

# 2016

## Conejos County Hazard Mitigation Plan



---

*Conejos County*  
*Town of Antonito*  
*Town of La Jara*  
*Town of Manassa*  
*Town of Romeo*  
*Town of Sanford*

---

Draft: April 17, 2017

# Conejos County Hazard Mitigation Plan

DRAFT: April 17, 2017

(Updated from original version prepared and approved in 2010)

*Prepared by:*

**Conejos County Hazard Mitigation Planning Team**

Lead Agency: Conejos County Emergency Management

*In coordination with:*

**San Luis Valley Hazard Mitigation Steering Committee**

(Alamosa, Conejos, Mineral, Rio Grande and Saguache Counties)

*With professional planning assistance from:*

Robert Wold Emergency Management Planning Services

# Table of Contents

<b>Executive Summary</b>	<b>6</b>
<b>Chapter 1 - Introduction</b>	<b>11</b>
1.1 Purpose	11
1.2 Participating Jurisdictions	11
1.3 Background and Scope	11
1.4 Mitigation Planning Requirements	12
1.5 Grant Programs Requiring Hazard Mitigation Plans	12
1.6 Plan Organization	13
<b>Chapter 2 - Community Profile</b>	<b>15</b>
2.1 Geography and Climate	15
2.2 History	16
2.3 Population	17
2.4 Economy	18
2.5 Government	19
<b>Chapter 3 - Planning Process</b>	<b>20</b>
3.1 Plan Update Process	20
3.2 Multi-Jurisdictional Participation	21
3.3 10-Step Planning Process	22
3.4 Phase One: Organize Resources	22
3.5 Phase Two: Assess Risks	24
3.6 Phase Three: Develop the Mitigation Plan	25
3.7 Phase Four: Implement the Plan and Monitor Progress	26
<b>Chapter 4 - Risk Assessment</b>	<b>27</b>
4.1 Hazard Identification	28
4.1.1 Results and Methodology	28
4.1.2 Disaster Declaration History	30
4.2 Hazard Profiles	31
4.2.1 Hazard Profile Methodology	31
4.2.2 Flood	32
4.2.3 Wildfire	37
4.2.4 Hail	43
4.2.5 Lightning	45
4.2.6 Windstorm	48

4.2.7 Tornado	50
4.2.8 Severe Winter Storm	54
4.2.9 Drought	56
4.2.10 Dam Failure	60
4.2.11 Avalanche	63
4.2.12 Landslide	66
4.2.13 Earthquake	68
4.3 Vulnerability Assessment	74
4.3.1 Vulnerability Assessment Methodology	74
4.3.2 Community Asset Inventory	74
4.3.3 Key Hazard Issues in Participating Jurisdictions	79
4.3.4 Growth and Development Trends	82
4.4 Capability Assessment	83
<b>Chapter 5 - Mitigation Strategy</b>	<b>86</b>
5.1 Plan Goals for 2016	86
5.2 Incorporation of Plan into other Planning Mechanisms	86
5.3 Identification of Mitigation Action Alternatives	87
5.4 Prioritization of Mitigation Actions	88
5.5 Status of 2010 Mitigation Actions	89
5.6 2016 Mitigation Actions	91
5.7 Mitigation Funding Sources	94
<b>Chapter 6 - Plan Adoption, Maintenance and Evaluation</b>	<b>96</b>
6.1 Formal Plan Adoption	96
6.2 Plan Maintenance and Evaluation	96
6.3 Mitigation Actions and Other Plans/Programs	97
6.4 Continued Public Involvement	97
<b>Chapter 7 - Regional Coordination</b>	<b>99</b>
7.1 Tradition of Regional Cooperation	99
7.2 Regional Hazard Events Since 2010	99
7.3 Regional Mitigation Actions	100
<b>Appendices</b>	
A. Acronyms	
B. Plan Participants	
C. References and Resources	
D. Documentation of Planning Process	

- E. Disaster Mitigation Act of 2000 (DMA 2000) Summary
- F. FEMA Plan Review Tool
- G. Record of Adoption

## Tables

- 2.1 Conejos County Facts and Figures
- 2.2 Demographic and Social Characteristics of Conejos County
- 2.3 Economic and Housing Characteristics of Conejos County
- 2.4 Industry Distribution in Conejos County
- 3.1 San Luis Valley Hazard Mitigation Steering Committee
- 3.2 Conejos County Hazard Mitigation Planning Team
- 3.3 Plan Development Methodology
- 3.4 Planning Meetings and Topics
- 4.1 Significant Natural Hazards Affecting Conejos County
- 4.2 Conejos County Risk Assessment 2016
- 4.3 FEMA-State Disaster Declaration History (1965-2016) for Conejos County
- 4.4 Significant Flood Events in Conejos County
- 4.5 Potential Flood Losses: HAZUS Estimates
- 4.6 Conejos County National Flood Insurance Program Information
- 4.7 Hailstone Measurements
- 4.8 Conejos County Hail Events, 1950-2016
- 4.9 Colorado Deaths and Injuries due to Lightning, 2008-2016
- 4.10 Major Lightning Events in Conejos County, 1950-2016
- 4.11 Average Lightning Flashes in Colorado per Day by Month
- 4.12 High Wind Events in Conejos County, 1980-2016
- 4.13 Enhanced Fujita Scale
- 4.14 Tornado Events in Conejos County, 1950-2016
- 4.15 Significant Winter Storms in Conejos County, 1950-2016
- 4.16 Average Minimum Temperatures/Extreme Minimum Temperatures
- 4.17 Historic Dry and Wet Periods in Colorado
- 4.18 Significant Drought Periods in Conejos County
- 4.19 Dams in Conejos County
- 4.20 Richter Scale
- 4.21 Modified Mercalli Intensity (MMI) Scale
- 4.22 Colorado's Largest Earthquakes
- 4.23 Critical Facilities in Conejos County
- 4.24 Critical Facilities in Antonito
- 4.25 Critical Facilities in La Jara
- 4.26 Critical Facilities in Manassa
- 4.27 Critical Facilities in Romeo
- 4.28 Critical Facilities in Sanford
- 4.29 Rare Species in Conejos County
- 4.30 Historic Properties and Districts on State and National Registers
- 4.31 Top Employers in Conejos County
- 4.32 Social Vulnerability Indicators from U.S. Census, 2010-2014

- 4.33 Population Growth in Conejos County, 2010-2015
- 4.34 Growth in Housing Units in Conejos County, 2010-2014
- 4.35 Projected Population Growth in Conejos County, 2000-2050
- 4.36 Regulatory Mitigation Capabilities
- 4.37 Administrative and Technical Capabilities
- 4.38 Fiscal Mitigation Capabilities
- 5.1 Types of Mitigation Actions
- 5.2 Status of 2010 Mitigation Actions
- 5.3 2016 Mitigation Action Matrix
- 7.1 Significant Regional Events, 2010-2016

