U.S. Department of Homeland Security
Region VI
800 N. Loop 288
Denton, TX 76209-3698

FEMA

November 24, 2015

Ms. Wendy Blackwell
New Mexico DHS and Emergency Management, Preparedness Bureau
Office of Emergency Management
P.O. Box 27111
Santa Fe, NM 87502-1628

RE: Approval of Multi-Jurisdictional Hazard Mitigation Plan for Cibola County, New Mexico.
HMGP: FEMA-1962-DR-NM; #001

Dear Ms. Blackwell:

This office has concluded its review of the referenced plan, in conformance with the Final Rule on Mitigation Planning (44 CFR Part 201.6). We are pleased to provide our approval of this plan in meeting the criteria set forth by the Agency. Receiving this approval, eligibility for the Hazard Mitigation Assistance Grants is ensured to remain for five years from the date of this letter, expiring on November 23, 2020.

This approval does not demonstrate approval of projects contained in this plan. This office has provided the enclosed Local Hazard Mitigation Planning Tool with reviewer's comments, to further assist the communities listed in Enclosure A in refining the plan going forward. Please advise the referenced community of this approval.

If you have any questions, please contact Bart Moore, Community Planner, at (940) 898-5363.

Sincerely,

Ronald C. Wanhanen
Acting Chief, Risk Analysis Branch

Enclosures

cc: Brianne Schmidke, R6-MT-HM

Enclosure A

Cibola County, New Mexico
Multi-Jurisdictional
Hazard Mitigation Plan Participants

Attached is the list of approved participating governments included in the November 24, 2015 review of the referenced Hazard Mitigation plan

1. Cibola County
2. Grants, City of
3. Milan, Village of

Susana Martinez
Governor

M. Jay Mitchell
Cabinet Secretary

Nick Piatek
Deputy Cabinet Secretary

DEPARTMENT OF HOMELAND SECURITY
AND EMERGENCY MANAGEMENT

December 8, 2015

T. Walter Jaramillo, Chairman
Cibola County Commission
515 West High Street
Grants, NM 87020

SUBJECT: Approval of the Cibola County Multi-Jurisdictional Hazard Mitigation Plan

Dear Mr. Jaramillo;

Congratulations to Cibola County on the FEMA approval of your Multi-jurisdictional Hazard Mitigation Plan. As mentioned in the attached FEMA Approval Letter, through November 23, 2020 the County, City of Grants and Village of Milan are eligible to apply for FEMA mitigation grant funding to implement projects identified in the Plan. The FEMA Approval Plan Review Tool is also attached.

I would like to recognize the efforts of Tony Boyd, County Manager (and past Emergency Manager) for his hard work. His commitment and perseverance was instrumental in securing the final approval of the Plan. Mr. Boyd coordinated and facilitated the entire effort; his "can do" approach was what made the project a success. The entire planning team should also be commended; their time and effort helped to create a useful and realistic Hazard Mitigation Plan.

Again, congratulations on the accomplishment! If you have any questions, please contact me at 505-476-7696 or at wendy.blackwell@state.nm.us

Sincerely,

Wendy M. Blackwell, CFM
State Hazard Mitigation Officer

CC: Tony Boyd, County Manager
Dustin Middleton, County Emergency Management Coordinator and Fire Marshal
Sub-grant Folder FEMA-1962-DR-NM-Cibola County

Attachments

LOCAL MITIGATION PLAN REVIEW TOOL

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

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

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

Jurisdiction: CIBOLA COUNTY	**Title of Plan:** CIBOLA COUNTY MITIGATION PLAN UPDATE	**Date of Plan:** October 2015
Local Point of Contact: Tony Boyd	**Address:** 514 High Street Grants, New Mexico	
Title: Emergency Manager		
Agency: Cibola County Office of Emergency Management		
Phone Number:	**E-Mail:**	

State Reviewer: Kevin Dodge	**Title:** Mitigation Specialist	**Date:** August 26, 2015

FEMA Reviewer: Cheryl Copeland Jordon Ricks Jordon Ricks	**Title:** Hazard Mitigation Planner Hazard Mitigation Planner Hazard Mitigation Planner	**Date:** May 2015 September 30, 2015 October 6, 2015
Date Received in FEMA Region 6	September 1, 2015 ... October 6, 2015 (revisions)	
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved	November 24, 2015	

SECTION 1:
REGULATION CHECKLIST

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

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or	**Met**	**Not Met**
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Executive Summary (v-ix); 2-4, 26-27, 30; Appendix C (meeting minutes)	X	
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Executive Summary (vi-ix); Appendix C	X	
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Appendix C	X	
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	30, 33, 35, 37-38, 92-94	X	
A5. Is there discussion of how the community (ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	120-122, 126	X	
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	30, 115, 119-126	X	
ELEMENT A: REQUIRED REVISIONS			

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or	Met	Not Met
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	**flood** ... 39-41, 47-48, 52-54, Appendix E (FIRMs) **wildfire** ... 55, 58, 63-65 **high wind** ... 67-69 **thunderstorm (lightning)** ... 71-72 **thunderstorm (hail)** ... 71-72 **severe winter storm** ... 77-78, 80 **drought** ... 85, 88	X	
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	**flood** ... 35, 38, 48-49, 52-54, Appendix C (138) **wildfire** ...35, 64-65, Appendix C (138) **high wind** ... 35, 69, Appendix C (138) **thunderstorm (lightning)** ... 35, 74, Appendix C (138) **thunderstorm (hail)** ... 35, 74-76, Appendix C (138) **severe winter storm** ... 35, 80, 82-84, Appendix C (138) **drought** ... 35, 89-90, Appendix C (138)	X	
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	**flood** ... 37, 49-54, 138, Appendices C and D **wildfire** ... 37, 63-66, Appendix C (138) **high wind** ... 37, 69-70, Appendix C (138) **thunderstorm (lightning)** ... 38, 74-75, Appendix C (138) **thunderstorm (hail)** ... 38, 74-75, Appendix C (138) **severe winter storm** ... 38, 80-81, Appendix C (138) **drought** ... 38, 89-90, Appendix C (138)	X	
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	45	X	
ELEMENT B: REQUIRED REVISIONS			
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	3-5, 13-16, 19-21, 23-26, 64-65, 103-114	X	
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	5, 16, 95-96, 103-104, 116	X	
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	94-99	X	

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or	Met	Not Met
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	103-114	X	
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	99-100, 103-114, 119	X	
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	116-117	X	
ELEMENT C: REQUIRED REVISIONS			
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	103-113	X	
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	15, 21, 100-114; Appendix C (meeting minutes)	X	
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	26, 100-114 Appendix C (meeting minutes)	X	
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	N/A	N/A	N/A
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Appendices A and B	X	
ELEMENT E: REQUIRED REVISIONS			

1. REGULATION CHECKLIST Regulation (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or	Met	Not Met
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			
F1.			
F2.			
ELEMENT F: REQUIRED REVISIONS			

SECTION 2:
PLAN ASSESSMENT

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

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

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

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

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

A. Plan Strengths and Opportunities for Improvement

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

Element A: Planning Process

Nothing significant to report.

Element B: Hazard Identification and Risk Assessment

Nothing significant to report.

Element C: Mitigation Strategy

Nothing significant to report.

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

Nothing significant to report.

B. Resources for Implementing Your Approved Plan

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

SECTION 3:
MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)

INSTRUCTIONS: For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were 'Met' or 'Not Met,' and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Require-ments
1	**Cibola County**	unincorporated	---	---	---	---	Y	Y	Y	Y	N	N/A
2	**Grants**	city	---	---	---	---	Y	Y	Y	Y	N	N/A
3	**Milan**	village	---	---	---	---	Y	Y	Y	Y	N	N/A

2015 CIBOLA COUNTY New Mexico

MULTI- HAZARD MITIGATION PLAN

Including the participating jurisdictions of:

City of Grants
Village of Milan

EXECUTIVE SUMMARY

Cibola County is a large rural area consisting of unincorporated land and two incorporated municipalities as well as portions of 4 tribal jurisdictions (**Laguna, Acoma, Ramah Navajo, portions of Zuni Pueblo, not participating**). It is threatened by a few different natural hazards. These hazards may endanger the health, safety and wellbeing of the County's population, jeopardize its economic vitality, and imperil the quality of its environment. To minimize or potentially avoid vulnerability to these hazards, the state Department of Homeland Security and Emergency Management (DHSEM) and the Federal Emergency Management Agency (FEMA) have provided support to Cibola County to develop a hazard mitigation planning process. The resulting hazard mitigation plan identifies and profiles the existing hazards, identifies the County's vulnerability to these hazards by jurisdiction and identifies alternative mitigation actions. The plan includes an implementation strategy, which prioritizes them. In September of 2012, Cibola County contracted with Haskie and Associates Consulting to help develop the county comprehensive plan.

Created in 1981, Cibola County is a relatively new county. Records show that while emergencies and severe emergencies due to the identified hazards did not always qualify as "disasters", various types of mitigation actions to reduce or eliminate the impact of growing problems with hazard threats were studied and some mitigation projects completed. Population shifts, increasing traffic along Interstate 40, weather conditions and population growth in rural areas has led to gradual increase in probability and severity of impact of identified hazards. For example, as people moved into forested areas, the threat of wildfires with rural interface has increased. Events overtime, along with the Federal Government's Disaster Mitigation Act of 2000 and other actions affecting funding to local governments, guided the county to pursue actions that would promote positive growth and development plus incorporate mitigation to make communities more disaster resistant. As carried out by the County, the mitigation process included a volunteer group that identified hazards and risks, developed lists of potential projects as a means of mitigating them. This work group, formed in the early stages of the mitigation planning- process, named itself the Hazard Mitigation Project Team (HMPT) group and included community-minded individuals along with government employees from each jurisdiction within the county.

The incorporated municipalities and the unincorporated communities, guided by FEMA's guidance documents, resulted in a comprehensive planning process that has since culminated in this document. The HMPT encouraged citizens to add their voices to the mitigation planning process through public forums, surveys and decisions that may affect their future. Public input was obtained through a series of Public Meetings and response from a survey mailed to Cibola County residents. A synopsis of Community outreach and meetings is included in documented meeting minutes, press releases, outreach efforts and summarizes the public questionnaires. As outlined in the meeting minutes the HMPT led the effort in contacting the community and developing networks for information gathering and sharing with

local and state community organizations, agencies, and businesses. The Consultants and HMPT utilized the expertise provided by NM DHSEM and FEMA and representatives from community both in documented meetings and in personal assistance contacts. HMPT developed an email and call center orchestrated by Cibola County's Emergency Management Office which kept community organizations apprised of meetings and plan development.

This document represents the work of citizens, elected and appointed government officials, business leaders, and volunteers from nonprofit organizations. This all-sector public and governmental participation should result in protecting community assets, preserving the economic viability of the community, and, ultimately, saving lives.

The hazard mitigation plan is organized in 4 major parts with documentation included in Part V containing the appendices. The plan summarizes the results of this effort and is organized according to the parts of the plan. Part I covers the input received from participating jurisdictions as well as the purpose of the plan.

PURPOSE OF THE PLAN

The 2015 Cibola County Hazard Mitigation Plan (HMP), an update to the 2006 HMP, was developed consistent with the federal hazard mitigation planning requirements outlined in the Code of Federal Regulations (44 CFR Part 201.6). This plan evaluates the County's potential exposure to natural hazards and identifies appropriate mitigation strategies. Completion of this plan will assist the community in identifying areas of risk, assessing the magnitude of the risk, and developing strategies for reducing the risk. Through this process, the community and leaders can address issues related to incompatible land uses; identification and protection of critical facilities; and reduction of costs associated with natural disaster relief and rescue efforts. Completion and approval of this plan makes Cibola County eligible to apply for future disaster relief and mitigation project funds to implement some of the recommended mitigation strategies.

DISASTER MITIGATION ACT OF 2000

The Disaster Mitigation Act of 2000 (DMA 2K) provided the impetus at the federal level for multi-hazard mitigation planning. DMA 2K was signed into law October of 2000 as an attempt to stem the losses from disasters, reduce future public and private expenditures, and speed up response and recovery from disasters. The following is a summary of the parts of DMA 2K that pertain to local governments.

- DMA 2K establishes a requirement for local governments to prepare a multi-hazard mitigation plan in order to be eligible for Federal Emergency

Management Agency (FEMA) assistance through the Hazard Mitigation Assistance Program.

- DMA 2K establishes a requirement that natural hazards be addressed in the risk assessment/vulnerability analysis portion of the multi-hazard mitigation plan.
- DMA 2K authorizes a percentage of the Hazard Mitigation Assistance Program funds to the State Administrative Authority (SAA) after a federally declared disaster is declared for use in the development of state, local, and tribal multi-hazard mitigation plans and projects.
- DMA 2K established a deadline by which tribal governments are to prepare and adopt their respective plans in order to be eligible for FEMA Hazard Mitigation Assistance Program.

PART I – PURPOSE OF THE PLAN AND THE PLANNING PROCESS

Part I of the plan describes the jurisdictions of the plan, contains the census and economic data for the planning area and the planning process used to development the HMP.

PART II - HAZARD IDENTIFICATION AND RISK ASSESSMENT

Part II of the plan identifies and profiles the natural and human-caused hazards that occur within the boundaries of Cibola County:

- Flood
- Wildfire
- Severe Winter Storm
- High Wind
- Thunderstorms, (including lightning and hail)
- Drought

PART III – MITIGATION STRATEGY, GOALS AND ACTIONS

Part III of the plan presents goals and objectives to guide hazard mitigation assessment and identifies a series of alternative mitigation actions, on a community-by-community basis. Mitigation actions are addressed in three primary areas:

- Administrative measures
- Engineering measures
- Regulatory measures

There are many options available to mitigate hazards and their impacts. However, typically engineering measures are costly and outside the normal capabilities of most entities within Cibola County. Outside funding sources for these projects should be sought by the various entities to assure implementation. Administrative and regulatory measures can be effective and achievable with minimal costs associated with their enactment and implementation.

Also included in Part III the plan identifies preferred and prioritized mitigation actions as determined by the comprehensive planning group and the local governing bodies. This is an overall approach to reducing the County's vulnerability to natural and human-caused hazards. This section recommends specific actions and an implementation strategy including details relating to the organizations responsible for carrying out the actions, and their estimated costs.

PART IV – PLAN MAINTENANCE, MONITORING, EVALUATING AND UPDATING

The Cibola County mitigation plan shall be reviewed at a minimum of every 5 years; however, a formal review by all participating agencies is to be completed by October of each calendar year. Any additions, deletions, or corrections must be submitted by the documenting agency at that time. The governing body of each participating agency must then approve the changes.

PART V – APPENDICES

- Appendix A – Resolution to adopt the HMP, Adoption Resolution
- Appendix B – Letters of Participation
- Appendix C – Documentation
- Appendix D – Asset Inventory
- Appendix E – Flood Insurance Rate Maps (FIRM)

PLAN VISION

The plan establishes three major visions in fulfilling the requirements established through DMA 2K:

- **Reduce Hazard Risks and Impacts** – This multi-hazard mitigation plan assessed vulnerability of life and property from potential natural hazards and prioritized corresponding mitigation strategies to reduce the risk and impact from the hazard.

- **Build on Existing Efforts** - the intent of this plan is to maximize these efforts by inventorying, coordinating, building on these efforts where possible, and developing new strategies to fill any gaps identified among existing efforts. The plan incorporates information and strategies from existing emergency response plans and other relevant efforts.

- **Share Information and Raise Awareness** – Public engagement methods used in the preparation of this plan sought input from a diverse range of stakeholders including the public, Tribal Council, and various public, private, and non-profit sector representatives. Mitigation strategies identified in this plan address public information communication, and outreach in a universal manner regardless of hazard type, and within a hazard-specific context, as applicable.

PLAN CONTRACTOR

Haskie & Associates Consulting (HAC)

GOVERNMENT REPRESENTATIVES

Johnathan Gordon, City of Grants

Michael Mayes, City of Grants

Mayor Thomas Ortega, Village of Milan

Ellen Baca, Village of Milan, Evette Mantano, Village of Milan,

Keith Austin, Fire Chief, Village of Milan

Darryl McCullough, Cibola County, Flood Plain Manger

Tony Boyd, Cibola County Emergency Management – Program Manager and Recorder

CITIZENS VOLUNTEER AND DEPARTMENTS

Jose A Silva, StreamTech, INC

Donald Jaramillo, Cibola Beacon

David Rios, NMCCO

Mark Clark, Grants, Cibola County Schools

Jon Romero, NMDOT

Delane D. Baros, Citizen

Frances Medina, Citizen

Bobby A. Little Bear, Citizen

Tom Nurenborg, Citizen

Judy Nurenborg, Citizen

Peggy Jordan, Local Emergency Planning Committee, Retired

HAZARD MITIGATION PLANNING TEAM (HMPT)

Many changes have occurred since the 2007 initiation of the planning team. Employees have moved on and other have passed on. A new Planning Team was established to update the Hazard Mitigation Plan. They have effectively and efficiently approached mitigation planning with open eyes, educated minds and commitment to the community.

Johnathan Gordon, City of Grants, Fire Department

Ellen Baca, Village of Milan

Evette Mantano, Village of Milan

Jerome Haskie, Coordinator, Haskie & Associates

Darryl McCullough, Cibola County, Flood Plain Manger

Tony Boyd, Cibola County Emergency Management – Program Manager and Recorder

Jose A Silva, StreamTech, INC

David Rios, NMCCO

Mark Clark, Grants, Cibola County Schools

Jon Romero, NMDOT

Peggy Jordan, Retired, Cibola LEPC

ACKNOWLEDGEMENTS

The Cibola County LEPC/HMPT would like to acknowledge and thank the members of the Hazard Mitigation Planning Team (HMPT) for their involvement and commitment in the development of the Cibola County Hazard Mitigation Plan (CCHMP). The plan process was a multi-department/agency effort with the Department of Public Safety – Office of Emergency

Management serving as lead for the planning process, providing facilitation, and plan development along with drafting assistance.

The following organizations assumed the opportunity to contribute to the Hazard Mitigation Planning Team (HMPT):

- Cibola County
  - Office of Emergency Management
- Local K-12
  - Grants
    - Pre-School & Kindergarten
      - Midwest New Mexico Community Action Program, Head Start
      - Small Wonders Child Center, Inc.
      - Footprints of Life
    - Private & Parochial Schools
      - Grants Christian Academy
      - St Teresa's Catholic School
      - Victory Christian Academy
    - Public Schools
      - Grants - Cibola County Schools
- Pueblos, Tribes, Nations
  - Pueblo of Acoma
  - Pueblo of Laguna
  - Ramah Chapter Navajo Nation
- Federal Agencies:
  - National Weather Service
  - United States Geological Society
  - Department of Agriculture
    - Forest Service, Mt. Taylor Ranger District
    - Lava and Soil Conservation District
    - Natural Resources Conservation Service
    - Soil Survey Office
  - Department of Health and Human Services
    - Indian Health Service
      - Acoma-Canoncito-Laguna Hospital
      - New Sunrise Regional Treatment Center
  - Department of Interior
    - El Malpais National Monument
    - El Morro National Monument
    - Bureau of Land Management – Grants Field Office
  - National Parks Service

        - El Malpais National Monument Headquarters
    - US Postal Service
- State Agencies
    - Department of Homeland Security and Emergency Management
        - State Hazard Mitigation Officer
        - State Floodplain Manager
    - State Floodplain Manager's Association
    - Congress, Ben Ray Lujan – 3ed District
    - Children, Youth and Families Department
    - Western New Mexico Correctional Facility
    - Cibola County Magistrate Court
    - Highway Department – New Mexico Department of Transportation
    - Parks and Recreation
    - Cibola County Health Office
    - Public Safety Division
    - Regulation and Licensing Department
- Cibola County
    - Assessor
    - Building and Grounds
    - Clerk
    - Commission
    - Cooperative Extension Service, New Mexico State University, USDA
    - Detention Center
    - Dispatch
    - Emergency Management
    - GIS / Rural Addressing
    - Indigent & Purchasing
    - Manager
    - Road Department
    - Sheriff's Department
    - Treasurer
    - Veteran's
- City of Grants
    - Administrative Offices
    - Airport
    - Animal Shelter
    - Fire Department
    - Housing Authority
    - Library
    - Maintenance
    - Municipal Court Village

- Municipal Operations
- Public Safety Administration
- Police
- Recreational Family Center
- Utilities
- Wastewater Treatment Plan / Parks Department

- Village of Bluewater
  - Volunteer Fire Department
  - Parks and Recreation
  - Police Department
  - Village Clerk
- Village of Milan
  - Fire Department
  - Municipal Court System
- System Volunteer Organizations Active in Disaster (VOAD)
  - American Red Cross
  - Salvation Army
- Assisted Living Facilities
- Medical Equipment and Supplies
- Nursing Homes
- Senior Citizen Centers
- Churches
- Businesses
  - Burlington Northern Santa Fe (BNSF) Railroad
  - Transwestern Pipeline Company
  - Century Link
  - New Mexico Gas Company
- Academic Institutions
  - New Mexico School of Mining and Technology
  - New Mexico State University
  - Central New Mexico Community College

TABLE OF CONTENTS

PART I

PURPOSE OF THE PLAN
THE PLANNING PROCESS

PURPOSE

The primary purpose of this document is to update the 2007 Hazard Mitigation and re-establish priorities for the mitigation of natural hazards. Mitigation is defined as "sustained action taken to reduce or eliminate long-term risk to people and their property from hazards and their effects". Hazards that have a potential effect on Cibola County have been identified, potential Mitigation Strategies examined, and a plan for implementation of those strategies has been developed. The process of mitigation identifies those hazards, examines potential, recommends a plan and monitors the progress of the mitigation strategies and develops a strategy to maintain the plan.

GENERAL

A Hazard Mitigation Planning Team (HMPT) working with the Mitigation Planning Consultant, Haskie & Associates and representatives from Cibola County's governmental jurisdictions developed this mitigation plan. The working teams developed and effected efforts to solicit and incorporate the interests of the general public, elected and appointed governmental officials, business leaders and Non-governmental agencies in the planning process. HMPT members studied relevant governmental records and emergencies, distributed questionnaires asked the public to prioritize emergency needs and held numerous steering committee and public meetings and interviews. The data is summarized throughout this plan. Records of meetings, planning efforts attendance, and minutes are included in appendices. Draft resolutions of adoption are included and the participating local governments are listed. Signed resolutions will be provided following FEMA acceptance of the Mitigation Plan.

A mitigation planning team has identified hazards that have a potential to affect participating municipalities, sovereign Native American Nations and other communities throughout the county. Each jurisdiction was tasked to evaluate these hazards and to prioritize the hazards considered native to the area, based on vulnerabilities to these risks from historical data, to the extent which natural hazards are probable in the community.

With a goal to create model disaster-resistant communities in high risk areas. The need for a timely, cost-effective means to save lives, reduce property damage, and limit disaster costs has become more apparent from projections of future demographic trends.

At all local levels, governments and constituencies play critical roles in advancing mitigation by articulating the vision and developing the programs and incentives that encourage and support community-based implementation. Mitigation takes place when, for example, the decision is made to take action to reduce the risk of damage to structures from natural disasters, to upgrade the professional qualifications required of its building inspectors or upgrade building codes and to remove flood prone land from development potential and create recreation areas.

Cibola County's mitigation plan will encompass the entire county. Individual jurisdictions participating in the project are as follows:

- County of Cibola
- City of Grants
- Village of Milan

There is a joint jurisdiction emergency management system throughout Cibola County, which consolidates many of the localized emergency services into emergency management planning, preparedness, mitigation, response and recovery efforts. The Mitigation Planning consultants and working committee group worked closely within the existing operations and conjoined county wide efforts while incorporating comment and information for the outlying and unincorporated areas that receive county and conjoined entity services.

The joint jurisdiction emergency management system has tied all the communities and governments together in a common effort. This joint jurisdiction cooperation continues to flow, with information being exchanged constantly.

Cibola County – The County Emergency Manager Tony Boyd scheduled, organized and attended the Hazard Mitigation Planning team (HMPT) meetings and coordinated input of information from each of the participating jurisdictions for the Consultant, who developed the information into the Mitigation Plan. The Emergency Manager also met with the County's Floodplain Manager, who helped assemble county-wide statistics criteria required for the plan. The Emergency Manager is a member of the county's Twenty-Year Comprehensive Plan Committee's core group, attending regular and area meetings of the committee in order to integrate and implement mitigation planning into county-wide comprehensive planning.

City of Grants – Johnathan Gordon and Michael Maes, representatives from the City of Grants coordinated information input for the City of Grants and is one of the three Floodplain Managers leading the joint jurisdiction plans developed through the Consolidated Floodplain Management Committee along with Cibola County, Village of Milan, Rio San Jose Flood Control District, Lava Soil and Water and local representative of the Natural Resources Conservation Service. City of Grants mitigation committee representative

Village of Milan – Ellen Baca and Evette Mantano served as Milan's representatives during the period the Mitigation Plan was developed. Both coordinated information and input for the Village of Milan. Code Enforcer/Floodplain managers are required to attend the

Village meetings and integrate mitigation concepts into Village comprehensive planning. Village of Milan has demonstrated its dedication and competency by developing and implementing many mitigation projects in the past.

Draft resolutions, are contained in Appendix A and will be signed following final FEMA plan approval.

JURISDICATION DESCRIPTION

Cibola County

Located in the northwest region of central New Mexico, Cibola is the state's thirty-third county. It was created from a portion of Valencia County on June 19, 1981. The counties that create its boundaries are Catron and Socorro to the south, Valencia, Bernalillo and Sandoval to the east, and Sandoval, McKinley and San Juan to the north. Its western boundaries are McKinley County and the state of Arizona.

Geographically, Cibola County is located in the Colorado Plateau Province, which extends throughout northwestern New Mexico and into Arizona, Utah, and Colorado. It is characterized by erosional landscapes carved on relatively un-deformed sequences of sedimentary and volcanic rocks. The Zuni Mountains between Gallup and Grants are the region's only major mountain uplift. Mount Taylor, a dormant volcano (elevation 11,301 ft.) is the highest point in the New Mexico part of the province. Major landforms include scarp- bounded tablelands (plateaus, mesas, buttes and benches), cuestas, hogbacks and a variety of canyon types. The County's elevation ranges from 6,675 feet to its highest point of the Zuni Mountains at 9,916 feet, straddling the continental divide between Grants and Gallup.

The Colorado Plateau Province is divided into regions called the Navajo Section and the Acoma-Zuni Section. The Acoma-Zuni Section encompasses the majority of Cibola County in the southeastern portion of the province. Extensive upper penozoic volcanic and quaternary basalt flows, faults, cinder and lava cones, limestone, and sandstone-capped cuestas and benches, tablelands and broad plains characterize the Acoma-Zuni Section. The Malpais Lava Field, south of Grants, contains the McCarty's basalt flow, the youngest volcanic unit in the state, at about 1,000 years old. Much of the Acoma-Zuni Section is drained by the Rio San Jose, the major tributary to the Rio Puerco, which drains into the Rio Grande River. The higher elevations are covered with forests, while the lower elevations are semi-arid and dry. Moisture that normally occurs during the summer "monsoon" season, characterized by thunder and lightning storms and winter snowstorms, are crucial for replenishing the underground water aquifers. The area is subject to cycles of drought that can last from one to seven years or more.

The City of Grants

The City of Grants is located on Interstate 40 approximately halfway between Albuquerque and Gallup. On March 1, 1994 the City of Grants adopted its city charter, which sets forth the basic powers granted for maximum self- government with the greatest possible exercise of home rule powers set by the State of New Mexico Constitution and laws.

The charter provides for a Mayor-City Council form of government. All of the city's legislative powers are vested in its council. As mandated by state statute, the City Clerk is charged with responsibility for the custody of municipal records and holding municipal elections. The City Manager is appointed by the Mayor, confirmed by the City Council, and is in charge of the day-to-day administrative affairs of the City, including preparing and submitting its budget and annual report.

The Mayor is responsible for providing for and responding to emergencies within the boundaries of the City of Grants. At present, the City of Grants has not developed an emergency management system or designated an emergency management coordinator.

In 1987, the City of Grants adopted its latest Flood Damage Prevention Ordinance, which governs development and construction in all designated flood zones within the city. The City of Grants joined the National Flood Insurance Program (NFIP) in 1981, and adopted its original flood control ordinance at that time.

Under the current ordinance, the Mayor or his designee is responsible for administration of the floodplain ordinance and all associated responsibilities under the NFIP program. Responsibility for administration of the program is assigned to a Certified Floodplain Manager who also has responsibility for Engineering, Planning, Zoning and Code Enforcement.

The Village of Milan

The Village of Milan is located just west of the county seat of Grants. It was incorporated on February 25, 1957. The village consists of approximately two square miles of land. The mayor and four trustees administer Milan. The mayor appoints officers and employees, supervises all employees, and enforces all ordinances and regulations of the village. A village manager is hired to oversee the village's day-to-day operations. As chief elected official, the mayor is responsible for emergency management. At present, Milan has not developed an emergency management system or designated an emergency management coordinator.

CIBOLA COUNTY COMMUNITY PROFILE

Census Data

Grants, New Mexico is the county seat for Cibola County. Cibola County consists of 4,548 square miles with a population of approximately 27,213, or

6.0 persons per square mile, as of the 2010 census. Population density is greatest along the Interstate 40 corridor.

The 2010 Census shows 11,148 housing units with a homeownership rate of 71.3 percent. There were 8,037 households, with a person per household average of 3.2. The median household income was listed as $36,020 and per capita income listed at $11,544, both of which were below the New Mexico average. Cibola County listed 25.9 percent of persons below the poverty level, which is 6 percent higher than New Mexico's average.

Based on a population growth study analysis from Alcantara Adelamar done in 2010, Cibola County can expect to see the population grow to approximately 30,000 by the year 2020. The study also indicated that the distribution of the population growth will not be equal across the county. It can be expected that most of the growth will occur in Grants and Milan, and more rural areas will suffer a decline in growth.

The following information provided by the Cibola Communities Economic Development Foundation.

The race variables represent the self-classification by people according to the race with which they most closely identify. Ancestry can be viewed as the nationality, lineage or country of birth of a person. Persons of Hispanic ancestry may be of any race.

2010 POPULATION BY RACE

Race	Number	%
White	14,831	54.5
Black	354	1.3
Asian	72	0.6
Hispanic	4,486	16.4
Native American	4,980	18.0
Other	2,490	9.2

2010 POPULATION BY GENDER

Sex	Number	%
Male	13,769	50.6
Female	13,444	49.4

2010 POPULATION BY AGE

Age	Number	%
Under Age 5	1,892	7.9
Age 5-17	4,942	8.5
Age 18-64	16,893	8.9
Age 65 & over	3,486	8.3

EDUCATION

Grade Level	Number	%
Kindergarten	441	5.8
Elementary School	3,764	49.2
High School	1,628	21.3
College or Graduate School	1,259	16.5

COMMUTING TO WORK

	Number	%
Car, truck, or van –drive alone	6,270	73.7
Car, truck, or van –carpooled	1,549	18.2
Public Transportation (including taxicab)	45	0.5
Walking	239	2.8
Other means	84	1.0
Work at home	322	3.8
Mean travel time to work (minutes)	23.5	N/A

Estimated Period for Growth Rate	Cibola County		Grants		Milan		Remainder of County		New Mexico	
	Rate %	Pop.	Rate %	Pop.	Rate %	Pop.	Rate %	Pop.	Rate %	Pop.
2000 Actual	--	25,595	--	8,806	--	1,891	--	14,898	--	1,819,046
2000-2005	1.19	27,178	1.30	9,397	2.80	2.175	0.77	15,506	1.41	1,950,942
2005-2010	0.98	28,571	1.08	9,929	2.44	2,457	0.58	15,978	1.38	2,092,401
2010-2015	0.80	29,737	0.90	10,386	2.12	2,732	0.38	16,301	1.36	2,244,117
2015-2020	0.62	30,643	0.73	10,756	1.91	3,006	0.18	16,465	1.34	2,394,830
2020-2025	0.45	31,419	0.56	11,083	1.30	3,208	0.09	16,547	1.29	2,555,664

Economic Data

Cibola County's economic base is in times past was uranium. Today there is limited mining, consisting primarily of coal. Cibola County recorded 339 private non-farm establishments in 2010, and 5,763 non-farm employment establishments in 2010. Retail sales for 2010 amount to $217,448. Per capita retail sales in 2010 were $7,992. The county typically employs 89 full-time employees. Cibola County's two incorporated jurisdiction are City of Grants and the Village of Milan.

The major economic base for the county is taxes, government funding and tourism. Some soft industry, such as State and private correctional facilities are located primarily within the incorporated municipality jurisdictions.

The following information provided by the Cibola Communities Economic Development Foundation.

Household income is a good indicator of the spending power of your market. Household income includes the income of all persons 16 years old and over. Median income divides the income distribution into two equal parts, one-half falling above the median and half below.

