multi-Jurisdictional Communications Plan (CP). | Wildfire*, Flood, Drought, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Contractor \$40K | 12/30/2021 | EOP CMP CP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |

Table 6-12-5: Mitigation actions/projects and implementation strategy for Village of Capitan

| Mitigation | | | | Implementation Strategy | | | |
|------------------|---|---|---|-----------------------------|---------------------|---|--|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency /Job Title Responsible | Funding Source(s) |
| Medium | Stream bed maintenance. During high water events (especially due to wildfires) streambeds cannot typically carry all the water therefore they overflow the banks. 1) Remove silt and obstructions where necessary. | Flood*, Wildfire | Staff Time, Equipment time, Materials, Contractors \$500K | 12/30/2022 | EOP CMP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |
| Medium | Public Awareness. Add signage at all low water crossings warning drivers about the water level and the danger of crossing during high water events. | Wildfire, Flood, Drought, Severe Weather*, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Materials, Supplies, Media Costs \$50K | Ongoing | EOP CMP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |
| Medium | Explore how hazardous material transportation routing impacts public safety within Capitan. Explore nature of hazardous materials transported through Capitan and determine if special HazMat route designation is | Hazardous Materials* | Staff Time \$0 | 12/30/2019 | EOP CMP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |
| Medium | Hazardous materials technician capacity development. Continue development of tactical capacity for HazMat response with development of technicians with skills necessary. | Hazard Materials* | Staff Time, Contractor \$20K | On-going | EOP CMP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |
| Low | Establish and implement a process for activating cooling shelters in high-risk communities during heat events. A program will be developed to include a process for identification and assessment of appropriate facilities, adoption of appropriate authorities and/or agreements to use the facilities, and protocols to equip, activate, operate and demobilize facilities that can be used as cooling shelters during an extreme heat event or drought. | Drought*, Severe Weather | Staff Time, Utility Costs \$0 | On-going | EOP CMP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |

Table 6-12-5: Mitigation actions/projects and implementation strategy for Village of Capitan

| Mitigation | | | | Implementation Strategy | | | |
|------------------|---|---|---|-----------------------------|---------------------|---|--|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency /Job Title Responsible | Funding Source(s) |
| Medium | Develop public service announcements about specific threats for disseminations via the media. Such announcements can be made via television and radio, pamphlets, training sessions, and demonstrated activities. Special populations such as non-English speaking populations, tourists and the homebound can be identified for specific messages. Topics covered that relate to many hazards would include evacuation and sheltering in place | Wildfire, Flood, Drought*, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Media Costs, Contractor \$75K | 12/30/2018 | EOP CMP CP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |
| Medium | Public Awareness & Early Warning. Improved early warning and public awareness will give the community and its residents the opportunity to take protective measures to move personal property, vehicles and people out of harms way. 1) Educate citizens on the early warning system, evacuation routes and transportation, utilizing all media and social media options. | Wildfire, Flood, Drought, Severe Weather, Tornados*, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Materials, Supplies, Media Costs \$50K | 12/30/2020 | EOP CMP CP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |
| Low | Response process optimization. Capitan response personnel all need to use the same methods to respond effectively to a disaster. Cross train Capitan personnel for various response roles/responsibilities, initiate resource deployment planning, and conduct a needs and capability assessment for response processes. | Wildfire, Flood, Drought, Severe Weather, Tornados*, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Materials, Supplies, Media Costs \$40K | On-going | EOP CMP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |

Table 6-12-5: Mitigation actions/projects and implementation strategy for Village of Capitan

| Mitigation | | | | Implementation Strategy | | | |
|------------------|--|---|---|-----------------------------|---------------------|---|--|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency /Job Title Responsible | Funding Source(s) |
| Medium | Notification systems and siren improvement. Improvement of alerting systems that recognizes the remoteness / clustering of population will only improve response to calls to evacuate in the face of hazards, saving lives, and increasing lead time for population to safeguard property. | Wildfire, Flood, Drought, Severe Weather, Tornados, Earthquake*, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Materials, Supplies, Media Costs \$75K | 12/30/2020 | EOP CMP CP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |
| Low | Update Emergency Operations Plan. Update EOP. | Wildfire, Flood, Drought, Severe Weather, Tornados, Earthquake*, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Materials, Supplies, Contractor \$40K | 12/30/2021 | EOP CMP CP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |
| Medium | Leverage hazard mitigation funding to improve processes. Capitan Mayor and Fire Chief should increase awareness of hazard mitigation funding opportunities and leverage where possible to benefit response preparedness improvements. | Wildfire*, Flood, Drought, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Contractor \$0 | On-going | EOP CMP CP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |
| Medium | Repetitive loss roads and highway improvement. Review, scope and improve roads that pass through or along flood prone areas. | Flood*, Severe Weather | Staff Time, Materials, Supplies, Contractor \$500K | 06/30/2022 | EOP CMP | Capitan Mayor, Capitan Fire Chief, Capitan Police Chief | Village and State Budgets, grants, and FEMA grants |

| Table 6-12-6: Mitigation actions/projects and implementation strategy for Village of Corona | | | | | | | |
|---|---|---|--|-----------------------------|---------------------|--|--|
| Mitigation | | | | Implementation Strategy | | | |
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| High | Improve Emergency Response. Purchase Generators to power water systems and wells. | Wildfire, Flood, Severe Weather*, Tornados, Earthquake, Hazardous Materials, Terrorism | Staff Time, Generator costs, \$25K | 12/30/2020 | CMP EOP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |
| High | Improve Communication. Develop a Multi-Jurisdictional Communications Plan (CP). | Wildfire*, Flood, Drought, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$40K | 12/30/2021 | CMP EOP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |
| Medium | Develop Emergency Operations Plan (EOP). Develop EOP. | Wildfire, Flood, Drought*, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time \$40K | 06/30/2022 | CMP EOP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |
| Medium | Public Awareness. Add signage at all low water crossings warning drivers about the water level and the danger of crossing during high water events. | Flood*, Severe Weather | Staff Time, signs, Equipment Costs \$50K | 12/30/2021 | CMP EOP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |

Table 6-12-6: Mitigation actions/projects and implementation strategy for Village of Corona

| Mitigation | | | | Implementation Strategy | | | |
|------------------|--|--|---|-----------------------------|---------------------|--|--|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| Medium | Buffer zone improvement Forest thinning around the village. | Wildfire* | Staff Time, Equipment time, Materials, Contractors \$750K | 06/30/2022 | CMP EOP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |
| High | Early Warning Improvement. Construct Community early warning siren system. | Wildfire, Flood, Drought, Severe Weather, Tornados*, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Equipment time, Materials, Contractors \$750K | 12/30/2021 | CMP EOP CIP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |
| Medium | Repetitive loss roads and highway improvement. Review, scope and improve roads that pass through or along flood prone areas | Flood*, Severe Weather | Staff Time, Equipment time, Materials, Contractors \$500K | 06/30/2022 | CMP EOP CIP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |
| Medium | Develop public service announcements about specific threats for disseminations via the media. Such announcements can be made via television and radio, pamphlets, training sessions, and demonstrated activities. Special populations such as non-English speaking populations, tourists and the homebound can be identified for specific messages. Topics covered that relate to many hazards would include evacuation and sheltering-in-place. | Wildfire, Flood, Drought*, Severe Weather, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Equipment time, Materials, Contractors \$75K | 12/30/2018 | CMP EOP CP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |

Table 6-12-6: Mitigation actions/projects and implementation strategy for Village of Corona

| Mitigation | | | | Implementation Strategy | | | |
|------------------|---|---|---|-----------------------------|---------------------|--|--|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| Medium | Stream bed maintenance. During high water events (especially due to wildfires) stream beds cannot typically carry all the water therefore they overflow the banks. 1) Remove silt and obstructions where necessary | Wildfire, Flood, Drought, Severe Weather*, Tornados, Earthquake, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Equipment time, Materials, Contractors \$250K | On-going | CMP EOP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |
| Low | Response process optimization. Corona response personnel all need to use the same methods to respond effectively to a disaster. Cross train Corona personnel for various response roles/responsibilities, initiate resource deployment planning, and conduct a needs and capability assessment for response processes | Wildfire, Flood, Drought, Severe Weather, Tornados*, Earthquake, Hazardous Materials, Terrorism, Active Shooter | Staff Time, Equipment time, Materials, Contractors \$75K | On-going | CMP EOP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |
| Low | Notification systems and siren improvement. Improvement of alerting systems that recognizes the remoteness / clustering of population will only improve response to calls to evacuate in the face of hazards, saving lives, and increasing lead time for population to safeguard property. | Wildfire, Flood, Drought, Severe Weather, Tornados, Earthquake*, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Equipment time, Materials, Contractors \$40K | 6/30/2020 | CMP EOP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |
| High | Leverage hazard mitigation funding to improve processes. Corona Mayor and Fire Chief should increase awareness of hazard mitigation funding opportunities and leverage where possible to benefit response preparedness improvements. | Wildfire, Flood, Drought, Severe Weather, Tornados, Earthquake*, Hazardous Materials, Terrorism, Active Shooter, Communicable Disease | Staff Time, Equipment time, Materials, Contractors \$0 | On-going | CMP EOP CP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |

Table 6-12-6: Mitigation actions/projects and implementation strategy for Village of Corona

| Mitigation | | | | Implementation Strategy | | | |
|------------------|---|----------------------|-------------------------------|-----------------------------|---------------------|--|--|
| Priority Ranking | Description | Hazard(s) Mitigated | Estimated Cost | Anticipated Completion Date | Planning Mechanisms | Primary Agency / Job Title Responsible | Funding Source(s) |
| Medium | Explore how hazardous material transportation routing impacts public safety within Corona. Explore nature of hazardous materials transported through Corona and determine if special HazMat route designation is | Hazardous Materials* | Staff Time, Contractors \$25K | 12/30/19 | CMP EOP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |
| Medium | Hazardous materials technician capacity development. Continue development of tactical capacity for Haz Mat response with development of technicians with skills necessary. | Hazardous Materials* | Staff Time, Contractors \$25K | On-going | CMP EOP | Corona Fire Chief, Corona Mayor | Village and State Budgets, grants, and FEMA grants |

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SECTION 7: PLAN MAINTENANCE PROCEDURES

§201.6(c)(4): [The plan shall include...] (4) A **plan maintenance process** that includes:

- (i) A section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.
- (ii) 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.
- (iii) Discussion on how the community will continue public participation in the plan maintenance process.

§201.6(d)(3): Plans must be reviewed, revised if appropriate, and resubmitted for approval within five years in order to continue to be eligible for HMGP project grant funding.

According to the DMA 2000 requirements, each plan must define and document processes or mechanisms for maintaining and updating the hazard mitigation plan within the established five-year planning cycle. Elements of this plan maintenance section include:

- **Monitoring and Evaluating the Plan**
- **Updating the Plan**
- **Continued Public Participation**

The following sections provide a description of the past plan maintenance procedures and activities, and documents the proposed procedures and schedule for the next planning cycle.

7.1 Monitoring and Evaluation

7.1.1 Past Plan Cycle

Lincoln County recognized that the hazard mitigation plan is intended to be a “living” document with regularly scheduled monitoring, evaluation, and updating. Section 6 of the 2012 Plan outlined a schedule of specific activities for annual evaluations of the 2012 Plan.

The Emergency Services Director is responsible for contacting MPT members and organizing meetings and will monitor progress on the mitigation action items. Monitoring is important for future eligibility for any mitigation funding that may be available. FEMA and the New Mexico DHSEM have the authority to evaluate the progress of existing mitigation plans to determine if the plan is fulfilling program requirements.