## Figures

- 2.1 Map of Conejos County
- 4.1 HAZUS Map of 100-Year Floodplains in Conejos County
- 4.2 Fire Protection Districts and Wildfire Risk Composite in Conejos County
- 4.3 South and Central Conejos County Fire Hazard based on Slope, Aspect and Vegetation
- 4.4 Northwest Conejos County Fire Hazard based on Slope, Aspect and Vegetation
- 4.5 Northeast Conejos County Fire Hazard based on Slope, Aspect and Vegetation
- 4.6 Average Annual Number of Tornadoes, 1991-2010
- 4.7 Tornado Safe Room Design Wind Speed Map
- 4.8 Colorado Avalanche Zones
- 4.9 West Salt Creek Landslide
- 4.10 Probability of a 5.0 or Greater Magnitude Earthquake in Next 50 Years
- 4.11 Colorado Seismic Map - 10% Probability of Exceedance in 50 Years

# Executive Summary

The purpose of the Conejos County Hazard Mitigation Plan is to provide local officials with a tool to guide policies and actions that can be implemented to reduce risk and future losses from natural hazards. Information in this plan is intended for use by local officials to help guide mitigation activities and inform decisions on local land use policy in the future. Nationwide, proactive mitigation planning has proven to help reduce the cost of disaster response and recovery to communities and property owners by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruption.

Formal approval of this plan by the Federal Emergency Management Agency (FEMA) also assures that participating jurisdictions in Conejos County will remain eligible for federal grant funding under FEMA's Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program and Flood Mitigation Assistance (FMA) program. Participation in the multi-hazard mitigation planning process also allows jurisdictions to earn planning credits for the National Flood Insurance Program's Community Rating System (CRS).

Several significant natural hazard events have occurred in the San Luis Valley since the last update of this plan, most notably the West Fork Fire Complex in June 2013, a federally-declared fire emergency that cost more than \$31 million to contain. Information about that event, as well as other smaller-scale events, is provided in the table below.

Incident	Date(s)	Location	Impacts
<b>Streams Lake Fire</b>	May 31-June 2, 2013	Mineral County	Approximately 100 acres of forest burned
<b>West Fork Fire Complex</b>	June 5-July 31, 2013	Mineral County	109,615 acres burned; FEMA PA Grant: \$7.9 million
<b>Flood-Crestone</b>	June 4-June 16, 2015	Saguache County, Town of Crestone	Federally declared for Public Assistance (DR-4229); >\$100,000 damage to roads and bridges
<b>High Water Event</b>	June 8, 2015	Conejos County	County bridge on CR 13 damaged and closed for several days
<b>Ice Jam Flood</b>	December 28, 2015	Conejos County	Ice dam at CR H and CR 13 caused water to approach homes; 3-day effort by Road/Bridge to clear ice
<b>Beaver Park Dam Incident</b>	February 24-March 20, 2016	Rio Grande County	Depressions on dam embankment triggered drawdown of reservoir until stabilization work completed

The mitigation actions identified in this updated plan are based on an assessment of hazards and risks and a planning process that engaged a wide range of stakeholders, including the general public. The research examined the recorded history of losses resulting from natural hazards, and analyzed the future risks posed by these hazards. The table below identifies the 12 natural hazards profiled in this plan and assesses each hazard with respect to probability and severity of consequences.

Severity > Probability v	Catastrophic	Critical	Limited	Negligible
Highly Likely		Severe Winter Storm		
Likely		Hail Windstorm Wildfire Drought	Flood	
Occasional		Tornado Avalanche	Lightning	Earthquake
Unlikely	Dam Failure		Landslide	

Based on this hazard assessment, risks to community assets were identified and the vulnerability of people and property to these risks was assessed. The following goals were established to guide the development of the mitigation strategy:

1. Reduce loss of life and personal injury caused by natural hazards;
2. Reduce damage to critical facilities, personal property, and other community assets caused by natural hazards; and
3. Minimize economic losses associated with natural hazards.

A mitigation strategy for achieving these goals is highlighted by a range of distinct mitigation actions, summarized in the table below.

2016 Mitigation Actions				
#	Description/Benefits	Lead Agency	Hazard	Priority
<b>Conejos County</b>				
1	Adopt Colorado Certified Burner program endorsed by the Colorado Division of Fire Prevention and Control and increase awareness of existing wildfire red flag warnings for ditch burns.	Conejos County Sheriff/Conejos County OEM/ Fire Protection Districts	Wildfire	High
2	Conduct study of existing burn permit laws and identify opportunities for improving enforcement.	Conejos County Sheriff/OEM	Wildfire	Medium
3	Facilitate coordination between Everbridge notification system and public school safety plans to improve communication in winter storms and other events.	Conejos County OEM and school districts	All Hazards	Medium
4	Identify areas for snow fence installation.	Conejos County Road & Bridge	Severe Winter Storm	High



5	Identify vulnerable populations and develop a plan for reaching them after a severe storm or natural hazard event to ensure that basic needs are being met.	Conejos County Public Health	All Hazards	High
6	Identify or construct at least one safe shelter within each community that is accessible to the public (perhaps in a public school).	Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
7	Provide regular updates to the general public via social media (Facebook), to include information about natural hazards and ways to protect people and property from damages.	Conejos County OEM	All Hazards	Medium
8	Identify subdivisions at risk to wildfire and areas that could become isolated in a flood and provide preparedness information to local residents.	Conejos County OEM	Flood, Wildfire	High
9	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices.	Conejos County OEM	Flood	Medium
10	Participate in Emergency Action Plan updates and exercises for dams that could potentially affect people and property in Conejos County.	Conejos County OEM	Dam Failure	Medium
11	Seek updated FEMA digital flood maps (DFIRMs) from FEMA and the Colorado Water Conservation Board.	Conejos County OEM	Flood	High
12	Work with the State of Colorado and the National Weather Service to identify funding and support for the placement of a Doppler radar tower in the area to improve weather predictions and warnings.	Conejos County OEM	Flood, Hail, Lightning, Tornado, Severe Winter Storm	High
13	Improve education and awareness of fuels reduction techniques in wildland-urban interface areas.	Local Fire Districts/Colorado State Forest Service	Wildfire	High
<b>Town of Antonito</b>				
14	Minimize new development in dam inundation zones and educate public on relevant information about dam structures and warning/evacuation plans for downstream communities.	Town of Antonito/Conejos County OEM	Flood	Medium
15	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Town of Antonito/Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
16	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Town of Antonito	All Hazards	Medium
17	Provide guidance and educational materials to property owners in the Antonito area to enhance local wildfire mitigation efforts, including fuel reduction, defensible-spacing, weed abatement, brush management, open-burn coordination, and use of fire-resistant building materials.	Town of Antonito/South Conejos County FPD/Conejos County OEM/Colorado State Forest Service	Wildfire	Medium