2010 Household By Income

Income	Number	%
UNDER $10,000	1,360	16.3
$10,000-$14,999	816	9.8
$15,000-$24,999	1,540	18.5
$25,000-$34,999	1,482	17.8
$35,000-$49,999	1,343	16.1
$ 50,000-$74,999	1,158	13.9
$75,000-$99,999	402	4.8
$100,000-$149,000	168	2.0
$ 150,000-$199,999	23	0.3
$200,000 +	43	.5
Average Household Income	$36,020	N/A
Per Capita Income	$11,544	N/A

Workforce Potential

s/Milan	Potential	Annual New Entrants
High School Graduates 2000/yr *2*		
Going into local work force	80	80
Others - College drop outs, etc.	50	40
Students seeking work	225	75
NMSU Branch - 2 Year College - 700 Student		
No. of students seeking work Full or part-time (est.) *3*	600	300
Grants: Work Force Assessment		
Cibola County Labor Force -- 11,200		
Estimated no. of currently employed in the force earning [illegible]	2,800	
Unemployed	900	
Potential Workers -- not in work force *4*	1,560	100
Total	6,215	615

Notes:

(1) Eligible defined by age 18 or older.
(2) Includes Grants High School and Laguna/Acoma High School
(3) Estimate based on interview with administrators at Grants Branch, New Mexico State University. Average student age -- 30.
(4) In Cibola County the labor force participation for ages 16-64 was 59.3%. If the participants were 70%, the same as the rest of the state, there would be 1,560 more workers in the labor force. Source: New Mexico Dept. of Labor special Study, August 1998.
(5) Estimates of potentials workers assumes a Call Center that would pay a minimum of $7.00/hr., provide a number of part-time jobs (Approx. 30% and have fringe benefit

POPULATION/LABOR – 2010

Population	18,579
Labor Force	7,765
Unemployment Rate (%)	6.1 %
Per Capita Personal Income	11,544
Average Salary & wage per job	

Occupation – 2010

Management, professional, and related occupations	157	
Service Occupations	455	
Sales and office occupations	188	
Farming, fishing, and forestry occupations	0	
Construction, extraction, and maintenance occupations	79	
Production, transportation, and material moving occupations	99	

Industry – 2010

Agriculture, forestry, fishing and hunting, and mining	0	
Construction	77	
Manufacturing	40	
Wholesale trade	120	

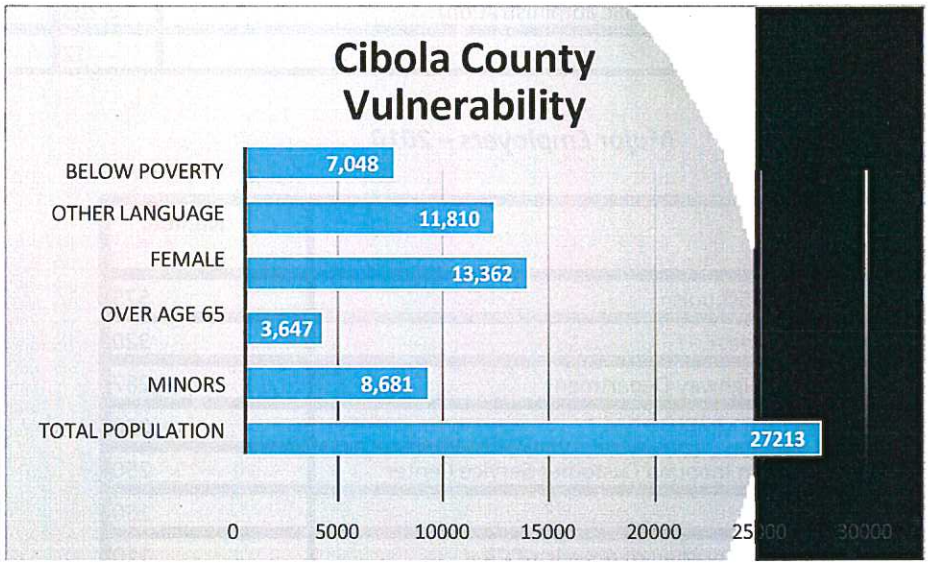
Retail trade	815	
Transportation and warehousing, and utilities information	64	
Finance, insurance, real estate and rental and leasing	126	

Professional, scientific, management, administrative, and waste management services	71	
Education, health and social services	1,294	
Arts, entertainment, recreation, accommodation and food services	631	
Other services (except public administration)	3,203	
Public Administration	12	

Major Employers – 2010

Employer	Number of
Grants/Cibola Schools	575
Laguna Industries	320
New Mexico Highway Department	287
Lee Ranch Coal Mine	260
The Connection Inbound Customer Service Center	250
City of Grants	160
Corrections Corporation of America-CCA	110
Mount Taylor Millwork	55
Casa Blanca Commercial Center	43
Cibola General Hospital	110
City of Grants	240
Continental Divide Electric	60
Grants State Bank	38
ACL Hospital	240
Cibola County	81
Milan Supermarket	90
NMSU-Grants Branch	100
Plains Electric	130
Pueblo of Laguna	507
McKinley Paper Company	115
Quivira Mining Company	30
Sky City Casino	357
Smith's Food & Drug	55
Western NM Correctional Facility	236

The chart below demonstrates that almost 1/3 of the population of Cibola County can be considered socially vulnerable. Using data from the 2010 US Census – the following narrative verifies the data.



Demographics

According to the 2010 US Census, the estimated population in Cibola County is 27,213 with a total of 4,539.48 square miles or 6 persons per square mile. The Census reports 24.8% under the age of 18 and 7.1% under the age of 5 for a total of 31.9% or 8,680 minors. The Census also reports 49.1%, or 13,410 of the population is female with 13.4% or 3,646 over the age of 65.

Race

According to the 2010 US Census, the white alone population consists of 54.5% or 14,831. The census also reports the American Indian and Alaska Native alone, percent is 41.4% or 11,266; with 37.3% or 10,150 reported as Hispanic or Latino.

Language

According to the 2010 US Census, 43.4% or 11,810 (over the age of 5) speak another language other than English at home.

Education

According to the 2010 US Census, 77.4% or 21,062 are over the age of 25 with high school diploma or higher. And, 9.2% or 2,503 are over the age of 25 with a bachelor's degree or higher.

Veterans

According to the 2010 US Census, 8.3% or 2,265 are military veterans.

Housing

According to the 2010 US Census, there are 11,148 housing units in Cibola County with a 71.3% homeownership rate. The median value of owner-occupied housing units is $81,300 with 3.16 persons per household.

Per Capita

According to the 2010 US Census, the per capita money income in the past 12 months (2011 dollars) is $14,859. The median household income is $36,020 with a reported 25.9% or 7,048 below poverty level.

Economics

According to the 2010 US Census, there are a total of 339 private nonfarm establishments employing a total of 5,763 individuals. The total number of firms reported are 1,513. Retail sales reports (2007) $217,448,000 for a total of $7,992 per capita. Accommodation and food service sales (2007) reports $117,318,000. There were no building permits issued in 2012.

- **Resources with assistance to provide public outreach:**
- National Weather Service
- National Drought Center
- Health & Human Services
- Environmental Protection Agency
- American Red Cross

Legal Capability

Regulatory Tools	Local Authority (Y/N)	Prohibition (State or Federal)	Other Jurisdictional Authority (Y / N)	State Mandated	Comments
Building Code	Y	N	N	N	NA
Zoning Ordinance	Y	N	N	N	NA
Subdivision Ordinance	Y	N	N	N	NA
Special Purpose Ordinance (floodplain management, critical or sensitive areas)	Y	N	N	N	NA
Growth Management	Y	N	N	N	NA
Floodplain Management or Basin Plan	Y	N	N	N	NA
Storm water Management Plan	Y	N	N	N	NA
General or Comprehensive Plan	Y	N	N	N	NA
Capital Improvements Plan	Y	N	N	N	NA
Site Plan Review Requirements	Y	N	N	N	NA
Habitat	Y	N	N	N	NA
Conservation Plan	Y	N	N	N	NA
Economic Development Plan	Y	N	N	N	NA
Emergency Response Plan	Y	N	N	N	Cibola Coun ty
Shoreline Management Plan	Y	N	N	N	NA
Post Disaster Recovery Plan	Y	N	N	N	Cibola Coun

Post Disaster Recovery Ordinance	Y	N	N	N	Cibola Coun ty
Real Estate Disclosure Requirement	Y	N	N	N	Not developed

Staff / Personnel Resources	Y/N	Department / Agency and Position
Planner(s) or Engineer(s) with knowledge of land development and land management practices?	N	Available as Contract Employee
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure?	N	Available as Contract Employee
Planner(s) or Engineer(s) with an understanding of natural and/or human caused hazards (i.e. Floodplain Manager)?	Y	Administration, Floodplain Manager
Surveyors?	N	Administration, Planning
Staff with education and / or expertise to assess the community's vulnerability to hazards?	Y	Department of Emergency Management, Emergency Manager
Personnel skilled in GIS and/or HAZUS-MH?	Y	Administration, Planning
Emergency Manager	Y	Department of Emergency Management, Emergency Manager
Grant Administrator	Y	Administration

Fiscal Capacity

Financial Resources	Accessible or Eligible to Uses (Y/N/DK)
General Fund	N
Enterprise Fund	N
Development Fund	N
Community Development Block Grant	N
Capital Improvements Project Funds	N
Authority to Levy Taxes for Specific Purposes	N
Fees for Water, Sewer, Gas or Electric Services	N
Impact Fees for Homebuyers or Developers for New Developments and Homes	N
Federal Hazard Mitigation Grant Program	Y

Current or Completed Hazard Mitigation Projects

Program	Description / Status	Agency
Emergency Management	Update of Hazard Mitigation Plan – On going	Cibola County – Department of Emergency Management

Program	Classification	Date Classified
Community Rating System	Not participating.	NA
Building Code Effectiveness Grading System (BCEGS)[3]	Not participating.	NA
Public Protection	Not participating.	NA
Storm Ready	Not participating.	NA
Firewise	Not participating.	NA

Community Classifications

The above classifications are a gauge of the community's capabilities in all phases of emergency management (preparedness, response, recovery, and mitigation). These classifications are used as an underwriting parameter for determining the costs of various forms of insurance.

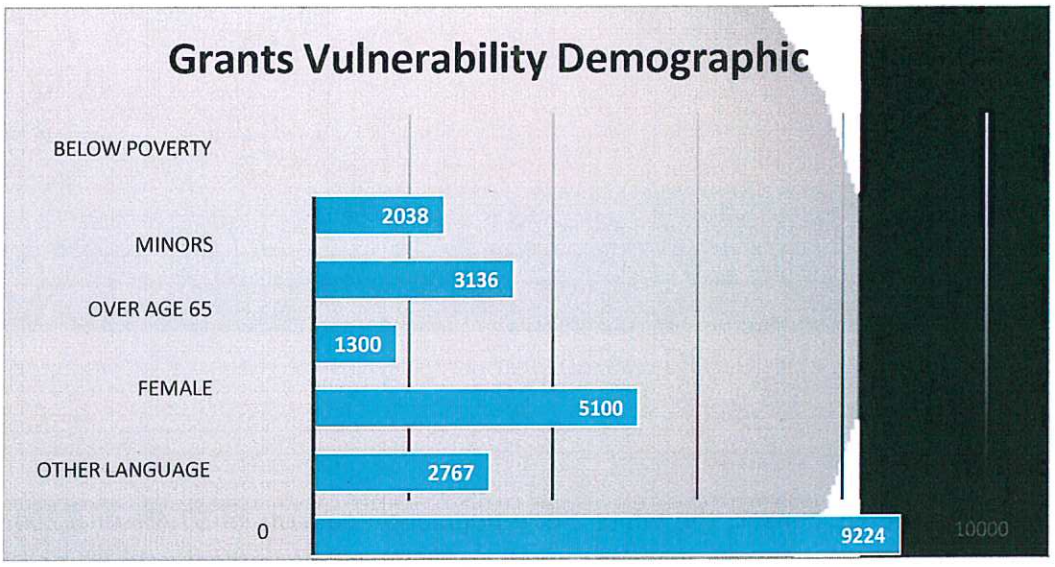
The CRS class applies to flood insurance; the BCEGS and Public Protection classifications apply to standard property insurance. Classifications are on a scale of 1 to 10 with (1) one being the BEST classification and (10) ten representing NO benefit.

1 99/99 assigned to those communities that refused to participate in the BCEGS program.

CITY OF GRANTS COMMUNITY PROFILE

Census Data

Grants NM is the county seat for Cibola County.



Demographics

According to the 2010 US Census, the estimated population in Grants is 9,224 with a reported increase in population of .5%. The census reports 34% or 3,136 minors are under that age of 18 and 14.1% or 1300 individuals are over the age of 65. The Census also reports that 55.3% or 5100 individuals are women.

Race

According to the US Census, the white alone population consists of 57.4% or 5.294. The census also reports the American Indian and Alaska Native alone percent is 16.9% or 1,558. The Hispanic or Latino is 28.9% or 2,665.

Language

According to the 2010 US Census, 30% or 2,767 (over the age of 5) speak another language other than English at home.

Education

According to the 2010 US Census, 74.3% or 6,853 are over the age of 25 with high school diploma or higher. And, 10.3% or 950 are over the age of 25 with a bachelor's degree or higher.

Veterans

According to the 2010 US Census, or 9.74% or 899 are military veterans.

Housing

According to the 2010 US Census, there are 3,804 housing units in Grants with a 64.3% homeownership rate. The median value of owner-occupied housing units is $96,300.

Per Capita

According to the 2010 US Census, the per capita money income in the past 12 months (2011 dollars) is $18,156. The median household income is $39,909 with a reported 22.1% or 2,038 below poverty level.

Economics

According to the 2010 US Census, there are a total of 808 firms. Retail sales reports (2007) $134,733,000 for a total of $15,240 per capita. Accommodation and food service sales (2007) reports were suppressed to avoid disclosure of confidential information.

Resources with assistance to provide public outreach:

- National Weather Service
- National Drought Center
- Health & Human Services
- Environmental Protection Agency
- American Red Cross

Legal and Regulatory Capability

Regulatory Tools	Local Authority (Y/N)	Prohibition (State or Federal)	Other Jurisdictional Authority (Y / N)	State Mandated	Comments
Building Code	Y				
Zoning Ordinance	Y				
Subdivision Ordinance	Y				

Special Purpose Ordinance (floodplain management, critical or sensitive areas)	Y				
Growth Management	Y				
Floodplain Management or Basin Plan	Y				
Storm water Management Plan	Y				
General or Comprehensive Plan	Y				
Capital Improvements Plan	Y				
Site Plan Review Requirements	Y				
Economic Development Plan	Y				
Emergency Response Plan	Y				
Post Disaster Recovery Plan	Y				
Post Disaster Recovery Ordinance	Y				
Real Estate Disclosure Requirement	Y				

Administrative and Technical Capacity

Staff / Personnel Resources	Y/N	Department / Agency and Position
Planner(s) or Engineer(s) with knowledge of land development and land management practices?	Y	Available as contract employee
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure?	Y	Available as contract employee

Planner(s) or Engineer(s) with an understanding of natural and/or human caused hazards (i.e. Floodplain Manager)?	Y	Planning / Floodplain Manager
Surveyors?	Y	Available as contract employee
Staff with education and / or expertise to assess the community's vulnerability to hazards?	Y	Planner / Floodplain Manager
Personnel skilled in GIS and/or HAZUS-MH?	Y	Planner / Floodplain Manager
Scientists familiar with the hazards of the community?	Y	Professors in Geography available as Subject Matter Experts from New Mexico State University, Grants Campus
Emergency Manager	N	Cibola County
Grant Writers?	Y	Available as contract employee

Fiscal Capacity

Financial Resources	Accessible or Eligible to Uses (Y/N/DK)
General Fund	Y
Enterprise Fund	N
Development Fund	Y
Community Development Block Grant	Y – Eligible
Capital Improvements Project Funds	Y
Authority to Levy Taxes for Specific Purposes	Y
Fees for Water, Sewer, Gas or Electric Services	Y
Impact Fees for Homebuyers or Developers for New Developments and Homes	Y
Federal Hazard Mitigation Grant Program	Y under County

Current or Completed Hazard Mitigation Projects

Program	Description / Status	Agency
Planning	Update of Hazard Mitigation Plan – On going	In collaboration with the Cibola County – Department of Emergency Management

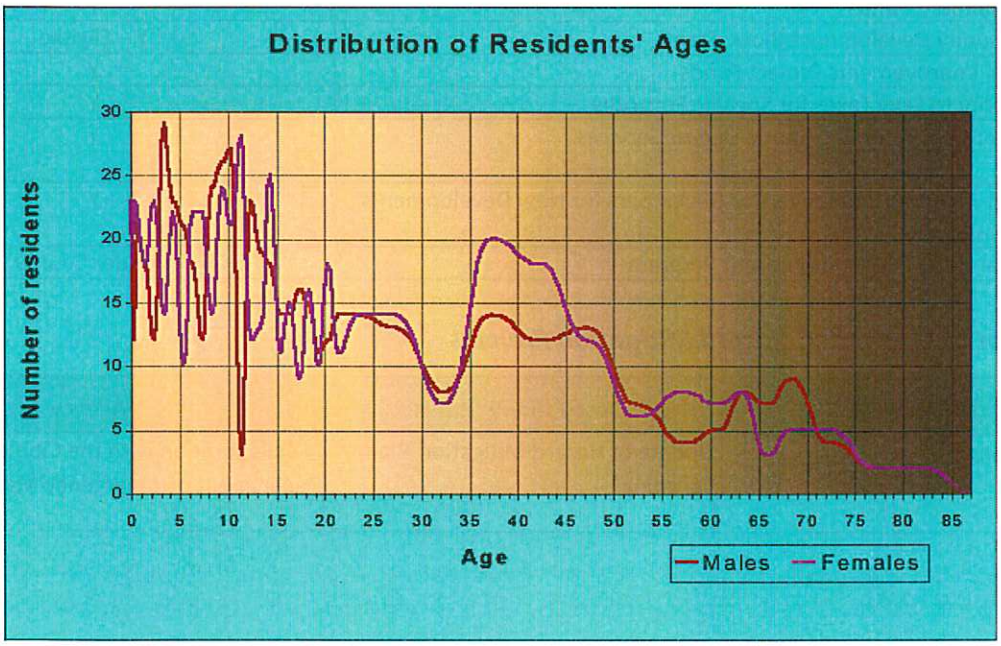
VILLAGE OF MILAN COMMUNITY PROFILE

Census Data

Emergency management in the Village of Milan is overseen by Cibola County. A majority of responses are for emergency medical services and are handled by the Volunteer Fire Department.

Demographics

According to USA.com and the 2010 US Census, as of 2010, the total population of the Village of Milan is 3245. The population growth is 71.7% more than it was in 2000. The population density is 1,114 people per square mile for the total of 2.91 square miles. The census reports 7.18% or 462 individuals under the age of 18 and 10.3% or 334 individuals over the age of 65. Male population is reported at 62.9% or 2,042 individuals. Female population is reported at 37.1% or 1204 individuals.



Race

According to the 2010 US Census, the Hispanic population is at 70.2% or 2,282 individuals, the white alone population is 21.9% or 713 individuals. The American Indian population is reported at 7.1% or 231individuals. There are 1.2% or 39 individuals reported as "some other race".

Language

There is no data regarding language for the Village of Milan.

Education

According to USA.com, the average education level is lower than the state average and is lower than the national average.

Veterans

There is no data regarding military status for the Village of Milan.

Housing

According to the 2010 US Census, there are a total of 820 housing units in the Village of Milan with a 7.5% or 11 listed as seasonal / recreational. Of the 820 housing units 494 are owner occupied housing units with 2.70 persons per household. There are a reported 188 renter-occupied housing units. There is an estimated 322 39.3% homes with husband-wife families.

Per Capita

There is no data regarding per capita for the Village of Milan.

Economics

There is no data regarding economics for the Village of Milan.

Resources with assistance to provide public outreach:

- National Weather Service
- National Drought Center
- Health & Human Services

- Environmental Protection Agency
- American Red Cross

Legal Capability

Regulatory Tools	Local Authority (Y/N)	Prohibition (State or Federal)	Other Jurisdictional Authority (Y / N)	State Mandated	Comments
Building Code	Y	N	N	N	Not developed
Zoning Ordinance	Y	N	N	N	Not developed
Subdivision Ordinance	Y	N	N	N	Not developed
Special Purpose Ordinance (floodplain management, critical or sensitive areas)	Y	N	N	N	Not developed
Growth Management	Y	N	N	N	Not developed
Floodplain Management or Basin Plan	Y	N	N	N	Not developed
Storm water Management Plan	Y	N	N	N	Not developed
General or Comprehensive Plan	Y	N	N	N	Not developed
Capital Improvements Plan	Y	N	N	N	Not developed
Site Plan Review Requirements	Y	N	N	N	Not developed
Habitat	Y	N	N	N	Not developed

Conservation Plan	Y	N	N	N	Not developed
Economic Development Plan	Y	N	N	N	Not developed
Emergency Response Plan	Y	N	N	N	Not developed – instead use Cibola County Plan
Shoreline Management Plan	Y	N	N	N	Not developed
Post Disaster Recovery Plan	Y	N	N	N	Not developed – instead use Cibola County Plan
Post Disaster Recovery Ordinance	Y	N	N	N	Not developed – instead use Cibola County Plan
Real Estate Disclosure Requirement	Y	N	N	N	Not developed

Administrative and Technical Capacity

Staff / Personnel Resources	Y/N	Department / Agency and Position
Planner(s) or Engineer(s) with knowledge of land development and land management practices?	N	NA
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure?	N	NA
Planner(s) or Engineer(s) with an understanding of natural and/or human caused hazards (i.e. Floodplain Manager)?	N	NA
Surveyors?	N	NA

Staff with education and / or expertise to assess the community's vulnerability to hazards?	N	NA
Personnel skilled in GIS and/or HAZUS-MH?	N	NA
Scientists familiar with the hazards of the community?	N	NA
Emergency Manager	N	NA
Grant Writers?	N	NA

Fiscal Capacity

Financial Resources	Accessible or Eligible to Uses (Y/N/DK)
General Fund	N
Enterprise Fund	N
Development Fund	N
Community Development Block Grant	N
Capital Improvements Project Funds	N
Authority to Levy Taxes for Specific Purposes	N
Fees for Water, Sewer, Gas or Electric Services	N
Impact Fees for Homebuyers or Developers for New Developments and Homes	N
Federal Hazard Mitigation Grant Program	Y under County

PLAN UPDATE PROCESS

The planning process for these updates was conducted through a series of public meetings at the Cibola County Convention Center. Included in this document are the meeting minutes with sign-in sheets addressing the topics discussed and decision for each meeting. The initial meeting introduced the community with the provisions of the current plan and the process that would be followed to ensure that the most relevant hazards were addressed in the updated plan. This meeting also introduced the plan update contractors. The planning team was formed as the core representatives for the plan update.

In subsequent meetings the Hazard Mitigation Planning Team evaluated the hazards from the last plan, updated the previous occurrences, and updated the risk assessment and a new flood maps has been developed. The HMPT also began to review and revise the mitigation strategies from the previous plan to address the strategies that had been completed or were in the process of being completed. The team also considered additional mitigation strategies that may need to be addressed for future projects. Setting mitigation priorities were the final items addressed by the HMPT, developing a matrix that would identify the hazard, establishing the rank in priority for the hazard was done and the strategies updated regarding the actions needed to mitigate the hazard. Each representative was given an opportunity to address the needs of their respective communities. The initial planning team experienced several changes as the process continued. The Village of Milan's initial representative was the Mayor, Mr. Tom

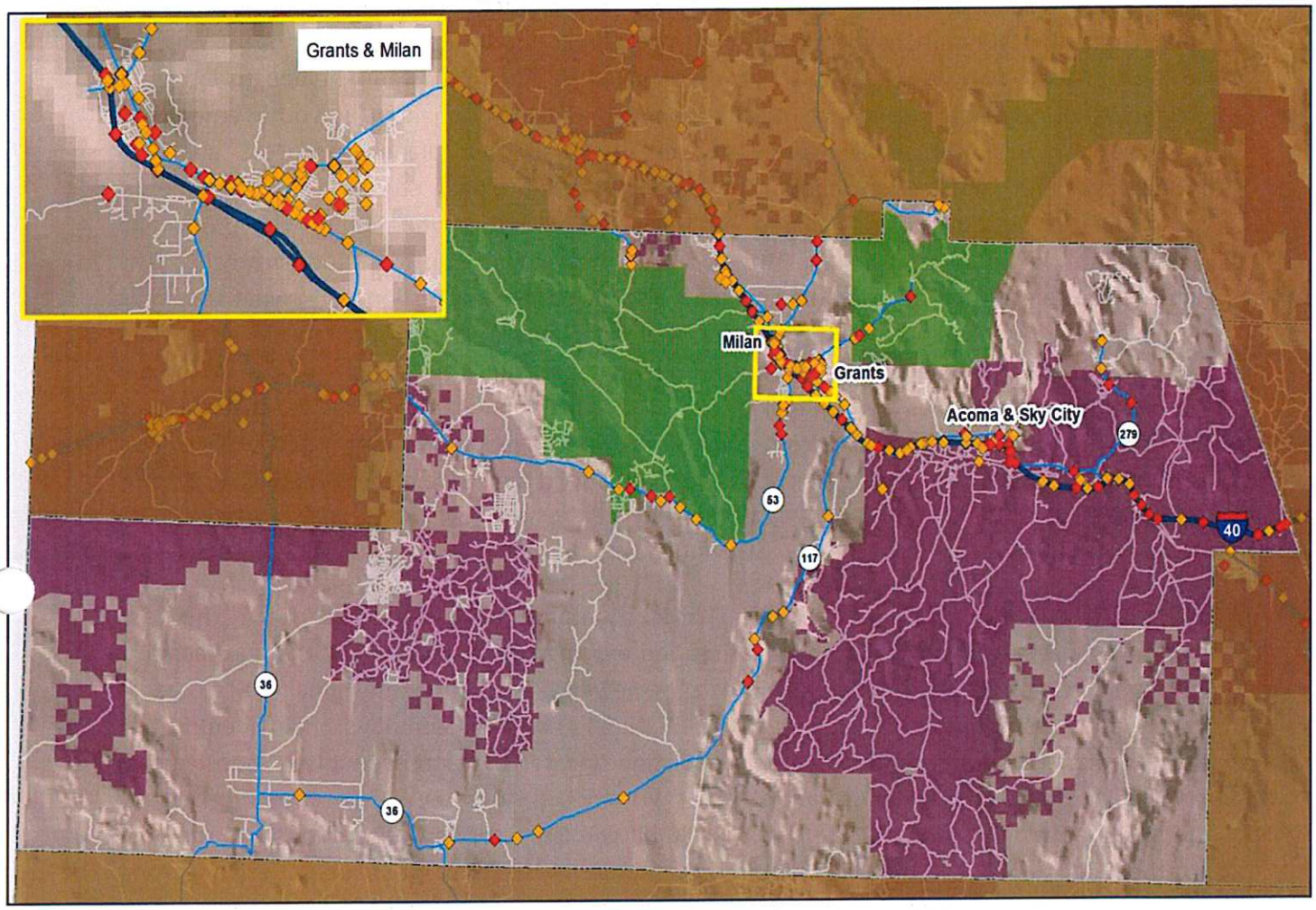
Ortega. However, his involvement soon ended with his death. The subsequent representatives Ms. Evette Mantano and Ms. Ellen Baca took over and provided valuable insight to the further development of the updates to this plan.

While some additional changes such as the exclusion of the Tribal entities from participation due in large part to the Tribes deciding to develop their own mitigation plans and the Ramah Navajo community being included in the overall Navajo nation plan was experienced with the team members, the process remained consistent with the feedback and input to the final version of the revised and updated mitigation for Cibola County.

PART II

HAZARD IDENTIFICATION
RISK ASSESSMENT

Planning Area of Cibola County including the City of Grants and the Village of Milan



RISK IDENTIFICATION PROCESS

The Cibola County Multi-Jurisdictional Mitigation Plan fits within the framework of on-going government planning. The Mitigation plan will complement the participating jurisdictions planning and local hazard mitigation efforts. The Cibola County Emergency Manager was the principal liaison who worked with most of the planning committees and helped to integrate mitigation principles and concepts into the mainstream of comprehensive and other emergency management planning. Individuals who were party to the planning process and had knowledge and information about the current existing plans, studies, and documents, reviewed the documents and shared both knowledge and information to the group and consultants in order to develop the updated mitigation priorities and strategies. The jurisdictions elected officials and departments also made their suggestions as to what should be contained within the mitigation plan. The final selections of information for inclusion into the Mitigation Plan depended upon the decisions of the representative and his or her respective elected bodies and administrators. The Mitigation Plan captures the essence each jurisdiction's plan and develop a common vision. The Mitigation Planning Team will monitor progress and help keep the jurisdictions working toward their 5-year goals, modifying them as needed.

To this end, each jurisdiction provided best available data acquired since the last planning cycle and reviewed and incorporated existing plans, studies, reports and technical information into the plan update. Members reviewed information individually and shared information as a group. Each jurisdiction materials and representatives help identify and access natural hazards both for their jurisdiction and for the entire County. Subsequently, individual jurisdictional information was written up by the respective jurisdiction representatives and submitted to the Consultant who incorporated submissions into the body of the Mitigation Plan. Each jurisdiction representative utilized their most current existing plans, studies, reports and technical documents specific to their jurisdictions. For example, Cibola County's Twenty Year Comprehensive Plan, prepared by the Northwest New Mexico Council of Governments and studies completed by the Emergency Management Department and Local Emergency Planning Committee provided information from research completed for each of the comprehensive planning issues, many of which dovetailed into the mitigation planning efforts. The Cibola County Emergency Management Coordinator, as Program Manager, helps keep the information flowing.

More detailed and in depth vulnerability studies and information will be gathered for the next 5 year planning cycle. There were limited resources for this information to be included at this time.

RISK IDENTIFICATION

The Cibola County Mitigation Planning Team, analyzed the profiled hazards from the 2007 HMP, shown below, and concluded the same hazards were relevant to the plan update. It was agreed to include lightning and hail in the Thunderstorms hazard. Also, all natural hazard identified in the 2013 State Hazard Mitigation Plan were considered. The hazard identified as low or no risk hazards were not profiled in the plan update. The Team identified the following as probable hazards within Cibola County:

- Floods
- Wildfires
- High Wind
- Thunder Storms, (includes lightning and hail)
- Severe Winter Storms
- Drought

Hazard Type	Hazards Identified Per Requirement
	Yes
Avalanche	☐
Coastal Erosion	☐
Coastal Storm	☐
Dam Failure	☐
Drought	☒
Earthquake	☐
Expansive Soils	☐
Extreme Heat	☐
Flood	☒
Hailstorm	☒
Hurricane	☐
Land Subsidence	☐
Landslide	☐
Severe Winter Storm	☒
Tornado	☐
Tsunami	☐
Volcano	☐
Wildfire	☒
Windstorm	☒
High Winds	☒
Other Hazardous Spills	☐
_____	☐

NO AND LOW RISK HAZARDS

Coastal Erosion, coastal storms, tsunami's, typhoon's and, hurricanes were not considered and identified as being not a possible hazard in Cibola County due to the lack of coast line, large bodies of water and oceanographic activity.

All natural hazard types identified above were reviewed for the probability of occurrence in Cibola County. The hazards were ranked by probability as none, low, medium and high based on historic occurrences and data. The plan only profiles the hazards that have a medium to high probability of occurrence. Hazards with none and low probability of occurrence included earthquake, expansive soils, extreme heat, land subsistence, land slide, tornado and volcano. Information regarding their probability of occurrence follows in all cases the hazards are not profiled because there had not been evidence of occurrences within Cibola County for the past 15 to 50 years or occurrences posed no hazard.

Dam Inundation

There is very little probability of a dam failure that would affect all areas of the county. There has not been a dam failure recorded in Cibola County. Dam Inundation will not be profiled in this plan.

Earthquake

There is very little probability of an earthquake of an appreciable magnitude in all areas of Cibola County.

Earthquakes of about 4.5 or more are strong enough to be recorded by sensitive seismographs all over the world. The Richter Scale is a way to measure magnitude in whole numbers and decimals. In qualitative terms, an earthquake of 5.0 is a moderate event, 6.0 a strong event, and 7.0 a major event. Earthquakes with magnitudes of about 2.0 or less are usually called micro-earthquakes; they are not commonly felt by people and are generally recorded only on local seismographs.

Early information and history on location and strength of earthquakes in New Mexico have relied to a great extent upon early reports from local residents and not from instruments. In 1962 seismic monitoring stations went into operation and in 1973 Los Alamos Scientific Lab and New Mexico Tech installed arrays of continuously recording stations. From the data collected from a variety of monitoring stations, earthquake activity records were established showing the number of earthquakes and magnitude. Hundreds of earthquakes with magnitudes less than 1.5 have been located in and bordering the Rio Grande Rift. Cibola County has had earthquakes –which were mostly

micro-earthquakes only noted on the local seismic indicators. These micro- earthquakes pose no hazard to the county and earthquakes are not profiled in the plan.

*Data Source – Earthquake catalogs, NM Bureau of Geology and Minerals, a division of NM Institute of Mining and Technology, published 2002; 1962 through 1998 *data collected after 1995 for earthquakes measuring greater than 2.0 only.*

Expansive Soil

Expansive soils potential in Cibola County is low.

The Cibola County Soils map was reviewed at the Lava Soil and Water Conservation District Office or County Assessor's Office in Grants and no hazards were identified.

In contrast to earthquakes and landslides, expansive soil hazards are slow to develop and do not usually pose risks to public safety. Soil data and research is required for public infrastructure construction and project clearance which avoids damage to road, water and drainage projects along with utility and service projects. Expansive soil is not profiled as the risk is low in Cibola County

No appreciable historical data available for expansive soils activity.

Extreme Heat

The average maximum normal temperature is 70.4F, while the average minimum normal temperature is 43.2F in New Mexico. (NOAA, 2006). There is no hazard from extreme heat in Cibola County.

Land Subsidence

Land Subsidence" is the loss of surface elevation due to the removal of subsurface support due to underground mining, groundwater or petroleum withdrawal, and drainage of organic soils.

Exposure of people and property is a function of the type and duration of subsidence, and extent of the area affected. Collapse into voids is most commonly associated with underground coal mining. Sediment Compaction subsidence is caused by pumping groundwater and petroleum. Cibola County has no recorded data of either land subsistence occurrence or the types of activities and soils that would cause the

occurrences in a level posing a hazard. The probability of subsidence affecting populated areas in the county is low. Land subsistence has not been included in the mitigation plan.

Landslide

"Landslide" is used to describe the downward and outward movement of slope-forming materials reacting under the force of gravity. The term covers a broad category of events, including mudflows, mudslides, debris blows, rock falls, rock slides, debris avalanches, debris slides, and earth flows. Landslides may consist of natural rock, soil, artificial fill, or combinations of these materials.. So far, in Cibola County landslides have occurred in rural, unpopulated areas due to heavy and prolonged rains which lead to saturated conditions. The occurrences has been small with little or no effect and have not resulted in extensive damage, at most they may cause blockage of back country roads that are cleared by county road maintenance or forest workers. Landslide potential in Cibola County is low and no substantive hazard exists.

Landslide has not been included in the mitigation plan.

Tornado

The NOAA/NCDC web-site which can search for historical information shows no tornado activity in the county since 1970.

Volcano

While Cibola County has prehistoric visual evidence of lava flows and volcanic activity No volcanic activity has been recorded in New Mexico in an estimated

2.5 million years.