Review of the status of mitigation action items will be conducted by the Emergency Services Director annually in coordination with the Lincoln County Local Emergency Planning Committee. Review will include assessing the status of any completed or ongoing mitigation projects and setting project and funding priorities for the coming year. Results of this review will be reported to the Lincoln County Board of Commissioners.

A poll of the MPT regarding the past execution of the plan maintenance strategy was taken and the following tasks were accomplished by the Emergency Services Director in

coordination with the Lincoln County Local Emergency Planning Committee:

- Review of ongoing mitigation projects.
- Setting new projects and funding priorities.

Reasons for the lack of review included:

- Staff turnover and lack of continuity to original planning team.
- Lack of communicating plan maintenance responsibilities to successors during staff changes.
- Lack of major disasters that prompted a review of the 2012 Plan.

7.1.2 Proposed Schedule and Scope

Having a multi-jurisdictional plan can aid in the plan monitoring and evaluation through the consolidation of information for all participating jurisdictions into one document. The MPT reviewed the current DMA 2000 rules and the FEMA guidance document and discussed a strategy for performing the required monitoring and evaluation of the Plan over the next 5-year cycle. The MPT has established the following monitoring and evaluation procedures:

- **Schedule** – The Plan shall be reviewed on at least an annual basis. MPT Committee Chairperson will take the lead to send out an email request to each jurisdiction via the MPT in the summer of 2018.
- **Review Content** – Within the email request distributed by MPT Committee Chairperson, each of the jurisdictions will be requested to provide responses to the following questions:
 - **Hazard Identification:** *Have the risks and hazards changed?*
 - **Goals and Objectives:** *Are the goals and objectives still able to address current and expected conditions?*
 - **Mitigation Projects and Actions:** *For each mitigation action/project summarized in Section 6.3.3:*
 - *Has there been activity on the project – Yes or No?*
 - *If Yes, briefly describe what has been done and the current status of the action/project.*
- **Documentation** – Each jurisdiction will review and evaluate the Plan as it relates to their community and document responses to the above questions in the form of an email. MPT Committee Chairperson will archive email responses in a digital format and store with the Plan for incorporation during the next Plan update. Any hard copies will be included in Appendix D.

A formal presentation of the review material will be presented to a jurisdiction's council or board only if a major update to the Plan is proposed prior to the next five year update.

7.2 Plan Update

According to DMA 2000, the Plan requires updating and re-approval from FEMA every five

years. The plan update will adhere to that set schedule using the following procedure:

- ✓ One year prior to the plan expiration date, the MPT will re-convene to review and assess the materials accumulated in Appendix D.
- ✓ The MPT will update and/or revise the appropriate or affected portions of the plan and produce a revised plan document.
- ✓ The revised plan document will be presented before the respective councils and boards for an official concurrence/adoption of the changes.
- ✓ The revised plan will be submitted to DHSEM and FEMA for review, comment and approval.

7.3 Continued Public Involvement

Lincoln County and participating jurisdictions are committed to keeping the public informed about hazard mitigation planning efforts, actions and projects. Continued public involvement activities pursued by the Plan jurisdictions over the 2009 Plan cycle are summarized in Table 7-1. Although the MPT represents the public to some extent during its review of the plan, the public will be able to comment directly on and provide feedback about the plan during the review period. Public meetings will be held during each jurisdiction's monthly council meeting. This meeting will provide a forum wherein the public can express concerns, opinions, or ideas about the plan. In addition, all jurisdictions will post a link on their own community's website that will directly link to the HMP Update information found on the Village of Ruidoso's website, providing the public with complete updated HMP information and a forum for comments and concerns.

Copies of the plan will be catalogued and kept on hand at all of the county public libraries. The existence and location of these copies will be publicized on each jurisdiction's website and on the *Lincoln County's website*. The review and any changes that are made during the review will also be publicized on the *Lincoln County's website*.