18	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain/stormwater management practices.	Town of Antonito	Flood	Medium
<b>Town of La Jara</b>				
19	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Town of La Jara/Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
20	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices.	Town of La Jara	Flood	Medium
21	Identify, evaluate and implement mitigation opportunities for reducing the vulnerability of the Town's municipal water system from natural hazards.	Town of La Jara	Lightning, Flood, Severe Winter Storm	Medium
<b>Town of Manassa</b>				
22	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Town of Manassa/Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
23	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Town of Manassa	All Hazards	Medium
24	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices.	Town of Manassa	Flood	Medium
25	Provide backup power to Town Hall and designated shelter facilities, by fixed generator or pre-wiring buildings so that they can accept portable generators when needed.	Town of Manassa	All Hazards	Medium
<b>Town of Romeo</b>				
26	Provide backup power to critical facilities and designated shelter facilities, by fixed generator or pre-wiring buildings so that they can accept portable generators when needed.	Town of Romeo/Conejos County OEM	Flood, Severe Winter Storm, Windstorm	Medium
27	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Town of Romeo/Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
28	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Town of Romeo	All Hazards	Medium
<b>Town of Sanford</b>				
29	Provide guidance and educational materials to property owners in the Sanford area to enhance local wildfire mitigation efforts, including fuel reduction, defensible-spacing, weed abatement, brush management, open-burn coordination, and use of fire-resistant building materials.	Town of Sanford/South Conejos County FPD/Conejos County OEM/ Colorado State Forest Service	Wildfire	Medium

30	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Town of Sanford/Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
31	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Town of Sanford	All Hazards	Medium

This updated version of the Conejos County Hazard Mitigation Plan builds on the original 2010 version, incorporating current hazard research, studies and information about natural hazard events that have occurred in the county since 2010. Like the previous version, this updated plan includes a regional mitigation element that addresses hazards, goals and mitigation actions that are common to counties in the San Luis Valley region (Alamosa County, Conejos County, Costilla County, Mineral County, Rio Grande County, and Saguache County).

Project management and technical planning assistance to facilitate updates to this plan were provided by the following individuals and organizations:

- Conejos County Emergency Manager - Project Manager
- San Luis Valley Hazard Mitigation Steering Committee (Alamosa, Conejos, Mineral, Rio Grande and Saguache Counties) - Project Oversight
- Conejos County Planning Team - Data Collection, Review and Guidance
- Colorado Division of Homeland Security and Emergency Management - Technical Planning Assistance
- Consultant/Contractor - Research and Plan Development

In addition to Conejos County, the towns of Antonito, La Jara, Manassa, Romeo and Sanford also participated in development of this updated plan. The collaborative effort further demonstrates the ongoing commitment in Conejos County to reducing risks to people and property posed by natural hazards, in addition to maintaining eligibility for federal funding.

# Chapter One

## Introduction

### 1.1 Purpose

The purpose of this plan is to provide Conejos County and political subdivisions within the county with a comprehensive hazard mitigation strategy for reducing long-term risks to people, property and natural resources. It is the intent of this plan to help ensure that Conejos County remains a safe place to live and work and to provide a framework for addressing potential future hazards through hazard mitigation planning.

Hazard mitigation is defined by FEMA as “any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event.” Mitigation creates safer communities by reducing loss of life and property damage.

### 1.2 Participating Jurisdictions

- Conejos County
- Town of Antonito
- Town of La Jara
- Town of Manassa
- Town of Romeo
- Town of Sanford

### 1.3 Background and Scope

While some communities are less hazard-prone than others, there are no hazard-free communities and all communities face some degree of risk from natural disasters. Each year in the United States, disasters take the lives of hundreds of people and injure thousands more. Nationwide, taxpayers pay billions of dollars annually to help communities, organizations, businesses, and individuals recover from disasters. Recent flood, tornado and wildfire disasters along Colorado’s Front Range have had devastating impacts for communities like Windsor, Jamestown, Evans, Longmont, Boulder, Lyons and Colorado Springs.

Disasters can weaken local economies and dramatically reduce local tax bases. The rising cost of natural disasters has sharpened interest in identifying effective ways to reduce vulnerability to hazards. Many disasters are predictable, and much of the damage caused by these events can be alleviated or even eliminated by implementing cost-effective hazard mitigation measures.

Hazard mitigation planning is the process through which hazards that threaten communities are identified, likely impacts of those hazards are determined, mitigation goals are set, and appropriate strategies to lessen impacts are determined, prioritized, and implemented. Hazard mitigation plans assist communities in reducing risk from hazards by identifying resources, information, and strategies for risk reduction. This plan documents the local hazard mitigation planning process, identifies relevant hazards and risks, and outlines the

strategies that will be used to decrease vulnerability and increase resilience and sustainability.

#### 1.4 Mitigation Planning Requirements

This plan was prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 (Public Law 106-390) and the DMA 2000 implementing regulations set forth by the Interim Final Rule published in the *Federal Register* on February 26, 2002 (44 CFR §201.6) and finalized on October 31, 2007. These regulations established the requirements that local hazard mitigation plans must meet in order for a local jurisdiction to be eligible for certain federal disaster assistance and hazard mitigation funding under the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 93-288), also known as the Stafford Act.

Significant steps in the process of preparing this updated plan included (a) forming a local planning committee, (b) preparing a strategy for public involvement, (c) identifying and assessing natural hazards, (d) determining the vulnerability of community assets to identified natural hazards, and (e) then determining a corresponding set of measures and actions to minimize or manage those risks.

#### 1.5 Grant Programs Requiring Hazard Mitigation Plans

FEMA-approved hazard mitigation plans qualify communities for the following federal mitigation grant programs:

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

The HMGP and PDM grant programs are authorized under the Stafford Act and DMA 2000. The HMGP is a state competitive grant program for communities in areas covered by a recent disaster declaration. The PDM grant program is also competitive but is available on an annual basis and does not require a disaster declaration; they rely on specific pre-disaster grant funding sources.

#### Disaster-Funded Mitigation Assistance

##### Hazard Mitigation Grant Program (HMGP)

Provides grants to States, Tribes, and local entities to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. Projects must provide a long-term solution to a problem, for example, elevation of a home to reduce the risk of flood damages as opposed to purchasing supplies to fight the flood. In addition, a project's potential savings must be more than the cost of implementing the project. Funds may be used to protect property or to purchase property that has been subjected to, or is in danger of, repetitive damage. The amount of funding available for the HMGP under a disaster declaration is limited. The program may provide a state or tribe with up to 15 percent of the total disaster grants awarded by FEMA. The cost-share eligibility requirement for this grant is 75 percent federal/25 percent non-federal. Funding from other federal sources cannot be used for the 25 percent share with one exception. Funding provided to states under the Community

Development Block Grant program from the Department of Housing and Urban Development can be used to meet the non-federal share requirement.

### Hazard Mitigation Assistance Programs

#### Pre-Disaster Mitigation (PDM) Program

Provides funds to States, Tribes, and local entities, including public universities, for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Grants are awarded on a nationally competitive basis. Like HMGP funding, a PDM project's potential savings must be more than the cost of implementing the project. In addition, funds may be used to protect either public or private property or to purchase property that has been subjected to, or is in danger of, repetitive damage. The cost-share eligibility requirement for this grant is 75 percent Federal/25 percent non-Federal. There is approximately \$50 million to \$150 million available each year (\$90 million was allocated for FY 2016).