The following references were utilized for historical data on the no risk and low risk hazards that are summarized above:

www.fema.gov, www.loc.gov, www.ncdc.noaa.gov, www.weather.com, www.wunderground.com, www.noaa.gov, http://weather.nmsu.edu, www.diastercenter.com, www.nws.noaa.gov, www.abqjournal.com, www.cibolabeacon.com, www.nytimes.com, www.usatoday.com.

PROBABILITY OF IDENTIFIED HAZARDS BY JURISDICTION

The Mitigation Planning Team ranked the natural hazards identified in the 2013 New Mexico State Hazard Mitigation Plan based on the potential for loss of life, property, and ecological destruction.

Hazards Considered	*Cibola County*	*City of Grants*	*Village of Milan*
Floods	High	High	High
Wildfires *	Medium	Low	Low
Severe Winter Storm	Medium	Medium	Medium
High Winds	High	High	High
Tornadoes	None	None	None
Hailstorms	Medium	Medium	Medium
Thunderstorms	High	High	High
Lightning	High	High	High
Volcanoes	None	None	None
Drought	High	High	High
Earthquakes	Low	Low	Low
Extreme Heat	None	None	None
Expansive Soils	Low	Low	Low
Landslides & Subsidence	Low	Low	Low

* In Cibola County, wildfire is more likely to cause loss of property.

PROBABILITY SCALE

The Probability scale serves two purposes by showing the varied risk between jurisdictions and the probability of occurrence.

The Hazard Mitigation Planning Team developed the probability scale based on researched historic data, and county wide community input. The scale focused on probability of occurrence. Impact was considered when hazards that were identified with a probability of occurrence would impact populated areas or critical infrastructure (roads, drainage ways, water retention ponds or utilities) Areas with little or no infrastructure and population were to have no impact and did not factor in.

PROBABILITY SCALE DEFINITIONS

- **None:** have no occurrences **within** a 30 year period and/or occurrences were of no impact to populations, property or infrastructure.
- **Low:** have little or no record of occurrences within a 30 year period and/or occurrences had little impact to populations, property or infrastructure. Impact did not constitute a hazard.
- **Medium:** records of repeated occurrences throughout a 15 year period with impacts that effect populations, property and infrastructure requiring mitigation.
- **High:** records of repeated occurrences throughout a 15 year period with a probability of annual future occurrence and impacts to populations, property, and infrastructure. Constituting a hazard with both immediate and long term mitigation needs.

An Asset Inventory was compiled and reviewed to assist in determining impacts (Appendix D)

MAJOR HAZARDS IN CIBOLA COUNTY

Major natural hazards for the planning area were identified as both having medium to high probability and high impacts. These hazards affect all the jurisdictions and require sustained mitigation efforts. The table below shows why the hazard were ranked medium to high and stakeholders who participating in the ranking process.

Hazard	Why Identified	How Identified
Floods	Historically a problem throughout Cibola County. Area contains numerous rivers, water sheds, retention ponds and arroyos.	• State of New Mexico • National Flood Insurance Program • Community Hazard Outreach (CHO) group • County/jurisdiction floodplain managers • Cibola County public meetings • Questionnaires

Wildfires	Areas of dense national forest, open grass and range land and dried out vegetation due to drought conditions.	• State Fire Marshal's Office • Mt. Taylor Ranger District • El Malpais National Parks • New Mexico State Forestry and Resources Conservation Division • Bureau of Land Management • Bureau of Indian Affairs
High Winds	Historically a problem throughout Cibola County. Areas of the County are a affected on structural damage and visibility problems for travelers on I-40	• County, City, Village & Tribal Officials • State Highway Department • Bureau of Indian Affairs
Thunderstorms, (Including lightning and hail)	Creating Flash flooding in populated areas. Creating structural damage from hail storms	• Flooded homes in the low lying areas in the County • Street flooding in the populated areas • Flooding in the agricultural areas • Hail damage to vehicles and mobile homes
Severe Winter Storms	Travel problems created by snow accumulation Historically a problem on major thoroughfare in Cibola County.	• Travel interrupted due to heavy snow fall making roads impassable. • Service delays due to impassable roads • Stranded travelers with limited accommodations

Drought	Considered a severe problem throughout the Southwest at this time. Historically a problem in New Mexico and Cibola County.	• Governor's Drought Task Force • U.S. Army Corps of Engineers • State of New Mexico • Community Hazard Outreach (CHO) group • Questionnaires

HAZARD PROFILE

FLOODS

DESCRIPTION

A broad definition of flood is "a body of water which rises to overflow land which is not normally submerged". This definition covers river and coastal flooding, rainwater flooding, on level surfaces and low gradient slopes, flooding in shallow depressions, which are caused by water-table rise and flooding caused by backing-up or overflow of artificial drainage systems. (Southwest Training Institute & Consulting, 2007) Other factors contributing to flooding are soils, climate and vegetation.

According to According to the US Army Corps of Engineers, Albuquerque District, City of Grants and Village of Milan New Mexico Drainage Master Plan Phase 1, Hydrologic Assessment, November 2011, 62% of the soil, classified by the National Resource Conservation Service (NRCS), is Group D. Group D, according to the NRCS, are "soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a clay pan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These slow have a very slow rate of water transmission (0 to 0.05 in/hr)." (Vigil, 2011, p. 7) The same report states a majority of the 11 inches of average annual precipitation falls between the months of May and October through brief intense thunderstorms. The intense storm events coupled with typically sparse vegetation cover often leads to flash flooding with most significant events occurring in July through September. (Vigil, 2011, p. 8) and vegetation in the rural, undeveloped regions of the studied watershed consists primarily of desert woodlands and grasses. Pinyon-Juniper Woodlands are common in the upper slope areas of the watershed, while sparse grasses are more prevalent in the flatter areas. In the rural, undeveloped portion of the watershed, Pinion-Juniper woodlands cover approximately 62% and the sparse grasses cover approximately 28%. (Vigil, 2011) These factors when combined create the perfect formula for significant flash flood events in Cibola County.

Alluvial Fans

Alluvial fans are deposits of rock and soil that have eroded from mountainsides and accumulated on valley floors in a fan-shaped pattern. The deposits are narrow and steep at the head of the fan, broadening as they spread out onto the valley floor. As rain runs off steep valley walls, it gains velocity, carrying large boulders and other debris. When the debris fills channels on the fan, floodwater spills out and cuts new channels. The process

is then repeated, resulting in shifting channels and combined erosion and flooding problems over a large area. Alluvial fan flooding is most prevalent in the arid western states, and causes more damage because of the high velocity flow and debris.

Flash Flooding

Flash flooding is a term widely used by flood experts and the general population. However, there is no single definition and no clear means to separate flash floods from the rest of the spectrum of floods. Flash floods consist of a rapid rise in water level, high velocity, and large amounts of debris. They are capable of tearing out trees, undermining buildings and bridges and scouring new channels. Major factors are the intensity and duration of the floodwaters, as well as steepness of the watershed and stream gradients. The amount of watershed vegetation, natural and artificial flood storage areas, configuration of the streambed, and the floodplain are also important. Flash flooding in urban areas are an increasingly serious problem due to removal of vegetation, paving, and replacement of groundcover by impermeable surfaces that increase the amount of runoff, as well as construction of drainage systems that increase the speed of runoff.

Fluctuating Lake Levels

Water levels in lakes can fluctuate on a short-term, seasonal basis or on a long-term basis over periods of months or years. Seasonal, heavy rainfall can cause high lake levels for short periods and snowmelt can increase spring levels. While all lakes may experience fluctuations, water levels tend to vary the most in lakes that are completely landlocked (closed basin) or have inadequate outlets for maintaining a balance between inflow and outflow. These lakes may have a rise in water level as much as 5 to 15 feet over a long period, subsequently causing flooding problems.

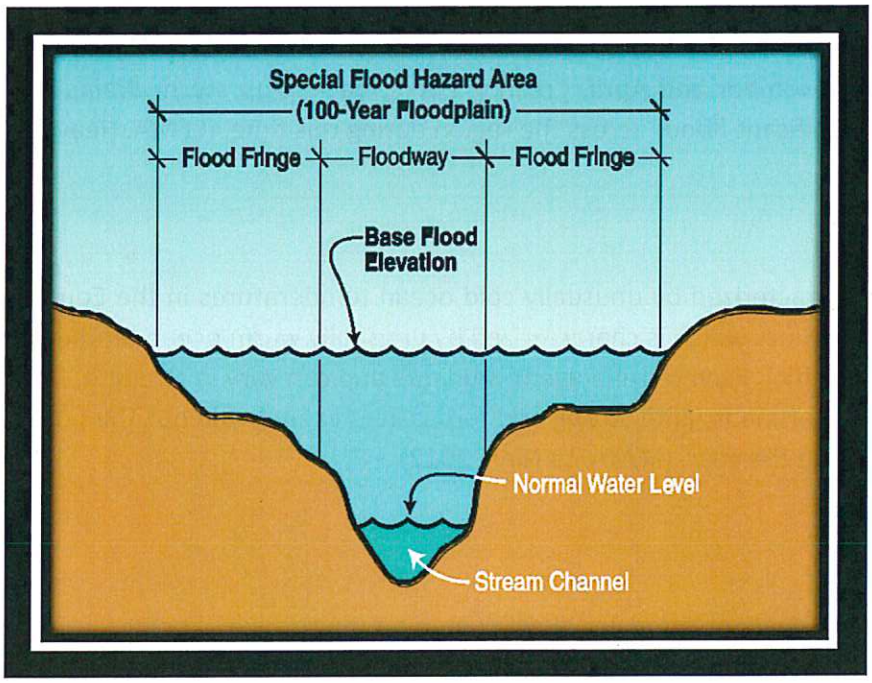
Local Drainage or High Ground Water Levels

Heavy precipitation may produce flooding in localized areas other than normal floodplains and drainage channels. If local conditions can accommodate intense precipitation through infiltration and surface runoff, water may accumulate and cause flooding problems. Inadequate drainage and shallow sheet flooding may result unless channel improvement accounts for increased flows. High ground water level may be of concern in some areas and can cause problems even when there is no surface flooding.

Riverine Flooding

Flooding of rivers and streams is most common riverine flooding. Riverine floodplains range from narrow, confined channels in the steep valleys of hilly and mountainous areas to wide, flat, low-lying areas. The volume of water in the floodplain is a function of the size of the contributing watershed and topographic characteristics such as watershed shape and sloop and climactic and land use characteristics. A simple construction of a type of barrier near a waterway can actually produce a significant rise in water level and increase volume of runoff water. IN steep, narrow valleys, flooding usually occurs quickly, is of short duration, and floodwaters are likely to be rapid and deep. In relatively flat floodplains, areas may remain inundated for days or even weeks. Floodwaters are typically slow moving, relatively shallow, and may accumulate over time.

There is often no sharp distinction between riverine floods, flash floods, alluvial fan floods, or overtopping of embankments during flood events. Nevertheless, these types of floods are widely recognized, and knowing about them is helpful in considering flood risk and appropriate responses.



What Causes Flooding?

Flash Floods

Flash floods are the #1 weather-related killer in the U.S. since they can roll boulders, tear out trees, and destroy buildings and bridges. A flash flood is a rapid flooding of low-lying areas in less than six hours, which is caused by intense rainfall from a thunderstorm or several thunderstorms. Flash floods can also occur from the collapse of a man-made structure or ice dam. (FEMA, Flash Floods, 2012)

Flood after Fire

Many areas in the western states are at an increased flood risk due to wildfires in recent years. After a wildfire, the charred ground where vegetation has burned away cannot easily absorb rainwater, increasing the risk of flooding and mudflows over a number of years. Wildfire-affected areas include states such as Arizona, California, Idaho, Nevada, Oregon, and Washington. Properties directly affected by fires and those located below or downstream of burn areas are most at risk. (FEMA, Flood After Fire, 2012)

Heavy Rains

Several areas of the country are at heightened risk for flooding due to heavy rains. This excessive amount of rainfall can happen throughout the year, putting your property at risk. Storms over the Pacific Ocean bring heavy rains to the western United States between the months of November and April. Cresting rivers, backed-up storm drains or saturated ground can cause significant floods across the region during this time. (FEMA, Heavy Rains, 2012)

La Niña

La Niña is characterized by unusually cold ocean temperatures in the Equatorial Pacific (unlike its brother El Niño, which is characterized by unusually warm ocean temperatures in the Equatorial Pacific). Each La Niña event is unique and can vary in strength, impact, and duration. The current La Niña is quite strong and forecasters cannot rule out the possibility that it might last throughout the year. (FEMA, La Nina, 2012)

Mudflow

Mudflows are rivers of liquid and flowing mud on the surface of normally dry land, often caused by a combination of brush loss and subsequent heavy rains. Mudflows can develop when water saturates the ground, such as from rapid snowmelt or heavy or long periods of rainfall, causing a thick liquid downhill flow of earth. Mudflows are different from other earth movements, such as landslides, slope failures, and even moving saturated soil masses in which masses of earth, rock, or debris move down a slope where there is not a flowing

characteristic. Damage from mudflows is covered by flood insurance; damage from landslides and other earth movements is not. Mudslides can also be covered, if defined exactly as the Standard Flood Insurance Policy defines Mudflow. (FEMA, FloodSmart.gov, 2012)

New Development

Construction and development can change the natural drainage and create brand new flood risks. That is because new buildings, parking lots, and roads mean less land to absorb excess precipitation from heavy rains, hurricanes, and tropical storms. (FEMA, New Development, 2012)

Snowmelt

A midwinter or early spring thaw can produce large amounts of runoff in a short period. Because the ground is hard and frozen, water cannot penetrate and be reabsorbed. The water then runs off the surface and flows into lakes, streams, and rivers, causing excess water to spill over their banks. (FEMA, Snowmelt, 2012)

Spring Thaw

During the spring, frozen land prevents melting snow or rainfall from seeping into the ground. Each cubic foot of compacted snow contains gallons of water and once the snow melts, it can result in the overflow of streams, rivers, and lakes. Add spring storms to that and the result is often serious, spring flooding. (FEMA, Spring Thaw, 2012)

Defining Flood Risks

Flooding can happen anywhere, but certain areas are especially prone to serious flooding. To help communities understand their risk, flood maps (Flood Insurance Rate Maps, FIRMs) have been created to show the locations of high-risk, moderate-to-low risk and undetermined-risk areas. Here are the definitions for each:

- **High-Risk Areas** (Special Flood Hazard Area or SFHA) in high-risk areas, there is at least a 1 in 4 chance of flooding during a 30-year mortgage. All homes and business owners in these areas with mortgages from federally regulated or insured lenders are required to buy flood insurance. They are shown on the flood maps as zones labeled with the letters A or V.

3 Special Flood Hazard Area (Management, 2010)

- **Moderate-to-Low Risk Areas** (Non-Special Flood Hazard Area or NSFHA) in moderate-to- low risk areas, the risk of being flooded is reduced but not completely removed. These areas submit over 20% of the National Flood Insurance Program (NFIP) claims and receive one-third of disaster assistance for flooding. Flood insurance is not federally required in moderate-to-low areas but it is recommended for all property owners and renters. These are shown on flood maps as zones labeled with the letters B, C or X (or a shaded X).

- **Undetermined-Risk Areas** No flood-hazard analysis has been conducted in these areas, but a flood risk still exists. Flood insurance rates reflect the uncertainty of the flood risk. These areas are labeled with the letter D on the flood maps. (FEMA, Defining Flood Risks, 2012)

Understanding Flood Maps

- **Determining the Risk** - To identify a community's flood risk, FEMA conducts a Flood Insurance Study. The study includes statistical data for river flow, storm tides, hydrologic/hydraulic analyses, and rainfall and topographic surveys. FEMA uses this data to create the flood hazard maps that outline your community's different flood risk areas. Flood hazard areas identified on the Flood Insurance Rate Map are identified as a Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. Some parts of floodplains may experience frequent flooding while others are only affected by severe storms. However, areas directly outside of these high-risk areas may also find themselves at considerable risk.

- **Understanding Your Area** - Changing weather patterns, erosion, and development can affect floodplain boundaries. FEMA is currently updating and modernizing the nation.

- ***Flood Insurance Rate Maps (DFIRMS).*** These digital flood hazard maps provide an official depiction of flood hazards for each community and for properties located within it. FEMA has published almost 100,000 individual Flood Insurance Rate Maps (FIRMs). (FEMA, Understanding Flood Maps, 2012)

Cooperating Technical Partners (CTP)

The CTP Program is an innovative approach to creating partnerships between FEMA and participating NFIP communities, regional agencies, and State agencies that have the interest and capability to become more active participants in the FEMA Flood Hazard Mapping program.

Repetitive Loss and Severe Repetitive Loss

As of 1 October 2015 there have not been any structures identified as Repetitive Loss or Severe Repetitive loss in Cibola County, Village of Milan or the City of Grants.

Community Rating System (CRS) Program

CRS was developed to encourage communities to establish sound floodplain management programs that recognize community floodplain management activities that exceed the minimum NFIP requirements; the Community Rating System (CRS) was created. This program provides communities with discounts to flood insurance rates.

Letters of Map Change (LOMC)

A LOMC is a letter, which reflects an official revision to an effective National Flood Insurance Program (NFIP) map. LOMCs are issued in place of the physical revision and republication of the effective map.

Floodplain Manager/Certified Floodplain Manager (CFM)

The work of Floodplain Managers is fundamental to the effective management of floodplain resources and flood mitigation.

What is Floodplain Management?

Floodplain management is the operation of a community program of corrective and preventative measures for reducing flood damage. These measures take a variety of forms and generally include requirements for zoning, subdivision or building, and special-purpose floodplain ordinances. A community's agreement to adopt and enforce floodplain management ordinances, particularly with respect to new construction, is an important element in making flood insurance available to home and business owners. Currently over 20,100 communities voluntarily adopt and enforce local floodplain management ordinances that provide flood loss reduction building standards for new and existing development.

About the National Flood Insurance Program

- *Protect Yourself* – Since standard homeowners insurance does not cover flooding, it is important to have protection from the floods associated with conditions that impact the community. In 1968, Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. The NFIP offers flood insurance to homeowners, renters, and business owners, if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flood. (FEMA, About the National Flood Insurance Program, 2012)

- *The NFIP Partnership* – The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA), which works closely with nearly 90 private insurance companies to offer flood insurance to property owners and renters. In order to qualify for flood insurance, a community must join the NFIP and agree to enforce sound floodplain management standards. The NFIP, a federal program, offers flood insurance, which can be purchased through property and casualty insurance agents. Rates are set and do no not differ from company to company or agent to agent. These rates depend on many factors, which include the date and type of construction of your home, along with building level of risk. (FEMA, The NFIP Partnership, 2012)

When Insurance is required –

- *What to expect* – Congress mandated federally regulated or insured lenders to require flood insurance on properties that are located in areas at high risk from flooding.

- *Residents in High-Risk Areas* – Homes and buildings in high-risk flood areas with mortgages from federally regulated or insured lenders are required to have flood insurance. These areas have a 1% or greater chance of flooding in any given year, which is equivalent to a 26% chance of flooding during a 30-year mortgage.

- *Residents in Moderate-to-Low Risk Areas* – Homes and businesses located in moderate- to-0low risk areas that have mortgages from federally regulated or insured lenders are typically not required to have flood insurance. However, flood insurance is highly recommended because anyone can be financially vulnerable to floods. People outside high-risk areas file over 20% of NFIP claims and receive 1/3 of disaster assistance for flooding. When it is available, disaster assistance is typically

a loan you must repay with interest. In addition, a lender can require flood insurance, even if it is not federally required.

Making Communities Safer

- Starting with Yours – The NFIP does more than make flood insurance available; it also supports local communities in their efforts to reduce the risk and consequences of serious flooding. In order to participate in the NFIP, a community must agree to adopt and enforce sound floodplain management regulations and ordinances. In exchange for these practices, FEMA makes flood insurance available to homeowners, business owners, and renters in these communities. (FEMA, Making Communities Safer, 2012)

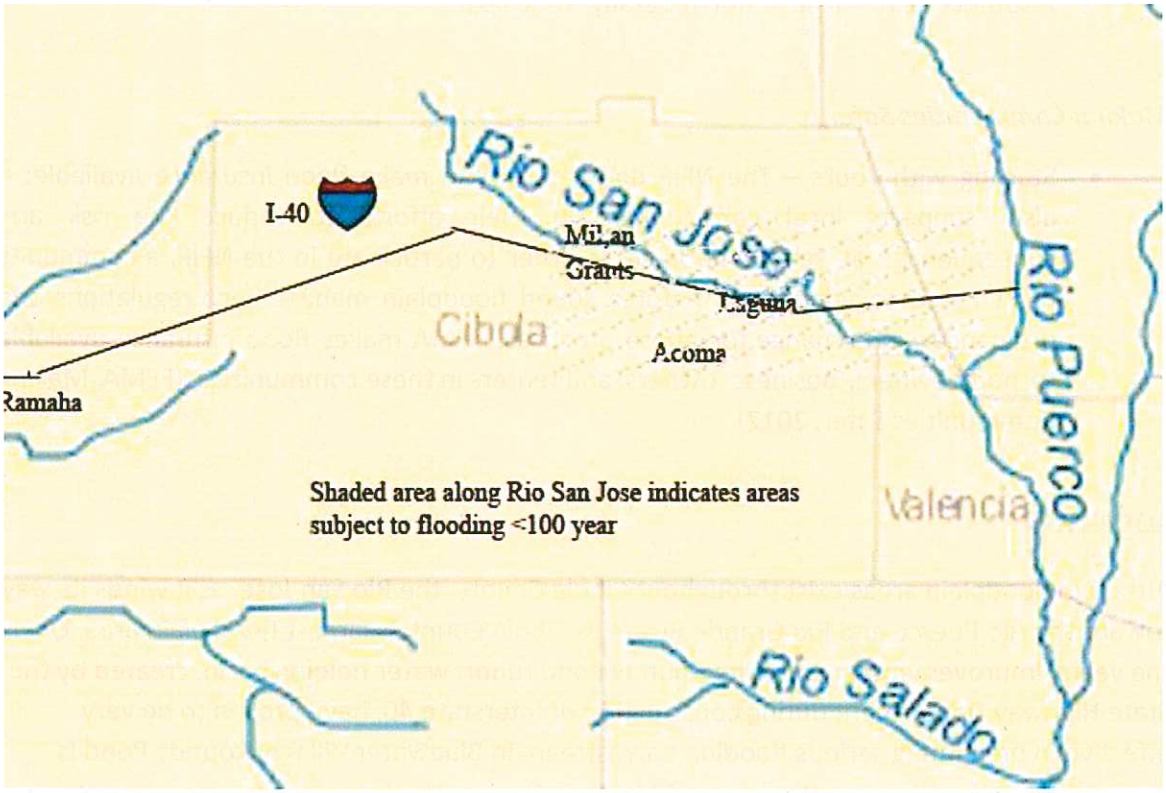
LOCATION

Although floodplain areas exist throughout Cibola County, the Rio San Jose, as it winds its way toward the Rio Puerco and Rio Grande Rivers, is Cibola County's largest flood plain area. Over the years, improvements such as the Roundy Pond runoff water holding basin, created by the State Highway Department during construction of Interstate 40, have proven to be very effective in preventing serious flooding downstream in Bluewater Village. Roundy Pond is critical in providing flood control above Milan and Grants. The Rio San Jose Flood Control District recently purchased this pond. It should be noted that unmitigated changes to any part of this delicately balanced flood control system could increase the threat to both public and private properties downstream of Roundy Pond. The Rio San Jose watershed and flood plain is common to the jurisdictions of Cibola County, the Village of Milan, and the City of Grants.

According to the US Army Corps of Engineers, Albuquerque District, City of Grants and Village of Milan New Mexico Drainage Master Plan Phase 1, Hydrologic Assessment, November 2011, the City of Grants and the Village of Milan watershed encompass 40.5 square miles. The watershed is the part of the 1,020 square mile upstream tributary of the Rio San Jose. The Zuni watershed, southwest of Milan encompasses 45 square miles. (Vigil, 2011).

The DFIRM panels, dated December 17, 2010, covering the more populated areas of Cibola County, Grants and Milan, are 35006C0392C, 35006C411C, 35006C0412C, 35006C0395C, 35006C0413C, 35006C0414C, 35006C0420C, 35006C0680C and 35006C700C. Portions of existing FIRM Maps are included in Appendix E.

The map below indicates areas in Cibola County that are subject to flooding.



EXTENT

The definition of the 1-percent annual chance floodplain is the boundary of the flood that has a 1-percent chance of being equaled or exceeded in any given year. It is also known as a 100-year flood or base floodplain. The portions of Cibola County that have Firm flood maps indicate that areas are susceptible to inundation by the base flood. These areas correspond to the 100-year flood events. The flood plain Firm maps provide the likely hood and severity based on the established flood plain zones in Cibola County. (See FIRM Maps Appendix E)

Flooding has occurred in the past along the Rio San Jose and it tributaries, from the eastern Acoma Reservation boundary to McCarty's, and on Rinconada and Largo Creeks. Severe storms, similar to those causing past floods, undoubtedly will occur in the Rio San Jose watershed to cause future floods of equal or greater size. The 1-percent or 100-year flood event represents the reasonable upper limits of expected flooding. Floods of less magnitude may be expected to occur more often, but with less severity.

None of the floods that have occurred in the past 35 years since stream gages have existed on the Rio San Jose has approached the magnitude of a 100 year event.

The USACE report references shallow flooding, pooling that overwhelms existing drainage facilities in the relatively flat areas of Grants and Milan. (Vigil, 2011, p. 1) The report also indicates "existing drainage facilities with inadequate capacity and density and existing drainage facilities are damaged or corroded" (Vigil, 2011, p. 2) The USACE have found existing reports that have quantified runoff, identified problems and proposed solutions however only a few of the projects addressing flooding problems have been funded.

PROBABILITY OF FUTURE EVENTS

FEMA states that a structure located within a base or 1-percent flood zone have a 26 percent chance of suffering flood damage during a 30 year period.

There is a **HIGH** probability of flood throughout the entire planning area, due to the type of soil, size of the watershed, type of sparse vegetation.

VULNERABILITY

Nationally in most years, flooding causes more deaths and damage than any other hydro meteorological phenomena. In many years it is common for three- quarters of all federally declared disaster declarations to be due, at least in part, to flooding.

Direct costs are closely connected to a flood event and the resulting physical damage. In addition to immediate losses and repair costs they include short- term costs stemming directly from the flood event, such as flood fighting, temporary housing, and administrative assistance. By contrast, indirect costs are incurred in an extended time period following a flood. They include loss of business and personal income (including permanent loss of employment), reduction in property values, increased insurance costs, loss of tax revenue, psychological trauma, and disturbance to ecosystems. They tend to be more difficult to account for than direct costs (Heinz Center 2000).

The NWS describes its flood loss data as estimates of "direct damages" including, for example, loss of property and crops and costs of repairing damaged buildings, roads, and bridges. The NWS estimates have usually been restricted to direct physical damage, a subset of the losses generally considered to be direct costs.

Loss statistics can be partitioned into direct and indirect damages. Direct damages are the costs to repair such things as damaged buildings, washed out railroad beds, bridges, etc.

Indirect damages include such categories as lost wages because of business closures. There is no universally agreed upon demarcation between what constitutes a direct and an indirect loss. (Asset inventories vulnerable to flooding are compiled in Appendix D)

GRANTS AND MILAN

According to the USACE, the Rio San Jose project was completed in 1969 and the 2011 Continuing Eligibility Inspection (CEI) has resulted in a "Minimally Acceptable" rating due to deficiencies listed below. The items listed below are critically necessary to deter further flood events in the City of Grants.

Problem	*Solution*
Animal burrows were noticed along the channel side slopes and creek	Remove the rodents and fill the holes with satisfactory materials
Vegetation (cattails, salt cedar and miscellaneous species) are noticed within the channel.	Remove vegetation to restore hydraulic capacity. Remove vegetation upstream and downstream of culvert crossings. Remove vegetation and accumulation sediment directly upstream and beneath the railroad bridge to increase hydraulic capacity.
Debris near culvert crossing at 2nd Street	Remove debris both upstream and downstream to restore hydraulic capacity.
Significant corrosion of all pipes on east side of Anderman Street.	The CMPs that have corroded away at the flow lines with no concrete under the pipes should be designated for repair possibly using an insert pipe or some other means of repair possible using an insert pipe or some other means of repair such as a poly liner.
Remove and replace broke storm drain pipe, and repair scour hole on south bank of channel – 40 to 50 feet downstream of Anderman St	Remove erosion gullies along banks as needed

USACE recommendations include: apply riprap to severe bends that can protect adjacent property from bank migration. Monitor areas of newly constructed storm drains to ensure erosion is not occurring. Investigate City ROW and proper ownership limits to ensure channel is

being maintained to proper project limits. Monitor the degraded concrete around piping at 2nd Street on west side of street. Monitor the exposed rebar for future epoxy grout repair, near flow line levels at concrete on west side of 2nd Street. Water is ponding within the channel, therefore, investigate and if possible re-establish channel longitudinal slope to ensure proper hydraulic conveyance. (US Army Corps of Engineers, 2012)

IMPACT

The location of the 1-percent floodplain zones in the areas of the county that have been mapped bear out the historical findings. Flooding will affect the low lying areas along the Rio San Jose Valley as indicated on the map on page 49.

The scope of damage ranges with the severity of the flooding. Intensity of impact ranges from a few houses with water damage to a large number of houses involved, including route flooding and bridge damage. No documentation has been located showing the relationship of loss of life to flooding in Cibola County. However, in several past incidents there has been considerable property damage to homes, businesses, public roads, and bridges located in the populated and developed areas of the County in the Rio San Jose Valley including Laguna, Acoma, Grants, and Milan.

Flood events create additional maintenance labor for culvert crews. A comprehensive culvert maintenance plan can be added to alleviate debris buildup freeing the culvert system to work efficiently and effectively.

GRANTS AND MILAN

In documents provided to the engineers, several areas of concern, within the City of Grants, were identified:

- Milan Heights
- North Street Arroyos
- East Street Channel
- Rio San Jose (Bluewater Creek) Arroyos at Route 53 South
- Gold Street Arroyo
- High School Arroyos
- Second Street Ditch
- Rio San Jose Crossing at First and Second Streets
- Grants Canyon (Lobo Canyon)
- Rio San Jose Crossing at Nimitz Drive

The USACE report references shallow flooding, pooling that overwhelms existing drainage facilities in the relatively flat areas of Grants and Milan. (Vigil, 2011, p. 1) The report also indicates "existing drainage facilities with inadequate capacity and density and existing drainage facilities are damaged or corroded" (Vigil, 2011, p. 2) The USACE have found existing reports that have quantified runoff, identified problems and proposed solutions however only a few of the projects addressing flooding problems have been funded.

CIBOLA COUNTY

Roundy Pond – 20-acre barrow pit created when I-40 was constructed. Now used as a retention pond for storm water from the Rio San Jose and other drainages. Essential for holding and slowing down water from populated areas downstream.

Plano Colorado Subdivision – Experienced a major flood in 1980, with some additional flooding about every 5 to 7 years since. Poorly drained soils contribute to the problem, roadways sit higher than adjacent home sites, and few culverts exist.

Tecolote Arroyo – The streambed is usually dry, but becomes a raging torrent when thunderstorms occur on Mt. Taylor. A series of smaller gullies form at the top and east side of the mountain, feeding into the Tecolote Arroyo. The Tecolote flows through the center of the Village of Cubero, forming deep canyon walls, and at times causing damage to the village bridge. Storm water flows into the Rio San Jose to the southeast of the village. The bridge is the only access to the community church, post office, school, fire department and some homes.

Schneeman Draw – A large watershed coming from the Zuni Mountains, fed by a series of small gullies that drain into the Schneeman Draw. Recent development of the south side of Milan has posed the potential for flooding from the drain.

PREVIOUS OCCURRENCES

According to the NCDC, between 01/01/1996 and 02/28/2013, Cibola County experienced 16 recorded flash flood events. In a period of 13 days, Cibola County experienced (7) seven days with event and property damage and (1) one day with event and crop damage. Of the (7) seven days, (5) five days were on federally recognized Tribal lands. The tribal event information will be incorporated into their hazard mitigation plans. However, there were no reported deaths or injuries. The combined total for property damage was $335,000.00 and the total for crop damage was $500.00. The following table demonstrates the location, date, time, property damage and crop damage estimates.

Location	Date	Time	Property Damage	Crop Damage
Bluewater	07.29.1999	17:30	0	0
Fence Lake	08.10.2005	20:00	0	0
Grants	08.11.2005	18:00	0	0
San Fidel	08.07.2006	14:55	0	0
Laguna (Pueblo of Laguna)	08.07.2006	16:25	0	0
Anaconda	07.19.2008	19:46	$5,000.00	0
Bluewater	07.22.2008	18:45	$10,000.00	0
Seama (Pueblo of Laguna)	08.05.2008	14:34	$2,000.00	0
Bluewater	08.05.2008	15:00	$40,000.00	0
Milan	06.28.2009	15:30	0	0
Seama (Pueblo of Laguna)	09.16.2009	15:30	$5,000.00	0
Milan	07.25.2010	15:45	$20,000.00	0
Mc Carty's (Pueblo of Acoma)	08.05.2010	14:00	$50,000.00	0
Mc Carty's (Pueblo of Acoma)	08.24.2011	18:08	$200,000.00	0
El Morro	07.24.2012	16:45	0	0

Grants Canyon Arroyo, August 11, 2005, Roosevelt Avenue Crossing over Grants Canyon Arroyo had the strongest data related to flood. Other locations such as Washington Avenue Bridge had significant news data however the data appeared to be conflicting and one report indicated blockage in the culverts. One account of flooding was recorded from an interview with an employee at the office for the El Malpais National Monument located on the south side of Roosevelt Avenue adjacent to the west side of Grants Canyon Arroyo. The employee was temporarily prevented from leaving the facility due to high floodwaters. The account of the event indicated that the building sustained flooding on the ground level due to high water levels in the parking areas on the east and west sides of the buildings. A second account of the flooding was obtained from an interview with a City of Grants employee that observed the

flooding first hand. The individual indicated that approximately one foot of water was flowing across Roosevelt Avenue at the time he arrived at the location. The individual noted that he had not been onsite during the peak of the storm runoff and that one to two feet of depth may have been possible over Roosevelt Avenue.