#### Flood Mitigation Assistance (FMA) Grant Program

The goal of the FMA grant program is to reduce or eliminate flood insurance claims under the National Flood Insurance Program (NFIP). Particular emphasis for this program is placed on mitigating repetitive loss properties. Repetitive loss properties are properties for which two or more NFIP losses of at least \$1,000 each have been paid within any 10-year period since 1978. Grant funding is available for three types of grants, including planning, project, and technical assistance. Project grants, which use the majority of the program's total funding, are awarded to states, tribes, and local entities for planning and technical assistance and/or to apply mitigation measures to reduce flood losses to properties insured under the NFIP. The cost-share eligibility requirement for this grant is 75 percent federal/25 percent non-federal. For FY 2016, \$199 million was allocated for FMA program grants nationwide.

## 1.6 Plan Organization

The Conejos County Hazard Mitigation Plan is organized as follows:

- Executive Summary
  - Provides an overview of the process and findings
- Chapter 1 - Introduction
  - Describes the plan's purpose, participating jurisdictions, hazard mitigation planning requirements, and federal hazard mitigation programs
- Chapter 2 - Community Profile
  - Provides a general description of the county, including its location, geography, climate, history, population, economy and government
- Chapter 3 - Planning Process
  - Describes the process used to develop the updated plan, including how it was prepared, who was involved in the process, and how the public was involved
- Chapter 4 - Risk Assessment
  - Identifies and profiles the hazards that could affect the county, assesses vulnerability to those hazards, provides an inventory of critical facilities

and other community assets, describes land-use trends, and assesses capability related to mitigation

- Chapter 5 - Mitigation Strategy
  - Identifies, assesses and prioritizes goals and actions to mitigate hazards in each participating jurisdiction, based on the risk assessment, and includes a strategy for implementation
- Chapter 6 - Plan Adoption, Maintenance and Evaluation
  - Provides a formal process for monitoring, evaluating and updating the plan, identifies methods for continued public involvement, and describes how the updated plan will be incorporated into existing planning mechanisms
- Chapter 7 - Regional Coordination
  - Provides a regional mitigation element that addresses hazards, goals and mitigation actions that are common to counties in the San Luis Valley region
- Appendices
  - A. Acronyms
  - B. Plan Participants
  - C. References and Resources
  - D. Documentation of the Planning Process
  - E. Disaster Mitigation Act of 2000 (DMA 2000) Summary
  - F. FEMA Plan Review Tool
  - G. Record of Adoption

# Chapter Two

## Community Profile

Conejos County is located in the San Luis Valley (the Valley) of southern Colorado. Figure 2.1 shows Conejos County's location within the state. The county seat is the unincorporated town of Conejos, located in the middle of the county along Highway 285 just north of Antonito. This section describes the geography, climate, history, population, economy, and government of Conejos County and the participating towns of Antonito, La Jara, Manassa, Romeo and Sanford.

Table 2.1 Conejos County Facts and Figures

	Conejos County	Town of Antonito	Town of La Jara
Latitude	37.27N	37.08N	37.27N
Longitude	-106.25W	-106.01W	-105.96N
Land Area (Square Miles)	1,290	0.39	0.35
Elevation (Feet)	7,700-13,000	7,888	7,605
Population (2010)	8,256	781	818
Population (2014-Estimated)	8,276	774	835
Population (2015-Estimated)	8,130	759	801

	Town of Manassa	Town of Romeo	Town of Sanford
Latitude	37.17N	37.17N	37.26N
Longitude	-106.01W	-105.98W	-105.90W
Land Area (Square Miles)	0.93	0.23	1.47
Elevation (Feet)	7,690	7,736	7,605
Population (2010)	991	404	879
Population (2014-Estimated)	1,031	335	865
Population (2015-Estimated)	966	387	852

Source of population data: U.S. Census, American Community Service, 2010-2014 5-Year Population Estimate

### 2.1 Geography and Climate

#### Geography

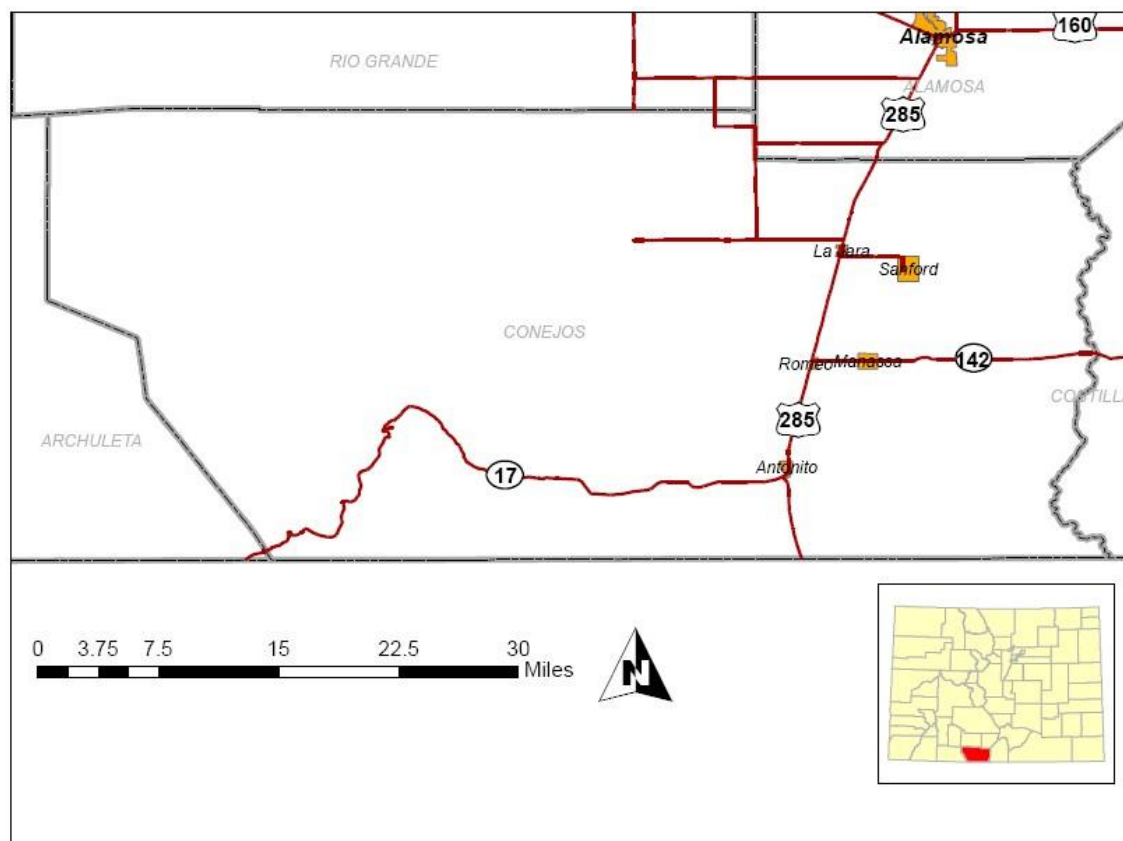
Spanning 8,000 square miles, the San Luis Valley is the world's largest alpine desert. It is approximately 122 miles long and 74 miles wide, extending from the Continental Divide on the northwest rim into the state of New Mexico on the south. Mountain ranges with peaks reaching elevation over 14,000 feet sit on each of the Valley - the Sangre de Cristo range to the east and the San Juan Mountains to the west.

The San Luis Valley sits atop the Rio Grande Rift, a split in the crust of the Earth where the sides are pulling away from each other. The Valley floor is covered with approximately 30,000 feet of rock, sand, and earth, deposited over millions of years as the rift has separated and the surrounding mountains have eroded. A number of mountain streams flow into the Valley and then sink into the desert sand creating an expansive aquifer under the Valley floor. The



only surface water to leave the valley is the Rio Grande River, which runs through Conejos County.

Figure 2.1 Map of Conejos County



Source: Created by URS

### Climate

The climate of the Valley is marked by moderate summers and cold winters, light precipitation and many days of sunshine each year. 80 percent of the annual precipitation occurs from April to October. Typically, light scattered showers will result from thunderstorms that develop over the mountains and move into the Valley during the afternoon, providing the county with approximately 7.6 inches of rain per year and an average summer temperature of 65 degrees. The county receives approximately 41.7 inches of snow each winter with an average temperature of 14 degrees. Although the winters are cold, Conejos County experiences approximately 350 days with sunshine per year.

### **2.2 History**

The San Luis Valley was long part of the lands of the Ute Indian Tribes. The Spanish, and later the Mexicans, slowly conquered the area from these tribes during the 17th and 18th centuries. The Valley was the first region of Colorado to be settled by Europeans. The area was administered as part of the Spanish, later Mexican, province of Nuevo Mexico (New Mexico) until the area was purchased by the United States as part of the Treaty of Guadalupe

Hidalgo in 1848. Extensive settlement began in the Valley by Hispanic farmers and ranchers in the 1850s. Today, the Valley has the largest native Hispanic population in Colorado and many families are directly descended from the original Nuevo Mexican settlers. The Valley became part of the Territory of Colorado in 1861. For the remainder of the 19th century, the Valley saw the removal of the Native Americans to reservations elsewhere and the slow migration of farmers and ranchers into the area.

Conejos County was one of the original 17 counties created by the General Assembly of the Territory of Colorado, although it was originally named Guadalupe County and renamed Conejos County a week later. Its name comes from the Spanish term for rabbit, for the large abundance of rabbits in the area. The town of Conejos is the location of the oldest church in Colorado, Our Lady of Guadalupe Parish. The church was constructed in 1856. In 1874, most of the western and northern portions of the county were broken away to form parts of Hinsdale, La Plata and Rio Grande counties, and Conejos County achieved its modern borders in 1885 when its western half was taken to create Archuleta County.

Mormon pioneers founded the Town of Manassa in 1879, and named the town after a son of the Israelite, Joseph. The selection of the land for the colony was made on the assurance that the railroad would soon be built nearby. However, one year later the railroad bypassed the colony, and instead passed through Romeo, just three miles to the west. One of the oldest festivals in the state, Pioneer Days remains a major annual event in Manassa, held on the weekend closest to July 24, in honor of the arrival of Brigham Young and fellow members of the Church of Jesus Christ of Latter-day Saints in Utah's Great Salt Lake Valley on July 24, 1847. Manassa remains the most populous town in Conejos County. The Town of Antonito is the eastern terminus of the Cumbres and Toltec Scenic Railroad, and the southern terminus of the San Luis and Rio Grande Railroad. Antonito was once known as the "perlite capital of the world."

## 2.3 Population

Table 2.2 describes demographic and social characteristics of Conejos County's population.

Table 2.2 Demographic and Social Characteristics of Conejos County

Characteristic	Conejos County	Town of Antonito	Town of La Jara
Population (2014)	8,276	774	835
Median Age	38.5	47.8	37.5
Population 65 Years and Over	1,359	145	156
Female Population	4,166	375	400
Male Population	4,110	395	435
Average Household Size (2010)	2.64	2.27	2.60
Average Family Size (2010)	3.24	2.97	3.21
Percent of Total Population with Disabilities	19.7	29.3	17.7
Residents with Disabilities less than 18 Years Old	70	0	3
Residents with Disabilities 18-64 Years Old	828	142	82
Residents with Disabilities over 65 Years Old	717	85	63
Residents with Health Insurance Coverage	6,770	656	673
Residents with High School Degree (Percent)	84.0	89.2	78.5
Residents with Bachelor's Degree (Percent)	20.2	16.7	23.2

Characteristic	Town of Manassa	Town of Romeo	Town of Sanford
Population (2014)	1,031	335	865
Median Age	38.9	33.8	37.5
Population 65 Years and Over	165	38	90
Female Population	541	154	439
Male Population	490	181	426
Average Household Size (2010)	2.71	3.06	2.88
Average Family Size (2010)	3.35	3.63	3.34
Percent of Total Population with Disabilities	24.2	21.8	16.5
Residents with Disabilities less than 18 Years Old	9	3	4
Residents with Disabilities 18-64 Years Old	141	47	97
Residents with Disabilities over 65 Years Old	99	23	42
Residents with Health Insurance Coverage	825	283	702
Residents with High School Degree (Percent)	88.8	59.3	87.0
Residents with Bachelor's Degree (Percent)	14.3	8.8	19.1

Source: U.S. Census, American Community Service, 2010-2014 5-Year Population Estimate

## 2.4 Economy

Select housing and economic characteristics for Conejos County and other participating jurisdictions are provided in the table below. For the period 2010-2015, Conejos County issued an average of approximately 14 building permits per year.

Table 2.3 Economic and Housing Characteristics of Conejos County

Characteristic	Conejos County	Town of Antonito	Town of La Jara
Median Household Income	37,357	22,109	33,750
Percent of Total Population that is Unemployed	9.2	16.6	14.3
Percent of Families Living Below Poverty Level	16.0	30.4	14.3
Percent of Individuals Living Below Poverty Level	18.6	33.6	19.4
Total Housing Units	4,286	436	385
Vacant Housing Units	1,263	97	67
Homeowner Vacancy Rate	0.7	2.8	0.0
Rental Vacancy Rate	4.6	3.0	19.8

Characteristic	Town of Manassa	Town of Romeo	Town of Sanford
Median Household Income	40,515	21,500	51,324
Percent of Total Population that is Unemployed	13.1	11.4	4.1
Percent of Families Living Below Poverty Level	23.6	34.5	14.7
Percent of Individuals Living Below Poverty Level	24.4	38.2	15.1
Total Housing Units	447	149	359
Vacant Housing Units	74	123	45
Homeowner Vacancy Rate	1.3	0.0	0.8
Rental Vacancy Rate	0.0	0.0	1.4

Source: U.S. Census, American Community Service, 2010-2014 5-Year Population Estimate

According to the U.S. Census (2014 County Business Patterns), there are a total 758 companies in Conejos County. Retail Trade was the largest major industry sector (187 employees/19 establishments), followed by Health Care and Social Assistance (130 employees/10 establishments), and Transportation and Warehousing (51 employees/10 establishments). Table 2.4 below shows a list of the top 10 major industries in Conejos County in 2014 (except where noted as 2012). The data does not include most government employees, railroad employees and self-employed individuals.