OVERALL SUMMARY OF VULNERABILITY TO FLOOD

Flooding events can hinder emergency services as they attempt to respond along their usual routes to emergencies. Flooding event create a nuisance for unknowing tourists affecting their ability to find overnight accommodations. Flood events have not taken any lives since 1996. Flood events have created issues for potable water wells and have forced potable water companies to issue boil water alerts. Flood events have damaged Pueblo of Acoma sewage ponds.

WILDFIRE

DESCRIPTION

A wildfire is any uncontrolled fire in combustible vegetation that occurs in the countryside or wilderness area (Officer, 2010, p. 73).

WILD LAND URBAN INTERFACE

The factors of fuel load, risk of ignition and potential loss can give cause for specific geographic areas of concern. In general, the WUI is defined as "the line, area, or zone where structures and other human development meet to intermingle with undeveloped wild land or vegetative fuels" (USFS, 2004). Cibola County has no area clearly defined wild land Urban Interface (WUI); however, wild fire is still considered a hazard by the MPT and will be profiled.

According to the New Mexico Hazard Mitigation Plan, the criteria used to rank WUI, are:

- proximity of vegetation type to homes
- availability of water
- ease of evacuation
- topography
- type of fuels
- number and size of previous fires
- direction of prevailing and local winds
- ability of community to protect homes

FUEL

Fire behavior and severity depend on the properties of the various fuel (live and dead vegetation and detritus) strata and the continuity of those fuel strata horizontally and vertically. The fire hazard for any particular landscape can be characterized by the potential for fuels to cause specific types of fire behavior and effects. Understanding the structure of fuel beds and their role in the initiation and propagation of fire is the key to developing effective fuel management strategies (Graham, 2004).

Fuel beds are classified in six strata:

- tree canopy
- shrubs / small trees
- low vegetation

- woody fuels
- moss, lichens and litter
- ground fuels (duff)

Each strata can be divided into separate categories based on physiognomic characteristics and relative abundance. Modification of any fuels stratum has implications for fire behavior, fire suppression, and fire severity (Graham, 2004). According to Pueblo of Acoma Fire Chief, Orlando Garcia, the categories within the fuel bed strata that Laguna and Acoma should be concerned with are shrubs / small trees and ground fuels (duff) or surface fuels. Graham (2004) describes surface fuels as consisting of grasses, shrubs, litter, and woody material lying on, or in contact with the ground surface, and he describes crown fuels as those suspended above the ground in trees or vegetation (vines, mosses, needles, branches, and so forth).

WEATHER

Weather patterns greatly influence fire intensity. According to the New Mexico Hazard Mitigation Plan (2010), "wildfires can occur at any time of day and during any month of the year, but the peak fire season is normally from March through June" (Officer, 2010, p. 73). The length of the fire season and the peak months vary 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 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. Cibola County is within a semi-arid region characterized by dry springs, dry autumns, hot summers, and moderately

cold winters. Most of the precipitation received on the reservation occurs during the months of July and August. This precipitation results from the summer monsoon thunderstorms. In

November through February, the precipitation received is in the form of snowfall and rain showers. Average annual precipitation in Cibola County is 10 to 12 inches with approximately 50% in the form of summer rains. Mean average temperature is 57° F on the lowlands and 48° on the upper lands. Extreme temperatures range from -26°F to 100°F. Prevailing winds are generally south – southwest. Weather patterns greatly influence fire intensity.

TYPES OF WILDFIRE

According to the Cibola County Community Wildfire Protection Plan, there are three general types of wild land fire.

- ***Ground fire*** – A ground fire is one that burns in the ground fuels such as duff, organic soils, roots, rotten buried logs, and so forth. Ground fuels are characterized by higher bulk density then surface and canopy fuels. Ground fires burn with very low spread rates but can be sustained at relatively high moisture contents. Fuel consumption through ground fuels can be ignited directly; a passing surface fire most commonly ignites them.

- ***Surface fire*** - A surface fire is one that burns in the surface fuel layer, which lies immediately above the ground fuels but below the canopy, or aerial fuels. Surface fuels consist of needles, leaves, grass, and dead and down branch wood and logs, shrubs, low brush, and short trees. Surface fire behavior varies widely depending on the nature of the surface fuel complex.

- ***Crown fire*** – A crown fire is one that burns in the elevated canopy fuels. Canopy fuels normally consumed in crown fires consist of the live and dead foliage, lichen, and fine live and dead branch wood found in a forest canopy. They have higher moisture content and lower bulk density than surface fuels. There are three types of crown fire: passive, active and independent.

The United States Fire Administration (USFA) has determined that the fire problem in the United States is of major proportions, with a high cost in terms of injuries, fatalities, and property damage.

FOUR MAIN CATEGORIES OF WILDFIRE

- **Wild land Fires** – These typically occur in national forests and parks and are fueled by natural vegetation. Federal agencies are responsible for the fire management and suppression in their areas.

- **Wild land Fires with Urban Interface (WUI)** – These fires typically occur in national forests and parks and spread into urban or residential areas. Vegetation and man-made structures provide fuel. Federal Agencies and local government are responsible for joint fire management and suppression.

- **Firestorms** – These are events of such extreme intensity that effective suppression is virtually impossible. Firestorms occur during extreme weather and generally, burn until weather conditions change and the available fuel is exhausted.

- **Arson** - The US Forest Service (USFS) reports arson as the largest cause of wildfires. Other types of ignition that cause wildfires are debris burns, accidental ignition (man-made) and lightning. Lightning can present particularly difficult problems when dry thunderstorms move across areas that are suffering from seasonal or long-term droughts. In such cases, multiple fires can be started simultaneously. When there is a large quantity of dry fuels, these fires can cause massive damage.

LOCATION

The map below, shows the locations containing wildland urban interface and most at risk for wildfires. These areas are: Bluewater State Park and Bluewater Acres, northwest of Seboyeta, San Rafael, Cubero, the Timber Lake, Pine Meadow and El Morro Ranches, Candy Kitchen, Pinehall and Fence Lake. Also, areas of surface fuels and higher elevations are at risk.

EXTENT

Expressing fire potential uses several methods and some of the indicators are:

RELATIVE HUMIDITY

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

FUEL MOISTURE

Fuel moistures are measured for live herbaceous (annual and perennial), woody (shrubs, branches and foliage) and dry dead fuels. These are calculated values representing approximate moisture content of the fuels. Fuel moisture levels are measured in 1, 10, and 100-hour increments.

HAINES INDEX OR THE LOWER ATMOSPHERE STABILITY INDEX

The Haines Index is computed from the morning soundings from Radiosonde Observation (RAOB) stations from across North America. The index is composed of a stability term and a moisture term. The stability term is derived from the temperature difference at two atmosphere levels. The moisture term is derived from the dew point 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 two (2) to six (6) for indicating potential for large fire growth.

Index	Description
2	Very low potential – Moist stable lower atmosphere
3	Very low potential
4	Low potential
5	Moderate potential
6	High potential – dry unstable lower atmosphere

KEETCH-BYRAM DROUGHT INDEX (KBDI)

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

KBDI	Description
0-200	• Soil moisture and large class moistures are high and do not contribute to fire intensity. • This is typical of spring dormant season following winter precipitation.

200-400	• Lower litter and duff layers are drying and beginning to contribute to fire intensity. • This is typical of late spring, early growing season.
400-600	• Lower litter and duff layers are actively contribute to fire intensity and will burn actively. • Typical of late summer, early fall.
600-800	• Live fuels can also be expected to burn actively at these levels. • Often associated with more severe drought with increased wildfire occurrence. • Intense, deep burning fires with significant downwind spotting can be expected.

ENERGY RELEASE COMPONENT (ERC)

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

IGNITION COMPONENT

The ignition component is a number that relates the probability that a fire will result in a fire ignition is introduced into the 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 wild land fuels will require suppression action.

SPREAD COMPONENT

The Spread Component 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 thirty-one (31) indicates a worse case, forward spread rate of 31 feet per minute. The inputs require in to calculate the SC are wind speed, slope, fine fuel moisture (including the effects of green herbaceous plants), and the moisture content of the foliage and twigs of living, woody plants. Since the characteristics through which the fire is burning are so basic in determining the forward spread of the fire front, a unique SC table is required for EACH fuel type.

FEMA INTERNATIONAL FIRE CODE INSTITUTE SUSCEPTIBILITY INDEX

The FEMA/IFCI combines slope and fuel levels.

Critical Fire Weather Frequency									
Fuel Class	<1 day per year			2-7 days per year			8+ days per year		
	Slope %			Slope %			Slope %		
	<40	41-40	60+	<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**	**H**	***E***	***E***	***E***	***E***

M = Medium, **H** = High, ***E* =** Extreme Source: International Fire Code Institute, January 2000

FIRE POTENTIAL INDEX (FPI)

The FPI was developed by the USGS and USFS to assess and map fire hazard potential over broad areas. Based on such geographic information, national policy makers and on the ground fire managers established priorities for prevention activities in the defined area to reduce the risk of managed and wildfire ignition and spread. Prediction of fire hazard shortens the time between fire ignition and initial attack by enabling fire managers to pre-allocate and stage suppression forces to high fire risk areas. (FEMA, Rebuilding for a More Sustainable Future: An Operational Framework, FEMA 365, 2000)

MAPPING

Specific maps to identify areas that have a high probability of experiencing a severe wildfire with possible loss of human life or infrastructure should include the following factors.

- Base map with infrastructure, ownership & geopolitical boundaries;
- Fire Regime Condition Class – fuel/vegetation, slope and weather patterns;
- Wildfire Risk map – quantifies the concentration of historical wildfire ignition sites as high, medium and low;
- Values map – identifies areas having value to humans, such as concentration of homes, roof types, road access, communication sites, hydrologic features, cultural/sacred, watershed, extraordinary wildlife habitat, post fire flood damage, and quantifies them as high, medium and low;
- Threat Level Map combines the fire regime condition class and risk maps into one map identifying areas most likely to experience a severe wildfire;

- Risk Assessment Map combines the values map with the threat map to identify areas that are most urgently in need of treatment because of the combination of possible severe wildfire and potential loss of identified values.

FIRE DANGER RATING SYSTEM

All indicators are taken into account when determining the fire danger for a specific geography. These indicators change daily or hourly. Therefore, the Fire Danger Rating System was created as a simple method of conveying relative danger to the public.

FIRE DANGER RATING SYSTEM		
Rating	**Basic Description**	**Detailed Description**
CLASS 1: Low Danger (L) Color Code: GREEN	Fires not easily started.	Fuels do no 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. Wood fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel – especially draped fuel – may not burn hot. Short-distance spotting may occur but it is not persistent. Fires are not likely to become serious and control is relatively easy.
CLASS 3: High Danger (H) COLOR CLASS: 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 s p o t t i n g 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 CLASS: 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 short-distance spotting is common. 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.
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.

The extent of burn conditions are relative to atmospheric conditions and to weather conditions for the level of damage that can be created by wildfires in the County. Heavy brush and forested areas are especially susceptible to wildfire for extensive burning. The areas where there has been development such as the El Morro Ranches, Candy Kitchen and Pine Hill areas may affect structural fires in addition to the wildfire danger. Ranches within the El Malpais area are affected as range land can burn off valuable feed for livestock and wildlife.

PROBABILITY OF FUTURE EVENTS

New Mexico is normally an arid state with periodic rainfall. It has its own unique fire risks, which are intensified by periods of long-term drought conditions. Typically during the "monsoon season" fuel loading occurs. Vegetation (weeds, trees, and grass) grows abundantly. When the precipitation ends, the vegetation dries out and becomes a fire hazard. Adding to the problem of the normally dry New Mexico climate, periods of extended drought continue to reduce fuel moisture. This is a chronic problem, developed over time. Not only forests and grasslands dry out, all types of fuel become heated and ready to ignite. Small amounts of rainfall do not significantly change the level of fuel moisture. In many cases it only takes a single spark to start a fire in critically dry conditions. Probability for wild fire is high throughout the county during periods of extended drought.

The County has been in a period of 10 year drought. Placing the high fuel areas of Cibola national forest and the urban interfaced areas adjacent to it in a Keetch-Byram class 3 high fire danger rating.

The probability of a future wildfire event is **HIGH** for Cibola County and **Low** for Milan and Grants. Recent drought conditions, dry vegetation, tourists all combine to create a higher probability of wildfire in Cibola County. Cibola County Fire departments respond to small grass fires that are contained immediately and together with the USFS and State Department of Forestry – outreach to the community has improved. Cibola County have a burn permit program, support from County and State Fire administration to maintain the program and now fly a "red-flag" to warn the community about high fire hazards.

VULNERABILITY

Lightning is the most significant natural contributor to fires affecting a man- made environment. Lightning can also trigger structural fires. Wildfires are commonly the result of lightning strikes in outdoor areas, many of which have significant impacts to buildings.

As communities become more developed, people band together to establish volunteer fire departments, which generally are adopted by the county as designated fire districts for their areas. Once adopted and approved by the State Fire Marshal's Office, the fire districts are eligible to receive funding established through the Insurance Rating Service (ISO) system. The county has no formal fire protection or response capability outside the volunteer fire department system. Citizens are therefore dependent on the local volunteer fire system along with the respective federal, state, and tribal landowners that border the private lands.

Availability of water in quantities that are needed to control, contain and/or suppress fire in a region that has periods of drought is at the root of vulnerability. Some populations are

more vulnerable than others because of the density of forest around their homes. The climate and conditions during long periods of drought also increase vulnerability. Fuel moisture decreases, which increases risk and fast spread of fire. During the monsoon season (usually July-August), many thunderheads create lightning and gusting winds, with and without rain. Lightning is the major cause of wildfires in this region. If people living in forest areas do not prepare a defensible space around their homes or practice other fire prevention measures, they are particularly at risk. Survivability becomes the issue for people in remote parts of the county with no organized fire protection in close proximity.

IMPACT

Combined with the known drought conditions, the impact of wildfire could potentially be life-threatening. A main factor with wildfires is the impact of smoke upon the community. Elderly, infants, people with respiratory ailments could all potentially suffer if exposed to smoke; therefore, coordination with local health care providers in development of shelter in place procedures makes sense.

From USGS reports, debris flow flooding can and will occur up to 7 years post wildfire causing dangerous conditions for those downstream. Loss of tourism dollars as people no longer visit the burned out forest lands spending their vacation dollars elsewhere.

In the event of a wildfire incident, locally owned livestock would be at risk. The development of plans and mutual aid agreements with neighboring Pueblo, Nation or jurisdiction would be prudent to protect the economic investment.

Cibola County has not experienced a large wildfire and we do not wish to bring this upon the community; however, we are aware of the potential. Smoke hazards could potentially affect the vulnerable population and tourists visiting

PREVIOUS OCCURRENCES

Although major wildfires have not occurred in the Cibola County jurisdiction for a number of years, there were a total of 1029 wildfires which occurred in New Mexico in 2012 burning 372,497 acres, this is according to the Grants Beacon. With the continued drought conditions in the County fire danger remains high for the foreseeable future.

OVERALL SUMMARY OF VULNERABILITY TO WILDFIRE

With this loss of fuel moisture, forests, grasslands, even wooden structures within the wild land urban interface areas ignite with the slightest spark from lightning or a careless human. The wild land urban interface areas are specified as areas where human occupation and

structures are encroaching on previously undeveloped areas such as forest and grasslands considered Recent fire predictions warn that there will not be a specific "fire season" in 2004 and beyond, but to anticipate one long fire period, not only in New Mexico, but throughout the western United States.

HIGH WINDS

DESCRIPTION

Wind speeds can reach up to 100mph and can produce a damage path extending for hundreds of miles. These winds are often called "straight-line" winds to differentiate the damage they cause from tornado damage. Strong thunderstorm winds can come from a number of different processes. Damaging winds are classified as those exceeding 50-60mph.

Since most thunderstorms produce some straight-line winds as a result of outflow generated by the thunderstorm downdraft, anyone living in thunderstorm-prone areas of the world is at risk for experiencing this phenomenon.

TYPES OF DAMAGING WINDS

Straight-line winds – a term used to define any thunderstorm wind that is not associated with rotation, and is used mainly to differentiate from tornadic winds.

Downbursts – A strong downdraft with horizontal dimensions larger than 4 km (2.5 mi) resulting in an outward burst or damaging winds on or near the ground. (Imagine the way water comes out of a faucet and hits the bottom of the sink.) Downburst winds may begin as a microburst and spread out over a wider area, sometimes producing damage similar to a strong tornado. Although usually associated with thunderstorms, downbursts can occur with showers too weak to produce thunder.

Downdrafts – A small scale column of air that rapidly sinks toward the ground. A downburst is a result of a strong downdraft.

Microbursts – A small concentrated downburst that produces an outward burst of damaging winds at the surface. Microbursts are generally small (less than 4km across) and short-lived, lasting only 5-10 minutes, with maximum wind speeds up to 168 mph.

There are two kinds of microbursts, wet and dry.

- A wet microburst is accompanied by heavy precipitation at the surface.

- Dry microbursts, common in places like the high plains and the intermountain west, occur with little or no precipitation reaching the ground.

Gust front – A gust front is the leading edge of rain-cooled air that clashes with warmer thunderstorm inflow. Gust fronts are characterized by a wind shift, temperature drop, and gusty winds out ahead of a thunderstorm. Sometimes the winds push up air above them, forming a shelf cloud or detached roll cloud.

Derecho – A derecho is a widespread thunderstorm wind event caused when new thunderstorms form along the leading edge of an outflow boundary (a surface boundary formed by the horizontal spreading of thunderstorm-cooled air). The thunderstorms feed on this boundary and continue to reproduce themselves. Derechos typically occur in the summer months when complexes of thunderstorms form over the plains and northern plains states. Usually these thunderstorms produce heavy rain and severe wind reports as they rumble across several states during the night. The word "derecho" is of Spanish origin and means "straight ahead". They are particularly dangerous because the damaging winds can last a long time and can cover such a large area.

Bow Echo – A radar echo which is linear but bent outward in a bow shape. Damaging straight-line winds often occur near the "crest" or center of a bow echo. Bow echoes can be over 300km in length, last for several hours, and produce extensive swaths of wind damage at the ground. (Administration, 2012)

LOCATION

High winds can affect the entire planning area equally.

EXTENT

In Cibola County, the wind forces can be between 0 to 8. The winds generally come from the southwest as they travel over the Continental Divide and gain speed traveling through the Valley. Winds can occur during spring and through all of winter season.

Beaufort Wind 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.

Beaufort Wind Scale			
Beaufort Number	Wind Speed mph	Description	Land Conditions
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.

PROBABILITY OF FUTURE EVENTS

Normal annual wind speeds range from 7.5 mph to 10.6 mph. Cibola County is vulnerable to winds annually with increased probability of high wind events historically in March through August. There is a **HIGH** probability of high winds in the next year. High winds are expected and seasonal.

Vulnerability

Mobile homes have a small vulnerability factor however most mobile homes are anchored to permanent foundations or have temporary weights installed on roofs.

Tourists and long haul drivers are most vulnerable to high winds.

IMPACT

High winds occur in springtime and winter and the impact is very low. They are predictable and the community is prepared for them. Cibola County community members are prepared for high winds, low visibility due to snow or dust and are knowledgeable about what damage high winds can cause. Prevailing winds are generally south – southwest. Tourists can be forewarned and long haul truckers know where they can pull off the highway and wait out the windstorms.

PREVIOUS OCCURRENCE

The most recent occurrence of high winds in the Cibola County area was 2003 in the Bluewater area where winds speeds reached 40 knots. Visibility was so severely limited that the winds created chain reaction automobile collisions and crashes along Interstate 40, just west of Milan.

OVERALL SUMMARY OF VULNERABILITY TO HIGH WINDS

Residents of Cibola County are very aware of hazards associated with high winds and are generally prepared.

THUNDERSTORMS, (INCLUDING LIGHTNING AND HAIL)

DESCRIPTION

The National Weather Service (NWS) estimates that thunderstorms occur most frequently during the "monsoon season," but can occur during the winter months as well. A thunderstorm is classified by the NWS as severe if its winds reach or exceed 59 mph, produce a tornado, or drops surface hail at least 0.75 inches in diameter.

Lightning, which occurs during all thunderstorms, can strike anywhere and be dangerous to people, objects and radios. Generated by the buildup of charged ions in a thundercloud, the discharge of a lightning bolt interacts with the best conducting object or surface. The Malpais rock formations in Cibola County are conduits for electricity. Lightning may travel along the surface of the Malpais until it hits an object and discharges or disappears with an explosion.

Hail storms are peculiar atmospheric disturbances which, in regard to the dimensions of their paths, are next to the tornado the most circumscribed of all storms save the whirlwind. They are characterized by a strange cloud formation and a peculiarity of precipitation unlike any other phenomena in the category of storms. The cloud from which the hail falls is basket-shaped, with a dark and portentous exterior, a ragged and ominous-looking opening at the bottom, and within a whirling conglomeration of snow-flakes, pellets of snow and ice, partly formed and perfect hailstones, the latter of an almost infinite variety of shapes.

LOCATION

Thunderstorms, including hailstorms and lightning are located throughout Cibola County. The entire planning area can be effected by hail and lighting storms.

EXTENT

These phenomena are atmospheric disturbances of great variability of extent and power. They are always accompanied by such manifestations of the presence of electricity as are ordinarily termed thunder and lightning, the former being entirely consequent upon the existence of the latter. Thunder is but the reverberation of the concussion produced by the inconceivably rapid propulsion through the air of that physical element we are pleased to term electricity.

The severity of the lightning strike is dependent upon what it strikes. Thunderstorms may be a few miles or several hundred in size and their length of duration is quite as uncertain, from a few hours to one or more days. The table below shows the lightning activity level as a scale from 1-6, which describes frequency and character of cloud to ground lighting. All six (6) levels in the scale are experienced in all 3 jurisdictions.

Lightning Activity Level

	Cloud and Storm Development	Areal Coverage	Counts cg / 5 min	Counts cg / 15 min	Average cg / min
1	No thunderstorms	None	-	-	-
2	Cumulus clouds are common but only a few reach the towering stage. A single thunderstorm must be confirmed in the rating area. Light rain will occasionally reach ground. Lightning is very infrequent.	<15%	1-5	1-8	<1
3	Cumulus clouds are common. Swelling and towering cumulus cover less than 2/10 of the sky. Thunderstorms are few, but 2 to 3 occur within the observation area. Light to moderate rain will reach the ground, and lightning is infrequent.	15% to 24%	6-10	9-15	1-2
4	Swelling cumulus and towering cumulus cover 2-3/10 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.	25% to 50%	11-15	16-25	2-3
5	Towering cumulus and thunderstorms are numerous. They cover more than 3/10 and occasionally obscure the sky. Rain is moderate to heavy, and lightning is frequent and intense.	>50%	>15	>25	>3

6	Dry lightning outbreak. (LAL of 3 or greater with majority of storms producing little or no rainfall.)	>15%	-	-	-

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

Hail clouds form between the currents of the upper and lower regions of the atmosphere and moves forward in the plane of these currents, either within or just above the upper limit of the lower atmospheric regions, where it finally disappears and the deposition of hail ceases. The path of the storm, as indicated by the distribution of the hailstones, is at times very narrow, although the range of width is decidedly inconstant, varying from one to fifteen miles. The hailstorm travels quite rapidly, from thirty to fifty miles per hour, and the length of its path is even more variable than the diameter, ranging as it does from ten miles to two hundred or more. The direction of the course pursued by the storm is always from some point west to some point east. It may be from northwest to southeast or from southwest to northeast. The NOAA/TORRO Hailstorm Scale is used as a guide to determine extent. Typically, H0 to H3 but may have higher intensity.

Combined NOAA/TORRO Hailstorm Intensity Scale

Combined NOAA/TORRO Hailstorm Intensity Scales					
	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy, J-m^2	Description	Typical Damage Impacts
H0	Hard Hail	5	0-20	Pea	No damage
H1	Potentially Damaging	5-15	>20	Mothball	Slight general damage to plants, crops
H2	Significant	10-20	>100	Marble, grape	Significant damage to fruit, crops, vegetation
H3	Severe	20-30	>300	Walnut	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	>500	Pigeon's Egg > Squash ball	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	>800	Golf ball > Pullet's egg	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60		Hen's egg	Bodywork of grounded aircraft dented, brick walls pitted

Combined NOAA/TORRO Hailstorm Intensity Scales					
	Intensity Category	Typical Hail Diameter (mm)*	Probable Kinetic Energy, J-m^2	Description	Typical Damage Impacts
H7	Destructive	50-75	>800	Tennis ball > cricket ball	Severe roof damage, risk of serious injuries
H8	Destructive	60-90	>800	Large orange > Softball	(Severest recorded in the British Isles) Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100	>800	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	>100	>800	Melon	Extensive structural

Source: Tornado and Strom Research Organization http://www.torro.org.uk/site/hscale.php

PROBABILITY OF FUTURE EVENTS

There is no regular time of day for thunderstorm occurrence, although they are perhaps more frequent in the afternoon. However, they may occur at any time during the day or night. As to the season of year, summer is the period of greatest prevalence. There is no month of the year entirely free from them. Whether the precipitation is rain or snow the presence of electricity has still been manifested in the usual form. With the former character of condensation of vapor the evidence of electricity is most common, while with the latter it is the rare exception.

Hailstorms occur more frequently during late spring and early summer, when the jet stream migrates northward across the Great Plains. This period has extreme temperature changes from the ground surface upward into the jet stream that produces the strong updraft winds needed for hail formation.

Hailstorms may occur at any time of the day or night, although they are most frequent in the afternoon, just after or near the hottest part of the day. Between 1969 and 2004 there were seven recorded hailstorm events in Cibola County. Our percentage of probability is **MEDIUM** in a given year.

Lightning strikes are typically more prevalent between May through September during what is termed the "Monsoon Season", the typical rain storms have more thunder and lightning during this time.

VULNERABILITY

Hailstorms usually coincide with peak agricultural seasons. Long-stemmed vegetation is particularly vulnerable to damage by hail impacts and wind. Severe hailstorms also cause damage to buildings, automobiles, structures with exposed features, power lines, and water towers but rarely result in loss of life.

In the recent past there are reports that lightning has caused wild fires, in the summer of 2013, lightning caused three (3) fires in the Cibola County area, each were relatively small in comparison with no more than 30 acres burned. However, this indicates that there are plenty of vulnerabilities for forests and brush to burn from lightning caused fires in the Cibola county area.

IMPACT

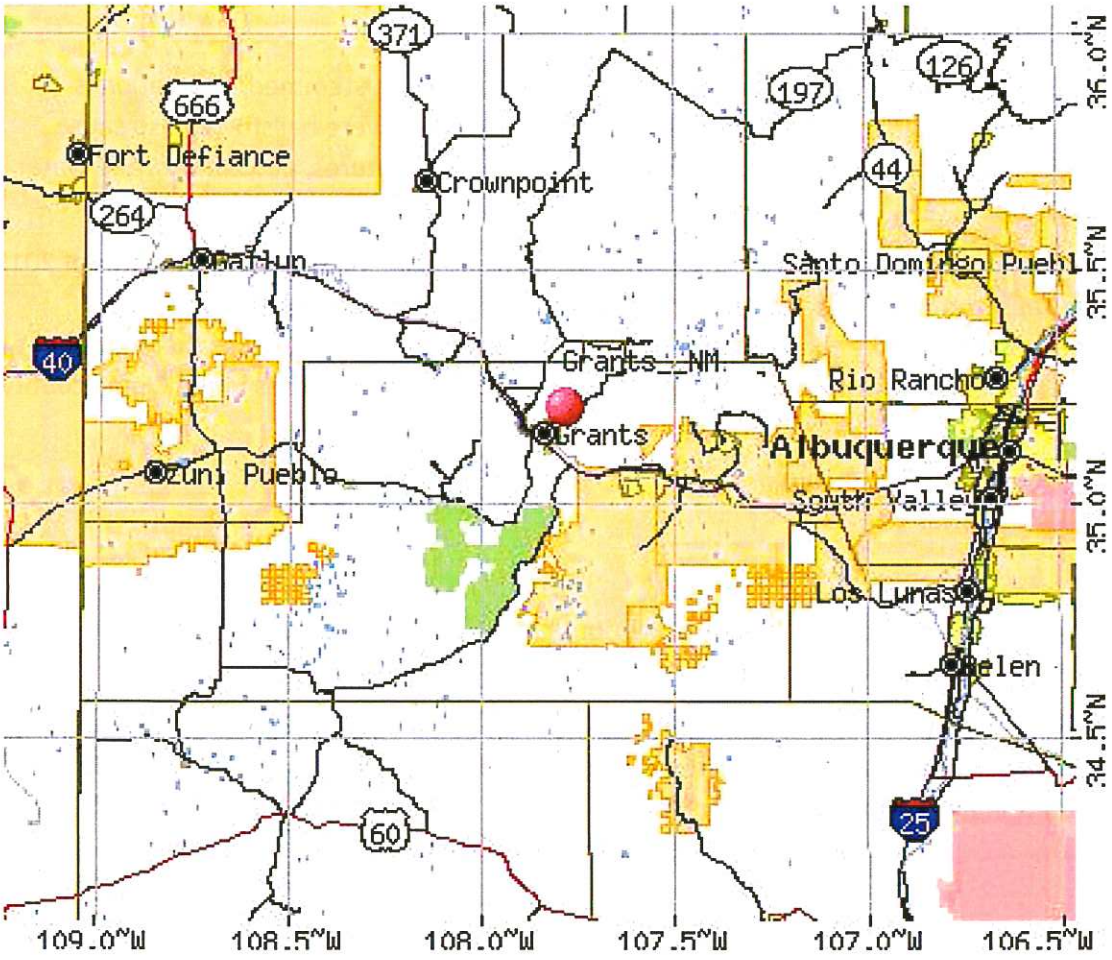
The entire county maybe impacted by power outages. Lightning may cause fires in the National forest areas examined under "wildfire" above.

Populated areas throughout Cibola County are susceptible to hailstorm damage to structures and property. Farming areas are located in Laguna and Acoma and along the Rio San Jose Valley. Crops maybe impacted during planting season. Power outages, damage to roofs, denting of cars and damage to windows and metal mobile homes may be broken or dented.

PREVIOUS OCCURRENCES

There is no appreciable historical data available for thunderstorms and lightning with enough severity to cause injury or loss of life in Cibola County.

The following Map references latitude and longitude of hail and storm information chart below in Cibola County



Location or County	@ Latitude / Longitude	Date	Time	Magnitude
Cibola	35°12'N / 107°54'W	6/16/1969	2:00pm	0.75 in
Cibola	35°03'N / 107°34'W	9/10/1973	3:25pm	1.75 in
Cibola	35°09'N / 107°51'W	8/20/1990	2:15pm	1.0 in
Cibola	34°50'N / 107°55'W	5/21/1991	7:00pm	0.75 in
Cubero	35°05'N / 107°31'W	10/1/1998	1:15pm	0.75 in

Marquez	35°22'N / 107°26'W	10/1/1998	12:00pm	1.25 in
Acomita	35°03'N / 107°34'W	7/29/2000	4:45pm	1.0 in

Data Source – National Climatic Data Center
Hail size is given in inches and hundredths of inches

OVERALL SUMMARY OF VULNERABILITY TO THUNDERSTORMS

People and property are exposed to damage, injury and loss of life from thunderstorms and related hazards such as lightning, severe windstorms, hail, and flash floods. Thunderstorms are responsible for significant structural damage to buildings, forest and wildfires, downed power lines and trees, and loss of life.

SEVERE WINTER STORMS

DESCRIPTION

According to the 2013 New Mexico State Hazard Mitigation Plan, severe winter storms can vary in size and strength and include heavy snowstorms, blizzards, and 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. For clarification, the following are National Weather Service (NWS) approved definitions of winter storm elements:

- Heavy snowfall is the accumulation of six or more inches of snow in a 12-hour period of eight or more inches in a 24-hour period.
- Blizzard is the occurrence of sustained wind speeds in excess of 35-mpg accompanied by heavy snowfall or large amounts of blowing or drifting snow.
- Ice Storm is an occurrence where rain falls from warmer upper layers of the atmosphere to the colder ground, freezing upon contact with the ground and all exposed objects near the ground.
- Freezing drizzle/freezing rain is the effect of drizzle or rain freezing upon impact on objects that have a temperature of 32°F or below.
- Sleet is 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 is 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

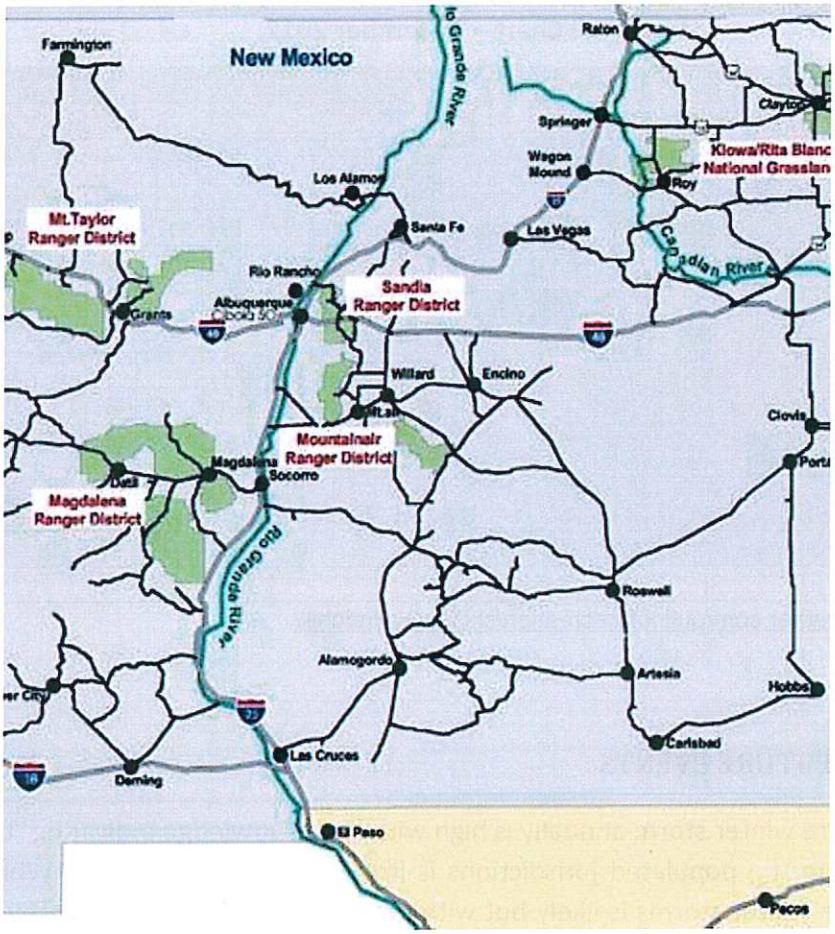
how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a blustery 30°F day would feel as cold as a calm day with 0° temperatures. In 1870, the wind chill index was created. On November 1, 2001, the NWS released a scientifically accurate equation. NOTE: Not applicable in calm winds or when the temperature is over 50°F.