Table 2.4 Industry Distribution in Conejos County

Industry	Establishments	Employees
<b>Retail Trade</b>	19	187
<b>Health Care and Social Assistance</b>	10	130
<b>Transportation and Warehousing</b>	10	51
<b>Manufacturing (2012)</b>	5	53
<b>Accommodation and Food Services</b>	11	38
<b>Construction</b>	13	N/A
<b>Wholesale Trade (2012)</b>	4	19
<b>Professional, Scientific and Technical Services</b>	5	11
<b>Real Estate and Rental/Leasing (2012)</b>	4	11
<b>Other Services (except Public Administration)</b>	4	N/A

Source: U.S. Census Bureau, 2014 County Business Patterns

## 2.5 Government

There are total of 28 local government entities in Conejos County: 1 county, 5 municipal, 3 school districts and 19 special districts. A three-member Board of County Commissioners governs county government. Conejos County officials and departments include the Assessor, Attorney, Clerk Recorder, Coroner, Sheriff, Surveyor and Treasurer. Antonito, Manassa, Romeo, La Jara, and Sanford are statutory towns. The county also includes the unincorporated small towns of Bear Creek, Bountiful, Canon, Capulin, Carmel, Conejos, Elk Creek, Fox Creek, Guadalupe, Horca, La Florida, La Sauses, Las Mesitas, Lobatos, Mogote, Ortiz, Osier, Platoro, Richfield, Rincones, San Antonio, and Sheep Creek.

# Chapter Three

## Planning Process

### 3.1 2016 Plan Update Process

The overall effort to obtain a planning grant and complete the latest updates was guided by the San Luis Valley Hazard Mitigation Steering Committee (Steering Committee), composed of emergency managers from each of the five counties and select state and regional partners. The Steering Committee was established to address hazards, identify goals, and explore opportunities for collaborative mitigation actions on a regional level.

Table 3.1 San Luis Valley Hazard Mitigation Steering Committee

<b>San Luis Valley Hazard Mitigation Steering Committee</b>
Alamosa County Emergency Management
Conejos County Emergency Management
Mineral County Emergency Management
Rio Grande County Emergency Management
Saguache County Emergency Management
San Luis Valley Emergency Preparedness and Response (EPR)
San Luis Valley Regional Emergency Trauma Advisory Committee (RETAC)

The planning process began with a Steering Committee kickoff meeting in Alamosa on January 25, 2016. At the initial meeting, the Steering Committee discussed future steps and milestones, including reconvening County Planning Teams, scheduling county-level kickoff meetings, providing opportunities for public involvement, and coordinating with partner agencies.

The project to update the Conejos County Hazard Mitigation Plan was managed by the Conejos County Emergency Manager and funded by a combination of federal grant and local funds. Technical planning assistance was provided by staff from the Colorado Division of Homeland Security and Emergency Management. The services of a planning consultant were secured to conduct research, facilitate data collection, incorporate best available current data into revisions, and produce draft and final plan documents in accordance with DMA 2000 requirements.

Updates to this plan were based on research from a wide variety of sources, historical perspectives, and future projections of vulnerability and resource capacity. Updates were completed using the most current state and federal guidance, including FEMA's Local Mitigation Planning Handbook (March 2013), to ensure that the plan met federal requirements. A concerted effort was also made to ensure that 2016 revisions were consistent with information in the Colorado Natural Hazards Mitigation Plan (December 2013), including the definition and detailed description of each hazard profiled in Chapter Four, Risk Assessment.

### 3.2 Multi-Jurisdictional Participation

Conejos County invited incorporated towns and cities and special districts within the county to participate in revisions to the multi-jurisdictional plan. In accordance with DMA 2000, each participating jurisdiction must be involved in the planning process and formally adopt the mitigation plan. Participating jurisdictions that adopt this plan remain eligible for FEMA hazard mitigation grant funding. Other jurisdictions participating in the process can also receive FEMA grant funds, but only if the project is consistent with this plan and an eligible local government entity agrees to apply on their behalf.

Table 3.2 Conejos Hazard Mitigation County Planning Team

Conejos County Hazard Mitigation Planning Team	
Conejos County Sheriff	Romeo Town Clerk
Conejos County Clerk	Romeo Fire Department
Conejos County Coroner	Conejos County Hospital
Conejos County Public Health	North Conejos School District
Conejos County Land Use	South Conejos Fire Protection District
Conejos County OEM	Northwest Fire Protection District
Mayor - Town of La Jara	San Luis Valley EPR
Mayor - Town of Manassa	San Luis Valley RETAC
Mayor - Town of Romeo	Alamosa County OEM
Mayor - Town of Sanford	Costilla County OEM
Conejos County Fire Protection District	Mineral County OEM
Antonito Fire Department	Saguache County OEM
Capulin Fire Department	Colorado Division of Fire Protection and Control
La Jara Town Manager	Colorado State Forest Service
La Jara Town Clerk	U.S. Forest Service
La Jara Police Department	Colorado Division of Homeland Security and Emergency Management
La Jara Fire Department	

The Conejos County Hazard Mitigation Planning Team (Planning Team) was reconvened to provide needed data, review draft updates, and assist with development of new and updated mitigation actions. To reestablish the planning team and offer an opportunity to participate in the plan update process to a broad range of stakeholders, the Conejos County Emergency Manager used a variety of means to reach out to potential partners:

- (1) Conejos County Leadership and Departments
  - The planning effort was supported by all appropriate departments and staff.
- (2) San Luis Valley Multi-Agency Coordination (MAC) Group.
  - The MAC Group was briefed at the outset of the project on January 25, 2016 and members of the MAC Group participated in the kickoff meeting (March 16, 2016) and mitigation actions workshop (August 30, 2016).
- (3) Local Government Partners
  - The towns of Antonito, La Jara, Manassa, Romeo and Sanford supported the 2016 effort by attending planning meetings, updating mitigation actions, reviewing the final draft document, and pledging timely local adoption following FEMA approval.

(4) Regional Partners

- The San Luis Valley MAC Group, San Luis Valley Emergency Preparedness and Response, and San Luis Valley Regional Emergency Trauma Advisory Council (RETAC) all supported the project and participated in each of the planning meetings.

(5) State and Federal Agency Partners

- The Colorado Division of Homeland Security and Emergency Management, Colorado Division of Fire Protection and Control, Colorado State Forest Service, and U.S. Forest Service participated in the project and attended planning meetings.

(6) Neighboring Communities

- The San Luis Valley Hazard Mitigation Steering Committee provided project oversight and Emergency Managers from each of the following counties participated in the planning process: Alamosa, Conejos, Costilla, Mineral, Rio Grande and Saguache.

### 3.3 10-Step Planning Process

The planning process followed for the 2016 plan updates conforms to FEMA's four-phase DMA process and the 10-step process used for FEMA's Community Rating System (CRS) and Flood Mitigation Assistance (FMA) programs. Table 3.3 shows how the modified 10-step process corresponds with the planning requirements of DMA 2000.

Table 3.3 Plan Development Methodology

FEMA's Four-Phase DMA Process	Modified 10-Step CRS Process
<b>1) Organize Resources</b>	
201.6(c)(1)	1) Organize the Planning Effort
201.6(b)(1)	2) Involve the Public
201.6(b)(2) and (3)	3) Coordinate with Other Departments/Agencies
<b>2) Assess Risks</b>	
201.6(c)(2)(i)	4) Identify the Hazards
201.6(c)(2)(ii)	5) Assess the Risks
<b>3) Develop the Mitigation Plan</b>	
201.6(c)(3)(i)	6) Set Goals
201.6(c)(3)(ii)	7) Review Possible Activities
201.6(c)(3)(iii)	8) Draft an Action Plan
<b>4) Implement Plan/Monitor Progress</b>	
201.6(c)(5)	9) Adopt the Plan
201.6(c)(4)	10) Implement, Evaluate and Revise the Plan

### 3.4 Phase One: Organize Resources

#### Step 1: Get Organized -- Building the Planning Team

In conformance with the DMA 2000 planning regulations and guidance, members of the Planning Team participated in the planning effort in the following ways:

- attending and participating in Planning Team meetings



- providing available data
- evaluating and rating area risks and hazards
- identifying goals and objectives for the mitigation strategy
- reviewing and providing comments on the plan drafts
- assisting in the implementation of the public input process
- identifying specific projects to be eligible for funding, and
- assisting with the formal adoption of the plan by the governing board.

Two planning meetings, a Kickoff Meeting and Mitigation Actions Workshop, were scheduled to update and obtain feedback from the Planning Team. Each Participating Jurisdiction provided input, reviewed draft updates and attended planning meetings. By virtue of that participation, each Participating Jurisdiction helped to review and update the Hazard Identification and Risk Assessment (HIRA) and contributed to the development of the mitigation strategy.

During the planning process, the Planning Team communicated by a number of means, including planning meetings, formal briefings, email correspondence and face-to-face interviews. This updated plan is a result of planning team input provided through a combination of technical data collection and sharing, comments on draft planning elements, and information gathered during planning meetings.

The meeting schedule and topics are listed in Table 3.4 below. Meeting summaries and agendas are included in Appendix D, Documentation of the Planning Process.

Table 3.4 Planning Meetings and Topics

Meeting Date and Location	Meeting Purpose
Initial SLV Steering Committee Meeting, January 25, 2016 (Alamosa, CO)	Discuss future steps and milestones (i.e., establishing County Planning Teams, county-level kickoff meetings, public involvement strategy, stakeholder coordination)
Conejos County Kickoff Meeting, March 16, 2016 (La Jara, CO)	Reconvene County Planning Team, outline DMA 2000 process, identify timelines, review and update hazard assessment, discuss significant events last five years
Mid-Project Progress Report, June 29, 2016 (Colorado Springs, CO)	Update Steering Committee on progress to date and remaining information needs
Mitigation Actions Workshop, August 30, 2016 (La Jara, CO)	Review 2010 mitigation actions and identify and prioritize mitigation actions for 2016

## Step 2: Plan for Public Involvement - Engaging the Public

The draft Conejos County Hazard Mitigation Plan was posted on the Conejos County Emergency Management Facebook page to provide opportunities for the public to review the document, provide input and recommend changes. A comment/feedback form was also posted to give citizens a mechanism for providing written comments and suggestions.

Although holding a public meeting was discussed in the early planning stages, the Conejos County Emergency Manager and Planning Team opted instead to direct public attention to the



draft posted on the web page as the most effective means for citizens to provide feedback, based on their experience with soliciting public comment on other projects and their judgement that public interest in the mitigation plan update was low.

A hard copy of the final draft was also provided for review at the following locations, with a comment/feedback form for public use:

- La Jara Town Hall
- Conejos County Land Use Office
- Conejos County Library
- Conejos County Office of Emergency Management.

There were no comments received from citizens regarding the posted or hard copy drafts of the plan.

### Step 3: Coordinate with Other Departments and Agencies

The Conejos County Office of Emergency Management invited a range of local, state, regional and federal agencies and other interested parties to participate on the Planning Team and review and comment on draft updates to the plan. The following departments and agencies participated in the process by attending planning meetings, providing needed data, and/or reviewing the final document draft:

- County/Municipal Elected Officials and Staff
- School Districts
- Special Districts
- Police Departments
- Fire Departments/Fire Protection Districts
- Colorado Division of Homeland Security and Emergency Management
- Colorado Division of Fire Protection and Control
- Colorado State Forest Service
- San Luis Valley Emergency Preparedness and Response (EPR)
- San Luis Valley RETAC
- U. S. Forest Service.

## **3.5 Phase Two: Assess Risks**

### Step 4 - Identify Hazards

For the 2016 update, the Planning Team reviewed previous versions of the hazard assessment and established new ratings and priorities. The results of that process and hazard profiles for all significant hazards are detailed in Table 4.2 in Chapter Four, Risk Assessment. In addition to input from the planning team, a variety of state, federal, nonprofit and university sources were consulted to collect data required for the update of this plan, including:

- Colorado Department of Public Health and Environment (CDPHE)
- Colorado Department of Natural Resources, Office of the State Engineer
- Colorado Geological Survey (CGS)
- Colorado State Forest Service
- Colorado Water Conservation Board (CWCB)
- Federal Emergency Management Agency (FEMA)
- History Colorado

- National Oceanic and Atmospheric Administration (NOAA), National Centers for Environmental Information (formerly the National Climatic Data Center)
- National Weather Service (NWS)
- Rocky Mountain Insurance Information Association (RMIIA)
- University of South Carolina (SHELDUS)
- U.S. Census Bureau
- U.S. Geological Survey (USGS).

### Step 5 - Assess Risks

To initiate this step, the Planning Team completed a hazard assessment worksheet that reevaluated hazard probability and severity and incorporated information about documented recent events.

Chapter Four, Risk Assessment, provides a detailed description of the hazard assessment process and results, including a vulnerability assessment, hazard maps, and an updated capabilities assessment. The capability assessment process identified existing policies, tools, and actions in place that can reduce risk and vulnerability from natural hazards, such as comprehensive plans, building codes and floodplain management ordinances. Combining the results of the hazard assessment with the capability assessment helps to inform the process of developing the goals, objectives, and proposed actions of this plan.