A severe winter storm in New Mexico as defined by the NWS is:

- 4 or more inches of snowfall below 7500 feet or
- 6 or more inches of snowfall above 7500 feet in a 12-hour period or
- 6 or more inches of snowfall below 7500 feet or
- 9 inches of snowfall above 7500 feet in a 24-hour period.

LOCATION

Winter storms can affect all planning areas of the Cibola County with greater snow accumulations at higher elevations located in the lesser populated and isolated areas of the Cibola National Forest, Mt. Taylor Ranger District. (See map below with green areas locating National forests).



EXTENT

Much winter precipitation in Cibola County are associated with Pacific Ocean storms as they move across the state from west to east. Average annual snow days in Grants, New Mexico is 5.5 days/year and the snowfall average is 9.3 inches/year. (Results, 2012)

Cibola County LEPC/MPT agree that during the months of November through February when temperatures are below 20^0 and the wind speed is ~45 mph that is the "trigger point" for action. Response teams are familiar with wind chill as they are Emergency Medical Technician (EMT) certified and understand the risk.

The Wind Chill is the temperature your body feels when the air temperature is combined with the wind speed. 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. Here is a chart for calculating wind chill. (Please note that it is not applicable in calm winds or when the temperature is over 50°.)

Wind Chill Chart – December 2012

Wind (mph)	Temperature (?F)																	
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40
60	-98	-91	-84	-76	-69	-62	-55	-48	-40	-33	-26	-19	-11	-4	3	10	17	25
55	-97	-89	-82	-75	-68	-61	-54	-46	-39	-32	-25	-18	-11	-3	4	11	18	25
50	-95	-88	-81	-74	-67	-60	-52	-45	-38	-31	-24	-17	-10	-3	4	12	19	26
45	-93	-86	-79	-72	-65	-58	-51	-44	-37	-30	-23	-16	-9	-2	5	12	19	26
40	-91	-84	-78	-71	-64	-57	-50	-43	-36	-29	-22	-15	-8	-1	6	13	20	27
35	-89	-82	-76	-69	-62	-55	-48	-41	-34	-27	-21	-14	-7	0	7	14	21	28
30	-87	-80	-73	-67	-60	-53	-46	-39	-33	-26	-19	-12	-5	1	8	15	22	28
25	-84	-78	-71	-64	-58	-51	-44	-37	-31	-24	-17	-11	-4	3	9	16	23	29
20	-81	-74	-69	-61	-55	-48	-42	-35	-29	-22	-15	-9	-2	4	11	17	24	30
15	-77	-71	-64	-58	-51	-45	-39	-32	-26	-19	-13	-7	0	6	13	19	25	32
10	-72	-66	-59	-53	-47	-41	-35	-28	-22	-16	-10	-4	3	9	15	21	27	34
5	-63	-57	-52	-46	-40	-34	-28	-22	-16	-11	-5	1	7	13	19	25	31	36

Source: http://www.weather.com/outlook/recreation/ski/tools/windchill/

PROBABILITY OF FUTURE EVENTS

Probability of 1 severe winter storm annually is high with local knowledge indicating that 2" of snow accumulation in the populated jurisdictions is likely during those events. While the probability of severe winter storms is likely but with monitoring and preparation by the CHO, the severity of the storm is less likely to present a hazard to citizens, as warnings are broadcast.

Winter storm has a **HIGH** probability of occurring EVERY year. However, the intensity of the winter event is somewhat unpredictable.

VULNERABILITY

Snow level is an indicator of severity of winter storms based on accumulation and associated snow loading. The weight of accumulated snow or ice results in load forces that can cause building collapse and damage to power and telephone lines. Travelers stranded in a blizzard may die from exposure and cold, hypothermia, or from trying to stay warm until help arrives. Daytime temperatures normally warm up enough to melt accumulated snow on highways. Overnight temperatures can drop to freezing, causing wet roads to freeze into sheets of black ice. Black ice and blowing snow are the two main causes of motor vehicle accidents due to poor visibility and dangerous road conditions. Wind, accompanying the snow, can cause extremely cold temperatures and damage to water pipes if they are not far enough below the freeze line or if they are unprotected and exposed to the elements.

An assessment of the community and their vulnerability to hazards associated with winter storm include many nuisance factors. The LEPC / MPT generally agreed that winter storm is a factor when living in Cibola County. If a winter storm is rumored to be "moving" in Cibola County residents prepare by hunkering down, waiting out the storm and wait until the storm passes. Winter snow storms move quickly through the area due to the wind power generated by the eastern slopes of the Continental Divide. Generally, winter storms last about 6 hours maximum.

IMPACT

The occurrence of large snowstorms, ice storms, and severe blizzards has a substantial impact on communities, utilities, and transportation systems, and often results in loss of life due to accidents. Heavily populated areas are particularly impacted when severe winter storms disrupt communication and power due to downed distribution lines. Snow and ice removal from roads and highways is difficult when accumulations build faster than equipment can clear them.

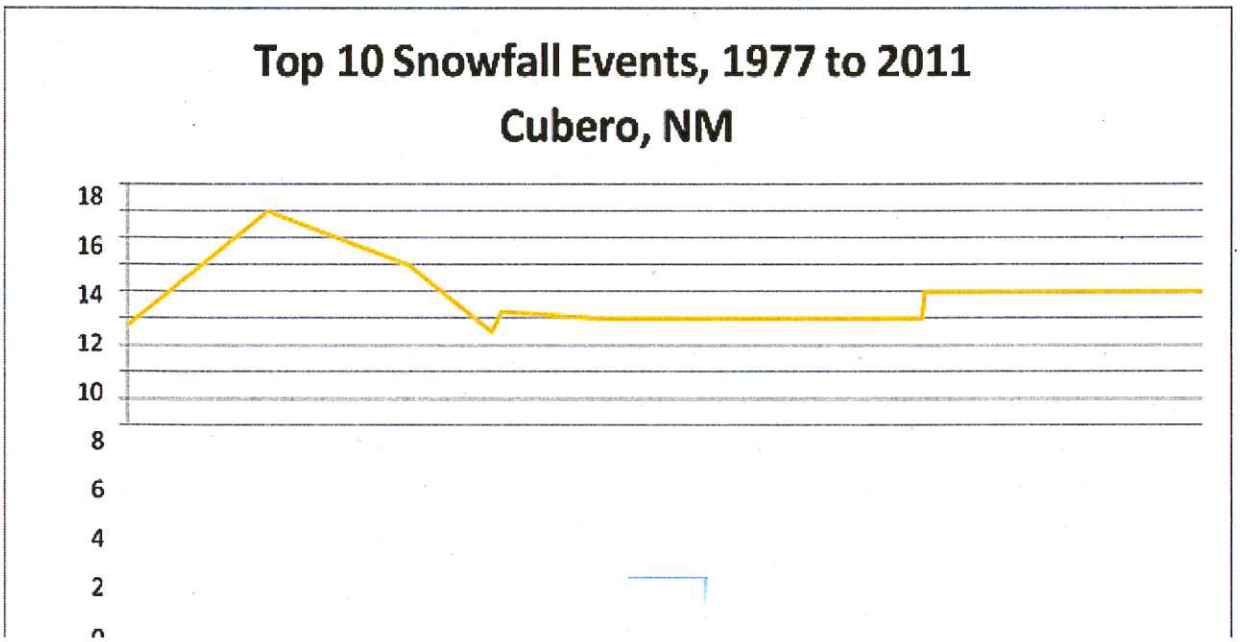
Populated areas throughout Cibola County are impacted. Travelers along Intersate-40 are impacted by road closures imposed and administered by the New Mexico Department of Transportation, (NMDOT) and the State Police which monitor winter storms throughout the area. Storm warnings are widely disseminated both to local emergency personnel and to the general population via the internet and radio and television broadcasts and weather report updates.

Local jurisdictions have limited resources to clear snow and ice from local roads. The Interstate is maintained by NMDOT.

Impact of Winter Storm

- Business and government offices close
- Electric outages
- Postal service delayed
- No access to stock ponds or cattle
- Possible price gouging of snow shovels, ice scrapers, snow blowers, salt, pellets for wood-burning heating stoves, heat tape, pipe insulation, chainsaws and woodcutting equipment

PREVIOUS OCCURRENCES



The Cubero weather station (ID# 292250) is located at an elevation of 6195', the Latitude is 35.0883 and the Longitude is -107.518. This weather station has published data from January 3, 1977 to March 1, 2011. Cubero is less than (25) twenty-five miles from Grants in Cibola County therefore the MPT considered it a qualified data source.

Significant events recorded in Cubero include:

- The deepest snowfall event, of 16 inches, was recorded was on January 16, 1987.
- The second deepest snowfall event, of 12 inches, occurred on January 18, 1990.
- The third deepest snowfall event, of 10 inches, occurred on January 17, 2001.

Data analysis:

- 324 snowfall events are recorded.
- The total snowfall recorded is 465.18 inches.
- The average snowfall event is 2.89 inches.
- The least amount of snowfall recorded .0005 inches 136 separate times.

Recent Events

December 2011, Pueblo of Laguna Emergency Operations Center reported 24 inches of snowfall in a 12 hour period with an estimated wind speed of ~15-20 mph and gusts of up to 35 mph.

December 2, 2011, the Cibola Beacon reported:

- "A powerful cold front" with "very strong winds and much colder temperatures" and "strong, potentially damaging wind gusts likely"....
- "Significant snowfall accumulations will be possible initially develop across western New Mexico".... (Tenequer, 2011)

On December 20, 2011, the Cibola Beacon reported:

- "A major winter storm swept through....depositing snow accumulations between 12-20 inches"....
- "The storm caused business and government offices to almost come to a standstill"....
- "Three (3) minor accidents with no injuries in the wet and slushy snow were reported"....
- "600 area customers experienced sporadic outages in electrical service"....
- "Weight of snow landed on electrical lines causing the lines to touch and lose power"...
- "Broken tree limbs caused electrical lines to touch and arc"....
- "National Weather Service issued a winter storm warning and predicted accumulation of snow between 12 and 20 inches"....
- "Sewer and water service is operating"....
- "Postal service delayed".... (Tenequer, 2011)

On December 22, 2011, the Cibola Beacon reported:

- "There was a lot of damage in the area"....
- "Numerous accidents on Interstate 40....no incidents involving personal injury"....
- "Scattered electrical outages across the service area"....
- "Many residents were not prepared for this week's wintery conditions"....
- "Brisk sales of snow shovels, ice scrapers, snow blowers, salt, pellets for wood-burning heating stoves, heat tape and insulation for pipes"....
- "Increase in chainsaws and related woodcutting equipment"....
- "Growing numbers of calls to insurance companies"....
- "Carport collapse".... (Roseann Boyett, 2011)

On December 27, 2011, the Cibola Beacon reported:

- "Some places were near McCarty's were without electricity for a few hours"....
- "Couldn't see more than five-to-ten feet ahead of me"
- "Spotted six cars that had slid off the roadway between Exits 89 and 85"....
- "Interstate 40 was closed across the county late Thursday and reopened on December 23"....
- "By 7am Friday morning the shelters were emptying out"....

- "The recent storms caused the state's Department of Transportation to close I-40 twice in less than five days".... (Boyett R. , 2011)

On December 30, 2011, the Cibola Beacon reported:

- "Orlando Garcia, Pueblo of Acoma Fire Chief and acting Emergency Manager for the pueblo said, "We had quite a few stranded motorists who we were able to assist and shelter at the Sky City Casino Bingo Hall." Garcia estimated that more than 100 people who stayed in the casino hall on Thursday night and were back on the road by Friday morning. The casino hall was opened around 7 p.m. to assist those in need, reported Garcia. Garcia said the fire department transported a few travelers from cars that had slid off of Interstate 40 to the casino. Garcia added, "Acoma set up its own emergency management center to respond to people stranded in their homes." According to Garcia, tribal equipment was used to plow access roads from their homes to the main road. About a dozen residents were assisted. Garcia indicated that the pueblo has applied to the state emergency management office for assistance. The pueblo has also declared a "state of emergency" for ranchers in the southern part of the reservation. Garcia noted the pueblo provided shelter and not the Red Cross".
- "Among the people were 15 dogs"
- "The pueblo had provided the shelter and not the Red Cross...." (Boyett B. T., 2011)

OVERALL SUMMARY OF VULNERABILITY TO WINTER STORM

The community in Cibola County are well aware of the dangers of winter storm. The vulnerability would affect delivery of services in the area and lack of commercial products for home snow removal. The public infrastructure is safe and the community aware making the overall vulnerability to winter storm low.

DROUGHT

DESCRIPTION

According to the National Drought Mitigation Center (NDMC), drought is an insidious hazard of nature. Dictionary.com defines insidious as "Proceeding in a gradual, subtle way, but with harmful effects". (Dictionary.com, 2012)

A drought is a period of abnormally dry weather that persists long enough to produce a serious hydrologic imbalance, causing, for example, crop damage and shortages in the water supply. The severity of a drought depends on the degree of moisture deficiency, the duration, and the size of the affected area. Drought can be defined four ways.

- Meteorological Drought – when an area gets less precipitation than normal. Due to climatic difference, what is considered a drought in one location may not be a drought in another location?
- Agricultural Drought – when the amount of moisture in the soil no longer meets the needs of a particular crop.
- Hydrological Drought – when the surface and subsurface water supplies are below normal.
- Socioeconomic drought – when water supply is unable to meet human and environmental needs can upset the balance between supply and demand. (Cross, 2012)

WATER CYCLE

According to the NDMC, water covers more than 80% of the earth's surface. It is found in oceans, lakes, rivers, and even ice caps and glaciers. Water is also found underground in aquifers. The water that exists today is the same water that existed billions of years ago. This is because water is what we call a limited renewable resource.

Water is a renewable resource because it travels through the oceans, rivers, ground and the atmosphere; it is always moving. It falls from the sky as rain or snow into our oceans, lakes, and rivers and onto land. Precipitation that falls on the land enters the groundwater through percolation or travels to streams, rivers, and lakes as runoff. Water in streams and rivers is carried to the oceans, where it evaporates and forms clouds – where the cycle starts all over again. Water is a limited resource. We will always have the same amount of water on the earth, but can't always use as much as we need. One reason is that 97% of the earth's water is saltwater. Of the remaining 3%, which is fresh water, nearly 75% is frozen in glaciers.

Other reasons water is a limited resource is that pollution, increased human demand for water, and changes in precipitation patterns can decrease both the quality and amount of water available to people, plants and wildlife.

WATER AND WEATHER ON THE MOVE

Water evaporating from the oceans, lakes and streams moves to the atmosphere. Air carries the moisture up and, if the conditions are right, it forms clouds. The wind that moves these clouds around the globe is called the jet stream.

The jet stream changes its pattern with each season. In other words, the jet stream will carry weather patterns, in different directions or over different routes during each season.

If the jet stream changes its patter or is blocked by "ridges" and "troughs" of air in the atmosphere, the normal weather for a place can be different for a period of time. When the jet stream hits a ridge or trough or takes a certain detour and is not bringing the clouds that produce rain – a drought can occur. These patterns in the jet stream could change for many reasons. Scientists are still uncovering the answers, but many think that influences such as differences in the amount of snow and ice cover, the amount of vegetation, the moisture in the soil and the ocean surface temperature and currents can cause these patterns to change. (Center, Drought for Kids, 2012)

DROUGHT IMPACTS

Drought affects all parts of our environment and our communities. The many different drought impacts are often grouped as "economic," "environmental," and "social" impacts. All of these impacts must be considered in planning and responding to drought conditions.

ECONOMIC IMPACTS

Economic impacts are those of drought that cost people (or businesses) money. For example:

- Farmers lose money if a drought destroys their crops.
- A farmer may have to spend more money on irrigation or to drill new wells.
- Ranchers may have to spend more money on feed and water for their animals.
- Businesses that depend on farming, like companies that make tractors and food, may lose business when drought damages crops or livestock.
- Water companies may have to spend money on new or additional water supplies.
- People might have to pay more for food.

ENVIRONMENTAL IMPACTS

Drought also affects the environment in many different ways. Plants and animals depend on water, just like people. When a drought occurs, their food supply can shrink and their

habitat can be damaged. Sometimes the damage is only temporary and their habitat and food supply return to normal when the drought is over. But, sometimes drought's impact on the environment can last a long time – maybe forever. For example:

- Losses or destruction of fish and wildlife habitat
- Lack of food and drinking water for wild animals
- Increase in disease in wild animals because of reduced food and water supplies
- Migration of wildlife
- Increased stress on endangered species or even extinction
- Lower water levels in reservoirs, lakes, and ponds
- Loss of wetlands
- More wildfire
- Wind and water erosion of soils
- Poor soil quality

SOCIAL IMPACTS

- Anxiety or depression about economic losses caused drought
- Health problems related to low water flows and poor water quality
- Health problems related to dust
- Loss of human life
- Threat to public safety from an increased number of forest and range fires
- Reduced incomes
- People have to move from farms into cities or from one city to another
- Fewer recreational activities (Center, Drought for Kids, 2012)

LOCATION

Drought can affect the entire planning area equally.

EXTENT

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 (Table 2.12). The Palmer index is

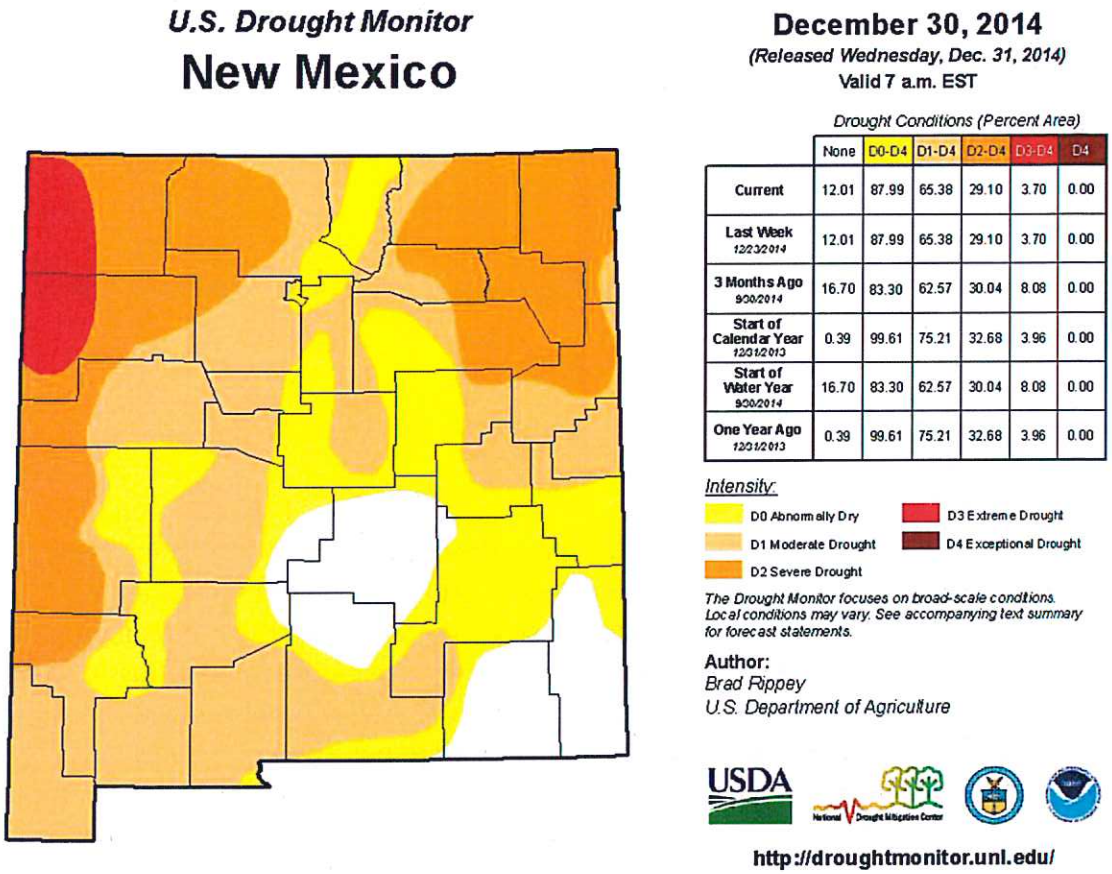
based on the supply-and-demand concept of the water balance equation, taking into account more than the precipitation deficit at specific locations. The PDSI provides a measurement of moisture conditions that are "standardized" so that comparisons using the index can be made between locations and months.

Palmer Drought Severity Index

Drought Severity	Return Period (years)	Description of Possible Impacts	Drought Monitoring Indices		
			Standardized Precipitation Index (SPI)	NDMC* Drought Category	Palmer Drought Index
Minor Drought	3 to 4	Going into drought; short-term dryness slowing growth of crops or pastures; fire risk above average. Coming out of drought; some lingering water deficits; pastures or crops not fully recovered.	-0.5 to -0.7	D0	-1.0 to -1.9
Moderate Drought	5 to 9	Some damage to crops or pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested.	-0.8 to -1.2	D1	-2.0 to -2.9
Severe Drought	10 to 17	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed.	-1.3 to -1.5	D2	-3.0 to -3.9
Extreme Drought	18 to 43	Major crop and pasture losses; extreme fire danger; widespread water shortages or restrictions.	-1.6 to -1.9	D3	-4.0 to -4.9
Exceptional Drought	44+	Exceptional and widespread crop and pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells creating water emergencies.	less than -2	D4	-5.0 or less

*NDMC - National Drought Mitigation Center

According to the U.S. Drought Monitor, as of the end of last year, Cibola County experiencing moderate to severe drought conditions.



PROBABILITY OF FUTURE EVENTS

There is a **HIGH** probability of drought in Cibola County in the next year. And, perhaps in the decade to follow.

VULNERABILITY

A simple glass of clean potable water, fire protection, food supply through agriculture and livestock all eliminated as small arid communities seek solutions to save the precious water beneath the soil. The entire population of Cibola County is vulnerable to lack of water.

IMPACT

The impact of drought is upon smaller communities who depend upon community well systems. If the well is not properly maintained the impact is no access to safe drinking water. Bluewater Village experienced a water outage in August of 2012. This outage lasted the entire

month of August while the water board scrambled to secure funds to drill a new deeper well. Another consideration is maintaining the telemetry alarm system alerting maintenance workers of low water in order to shut off the pump eliminating damage. Last update in May of 2013, is that the village continues to be on a boil water alert and the water well is somewhat secure.

PREVIOUS OCCURRENCE

Cibola County has previously experienced drought since 2004 and recovery is not likely anytime soon.

OVERALL SUMMARY OF VULNERABILITY TO DROUGHT

Precipitation in all forms is a necessity in Cibola County when no precipitation occurs over the number of years that this county has experienced drought conditions many areas are affected. Economic impacts for ranchers and farmers may be the greatest of all but the county is also aware of additional impacts to the environment and society is measured on the loss of habitat and erosion to arable land making growing crops difficult, social problems with depression and chronic disease escalation due to poor water quality are but a few of the many issues that can affect a rural county like Cibola. There are minimal mitigation strategies that can affect the outcome of drought conditions.

PART III

MITIGATION STRATEGY GOALS AND ACTIONS

HAZARD MITIGATION PROCESS

The County's hazard vulnerability analysis was updated for this 2015 planning cycle and used as a basis for determining the primary natural hazards it faces. The work group prioritized the hazards based on past occurrences and projected future risk with prevailing conditions. Members determined that each jurisdiction differed in terms of respective priorities depending on proximity to forests, flood plains, interstate highways and other hazards. A similar list was also provided to citizens who prioritized hazards based on their perceptions of conditions and problems. Once the hazards were identified the risk analysis was completed. From the hazards list a Mitigation Strategy was then developed based on threats, critical needs and achievable options.

The County and participating jurisdictions shall gather more detailed and in depth vulnerability studies and information for the next planning cycle.

INTRODUCTION

"The ongoing growth and development of Cibola County is a creative process shared by citizens and government alike. It is built on past accomplishments, current needs, and projected ideals for the future. A comprehensive plan describes how, and at what pace, the community desires to develop physically, economically, and socially. It is a roadmap. Cibola County has been in involved in many planning processes in its 22-year history. In the late 1970s and early 1980s the State of New Mexico focused strategic planning efforts toward areas impacted by energy-related development. These plans focused on the impacts of sudden population growth related to the mining industry. Since the uranium mines closed in the early 1980s, many planning efforts have focused on economic development and how to diversify the local and regional economy. Health and social service issues have been addressed, as well as community development, housing, infrastructure and recreation. The Cibola County 20- year Comprehensive Plan is the first comprehensive plan for Cibola County that includes all of the following elements: Land Use, Water, Economic Development, Infrastructure, Housing, Transportation, and Suggested Actions for Implementation. It establishes goals and policies that recognize and plan for the interrelationships and interactions of these factors. Goals, policies, and recommended actions [of the plan] are based on current resources, projected needs, developmental parameters, public attitudes, and feasibility of implementation. The comprehensive plan involved all governments, agencies, organizations and citizens in its development process. It is the best source document for identifying community profiles, government relations, land use, water, economic development, infrastructure, transportation and housing and mitigation initiatives.

The Mitigation Plan process utilized the county comprehensive plan and jurisdictional plans to access and identify potential losses due to the hazards identified within the

plan. These plans provide the blueprint for reducing loss and implementing mitigation strategies that are both germane to the communities and to the governmental processes they operate within. They become the tools for mitigation. A list of past and present planning efforts follows:

- "A Strategy for Areas Impacted by Energy Related Development (MRGCOG 2015)
- Cibola County Growth Management Plan for the Energy Impacted Area Development Assistance Program (State Planning Division, 2015)
- Cibola County Growth Management and Housing Plan (State Planning Division, DFA 2015)
- 2003 Cibola County Health Profile (New Mexico Department of Health)
- Quality of Life in Cibola County (Future Foundations Family Center 2003)
- Comprehensive Community Health Improvement Plan (2012)
- Cibola County Industrial Location Guide (Greater Grants Industrial Development Foundation 1990)
- Cibola County Economic Development Plan (Cibola Communities Economic Development Foundation and NMSU Grants Small Business Development Center 2015)
- Cibola County Business Survey (NWNMCOG 2015)
- Business Survey Results: Grants/Cibola County Business Retention and Expansion Program (Business Survey Task Force 2015)
- Housing in Cibola County: A Housing Needs Analysis and Long Range Strategic Plan for Housing and Community Development
- Cibola County Consolidated Recreation Plan
- Village of Milan 20-Year Comprehensive Plan (NWNMCOG 2015)
- Cebolleta Land Grant Improvement Plan (LM García y Griego, June 2015)
- Northwest New Mexico COG Implementation Plan (2015)
- Cibola County Hazard Vulnerability Analysis, Pueblo of Laguna Emergency Operations Plan (2011 & October 2012)
- Pueblo of Laguna Constitution(1984)
- Acoma Constitution (1975)
- Acoma Emergency Operations Plan
- Ramah Navajo Chapter bylaws (1989)
- Cibola County Emergency Management & Local Emergency Planning Committee 2007; updated through 2011)
- MSDS and Tier II Reports Fire, Cibola County Emergency Management and Local Emergency Planning Committee (Annual Updates)
- Commodity Flow Studies, Cibola County Emergency Management and Local Emergency Planning Committee (June 2003)

- FEMA Multi Hazard Identification and Risk Assessment, A cornerstone of the National Mitigation Strategy, (Publication date 1997) and other FEMA Flood Plain Risk Reduction and Mitigation Reference Books
- Earthquake catalogs for New Mexico and bordering areas: Revised August 2014
- State and Local Mitigation Planning Guidelines (2013)
- Homeland Security Planning Guidelines (New Mexico OEM and various sources)
- U.S. Forest Service Fire Mitigation Plans
- U.S. National Park Service Fire Mitigation Plans

MITIGATION GOALS

The mitigation goals of the Cibola County Hazard Mitigation Plan have not changed since the last planning cycle. The goals are to reduce or avoid long term vulnerabilities to the identified hazards of flood, drought, wild fire, severe wind, thunderstorm including hail, and lightning and winter storm Goals need to be part of mitigation implementation projects or actions of the County's Comprehensive Plan and to thereby ensure that future development and growth is as disaster resistant as possible. The planning effort is designed to eliminate, wherever possible, hazards that pose threats to the lives and property of the community. Many hazards cannot be entirely eliminated, so mitigation projects should be identified that will reduce risks and associated losses when emergency incidents occur.

There are three primary methods available to the community for use when addressing hazard mitigation:

- **Administrative measures**. Included in this category are planned growth and land use strategies as well as conservation measures, development of emergency response plans, and support services for cooperative agreements with other entities. Also included is the adoption of ordinances or regulations that support growth and development objectives.
- **Engineering measures**. Included in this category are projects consisting of physical construction measures such as drainage structures, detention and retention facilities for storm runoff, firebreaks, and reducing impact to at risk structures.
- **Regulatory measures**. Included in this category are the active implementation and enforcement of regulations and ordinances such as land development and subdivision comprehensive zoning, land use and flood plain development, building and fire codes, and water conservation.

In summary, there are many tools available to mitigate the hazards and their impacts. Typically the cost of engineering studies and solutions are outside a jurisdiction's normal budget. Outside funding sources must be sought for effective implementation. Administrative and regulatory measures, also incur a cost in terms of personnel and administrative costs. For mitigation measures to be effective there must be oversight, commitment, financial investment and a plan to provide for field implementation, program maintenance and enforcement.

MITIGATION STRATEGY

The hazard mitigation strategy for Cibola County finds common ground within the implementation of the County-wide 20-year Comprehensive Plan. Mitigation program maintenance will be facilitated through assignment of responsibility and continuation of the Mitigation Working Team to be comprised of jurisdictional representatives and members of the community to review progress and make recommendations for future updates as necessary.

The Mitigation-Planning Team initially prioritized hazards based on the potential for loss of life, property and ecological destruction. The Group's strategy outlines appropriate and achievable implementation plans to mitigate consequences of hazards. It was determined that where levels of vulnerability to and damages from hazards may vary between the jurisdictions the hazards existed for the entire County. Goals and objectives were then developed for the entire County. Actions would be specific to address the varying levels of damages and existing resources and infrastructure with in the jurisdictions.

GOALS AND OBJECTIVES BY HAZARD

FLOOD

GOALS:

1. Control future structural encroachment in identified floodplains in Cibola County.

OBJECTIVES:

I. Request flood hazard boundary study for the County from FEMA and UPDATEs of Flood Hazard Boundary Map

II. Develop and implement restrictions for development in flood plains

2. Reduce Flooding in Cibola

   County

   I. Develop drainage strategy as a multi-jurisdictional effort to achieve multi-purpose & practical benefits.

   II. Access existing flood prone areas.

   III. Repair and maintain existing drainage and flood prevention infrastructure.

   IV. Develop and construct appropriate flood prevention infrastructure.

3. Reduce the damage caused by flooding in Cibola

   County.

   I. Reduce exposure to flood prone communities by developing and implementing appropriate flood control measures.

   II. Enact flood control, building codes and land use ordinances designed to protect property owners from damage due to flooding.

   III. Support and maintain flood prevention ordinances and direct all planning, zoning, building and development to be in compliance with federal, state, local laws.

4. Develop and implement enforcement

   strategies

   I. Ensure enforcement of flood prevention ordinances for new development.

WILDFIRE

GOALS:

1. Reduce risk for losses, costs and human suffering caused by wild fires within rural interface areas.

   OBJECTIVES:

   I. Reduce fuels and flammable materials along the borders of urban interface areas and the national forest

2. Reduce risk for losses and damages caused by wildfire throughout the County.

    I. Reduce fuel loads along public roads

    II. Reduce fuel loads and create perimeter fire protection around all county and local jurisdictions critical faculties

HIGH WIND

GOALS:

1. Prevent damage to new and existing at risk structures.

OBJECTIVES:

I. Require the proper stabilization and anchoring of all wind susceptible structures

II. Secure property that is exposed or stored out doors

2. Prevent damage to public utilities.

I. Identify at risk utilities

II. Mitigate risk to the utilities

THUNDERSTORM INCLUDES: HAILSTORMS, LIGHTNING

LIGHTNING

GOALS:

1. Reduce risk to critical infrastructure to prevent disruption of emergency services due to lightning strikes

OBJECTIVES:

I. Prevent disruption of emergency communications

II. Maintain emergency power backup systems

HAIL

GOALS:

1. Prevent damage to existing and new structures due to hail storms.

OBJECTIVES:

I. Require the use of hail resistant materials in construction

2. Prevent financial loss due to crop damage from hail storms

I. Encourage the importance of crop and livestock insurance

SEVERE WINTER STORM

GOALS:

1. Reduce risk to residents caused by winter storms.

OBJECTIVES:

I. Prevent disruption of electric and communication services to homes and emergency service providers

II. Identify susceptible populations to provide effective emergency services.

2. Reduce damage to Public Utilities

I. Identify exposed or at risk utilities

II. Mitigate exposure

DROUGHT

GOALS:

1. Identify water conservation measures that can reduce the overall water usage within Cibola County.

OBJECTIVES:

I. Develop and implement a plan to restore watershed areas, increase water in the aquifer & restore land health by conserving water used in Industry, residential, Governmental, and non-native landscapes

2. Establish measures that can reduce water use in Cibola County.

I. Establish public incentives and education that promotes water conservation.

II. Develop and implement regulations requiring all builders and developers to utilize water saving devises.

III. Establish water conservation practices for industry, farming and ranching.

PRIORITY OF ACTIONS

The mitigation actions were evaluated by considering the following criteria then ranked numerically by order of priority for the entire County.

Immediate need for action. The need for any specific action is considered a priority if the impact caused by the hazard and the potential for its occurrence are considered high. In such cases the action to be taken can have an immediate impact in reducing or eliminating the effects of the potential occurrence.

Action to meet goals and objectives. Each action must be evaluated on its ability to further the goals and objectives in the effective mitigation of the given hazard. Does the action provide the most forward progress toward the jurisdiction's established goals and objectives?

Value to the jurisdiction. How much of the jurisdiction will benefit from a given action? The larger the overall effect of the action, the higher its priority should be.

Value to the county. Beyond the benefit to a specific jurisdiction, consideration should be given to the action's benefit to the county as a whole. Priority may be given to actions that provide the most benefit to the entire county and not just to the specific jurisdiction.

Capability to complete action. There are a multitude of possible solutions to every hazard. However, it must be realized that while all of these solutions may be accomplished given enough money and time, the reality is that no jurisdiction has unlimited funding. Therefore, we must consider the question of the jurisdiction's ability to complete the action. Actions that are presently within the jurisdiction's capability may be accomplished while plans are made toward the accomplishment of more costly actions.

Ease of implementation. Consideration should be given to the ease of implementing any specific action plan. While some actions may take years to analyze, obtain funding for, secure property, and design, others can be

completed without much delay. For example, the construction of a dam is much more complicated than the enacting of legislation preventing construction within a known floodplain.

Cost Benefit Analysis. Every local, state, and tribal government experiences budget constraints at one time or another. Cost-effective mitigation actions that can be funded in current or upcoming budget cycles are much more likely to be implemented than mitigation actions requiring general obligation bonds or other instruments that would incur long-term debt to a community. States and local communities with tight budgets or budget shortfalls may be more willing to undertake a mitigation initiative if it can be funded, at least in part, by outside sources. "Big ticket" mitigation actions, such as large-scale acquisition and relocation, are often considered for implementation in a post-disaster scenario when additional federal and state funding for mitigation is available. The following questions aided the analysis:

1. Are there currently sources of funds that can be used to implement the action?
2. What benefits will the action provide?
3. Does the cost seem reasonable for the size of the problem and likely benefits?
4. What burden will be placed on the tax base or local economy to implement this action?
5. Does the action contribute to other community economic goals, such as capital improvements or economic development?
6. What proposed actions should be considered but be "tabled" for implementation until outside sources of funding are available?
7. Key team members for this discussion include community managers, economic development staff and the assessor's office.

MITIGATION ACTIONS

In the previous planning cycle, the Hazard Mitigation Planning Team identified the following specific mitigation actions after analyzing a comprehensive range of actions. The actions were selected based on the criteria identified above to reduce the effects of each hazard with particular emphasis on new and existing buildings and infrastructure. The

status of the following mitigations actions has been noted: Completed, Carried Forward or Dropped (no longer a priority for the planning area.

FLOOD MITIGATION ACTIONS

1.

Hire a Flood Code Enforcement Officer. This will provide the best option to assure that flood mitigation strategies are followed for new constructions as well as remodels in both residential buildings and commercial sites.

Responsible Agency:	Cibola County Flood Plain Administrator
Completion:	Ed Flood Plan Manager
Jurisdictions:	Cibola County
Cost:	$50,000 Annually
Funding Sources:	
Priority:	7
Status:	Completed

2.

Acquire GIS software programs that can overlay flood plain mapping with current maps. Through this process a more comprehensive inventory can be established showing the existence of structures in floodplains. Additionally, due to erosion and other types of construction, new areas susceptible to flooding will be identified.

Responsible Agency:	Cibola County Rural Addressing Administrator with assistance from Cibola County Manager and Emergency Manager.
Completion:	within 1 to 5 years

Jurisdictions:	Cibola County
Cost:	$25,000
Funding Sources:	
Priority:	1
Status:	Completed

3.

Repair public drainage ditches, culverts and watercourses and develop a program for scheduled inspection and repair for the future. Management of drainage channels and repair measures will help reduce the potential for flooding by allowing unrestricted flow of water.

Responsible Agency:	Public Works Departments in Grants, Milan and Cibola County
Completion:	within 5 years
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$100,000
Funding Sources:	
Priority:	11
Status:	Completed

4.

Adopt new zoning ordinances, subdivision regulations and building codes as nonstructural measures for managing and implementing drainage. Requiring appropriate analysis of drainage plans and construction of drainage ways will avert new flooding.

Responsible Agency:	Elected Officials and Jurisdiction Managers and Planners with assistance from County Mitigation Program Managers
Completion:	within 1 to 5 years
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$80,000
Funding Source:	
Priority:	6
Status:	Carried Forward

5.

Perform surveys of all critical infrastructures such as wells, booster stations, life stations, etc., to identify their exposure relative to known base flood elevations and construct berms or take appropriate protective measures. Berms and other protective measures can divert water off and away from critical infrastructure and into vegetated areas or retention ponds, before it causes erosion or structural damage.

Responsible Agency:	Public Works and Engineering
Completion:	within 1 to 5 years
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$35,000
Funding Source:	General Fund

Priority:	15
Status:	Carried Forward

6.

Provide adequate flooding protection for First, Second and Roosevelt Roads in Grants by constructing and repairing diversion channels and storm drainage systems. These roads have been specifically identified as being negatively affected by storm waters. Repairing, replacing or constructing drainage infrastructure will protect the roadways and area from flooding.

Responsible Agency:	Public Works Dept.
Completion:	5 years
Jurisdictions:	City of Grants
Cost:	$800,000
Funding Source:	
Priority:	12
Status:	Completed

WILD FIRE MITIGATION ACTIONS

1.

Conduct controlled burns within the urban interface forest land areas working with the National Forest Service. Removing dry brush and grasses from forest lands will create non-flammable parameters protecting bordering homes and the forest.

Responsible Agency:	National Forest Service
Completion:	5 years
Jurisdictions:	Cibola County
Cost:	$125,000
Funding Source:	USDA Forest Service
Priority:	10
Status:	Ongoing / Carried Forward

2.

Implement Mowing and weed clearing programs to control fire along county and local jurisdictional roads. Weeds and tall grasses along traveled roads throughout the County pose a fire hazard from cigarette butts and other flammables from motorists. Clearing the shoulders will eliminate the fuel and prevent the fire.

Responsible Agency:	Cibola County, City of Grants and Village of Milan Public Works Dept.
Completion:	Annually
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$500,000 annually
Funding Source:	Local Budget
Priority:	2
Status:	Carried Forward

3.

Establish a defensible perimeter around the Counties critical facilities. Create and maintain a minimum of a 30 foot defensible space around all critical structures. By removing or containing the fuel loads and flammables located around critical County structures the likelihood of fire damage is reduced.

Responsible Agency:	The County Manager and Public Works Dept.
Completion:	5 years
Jurisdictions:	Cibola County
Cost:	$20,000 annually
Funding Source:	
Priority:	13
Status:	Completed

4.

Establish Utilize non-combustible building materials.

Responsible Agency:	City of Grants Code Enforcement Officer, Village Of Milan Code Enforcement Officer
Completion:	5 years
Jurisdictions:	City of Grants, Village of Milan
Cost:	$100,000 annually
Funding Source:	City of Grants and Village of Milan General Funds, HMGP Grants, Captial Outlay
Priority:	23

Status:	Completed

HIGH WIND MITIGATION ACTIONS

1.

Adopt local and county jurisdictional codes requiring all new mobile homes be permanently anchored to sites and all existing mobile homes comply within 5 years of the adoption of the codes. Mobile homes which do not have permanent foundations are susceptible to wind damage. Anchoring mobile homes on site stabilizes the home making it less susceptible to damage due to rocking and moving in the wind.

Responsible Agency:	Cibola County government, City of Grants and Village of Milan local government
Completion:	4 years
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$20,000
Funding Source:	HMGP
Priority:	9
Status:	Carried Forward

2.

Require that any new subdivision or development bury all electric and utility lines. Above ground utility lines and poles are susceptible to damage due to wind and flying debris causing power outages and disrupting service. Bury the utility lines removes them from all effects of the wind.

Responsible Agency:	Cibola County government, City of Grants and Village of Milan local government

Completion:	4 years
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$20,000
Funding Source:	HMGP – Public Utility
Priority:	8
Status:	Carried Forward

3.

For any governmental outdoor storage facilities, construct enclosed storage to contain any materials susceptible to wind damage. Prevents loss or damage to government property due to wind damage.

Responsible Agency:	Cibola County Public Works Dept., City of Grants and Village of Milan Public Works Department
Completion:	5 years
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$500,000
Funding Source:	
Priority:	18
Status:	Not being Considered

THUNDERSTORM, (INCLUDING LIGHTING AND HAIL) MITIGATION ACTIONS

1.

Install lightning suppression equipment on essential communication towers owned by the County and local jurisdiction. Protecting communication towers from lightning will prevent disruption in communication for vital emergency services that can be caused by lightning strikes. In additional costly repairs or replacement of public infrastructure is prevented.

Responsible Agency:	Cibola County Public Works Dept., City of Grants and Village of Milan Public Works Department
Completion:	5 years
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$180,000
Funding Source:	
Priority:	19
Status:	Completed

2.

All participating jurisdictions will install and maintain backup generators at all their emergency operations and critical faculties. Lightning strikes can cause power outages. By having backup generators Governmental emergency and critical services will not be disrupted.

Responsible Agency:	Cibola County Public Works Dept., City of Grants and Village of Milan Public Works Department
Completion:	2 years
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$100,000

Funding Source:	HMGP
Priority:	5
Status:	Carried Forward

3.

Conduct informational seminars and develop supporting materials for farmers and ranchers on the importance of having crop and livestock insurance in the event of hailstorm damage. Crops are susceptible to hailstorm damage. Farmers and Ranchers can prevent financial losses and disruption of incomes by having insurance that will assist them should crops be damaged or destroyed in hailstorms.

Responsible Agency:	County Extension working with the County Manager
Completion:	Annually
Jurisdictions:	Cibola County
Cost:	$20,000 annually
Funding Source:	
Priority:	21
Status:	Completed

4.

Require the use of hail resistant building materials (roofs, sidings, windows) on critical County and Local Governmental buildings for all new construction and remodels.

Responsible Agency:	Cibola County Public Works Dept., City of Grants and Village of Milan Public Works Department
Completion:	5 years

Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$15,000 annually
Funding Source:	HMGP, Local Government
Priority:	22
Status:	Carried Forward

5.

Require that any new subdivision or development bury all electric and utility lines. Above ground utility lines and poles are susceptible to damage due to wind and flying debris causing power outages and disrupting service. Bury the utility lines removes them from all effects of the wind.

Responsible Agency:	Cibola County government, City of Grants and Village of Milan local government
Completion:	4 years
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$20,000
Funding Source:	HMGP – Public Utility
Priority:	8
Status:	Carried Forward

SEVERE WINTER STORMS MITIGATION ACTIONS

1.

Implement a tree management program to eliminate the risk of snow laden tree branches falling on power lines thereby creating outages. Prevents power outages during winter storms protecting homes and residents form adverse effects due to loss of heating and lighting.

Responsible Agency:	Cibola County Public Works Dept., City of Grants and Village of Milan Public Works Department working with the Public Utilities Co-ops and companies
Completion:	Annually
Jurisdictions:	Cibola County, City of Grants, Village of Milan
Cost:	$100,000 annually
Funding Source:	
Priority:	20
Status:	Completed – not Carried Forward

2.

Create and maintain a list of special needs populations including the elderly, ill, and homebound and establish a system for contacting and locating them including marking all streets with street name signs and homes with house numbers to provide assistance in the event of isolation and service disruptions due to a severe winter storm event. Protects at risk populations from harm due lack of access to services and provisions during storm events.

Responsible Agency:	The County Emergency Management, Cibola 911-call Center and all local jurisdictions emergency services.
Completion:	3 years
Jurisdictions:	Cibola County, City of Grants, Village of Milan

Cost:	$200,000
Funding Source:	HMGP – State Fire Fund
Priority:	4
Status:	Carried Forward

DROUGHT MITIGATION ACTIONS

1.

Implement a rotational grazing system for livestock, reseeding of drought resistant grasses and vegetation, laser-level irrigated cropland and pasture for even flow watering, and/or use concrete line or pipe irrigation ditch systems to conserve and direct water as needed. Rotational grazing along with reseeding of drought resistant grasses and vegetation will improve sustainability of rangelands areas. Lining existing earthen irrigation ditches will reduce the amount of water that is lost to absorption. Presently, most irrigation ditches in Cibola County are unlined dirt canals. If these ditches were piped, the loss of water from absorption and evaporation would be eliminated.

Responsible Agency:	Cibola County Public Works Dept., Cibola County Extension and ranching associations.
Completion:	1-5 years
Jurisdictions:	Cibola County
Cost:	$1,000,000
Funding Source:	
Priority:	16
Status:	Not Carried Forward

THESE MIGATION ACTIONS HAVE BEEN COMBINED

2

Begin a water use reduction program by implementing a public relations and education program to use water-saving landscaping, such as Xeriscaping to conserve water. This program will allow for a more realistic use of native and other drought-resistant landscaping vegetation that will reduce the water usage in landscape maintenance. Utilizing native and drought resistant plants has been proven to reduce water usage.

3

Implement a progressive low-flow plumbing initiative.

The program will provide public education through presentations and materials focused on utilizing and/or replacing plumbing, appliances and fixtures with low- flow (low water usage) ones. The use of low flow toilets and showerheads will reduce the amount of water used on a daily basis. The annual County wide water savings would be approximately 22,080,000 gallons by 2010 if all housing was constructed with or converted to low flow plumbing.

Responsible Agency:	Cibola County government, local governments of Grants and Milan, and Planning and Environmental Departments with assistance from the State Engineer and County Extension office.
Completion:	1-5 years
Jurisdictions:	Local Government
Cost:	$35,000
Funding Source:	HMGP, State Drought Mitigation
Priority:	14
Status:	Carried Forward, Combined 2 & 3

4.

Elimination of non-native plants including salt cedars within the Rio San Jose Valley. Non-native Russian olives Salt Cedars and willow are high water use plants that push out native

low water use plants. Removing the non-natives and re-vegetating will allow for efficient water deliver for irrigation while conserving water.

Responsible Agency:	Cibola County Planning Dept. working in conjunction with the Army Corp of Engineers
Completion:	5 years
Jurisdictions:	Cibola County
Cost:	$1,500,000
Funding Source:	General Fund
Priority:	3
Status:	Carried Forward

In addition to the mitigation projects carried forward for each hazard, the following mitigations are added to the 2015 Hazard Mitigation Plan update.

Responsible Agency:	
Completion:	
Jurisdictions:	
Cost:	
Funding Source:	
Priority:	

ADDITIONAL MITIGATION EFFORTS

Implementation of plans. Once each action plan is evaluated and prioritized, it is necessary to ensure that each action plan is carried out. In order to ensure that progress is made

toward completing any given action, it is necessary to establish the action's details, including when it should be completed, the requirements for its completion, where the action is to be taken, what benchmarks are appropriate, and who will be responsible for its progress.

Evaluation of plan's results. Along with establishing the priority of action and identifying specific actions and responsible agencies, it is necessary to evaluate the progress toward the completion of each action and its effective results. Periodic progress reports and evaluations are necessary to accomplish this. Each progress report should reflect the work accomplished to date, the work still outstanding, and the action's impact in implementing the success of the goals and objectives that have been identified for a given hazard. If it is determined that modification of the initial action plan is required, this will be accomplished during the evaluation process.

Plan review and revision. In order to ensure a continuation of the mitigation process, it is necessary to perform a periodic review of the plan every five years. During this process, the progress of the specific action plans will be reviewed and additional action plans created as needed. This plan review and revision will be accomplished by engaging the county's working group and the public in order to ensure that the mitigation of hazards within the county and its jurisdictions is being accomplished.

In addition to the specific actions listed above, Cibola County, City of Grants and the Village of Milan acknowledge that it is necessary to ensure that future growth in the county should avoid or control the use of all areas that contain known potential hazardous environments. Further, the mitigation of hazards will not stop even with the completion of each of the specific actions listed above. Therefore, hazard mitigation will become a county-wide ongoing and coordinated effort. The following areas of consideration will take place as part of this effort.

Evaluation of declared emergencies and activations of area emergency operations centers. In the event that an emergency declaration is made within the county or its participating jurisdictions, an evaluation of the events leading to this declaration will be made in order to identify possible mitigation actions that can be taken to reduce or eliminate this hazard in the future. In addition, the activation of an emergency operations center within the county will require this same type of evaluation in order to identify possible mitigation actions that can be taken.

Incorporation into existing efforts. Successful efforts at eliminating or reducing the consequences of future hazard events cannot occur without controlling the growth of new development within known hazardous areas. As part of implementing the resolutions of the Cibola County Mitigation Plan, all proposed new development must be evaluated against identified hazard- prone areas. Therefore, the building permit approval system will include a review of all newly-proposed development projects to keep them from being built in known hazard-prone areas such as floodplains. If a proposed project falls within such an area, the permit may be disapproved or additional construction requirements may be established to eliminate any dangers that could be caused by the existence of the hazard.

INCORPORATING THE MITIGATION PLAN

County, Municipal and Tribal planning staffs will ensure that all comprehensive plans that are developed based on the community's predicted growth patterns consider both hazard locations and the mitigation action plans to eliminate or reduce them.

Additionally, emergency operations plans are in place and exercised regularly in order to ensure that area response agencies coordinate their efforts during emergency situations. The emergency operations plans are reviewed annually and revised as necessary.

Once the Mitigation plan is FEMA approved the planning document will be incorporated in the appropriate County, Municipal and Tribal plans based on the following jurisdictional planning efforts:

Planning Document	*UPDATE Process*	*Frequency of UPDATEs*	*Agency Responsible*
Cibola County 20-year Comprehensive Plan	Planning Dept. drafts UPDATEs, Public process. County Commission adopts	Every 10 years (2010)	County Manager County Planning Dept.
Cibola County Emergency Management & Local Emergency Planning	Emergency manager drafts UPDATEs, public process, County Commission adopts	Every 5 years (2010)	County Emergency Manager

City of Grants 10-Year Comprehensive Plan	The Comp plan is being developed for adoption 2007. City Manager is responsible for UPDATEs and Council adopts	Every 10 years (2017)	City Manager
Village of Milan 20-Year Comprehensive Plan	Village Manager drafts public process Trustees adopt	Every 10 years (2012)	Village Manager Mayor and Trustees Adopt

PLAN MAINTENANCE

MONITORING, EVALUATING AND UPDATING

PART IV

INTRODUCTION

The Cibola County Plan Maintenance, Monitoring, Evaluating & Updating is designed to take the goals and objectives described in Part III, and make them reality. In order for this to occur, each participating jurisdiction has evaluated the action plans and prioritized them for completion. Mitigation actions were prioritized considering a cost benefit analysis and the jurisdiction's hazard assessment. Actions were further accessed by determining for the immediate need for action, the action's ability to meet the goals and objectives of the mitigation plan, the action's value to the jurisdiction as a whole, the action's value to the county as a whole, the jurisdiction's capability to complete the action, the ease of implementation, and the action's ability to meet the goals and objectives of multiple jurisdictions.

MONITORING EVALUATING UPDATING

MONITORING

The Cibola County Emergency Manager will organize a group within Cibola County representative of all government, business, education, health, public safety and the general public to carry on a regular review of the adopted hazard mitigation plan.

Following the approval of the Hazard Mitigation Plan by the state and federal governments, the review group will meet at the call of the Emergency Manager of Cibola County and develop a Work Progress Report on the mitigation projects identified in the plan. Each identified jurisdiction will submit progress reports to the review group at least semi-annually, documenting the progress on hazard mitigation projects scheduled for implementation

A Work Progress Report shall be submitted to the review group semi-annually from each jurisdiction within Cibola County and shall include a progress report on:

a. Public works programs and projects that mitigate hazards within the reporting jurisdiction. (These shall include separate reports on major and minor public works initiatives.)

b. Procedural changes that assist in hazard mitigation.

c. Changes in building codes, land use codes, regulations and ordinances that mitigate hazards within the reporting jurisdiction.

d. Changes in emergency response training and procedures that assist in the mitigation of hazards within the reporting jurisdictions.

e. All changes in State of New Mexico procedures, laws, codes and regulations that assist in the mitigation of hazards within the reporting jurisdiction.

With respect to each category of the Work Progress Report described above, reporting jurisdictions of Cibola County, including county government agencies, shall indicate the following:

a. The objectives of the action or project.

b. The lead and all supporting agencies responsible for implementation of the action or project.

c. An estimate of the time required to complete the action or project by the jurisdiction, office or agency.

d. Whether the resources needed to complete the action or project by the jurisdiction, office or agency is available and, if not, what must be done to obtain them.

Whenever possible, the jurisdiction, office or agency forwarding the Work Progress Report shall establish measurable, numerical indicators of effective progress on each project.

Agencies reporting to the review group will include all signatory jurisdictions within Cibola County, including departments of county government that participated in the development of the Hazard Mitigation Plan, and whose governing bodies have approved the plan by an appropriate, formal resolution.

To ensure that the Cibola County Mitigation Plan is the key factor in the development of a dynamic mitigation program for the county, the Cibola County Emergency Manager shall convene the review committee at least semi-annually for an In Progress Review (IPR) of the hazard mitigation plan of the county and all signatory jurisdictions. The group shall:

a. Review the Work Progress Reports of all signatory jurisdictions, including Cibola County government.

b. Identify trends related to the mitigation effort in data availability, land use and development, technology, demographics, the local economy, and national issues and events having local impact.

c. Evaluate the items in (b) above and determine what changes should be made in the county's hazard mitigation program and in the planning document.

Review of the risk assessment in the current County Hazard Mitigation Plan. A progress report will be published semi-annually, detailing the efforts made toward meeting the goals set forth in the Cibola County Mitigation Plan. This report will be available for public review and

comment at the public libraries, the Cibola County Court House, City Hall of each participating jurisdiction, and through the media. In addition, public input will be solicited and maintained for future use during review of the plan.

Following the process detailed above, the review committee will distribute its In Progress Review (IPR) along with detailed, specific recommendations to update the hazard mitigation plan. All plan revisions and recommendations will be reviewed and approved by plan signatories in accordance with local ordinances and state laws.

EVALUATING

The Cibola County Mitigation Plan will be evaluated annually as established in the implementing resolutions signed by the county commission and city council of each participating jurisdiction. The review of the Cibola County Mitigation Plan will consist of the following efforts:

1. Evaluate the resulting benefit of all completed action plans.
2. Evaluate the progress of action plans still being implemented.
3. Evaluate public input relating to completed projects, ongoing projects, or developing trends or concerns within the mitigation process.
4. Determine if new hazard threats have been identified and devise action plans accordingly.
5. Revise, if necessary, the schedule of pending mitigation action plans.

The county's mitigation review group is best suited to evaluate the plan's implementation strategy as the situation objectives change. The mitigation review group will follow up on the following essential tasks:

1. The gathering and evaluation of new data that affects mitigation planning.
2. The inclusion of the public in the mitigation planning process.
3. The incorporation of changes into the basic planning document as soon as possible after those changes are recognized and deemed appropriate.
4. The updating process will begin 3 years into the current plan

FIVE YEAR PLAN UPDATES

In accordance with DMA 2000 regulations, this plan will be updated and readopted every five years. The update process will begin approximately 3 years into the planning cycle to allow sufficient time for public input, local government revisions and FEMA approval to maintain continuous eligibility. The Cibola County Emergency Manager will lead the update

process in conjunction with representatives from the participating local jurisdictions and governments.

Updated Mitigation Plans will be adopted by resolution by each participating jurisdiction and incorporated into planning documents as they are individually reviewed and updated following local planning and jurisdictional procedures.

CONTINUED PUBLIC INVOLVEMENT

UPON PROJECT COMPLETION:

Public announcements will be made after completion of all action plans under the Cibola County Mitigation Plan to demonstrate the ongoing efforts of the county and participating jurisdictions toward hazard mitigation within the community. In addition, public comment will be solicited as a part of each of these announcements.

ANNUALLY:

An advertised public meeting will be held to review the progress made in achieving the goals and objectives of the Cibola County Mitigation Plan. This public meeting will be the vehicle to provide the community with information concerning the progress or completion of mitigation efforts and to solicit public comment and input for use during review and revision of the mitigation plan.

The amended Cibola County Mitigation Plan will be available for public inspection and comment. Copies of the plan will be available at the public libraries, the Cibola County Court House, and City Hall of each participating jurisdiction.

Section 1. Work Progress Report

The agency or person in charge of each project will make a progress report to the county emergency manager on a quarterly basis after adoption of this plan. The progress report will follow the guidelines established below. On an annual basis, the county emergency manager will compile the progress reports from the action plans, and present these findings to the county working group.

Project Title:_____Project ID #: _____

Progress Reporting Period: _____

Location of Project: _____

Responsible Agency: _____

Contact Person: _____

Title: _____

Phone #: _____

Address: _____

_____

_____

Supporting Agencies: _____

_____

_____

Total Project Cost: _____

Project Description: _____

_____

_____

_____

Progress: _____

_____

_____

_____

_____

_____

Benchmarks	Complete	Projected Date of Completion

Planning Goals and Objectives Addressed:

_____

_____

_____

Indicators of Success:

_____

_____

_____

Project Status: _____

_____

_____

Summary of Progress: _____

_____

_____

ANNUAL REVIEW AND REVISION

On an annual basis, the county's working group will review the progress reports. During this review, each action will be evaluated as to its success or progress toward accomplishing the goals and objectives for the identified hazard. In addition, at least one public meeting will be held in order to present a progress report to the public and to address any concerns that may arise.

Upon the completion of the review process, including public input, the county emergency manager and the working group will revise or add to the mitigation action plans as needed.

On an annual basis, the county emergency manager will provide a report to the County Commission and participating jurisdictions addressing the progress being made in hazard mitigation. This report will include all recommended revisions that should be added to the mitigation plan and adopted by the County Commission by amendment to the plan.

APPENDICES

PART V

Appendix A

Formal Plan Acceptance

A draft resolution of acceptance is included. Each participating Jurisdiction will adopt a similar resolution following the receipt of FEMA Approval Pending Adoption of the Cibola County Hazard Mitigation Plan.

Participating Jurisdictions:

Cibola County

City of Grants

Village of Milan

SAMPLE RESOLUTION

RESOLUTION NO.

Re: **Cibola County New Mexico Multi-Hazard Mitigation Plan**

(Name of Jurisdiction)

(Governing Body)

(Address)

At a duly called meeting of the _____held on the _____day of_____, 2014, the following resolution was adopted.

WHEREAS, The Cibola County Multi-Hazard Plan has been prepared in accordance with FEMA requriements at 44 CFR.201.6; and

WHEREAS, _____Jurisdiction A_____ participated in the preparation of a multi-jurisdictional plan, Cibola County Multi-Hazard Mitigation Plan; and

WHEREAS,_____is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS,_____has reviewed the Plan and affirms that the Plan will be updated no less than every five years.

NOW, THEREFORE, BE IT RESOLVED by _____that *Jurisdiction A* adopts the Cibola County Multi-Hazard Mitigation Plan as part of this jurisdiction's Multi-Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

_____

Title

ATTEST:

_____

Secretary /Clerk

Appendix B

Letters of Participation
Resolutions
Ordinances & Insurance Plans

Appendix C

- Documentation of Public Meetings
  - Press releases
- Summary of Questionnaires

What's

September

Paguate Village Fiesta

Today, **Sept. 25**, the Village of Paguate, Laguna Pueblo, is hosting St. Elizabeth's Feast Day, which will feature traditional harvest and social dancing performances.

Call 1-505-552-6654 for more information.

'Mitigation Planning Kick-off Meeting'

On Wednesday, **Sept. 26**, Cibola County Emergency Management is hosting a "Public Hazard Mitigation Planning Kick-off" meeting, 515 W. High St., Grants, 6 p.m. the public is invited to attend.

Call 285-2558 for more information.

Buses are Idle

On Friday, **Sept. 28**, the Cibola Transit buses will be idle, 1-5 p.m., while drivers attend a mandatory training.

Normal service resumes on Monday, Oct. 1.

Call 287-9816 for more information.

New Mexico Centennial Air Tour

On Friday, **Sept. 28**, the New Mexico Centennial Air Tour will begin at the Grants/Milan Municipal Airport, located on Airport Road, Grants.

The event features an opportunity to witness general aviation aircraft of all types flying together. The tour is an official event of the New Mexico Centennial.

Call 287-4700 for more information.

October

City of Grants' 'Trek for Trash'

On Saturday, **Oct. 6**, the City of Grants is hosting its annual "Trek for Trash" as part of the 2012 New Mexico Clean & Beautiful program.

The city will provide eight locations for residents to deposit their trash.

Call 287-7927 for more information.

Zuni Ancient Fall Festival

On Saturday, **Oct. 6**, and Sunday, **Oct. 7**, the Zuni Ancient Fall Festival will include the 6th Annual Human/Horse Relay, the Anselemo Run, Arts' Raffle, PowWow, Gourd Dance and other traditional social dances, and the Zuni Arts Market.

Call 1-505-782-7239, 1-505-728-9787, or tkenne@ashiwi.org. for more information.

Mule Deer Hunt Raffle Tickets

On Saturday, **Oct. 6**, the El Morro Area Arts Council is a hosting a drawing for the winning raffle ticket for a mule deer hunt for two adults and two youth for a two-day guided hunt with food and lodging provided by La Tinaja Ranch. The hunt is scheduled for the two weekends in December of the deer hunting season.

n officer for state police. vere not able to make a body at the scene. An search and rescue team from Albuquerque, Haskins' search was called off on Sept. 24 as there were "no clues," according to Sgt.

Haskins is believed to have been a resident of Bluewater Acres for approximately seven years.

ewater Lake Manager ives Governor's Award

BEACON / COURTESY

Kelly Richerson, left, Bluewater Lake State Park manager receives award from State Park Director, Tommy Mutz, right.

Richerson, ter Lake ipient of the ," a top tate employ- ual achieve-

d the award te Parks ll Training, lbuquerque. cognized for vith a limited huge influx e popularity ing.

r, Tommy lexico State d work and yees and ed, "Our ingly well, es and huge

ter Lake d for tiger hanged this year. ger Muskies n a hatchery ry and fin-

aring the fe News, dent of the Mexico hat the uewater ss." that

Bluewater Lake had the highest population of tiger muskies in the nation. "Guys from Minnesota are coming here to fish, Imagine that!"

According to New Mexico State Park officials, Richerson streamlined operations, worked well with volunteers and provided great customer service.

Bluewater Lake has seen an increase in visitation due to the large muskie catches. "We're way up on visitation and that has a lot to do with it," said Richerson.

The New Mexico Department of Game and Fish began stocking the tiger muskie in Bluewater and Quemado lakes in May 2003.

The department hoped that by stocking the aggressive predator fish it would help to control the overpopulations of goldfish and white suckers.

Since then, almost 267,000 muskies have been stocked in Bluewater Lake. More than 120,00 have been stocked in Quemado Lake.

Emergency Preparedness, Participation Needed

PUBLIC AND PUBLIC SAFETY OFFICIALS ENCOURAGED TO ATTEND MEETING

By Donald Jaramillo
Beacon Managing Editor

CIBOLA COUNTY – Cibola County's Hazard Mitigation Plan expired last month. County Emergency Coordinator Tony Boyd is currently working to update the plan, however, he needs input from the public and public safety officials within the county.

If a major catastrophe was to hit Cibola County such as a flood or terrorism attack, reality is it will severely impact the area. However, if there is a plan in place, the impact could be less severe. That is what a mitigation plan does for a community.

"The priority is to save lives and protect property," said Kelly Zunie, a representative of Haskie

See **PREPARE**, Page A3

GHS Garners Award for Academic Achievement

By Bob Tenequer
Beacon Staff Writer

Found Guilty in Crime Spree

FY - Last 15-year-old daughter and her 18... charged in Count 1); Count 4

PREPARE

From PAGE A1

and Associates, the group that is assisting the county in updating its emergency plan. The mitigation plan is long term based, rather than short term like most emergency plans.

A public meeting was held on Sept. 26 in regard to the plan, however, only three people attended, and there was no one from any public safety group in the county.

"We need residents and public safety officials' input and participation," emphasized Boyd following last months meeting.

A second meeting is set for this Thursday, Oct. 25, 6 p.m., at the county complex. There will be two or three more meetings by the end of the year, according to Zunie.

Boyds' office has a questionnaire that he would like residents to fill out.

"We just live everyday life and don't think about the risks," said Zunie.

According to a recent assessment, Cibola County is considered a high risk area because it is so isolated and flooding.

Boyd updated plan involves stakeholder communicates such as Grants, Milan, tribal communities and small villages. "When it comes to emergency management, everyone needs to be involved," said Boyd.

Boyd and Zunie noted at the first meeting that the plan needs participation from public safety officials such as fire and police chiefs.

Also tied to the plan is eligibility for federal funds, said Boyd.

Recently, Boyd was able to get equipment to supply 200 people in an emergency situation. The grant that supplied Cibola County with a trailer and 200 cots, blankets and pillows, is valued at $24,000.

"Last year, during the bad snowstorm in December, we used a similar trailer from a Red Cross shelter," said Boyd. "Now we have our own equipment to outfit 200 people."

Funds for the equipment came from Homeland Security, leftover from five years ago.

Zunie said, "The core issue is the lives of people. Not property, not politics. Being that there has been some turnover in emergency management and public safety around the county, it is a perfect time for officials and the public to come together in a collaborative manner and work together in order to update the plan."

Peggy Jordan, a former county emergency manager, said, "Emergency management is like knowing your are to have a rough winter and preparing for it. Get extra wood and put plastic on the windows. It is as simple as that. Reality is, residents don't realize the importance of their participation in community preparedness."

If you cannot make the meeting on Thursday, residents are encouraged to pick up a copy of the questionnaire at Boyds' office and fill it out.

AWARD

From PAGE A1

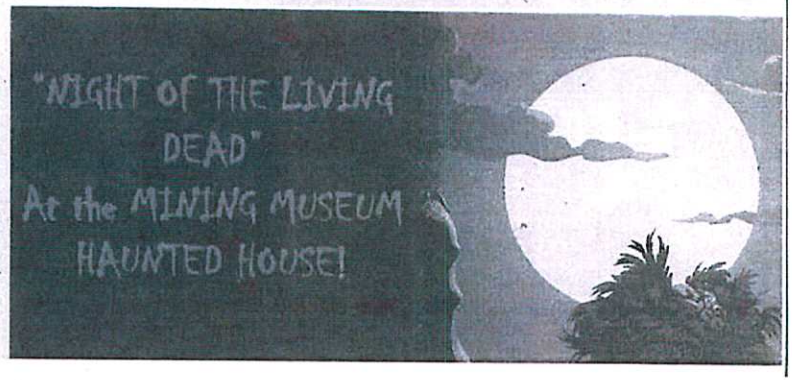
superior level of achievement.

Karen L. Pennell, assistant Vice President and ACT Southwest Regional Manager said, "The New Mexico ACT Council wanted to recognize New dedication of Grants High School students and parents focused on college and career readiness and to raise the level of academic readiness of all students."

The ACT test is a curriculum and standards-based educational and career planning tool that assesses students' academic readiness for college.

test, the parents for making sure they followed through and the teachers who provided them a valuable service."

The New Mexico ACT Council is comprised of secondary and postsecondary educators who advise ACT, Inc., on the utilization of ACT programs and services in New



Public Meeting

2012 Cibola County

Hazard Mitigation Plan Update

Thursday, October 25, 2012 - 6-7:30 pm

Cibola County Convention Room

515 West High Street, Grants, NM 87020

AGENDA

- Welcome and Introductions
- Opening Remarks
- Review Planning Process
- Review Plan Goals and Objectives
- Review Hazard Identification and Risk Assessment
- Review Mitigation Development Strategy and Actions
- Create Planning Team
- Overview of current plan draft
- Questions and Answers

CIBOLA COUNTY

HAZARD MITIGATION PLAN

Public Meeting Minutes

October 25, 2012

6:00 pm – 7:30 pm

Cibola County Convention Center

Grants, New Mexico 87020

Welcome & Introduction

Tony Boyd, Emergency Manager, Cibola County opened the meeting with introductions of the Mitigation Plan revision Contractors. Attendees introduced themselves.

Opening Remarks

Tony Boyd and Jerome Haskie, Haskie & Associates provided remarks on what the revision of the mitigation plan will require of the attendees and the decisions to place community representatives on the planning team.

Plan Review Process, Goals and Objectives

Facilitator Kelly Zunie, Haskie & Associates provided the review process to the attendees and informed the Cibola representatives of need to participate in the review process and provide input.

Request for input on the plan goals – Tony Boyd advised attendees that the plan is to their benefit and it would be good to hear from the community

Tom Nuremborg, with few people attending these sessions it would be hard to express what the true hazards are for the plan. He will contact others to attend the meetings.

Bobby Little Bear, first goal of the plan should be to get more people to these meetings so better input is obtained.

Review HIRA & MDSA

The current mitigation hazards and risk were discussed for attendees. No questions from attendees.

Planning Team

David Rios, recommended that this action be tabled until the next meeting when more people may attend. The action was tabled.

Current Plan Overview

The overview was provided by T Boyd and J Haskie, the plan update should relook at the current hazards and risks to see if they are still relevant. No questions from attendees

Meeting Adjourned at 7:45 pm, Next meeting scheduled for November 20, 2012

Minutes by K. Zunie, Haskie & Associates

CIBOLA COUNTY HAZARD AND VULNERABILITY ASSESSMENT
NATURALLY OCCURRING EVENTS

EVENT	PROBABILITY	SEVERITY = (MAGNITUDE - MITIGATION)						RISK
		HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	
	Likelihood this will occur	*Possibility of death or injury*	*Physical losses and damages*	*Interuption of services*	*Preplanning*	*Time, effectivness, resouces*	*Community/ Mutual Aid staff and supplies*	*Relative threat**
SCORE	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = Low 2 = Moderate 3 = High*	*0 = N/A 1 = High 2 = Moderate 3 = Low or none*	*0 = N/A 1 = High 2 = Moderate 3 = Low or none*	*0 = N/A 1 = High 2 = Moderate 3 = Low or none*	*0 - 100%*
Flood	3	3	3	3	2	2	2	83%
Wild Fire	3	3	3	1	2	2	2	72%
High Winds	3	2	3	3	1	1	2	67%
Severe Winter Storms	3	3	2	3	2	1	1	67%
Drought	3	1	3	2	2	2	2	67%
Thunderstorms	2	2	3	2	2	2	2	48%
Earthquake	1	1	2	3	3	0	0	17%
Tidal Wave	0	0	0	0	0	0	0	0%
Temperature Extremes	1	2	0	1	0	0	0	6%
Epidemic	1	2	0	2	3	3	3	24%
Volcano	1	1	2	0	0	0	0	6%
Dam Inundation	1	1	3	2	3	0	0	17%
	0	0	0	0	0	0	0	0%
	0	0	0	0	0	0	0	0%
	0	0	0	0	0	0	0	0%
	0	0	0	0	0	0	0	0%
AVERAGE SCORE	1.38	1.31	1.50	1.38	1.25	0.81	0.88	18%

**Threat increases with percentage.*

RISK = PROBABILITY * SEVERITY		
0.18	0.46	0.40

Public Meeting

2012 Cibola County

Hazard Mitigation Plan Update

Thursday, October 25, 2012 - 6-7:30 PM

Cibola County Convention Room - 515 West High Street, Grants, NM 87020

Name	Email	Signature
Mark Clark	MClark@GCCS.cc	
DAVid Rios	DMCCO	
Bobby A. Little Bear	Totood8@wildblue.net	
Tom Nurenberg	nurentj@wildblue.net	
Judy Nurenberg	nurentj@wildblue.net	
Jerome Haskie	haskij@gmail.com	
Tony M. Boyd	tboyd@co.cibola.nm.us	
Kelly Zunie	KKzunie@gmail.com	

Planning Meeting

2012 Cibola County
Hazard Mitigation Plan Update
DATE: November 20, 2012

AGENDA

- Welcome and Introductions
- Opening Remarks
- Planning Team Recommendations
- Current Draft Review
- Recommendations by Planning Team on Hazards & Actions
- Questions and Answers

CIBOLA COUNTY

HAZARD MITIGATION PLAN

Public Meeting Minutes

November 20, 2012

6:00 pm – 7:30 pm

Cibola County Convention Center

Grants, New Mexico 87020

Welcome & Introduction

Tony Boyd, Emergency Manager, Cibola County opened the meeting with introductions of the Mitigation Plan revision Contractors. Attendees introduced themselves.

Opening Remarks

Tony Boyd and Jerome Haskie, Haskie & Associates provided remarks and updates from the meeting held on October 25, 2012

Minutes from last meeting shared with the attendees

Planning Team

Open discussion on the creation of the planning team. The initial call was to have volunteers express their desire to serve on the planning team.

Mayor Tom Ortega, Village of Milan, recommended that each person who represents one of the jurisdictions be placed on the team and the citizens can then volunteer to be on the team.

Keith Austin, Fire Chief, Village of Milan recommended that Peggy Jordan serve as a citizen representative since she has worked on these plans for many years. T Boyd advised he would contact Peggy to see if she could assist.

The team now consists of the following people:

Darryl McCullough, Cibola County, Flood Plain Manager

Johnathan Gordon, Fire Department, City of Grants

Ellen Baca, Village of Milan

Evette Mantano, Village of Milan

Sophi Beym, Emergency Management Coordinator, Acoma Pueblo and subcontractor for Haskie & Associates

Tony Boyd (as the recorder)

David Rios, NMCCO

Mark Clark, Grants/Cibola County Schools

Peggy Jordan, (Retired) Citizen representative, she will also represent the LEPC

Jon Romero, New Mexico Department of Transportation

Jose Silva, StreamTech, INC

Vince Rodriguez, Laguna Pueblo

Emil Radosevich, Chief of Police, Ramah Navajo

Current Draft review

The new Hazard Mitigation Team was provided with a current draft of the plan to review. Sophi Beym advised that the update should be based on what is existing and based on the current HIRA and MDSA. She also advised to go with five hazards that are most likely to affect the County.

D. McCullough advised that the Flooding issues should be the primary hazard identified since flash flooding occurs most often in the entire County. What about the hazards for the Tribal areas?

V. Rodriguez advised that Laguna has the same hazard and the drought is taking a big toll on the farmers in the Pueblo.

J. Gordon, Wildfires may become a greater hazard with the drought conditions and more people going into the forest areas for recreation.

E. Radosevich, with the cold weather coming up in a few weeks the Ramah area is concerned with impassable roads if snow or rain in the area makes roads muddy. They have to bring emergency supplies to people in the areas where the roads are not maintained. Can Cibola County provide support since it takes longer for the Navajo Nation to get aid to the Ramah area.

Sophi, Can we begin to list the primary hazards that we want to include in theupdate to the plan.

Jon Romero, DOT has a contingency plan that he will bring to the next meeting so that the team can see what the Highway Department is able to provide as a resource. He advised that Wind has been a big hazard for the western County interstate but recently

there has been some mitigation work that has gone into the area but there are more areas that could be considered.

The newly formed team decided to provide recommendations for the next meeting on the hazards. Sophi suggested that we look at the ones that have been identified by the team members and the list according to priority at the next meeting. All agreed.

Call to adjourn by Ellen Baca.

Meeting Adjourned at 8:30 pm, Next meeting scheduled for December 6, 2012

Minutes by K. Zunie, Haskie & Associates

Planning Meeting

2012 Cibola County

Hazard Mitigation Plan Update

DATE: November 20, 2012

Name	Email/Phone	Signature
Evette Montano	285-6694/440 evettemontano82@hotmail	
Ellen Baca	ellen_baca@yahoo.com 290-2793 287-8738	
Helen M. Dayon	helen.dayon@yahoo.com	
Jerry Stephens	jerryvillagepde.yahoo.com 505-287-4491	
Keith Austin	milanfire dept@villageofmilan.com 505-287-7366 of 505-290-1854 cell	
Lt. KC Mares	Grants Fire	
Michelle Serrano	Grants Fire	
Jonathan Gordon	Grants Fire 505-775-3026	
Emil A. Radosevich	Ramah Navajo Police Dept	eradosevich@ramahnavajo.org
Jerome Haskie	haskij@gmail.com	
Tony M Boyd	chiefmboyd@yahoo.com	

Planning Meeting

2012 Cibola County

Hazard Mitigation Plan Update

DATE: November 20, 2012

Name	Email/Phone	Signature
Jon Romero	JON.ROMERO@STATE.NM.US 5052401105	
Delane D. Baros	delane.baros@state.nm.us 505-240-1392	
Mark Clark	Mclark@GCCS.CC 240-0023	
Bernice Martinez	290-4337	
Frances Medina	fmedina@Teltec.net 387-9827 240-0829	
Art DeLao	505-238-9546	
Vince Rodriguez	505-552-5793 VRodriguez@LAGUNATRIBE.ORG	
Tom Ortega	TOMORTEGA1@MSN.COM	
Sophi Beym	sbeym@pueblooftacoma.org 505.552.7500 x331	

CIBOLA COUNTY OFFICE of EMERGENCY MANAGEMENT

Mitigation Plan Planning Team Meeting

December 6, 2012 3:00PM Cibola County Convention Center

Print Name	Signature	Agency	E-Mail Address	Contact Number
Nellie Montano		VOM	ENettemontano@hotmail	290-0580
Ellen BACA		VOM	ellen-baca@yahoo.com	290-2793
VINCE RODRIGUEZ		LAGUNA EM	VRodriguez@LAGUNAPUEBLO.NSN.GOV	331-7855
Darryl McCullough		Cibola County	dmccullough@co.cibola.nm.us	285-2515
Keith Austin		VOM	keithaustin@co.mckinley.nm.us	290-1857
Kelly Zunie		Pueblo of Acoma	KKzunie@gmail.com	801-627-7048
Tony M. Boyd		CCOEM	tboyd@co.cibola.nm.us	285-2558

8-27-12

Cibola County Mitigation Plan Meeting

Name	Organization	email	phone
Kelly Zunie	Haskie & Assoc.	kkzunie@gmail.com	801-648-2941
Jerome Haskie	Haskie & Assoc.	haskij@gmail.com	505-919-8449
Tony M. Boyd	Cibola County EMC	chiefttboyd@yahoo.com	505-285-2558
Wendy Blackwell	State Homeland Security and Emergency Management	wendy.blackwell@state.nm.us	505-476-9676

Jose A. Silva STREAMTECH, INC. jsilva@streamtechnm.com
505-307-0199

Sophi Beym, Pueblo of Acoma, sbeym@pueblofacoma.org
505.552.7500 x331

Appendix D

Asset Inventory

Cibola County Infrastructure

Infrastructure	Location	Hazard/Risk Exposure
Law Enforcement		
• NM State Police	901 W. US Hwy 66, Grants	No specific hazard
• Cibola County Sheriff's Dept.	515 High , Grants	No specific hazard
• Grants Police Dept.	105 E. Roosevelt Ave., Grants	Potential Flood area
• Milan Police Dept.	619 Uranium Ave., Milan	Potential HAZMAT area No specific hazard
Fire Stations		
• Grants Fire Dept.	620 W. High, Grants	Potential /Flood area
• Milan FD	619 Uranium Ave., Milan	No specific hazard
• Acoma FD		No specific hazard
• Laguna FD		No specific hazard
Hospitals/Medical Facilities		
• Cibola General Hospital	1016 Roosevelt Ave., Grants	Potential Flood area
• Acoma Canoncito Laguna PHS Indian Hospital	San Fidel	No specific hazard
• DOH, Field Office	515 W. High, Grants	No specific hazard
Utilities		
• Water/Sewer	600 W. Santa Fe, Grants	No specific hazard
• Electric-Continental Divide	200 E. High, Grants	No specific hazard
• Gas-PNM	307 N. First St., Grants	No specific hazard
Schools		
• Grants High School	500 Mountain Road, Grants	No specific hazard
• Bluewater Elementary	Bluewater	Potential Flood area
• Cubero Elementary	Cubero	No specific hazard
• Mesa View Elementary	400 East Washington, Grants	No specific hazard
• Milan Elementary	404 Sand, Milan	No specific hazard
• Mount Taylor Elementary	Del Norte & Jemez, Grants	No specific hazard
• San Rafael Elementary	San Rafael	No specific hazard
• Seboyeta Elementary	Seboyeta	No specific hazard
• Laguna-Acoma Middle	New Laguna	No specific hazard
• Los Alamitos Middle	Elm Drive & Mt. Taylor, Grants	No specific hazard
• Laguna-Acoma High	New Laguna	No specific hazard
• Grants Christian Academy	Grants	No specific hazard
• Laguna Elementary School	Laguna	No specific hazard
• Laguna Middle School	Laguna	No specific hazard
• New Sunrise RTC	San Fidel	No specific hazard
• Pine Hill Schools	Pine Hill	No specific hazard
• Sky City Community School (BIA)	Acoma Pueblo	No specific hazard
• St. Joseph Elementary School	San Fidel	No specific hazard
• St. Teresa of Avila Catholic School	Grants	No specific hazard
• Victory Christian Academy	Grants	

Government Buildings		
• Grants City Hall • Milan City Hall • Cibola County Government Offices • Grants City Government Offices/Library	Santa Fe Ave., Grants Uranium Ave at Milan St., Milan 515 W. High, Grants 525 W. High, Grants	
• Grants City Maintenance Dept./Parks Dept.	105 E. Roosevelt Ave., Grants	No specific hazard
• Grants Municipal Court	620 W. Santa Fe Ave.	Potential Flood area
• Village of Milan Courts System	626 Uranium, Milan	Potential Flood area
• Village of Milan Maintenance/Parks & Rec	409 Airport Rd., Milan 619 W. Santa Fe Ave., Grants	No specific hazard
• State of NM Adult Parole Probation		Potential Flood area
• State of NM/Children Youth & Families	1019 E. Roosevelt Ave., Grants	No specific hazard
• State of NM/Corrections Dept. Western NM Facility	Lobo Canyon Rd., Grants	No specific hazard
• State of NM/Cibola County Magistrate Courts	114 McBride Rd., Grants 1212 ½ Lobo Canyon Rd., Grants	No specific hazard No specific hazard No specific hazard
• State of NM/Environment Dept. • State of NM/Highway	1919 Pinon, Grants W. US Hwy 66, Milan	Potential Flood area
Dept. State of NM/Human Services Dept. • State of NM/Dept of Labor • State of NM/Motor Vehicle Div.	900 Mount Taylor Ave., Grants 210 E. Santa Fe Ave., Grants 105 E. Roosevelt Ave., Grants	No specific hazard No specific hazard No specific hazard Potential Flood area
• NM State University Cooperative Extension Office	117 ½ Silver Ave., Grants	
• US Agriculture Dept.	117 Silver Ave., Grants	
• US Interior Dept./El Malpais National	200 E. Roosevelt Ave., Grants	
• US Army National Guard Recruiting	2001 E. Santa Fe Rd., Grants	
• USPS	816 W. Santa Fe Ave., Grants 120 Airport Rd., Milan	

The following tables provide each jurisdictions asset inventory, which may have occurrence of fire and flood. The risk matrix tables provided cover flood only.

Asset Inventory

Cibola County

AREA	DESCRIPTION	LAND	IMPROVEMENTS	TOTALS	ESTIMATED FLOOD IMPACT %	ESTIMATED FLOOD IMPACT $
			Estimated Value		%	$
	T1&1N RSW SEC 19,20 & 21; B-17-19; B-	[illegible]	[illegible]	[illegible]	[illegible]	225,851
Cubero	T197N R7W 3,4,9,16,17,20	$468,354	$1,393,337	$1,861,691	20	278,667
San Fidel	T107N R7W 13 & 22	$698,130	$1,326,760	$2,025,190	20	266,352
San Mateo	T13N R8W SEC 23-26	$349,699	$1,529,989	$1,879,688	25	382,497
San Rafael	T10N R10W 3, 10,15	[illegible]	[illegible]	[illegible]		
	Amando Otero	$8,700	$92,617	$101,317		
	Arthur Otero Ac.	[illegible]	[illegible]	[illegible]		
	Aztec	[illegible]	[illegible]	[illegible]		
	La Vega Estates	[illegible]	[illegible]	[illegible]		
	Monte Mirabal	$1,298,425	$1,346,507	$2,644,932		
	Nabor Mirabal	$139,800	$532,554	$672,354		
	Vista del Monte	$30,480	$909,661	$940,141		
San Rafael Totals		$2,620,089	$9,161,048	$11,781,137	20	1,832,210
Seboyeta	T11N R5W 5,6,8,9,17-22	$651,468	$3,011,147	$3,662,615		
	T11N R5W 1,2,11-14& 24	[illegible]	[illegible]	[illegible]		
Seboyeta Totals		[illegible]	[illegible]	[illegible]	20	605,725
Cibola County	School District 10	[illegible]	[illegible]	[illegible]	25	19,785,87
Grants	School District 11	[illegible]	[illegible]	[illegible]	25	54,654,95
Milan	School District 21	$10,744,873	[illegible]	$83,811,109	25	18,259,05
Fence Lake	School District 30	$1,496,901	$1,779,906	$3,276,807	25	444,977
	Fence Lake Ranches	$641,174	$504,480	$1,145,654	25	126,120
Oso Ridge Area	Cibola Trails	$1,998,757	$564,672	$2,563,429		
	El Morro Ranches	$4,629,676	$1,679,288	$6,308,964		
	La Jara	$88,360	$704,553	$792,913		
	Oso Ridge	$169,222	$232,555	$401,777		
	Pine Meadows	$2,171,768	$171,959	$2,343,727		
	Pondorosa Trails	$528,2000	$142,666	$670,866		
	T9N R12W Sec 1-36	$1,859,623	$671,368	$2,530,991		

AREA	DESCRIPTION	LAND	IMPROVEMENTS	TOTALS	%	$
Oso Ridge Area Totals		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bluewater	Bluewater Ac.	$3,409,749	$4,625,741	$8,035,491		
	Bluewater Estates	$749,025	$810,878	$1,559,903		
	Blue Bird Hill	$251,505	$392,185	$643,690		
	HC Jones	$131,250	$257,413	$388,663		
	Lakewood Hills	$44,500	$106,716	$151,216		
	Pinon Crest	[illegible]	[illegible]	[illegible]		
Bluewater Totals		$4,617,829	$6,396,311	$11,014,140	25	1,599,078
Bluewater Village	Rains	$61,200	$261,073	$322,273		
	Long	[illegible]	[illegible]	[illegible]		
	McNeil	[illegible]	[illegible]	[illegible]		
	Tijeras	[illegible]	[illegible]	[illegible]		
	Sunrise Estates	[illegible]	[illegible]	[illegible]		
	John Roberts	[illegible]	$0	[illegible]		
Bluewater Village Totals		$822,567	$2,041,373	$2,863,940	25	510,343
Kandy Kitchen	Adams Lake	$363,128	$72,133	$435,261		
	Backwoods	$218,828	$0	$218,828		
	Bakers Glen	$387,765	$156,232	$543,997		
	Brandy's Rest	[illegible]	[illegible]	[illegible]		
	Carlin	[illegible]	[illegible]	[illegible]		
	Dancer	[illegible]	[illegible]	[illegible]		
	Davis Rock	[illegible]	[illegible]	[illegible]		
	Easy Living	[illegible]	[illegible]	[illegible]		
	Eden	[illegible]	[illegible]	[illegible]		
	Fernwood	$350,119	$28,924	$379,043		
	Fiesta Hills	$393,208	$43,492	$436,700		
	Garfield	$754,817	$135,714	$890,531		
	Great White Father	$676,737	$31,145	$707,882		
	Hastings	[illegible]	$100,362	$489,740		
	Homesteads	$397,601	$138,055	$535,656		
	Huffman	$397,119	$126,616	$523,735		
	Jubilee Trails	$712,375	$151,940	$864,315		
	Lewis Addition	$367,229	$18,096	$385,325		
	Lewis Eight	$280,128	$66,513	$346,641		
	Lewis South	$433,586	$38,259	$471,845		
	Pinons	$307,920	$90,333	$398,253		
	Pitchford Properties	$2,033,463	$211,075	$2,244,538		
	Ridges	$398,596	$27,889	$426,485		
	Ridgewood	$405,048	$0	$405,048		
	Sierra de Manana	$249,469	$62,864	$13,207,299		
Kandy Kitchen Totals		$11,502,615	$1,704,684	$13,207,299	25	426,171

In a 100% county area disaster, at an average of 20% damage, estimated value could reach $100,438,642

Asset Inventory
City of Grants

ASSET	OWNERSHIP	CRITICAL ASSET	ESTIMATED
Water Well #1	City of Grants	Yes	125,000.00
Animal Shelter	City of Grants	Yes	98,000.00
Sewer Lift Station	City of Grants	Yes	40,000.00
San Jose Booster Station	City of Grants	Yes	100,000.00
San Jose Park	City of Grants	No	100,000.00
Rock House Storage Facility	City of Grants	No	10,000.00
San Jose Park concession	City of Grants	No	11,137.00
5th Street Underpass	City of Grants	Yes	200,000.00
Riverwalk Park	City of Grants	No	175,000.00
Amphitheater	City of Grants	No	50,000.00
High Street Bridge	City of Grants	Yes	200,000.00
Mother Whiteside Library	City of Grants	No	531,100.00
Chamber of Commerce	City of Grants	No	525,000.00
Mining Museum	City of Grants	No	85,000.00
Second Street Bridge	NMDOT	Yes	75,000.00
First Street Bridge	NMDOT	Yes	75,000.00
Anderman Bridge	City of Grants	Yes	100,000.00
Nimitz Bridge	City of Grants	Yes	100,000.00
Hwy 117 Bridge	NMDOT	Yes	150,000.00
Main Sewer Lift Station	City of Grants	Yes	250,000.00
Old Wastewater Plant	City of Grants	No	100,000.00
Commercial Buildings	Private	NA	20,000,000.00
Schools / Related	Grants-Cibola County	Yes	900,000.00
Churches	Private	Yes	2,800,000.00
Single Family Residential	Private	No	300,000.00
Multi-family Residential	Private	No	125,000.00
Hospitals, Doctors, Etc.	Private	Yes	2,000,000.00

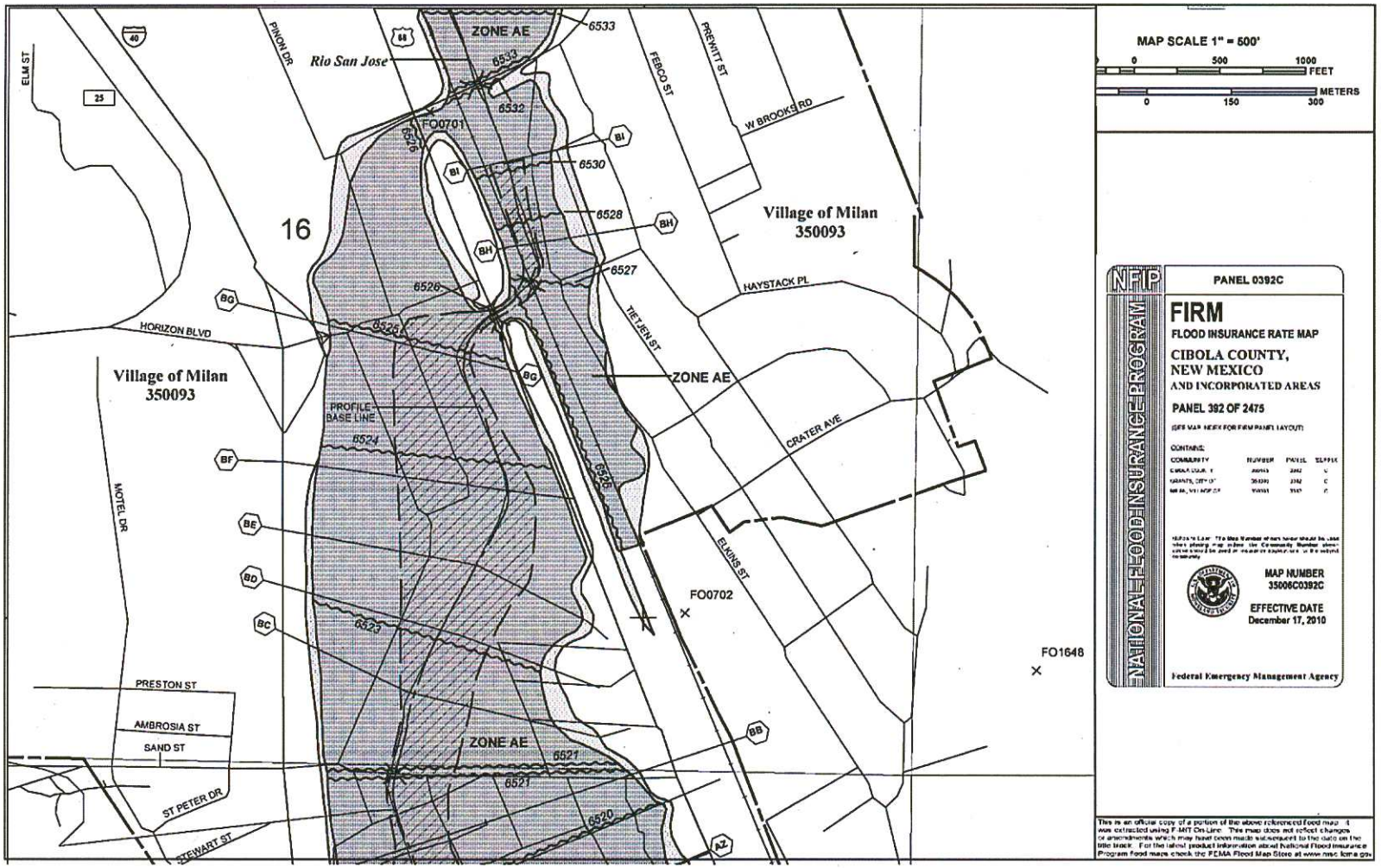
Asset Risk Matrix
City of Grants

Description	Priority	Mitigation Feasibility Assessment - Flood
Municipal Well #1	**High**	Verify wellhead elevation relative to Base Flood Elevation (BFE), construct earthen berm or other barrier to prevent inundation of well head and equipment during flood.
Animal Shelter	**Low**	Develop response plan for relocation of animals and equipment. Also address potential for compromise of sanitary sewer system due to inflow through shelter drain system under flood conditions.
Sewer Lift Station	**High**	Verify wet well sill elevation relative to BFE, raise sill as necessary or protect with berming.
San Jose Booster Station	**High**	Verify pump floor elevations to BFE and protect as necessary against inflow. Site also has an old wellhead that needs to be sealed. Review need for backup power or for physical access to the site for station operation.
San Jose Park	**Low**	No Action
Rock House Storage	**Low**	No Action
San Jose Park concession	**Low**	Verify secured against lateral movement of flotation.
5th Street Underpass	**High**	Subject to immediate flooding - evaluate sump pump system effectiveness.
Riverwalk Park	**Low**	Maintain ponds as detention/ retention structures and keep channel unobstructed. Monitor impact to footbridges for safety issues.
Amphitheater	**Medium**	Functions as a flood control structure. Also has a footbridge.
High Street Bridge	**High**	Need to monitor in storm event and prohibit all traffic.
Mother Whiteside Library	**High**	Verify elevation of lowest occupied floor relative to BFE and take action as necessary.
Chamber of Commerce	**Medium**	Verify elevation of lowest occupied floor relative to BFE and take action as necessary.
Mining Museum	**Medium**	Verify elevation of lowest occupied floor relative to BFE and take action as necessary.
Second Street Bridge	**High**	Need to monitor in storm event and prohibit all traffic.
First Street Bridge	**High**	Need to monitor in storm event and prohibit all traffic.
Anderman Bridge	**High**	Need to monitor in storm event and prohibit all traffic.
Nimitz Bridge	**High**	Need to monitor in storm event and prohibit all traffic.
Hwy 117 Bridge	**High**	Need to monitor in storm event and prohibit all traffic.
Main Sewer Lift Station	**High**	Verify floor elevation to BFE and protect as necessary.
Old Wastewater Plant	**Low**	Verify no open inflow points to sewer system, no chemicals accessible to flood water.
Fire Station # 1	**Medium**	Facility is on fringe of 1982 flood plain area, may be impacted by current flood elevations. Verify elevation relative to BFE and develop response plan to relocate equipment and personnel in the event of flood.
Fire Station # 2	**Low**	Not at risk of flooding
Grants Police Department	**Medium**	May risk inundation due to high runoff on Roosevelt Avenue due to heavy spot rainfall or obstruction of Grants Channel Drainage.
Maintenance Operation Center	**Low**	No substantial risk
Grants - Milan Airport	**Medium**	Facility is on fringe of 1982 flood plain area, may be impacted by current flood elevations. Verify elevation relative to BFE and develop response plan to relocate equipment and personnel in the event of flood.
Waste water Treatment Facility - Land Application Facility	**Medium**	Two significant drainages traverse the site and pose a risk of damage to evaporation ponds and retention lakes in high volume, high velocity events occurring off- site. Need to develop action plan for secondary containment to prevent discharge into these drainages through catastrophic failure of a dike.

Appendix E

Cibola County – Village of Milan – City of Grants Flood Insurance Rate Maps (FIRM)

There are 60 map files of Cibola County available for review at the Cibola County Office of Emergency Management. Not all the maps are included in this appendix due to file size limitations. The flood maps included cover most of the City of Grants and the Village of Milan.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6533
Rio San Jose
6532
FO0701
6530
6528
6527
6526
6525
6524
6523
6521
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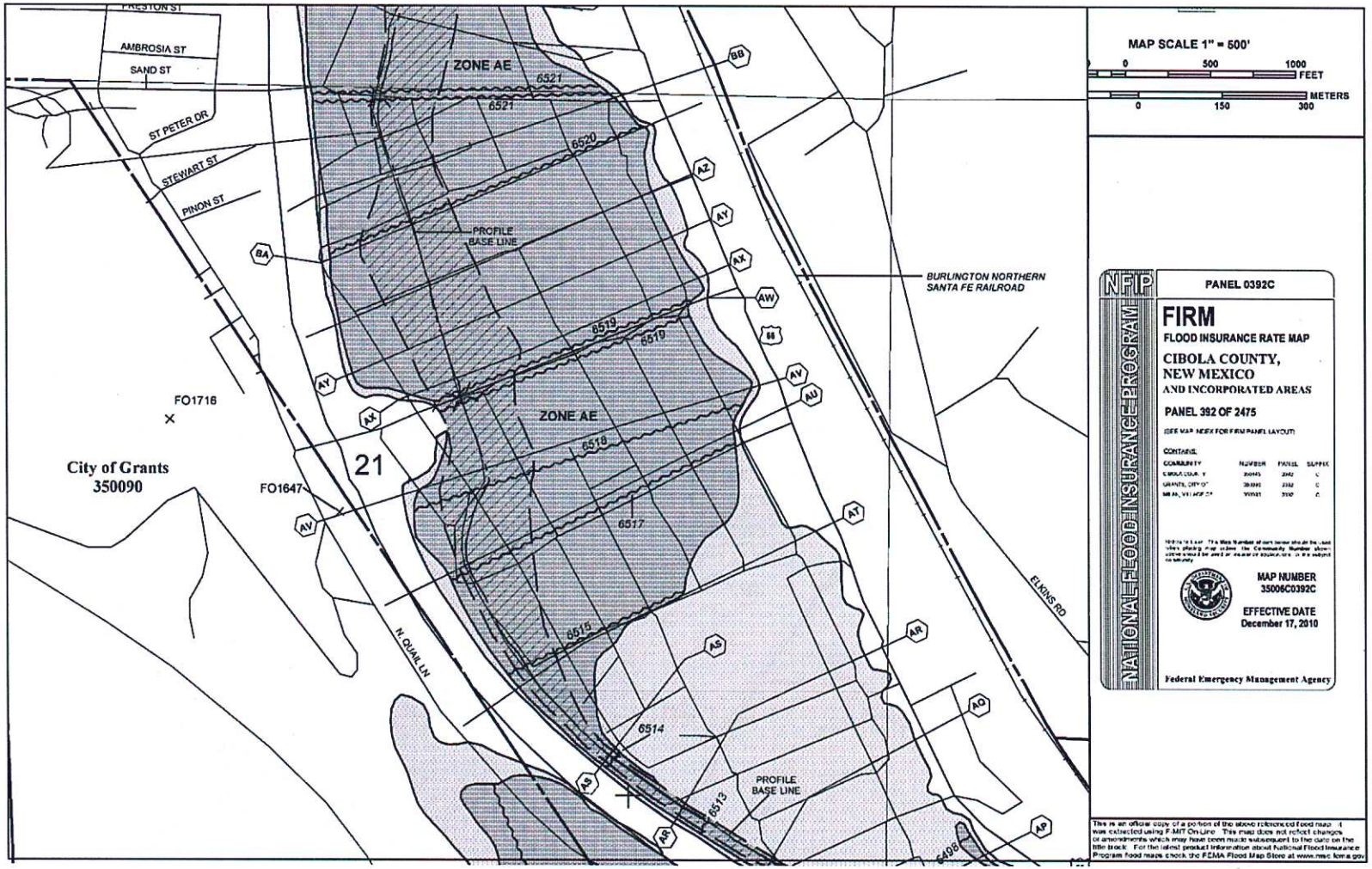
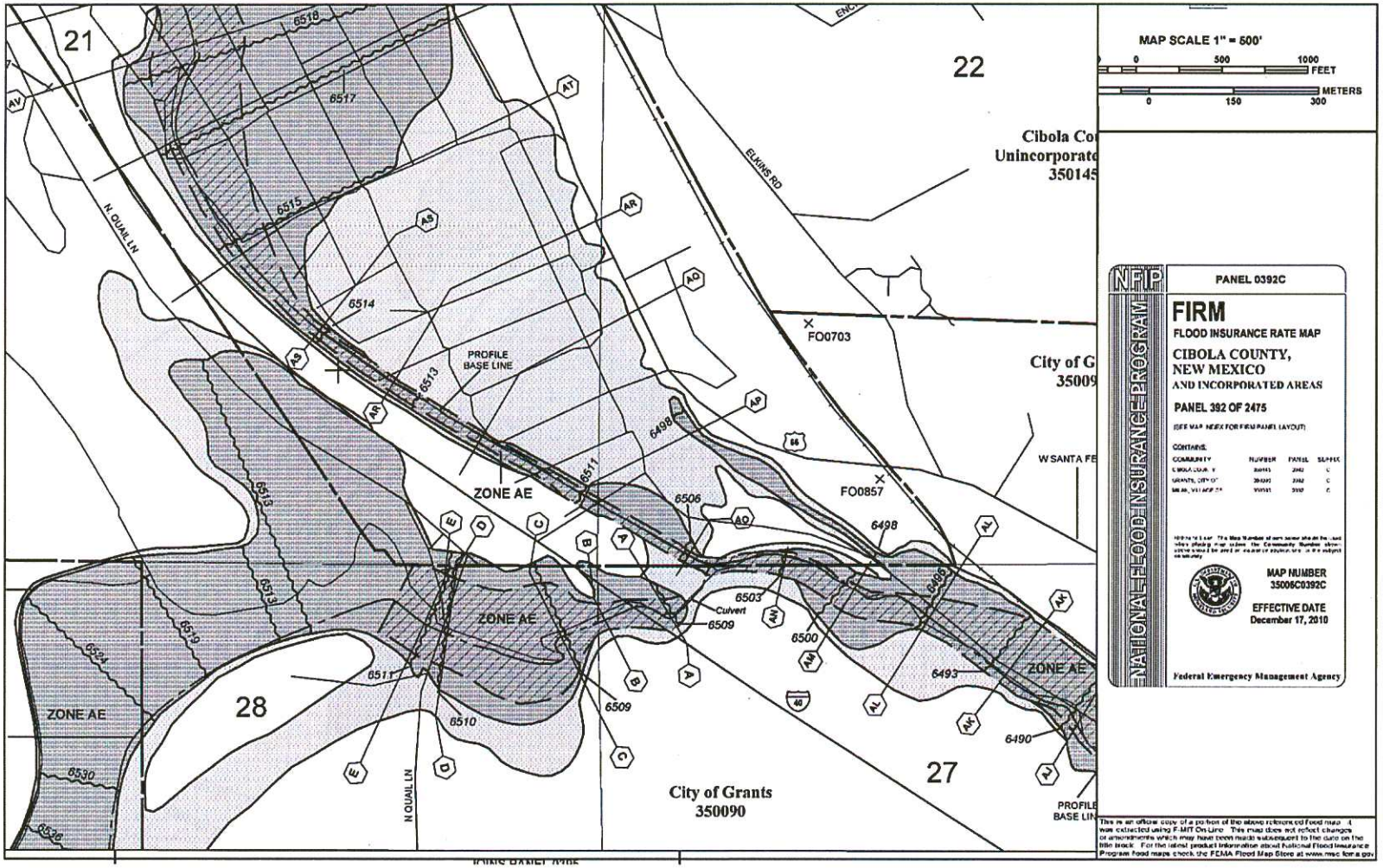
Village of Milan
350093
Village of Milan
350093
ZONE AE
ZONE AE
ZONE AE
PROFILE BASE LINE
ELM ST
PINON DR
FEBCO ST
PREWITT ST
W BROOKS RD
HAYSTACK PL
TIETJEN ST
CRATER AVE
ELKINS ST
HORIZON BLVD
MOTEL DR
PRESTON ST
AMBROSIA ST
SAND ST
ST PETER DR
STEWART ST
FO0702
FO1648
MAP SCALE 1" = 500'
0 500 1000 FEET
0 150 300 METERS
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0392C
FIRM
FLOOD INSURANCE RATE MAP
CIBOLA COUNTY, NEW MEXICO
AND INCORPORATED AREAS
PANEL 392 OF 2475
MAP NUMBER
35006C0392C
EFFECTIVE DATE
December 17, 2010
Federal Emergency Management Agency


PRESTON ST
AMBROSIA ST
SAND ST
ST PETER DR
STEWART ST
PINON ST
ZONE AE
6521
6520
PROFILE BASE LINE
BURLINGTON NORTHERN SANTA FE RAILROAD
6519
ZONE AE
6518
6517
6515
6514
6513
6498
PROFILE BASE LINE
FO1716
FO1647
City of Grants
350090
21
N. OUAIL LN
ELKINS RD
MAP SCALE 1" = 500'
0 500 1000 FEET
0 150 300 METERS
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0392C
FIRM
FLOOD INSURANCE RATE MAP
CIBOLA COUNTY, NEW MEXICO
AND INCORPORATED AREAS
PANEL 392 OF 2475
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
MAP NUMBER
35006C0392C
EFFECTIVE DATE
December 17, 2010
Federal Emergency Management Agency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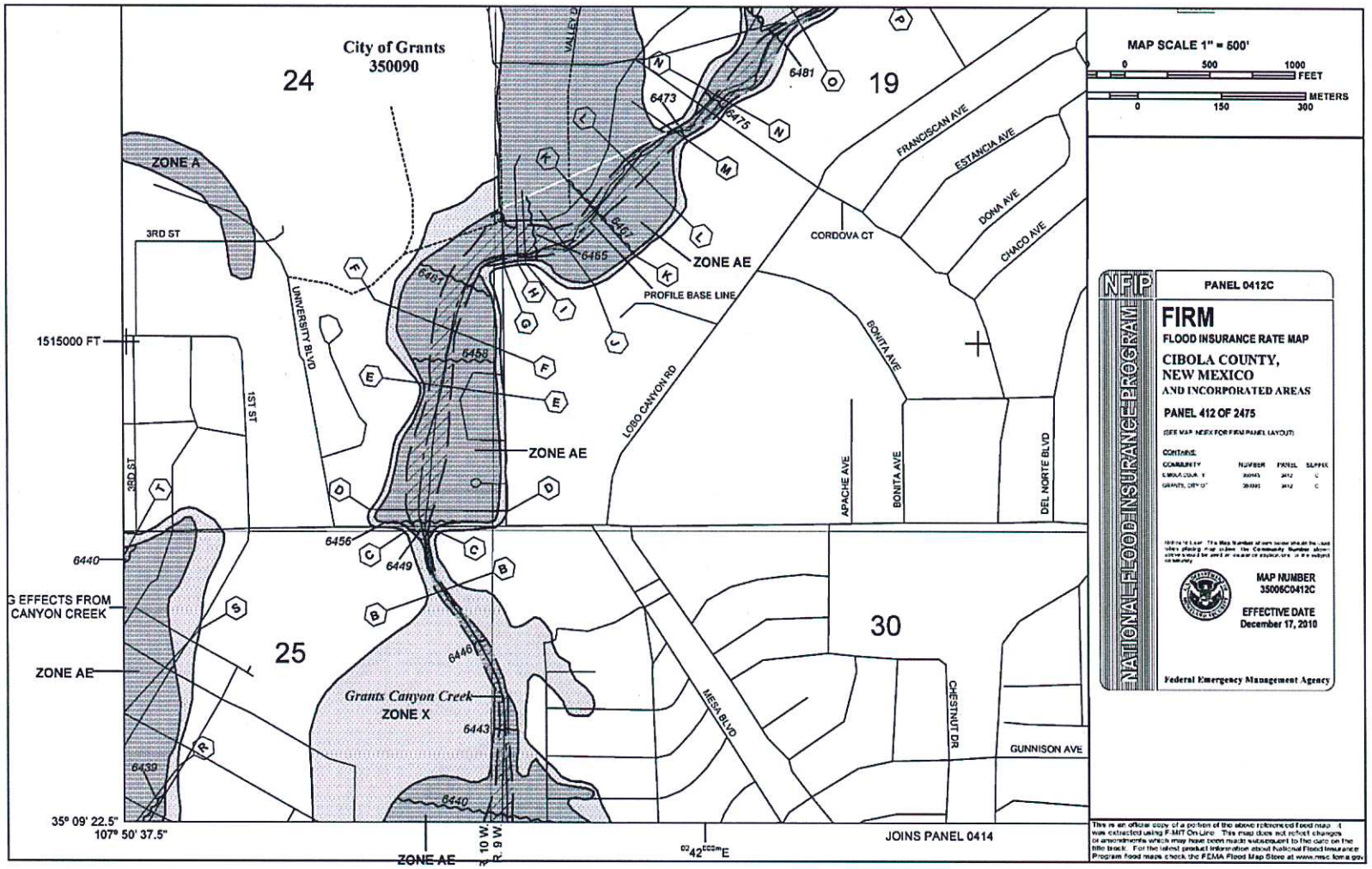
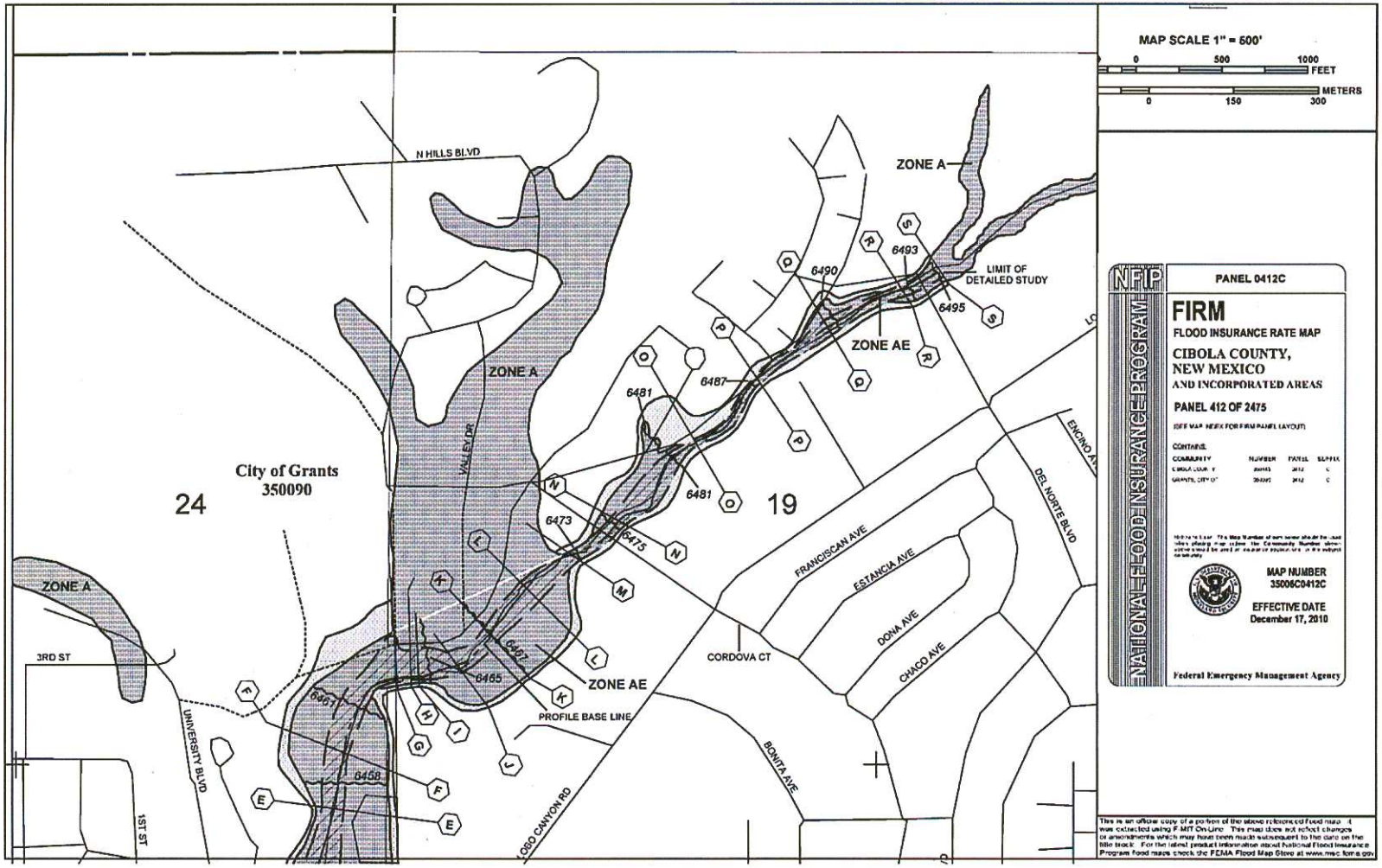
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0392C
FIRM
FLOOD INSURANCE RATE MAP
CIBOLA COUNTY, NEW MEXICO
AND INCORPORATED AREAS
PANEL 392 OF 2475
MAP NUMBER 35006C0392C
EFFECTIVE DATE December 17, 2010
Federal Emergency Management Agency
21
22
28
27
ZONE AE
PROFILE BASE LINE
N QUAIL LN
ELKINS RD
W SANTA FE
FO0703
FO0857
City of Grants 350090
Culvert
6518
6517
6515
6514
6513
6511
6509
6506
6503
6500
6498
6493
6490
6530


City of Grants
350090
24
19
25
30
ZONE A
ZONE AE
PROFILE BASE LINE
ZONE AE
ZONE AE
Grants Canyon Creek
ZONE X
ZONE AE
3RD ST
1ST ST
350 ST
UNIVERSITY BLVD
LOBO CANYON RD
CORDOVA CT
FRANCISCAN AVE
ESTANCIA AVE
DONA AVE
CHACO AVE
BONITA AVE
APACHE AVE
BONITA AVE
DEL NORTE BLVD
MESA BLVD
CHESTNUT DR
GUNNISON AVE
1515000 FT
6440
G EFFECTS FROM
CANYON CREEK
6481
6473
6475
6467
6465
6459
6456
6449
6446
6443
6439
6440
35° 09' 22.5"
107° 50' 37.5"
10 W
9 W
42.5
JOINS PANEL 0414
MAP SCALE 1" = 500'
0
500
1000
FEET
0
150
300
METERS
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0412C
FIRM
FLOOD INSURANCE RATE MAP
CIBOLA COUNTY,
NEW MEXICO
AND INCORPORATED AREAS
PANEL 412 OF 2475
CONTAINS:
COMMUNITY
NUMBER
PANEL
SUFFIX
MAP NUMBER
35006C0412C
EFFECTIVE DATE
December 17, 2010
Federal Emergency Management Agency


MAP SCALE 1" = 500'
0 500 1000 FEET
0 150 300 METERS
N HILLS BLVD
ZONE A
LIMIT OF DETAILED STUDY
ZONE AE
City of Grants
350090
24
19
VALLEY DR
ENCINO AVE
DEL NORTE BLVD
FRANCISCAN AVE
ESTANCIA AVE
DONA AVE
CHACO AVE
CORDOVA CT
BONITA AVE
3RD ST
UNIVERSITY BLVD
1ST ST
LOBO CANYON RD
PROFILE BASE LINE
6490
6493
6495
6487
6481
6473
6475
6465
6467
6458
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0412C
FIRM
FLOOD INSURANCE RATE MAP
CIBOLA COUNTY, NEW MEXICO
AND INCORPORATED AREAS
PANEL 412 OF 2475
MAP NUMBER
35006C0412C
EFFECTIVE DATE
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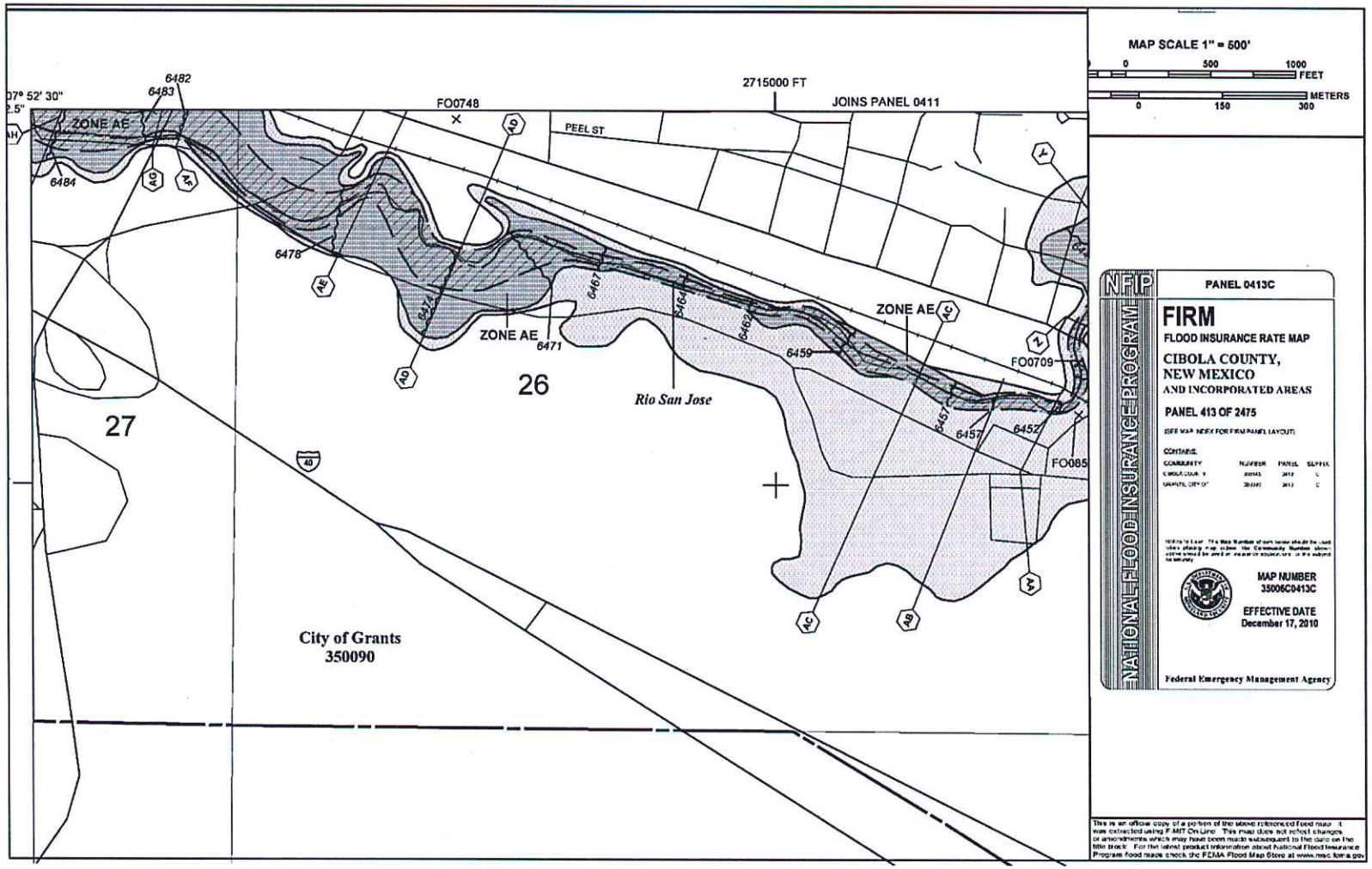
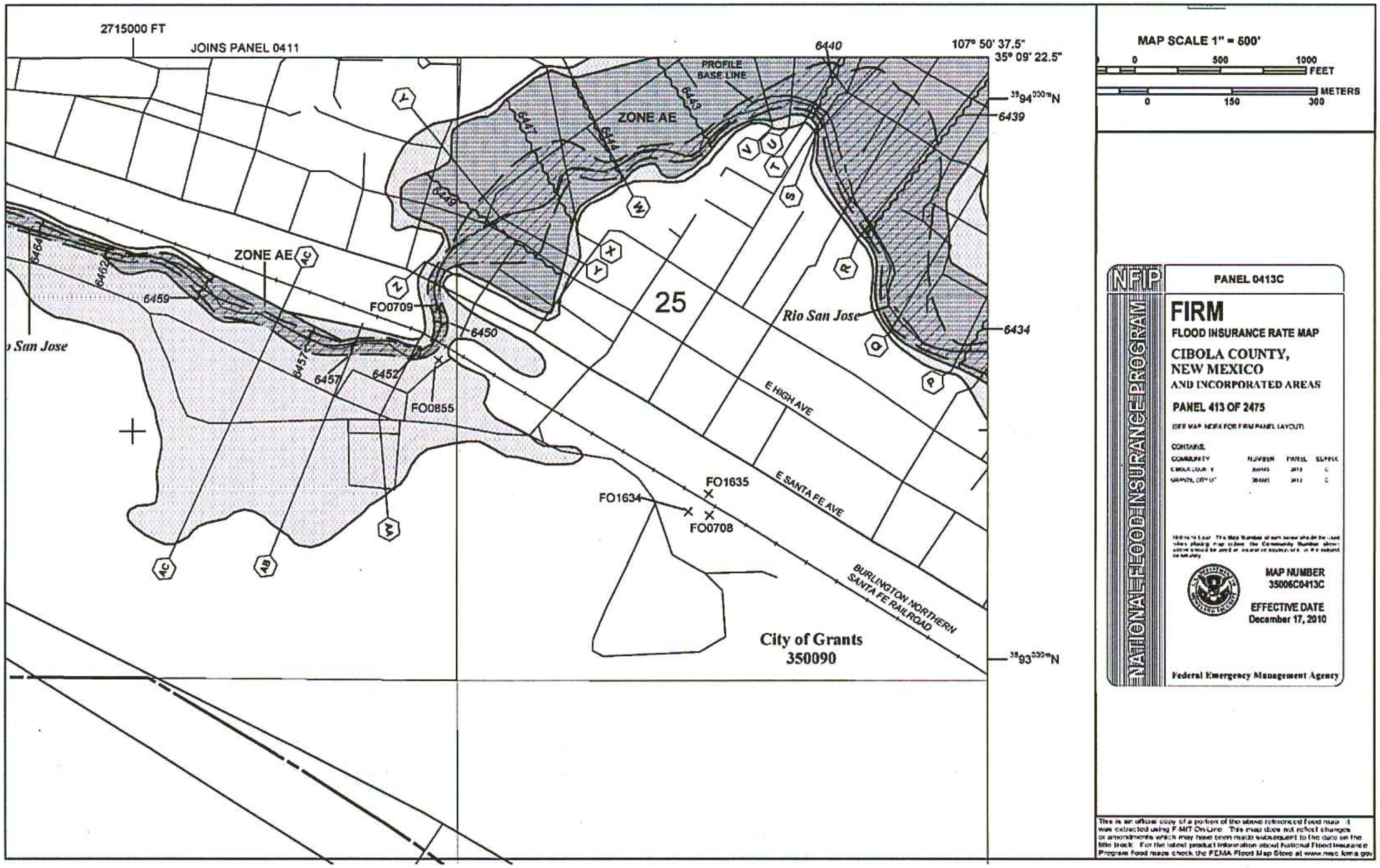
Federal Emergency Management Agency


MAP SCALE 1" = 500'
0 500 1000 FEET
0 150 300 METERS
PANEL 0413C
FIRM
FLOOD INSURANCE RATE MAP
CIBOLA COUNTY, NEW MEXICO
AND INCORPORATED AREAS
PANEL 413 OF 2475
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
MAP NUMBER 35006C0413C
EFFECTIVE DATE December 17, 2010
Federal Emergency Management Agency
NATIONAL FLOOD INSURANCE PROGRAM
2715000 FT
JOINS PANEL 0411
FO0748
FO0709
FO0851
PEEL ST
ZONE AE
6482
6483
6484
6478
6474
6471
6467
6464
6462
6459
6457
6452
26
27
Rio San Jose
City of Grants
350090


2715000 FT
JOINS PANEL 0411
107° 50' 37.5"
35° 09' 22.5"
ZONE AE
PROFILE BASE LINE
ZONE AE
25
Rio San Jose
San Jose
E HIGH AVE
E SANTA FE AVE
BURLINGTON NORTHERN SANTA FE RAILROAD
City of Grants
350090
FO0709
FO0855
FO1635
FO1634
FO0708
6440
6439
6434
6450
6452
6457
6459
6462
MAP SCALE 1" = 500'
FEET
METERS
NFIP
NATIONAL FLOOD INSURANCE PROGRAM
PANEL 0413C
FIRM
FLOOD INSURANCE RATE MAP
CIBOLA COUNTY,
NEW MEXICO
AND INCORPORATED AREAS
PANEL 413 OF 2475
MAP NUMBER
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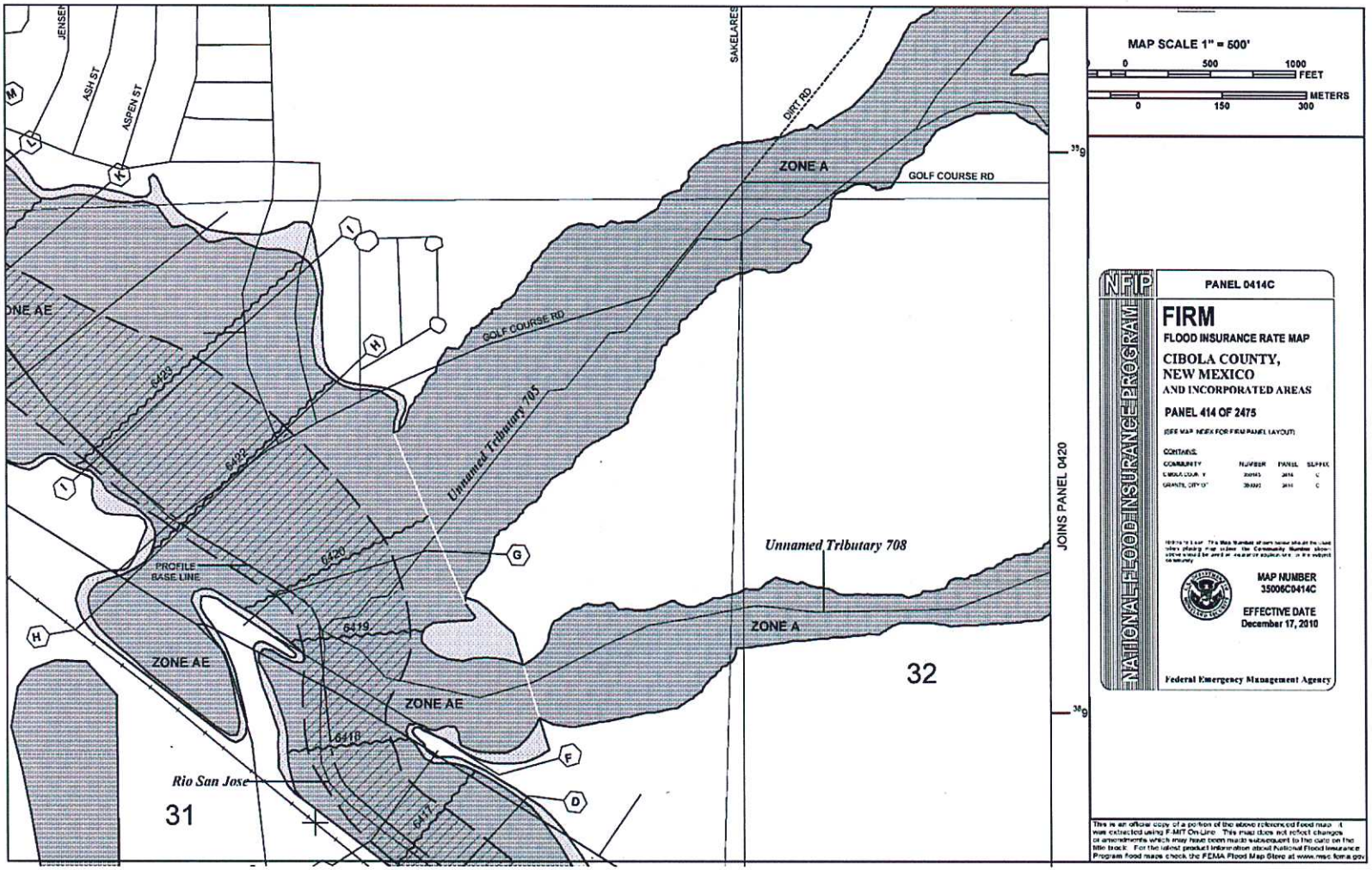
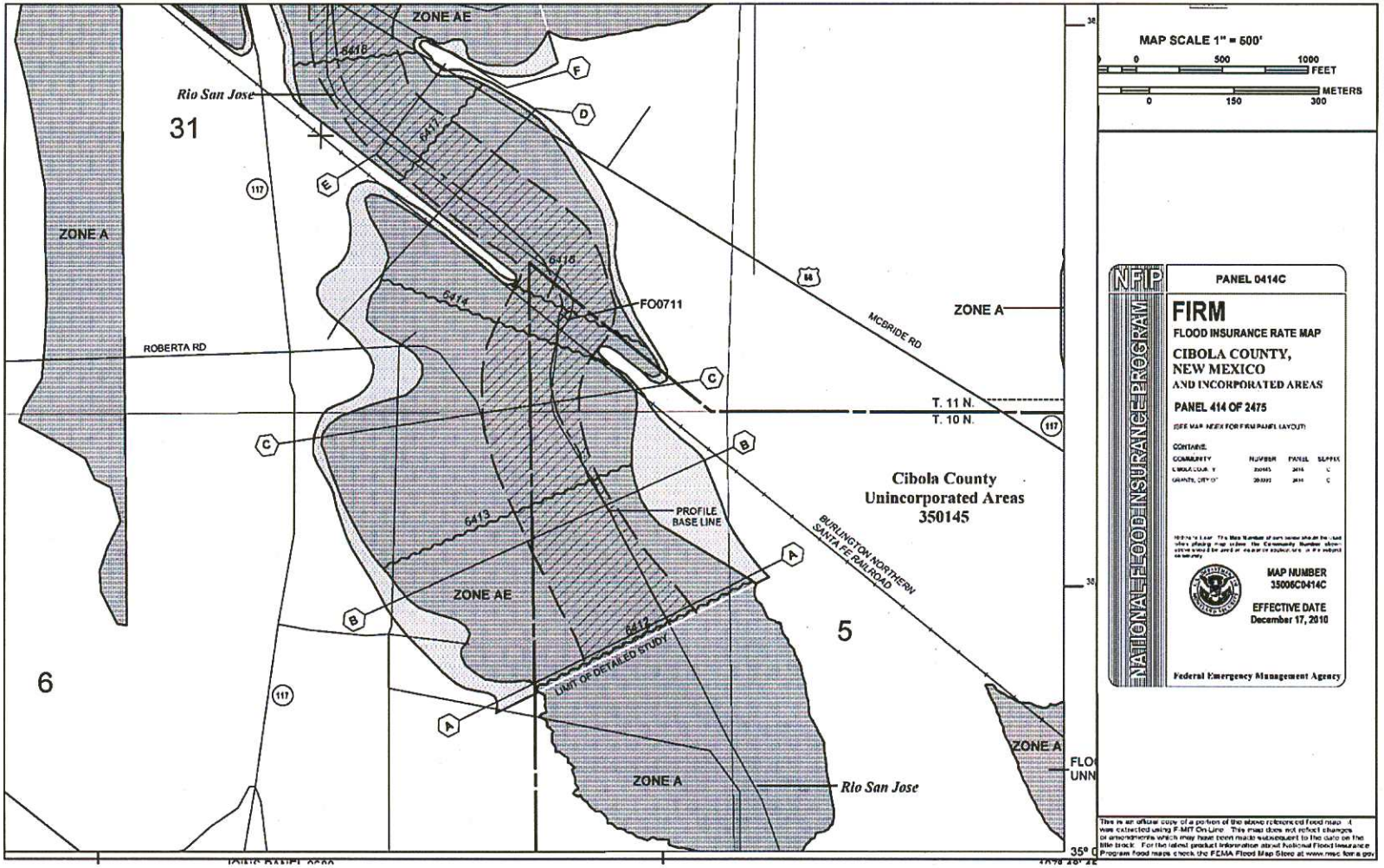

MAP SCALE 1" = 500'
0 500 1000 FEET
0 150 300 METERS
PANEL 0414C
FIRM
FLOOD INSURANCE RATE MAP
CIBOLA COUNTY, NEW MEXICO
AND INCORPORATED AREAS
PANEL 414 OF 2475
NATIONAL FLOOD INSURANCE PROGRAM
MAP NUMBER 35006C0414C
EFFECTIVE DATE December 17, 2010
Federal Emergency Management Agency
ZONE A
ZONE AE
GOLF COURSE RD
DIRT RD
ASH ST
ASPEN ST
JENSEN
SAKELARES
Unnamed Tributary 705
Unnamed Tributary 708
Rio San Jose
PROFILE BASE LINE
JOINS PANEL 0420
6423
6422
6420
6419
6418
6417
31
32


ZONE AE
Rio San Jose
31
ZONE A
ROBERTA RD
FO0711
ZONE A
MCBRIDE RD
T. 11 N.
T. 10 N.
Cibola County
Unincorporated Areas
350145
PROFILE
BASE LINE
BURLINGTON NORTHERN
SANTA FE RAILROAD
ZONE AE
LIMIT OF DETAILED STUDY
6
5
ZONE A
ZONE A
Rio San Jose
MAP SCALE 1" = 500'
0
500
1000
FEET
METERS
0
150
300
NFIP
PANEL 0414C
FIRM
FLOOD INSURANCE RATE MAP
CIBOLA COUNTY,
NEW MEXICO
AND INCORPORATED AREAS
PANEL 414 OF 2475
CONTAINS:
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