A profile of each identified hazard was created using available GIS data, online data sources, and existing plans and reports. The profiles included a hazard description, geographic location, past occurrences, probability of future occurrences, and magnitude/severity (extent) for each hazard. The profiles also describe overall vulnerability of each jurisdiction to each hazard and identify structures and estimate potential losses to structures in identified hazard areas.

## **3.6 Phase Three: Develop the Mitigation Plan**

### Step 6 - Set Goals

Based on the results of the hazard assessment, the Planning Team established the 2016 Goals for this plan and mitigation strategy. The goals set for the plan are as follows:

1. Reduce loss of life and personal injury caused by natural hazards;
2. Reduce damage to critical facilities, personal property, and other community assets caused by natural hazards; and
3. Minimize economic losses associated with natural hazards.

### Step 7 - Review Possible Activities

The Planning Team discussed a wide range of possible mitigation actions, and employed the STAPLEE methodology endorsed by FEMA to evaluate and prioritize each proposed action. For each recommended action, the planning team developed a project summary that included a description of the action, the department or agency responsible for implementing it, and a timeframe for completion. The results of this collaborative process are captured in Chapter Five, Mitigation Strategy.

The Planning Team identified and prioritized mitigation actions at the second planning team meeting. Details on this process are included in Chapter Five. The planning team identified the responsible agency, cost estimates, and timeline for each identified action.

#### Step 8 - Draft the Plan

Based on hazard assessment results and the goals and activities identified in Planning Steps 6 and 7, a complete first draft of the plan was prepared and distributed for review and comment. Final comments from the Planning Team and interested citizens were integrated into the final draft, which was advertised and distributed to collect public input and comments. A final draft was produced for the Colorado Division of Homeland Security and Emergency Management and FEMA Region VIII to review and approve, contingent upon final adoption by Conejos County and participating jurisdictions.

### **3.7 Phase Four: Implement the Plan and Monitor Progress**

#### Step 9 - Adopt the Plan

In order to officially implement the plan, the plan is tentatively scheduled for adoption by Conejos County and participating jurisdictions in early 2017, following conditional approval by FEMA Region VIII of the updated plan.

#### Step 10 - Implement, Evaluate and Revise the Plan

The primary benefit of mitigation planning is the effective implementation of specific mitigation projects and action items. Each mitigation action recommended in this update of the plan includes a description of the problem and recommended solution, a lead/responsible agency, project priority, cost estimate, and possible funding sources. An overall implementation strategy is described in Chapter Six, Plan Maintenance. A plan update and maintenance schedule and a strategy for continued public involvement are also included in Chapter Six.

# Chapter Four

## Risk Assessment

This chapter profiles the natural hazards that affect Conejos County and assesses vulnerability to those hazards. The risk assessment allows Conejos County communities to better understand their risks and provides a framework for developing and prioritizing mitigation actions to reduce risk from future natural hazard events.

Risk is the potential for damage, loss, or other impacts created by the interaction of natural or other types of hazards with community assets. When people, property or other community assets are exposed to hazards, incidents or extreme events can lead to disastrous impacts. “Impacts are the consequences or effects of the hazard on the community and its assets. The type and severity of impacts are based on the extent of the hazard and the vulnerability of the asset, as well as the community’s capabilities to mitigate, prepare for, respond to, and recover from events.”<sup>1</sup>

### Hazard Assessment Terminology

**Natural hazard** - source of harm or difficulty created by a meteorological, environmental, or geological event

**Community assets** - the people, structures, facilities, and systems that have value to the community

**Vulnerability** - characteristics of community assets that make them susceptible to damage from a given hazard

**Impact** - the consequences or effects of a hazard on the community and its assets

**Risk** - the potential for damage, loss, or other impacts created by the interaction of natural hazards with community assets

**Hazard assessment** - product or process that collects information and assigns values to risks for the purpose of informing priorities, developing or comparing courses of action, and informing decision making.

**Threat or human-caused incident** - intentional actions of an adversary, such as a threatened or actual chemical or biological attack or cyber event.

Source: Local Mitigation Planning Handbook, FEMA (March 2013)

The risk assessment is a decision support tool that provides a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events. For the 2016 updates to this plan, the process that was followed is consistent with the Hazard Identification and Risk Assessment (HIRA) process in the Colorado Natural Hazards Mitigation Plan (2013) and conforms to the methodology described in the FEMA publication *Understanding Your Risks—*

<sup>1</sup> Local Mitigation Planning Handbook, FEMA (March 2013), p. 5-1

*Identifying Hazards and Estimating Losses* (2002), which breaks the assessment down to a four-step process:

1. Identify Hazards
2. Profile Hazard Events
3. Inventory Assets
4. Estimate Losses.

Data collected through this process have been incorporated into the following sections of this chapter:

**Section 4.1 Hazard Identification** identifies the hazards faced by Conejos County and evaluates the probability and potential consequences for each of these hazards.

**Section 4.2 Hazard Profiles** discusses the nature of each hazard, describes previous occurrences of hazard events and the likelihood of future occurrences, and estimates potential impacts and consequences.

**Section 4.3 Vulnerability Assessment** provides an overview of the total exposure to natural hazards, considering population and other community assets at risk, including critical facilities/infrastructure, economic assets, and natural, cultural and historic resources. This section also includes an analysis of trends in population growth and land use.

**Section 4.4 Capability Assessment** provides a summary of local hazard mitigation capabilities, including current mitigation activities and existing policies, regulations, and plans pertaining to mitigation and affecting net vulnerability.

## **4.1 Hazard Identification**

### **4.1.1 Results and Methodology**

For the 2016 update, the Conejos County Hazard Mitigation Planning Team (Planning Team) revisited the list of hazards from the 2010 hazard mitigation plan and reevaluated each based on recent events, historical frequency, and potential for causing significant human and/or monetary losses in the future. As a result of this review, the Planning Team determined that 12 natural hazards pose a threat to the county (as in 2010) and no additional hazards were added for the 2016 update.

The Planning Team also reviewed and rated each hazard regarding two risk factors - probability and severity - and revalidated the results of the initial assessment in 2010 (no changes to hazard ratings were recommended by the Planning Team). None of the 12 hazards were rated “catastrophic” in severity by the Planning Team and only one hazard (severe winter storm) was rated “highly likely” to occur. Priority hazards for planning and mitigation purposes are those that are at least “likely” to occur and have a severity rating of “critical” or greater. Five of the 12 hazards meet these standards for priority hazards: drought, hail, severe winter storms, wildfires and windstorms. See Table 4.2 in this chapter for results of the risk assessment process.

Although severe winter storms are the most likely hazard to occur in Conejos County, the Planning Team is concerned that prolonged drought conditions in the region will continue to

lead to beetle-infestations and an increase the frequency and severity of wildfire events. As a result, three of the seven High Priority Mitigation Actions in 2016 will address the wildfire hazard (Mitigation Actions #1, #8 and #13) and three of the High Priority projects will address the severe winter storm hazard (Mitigation Actions #4, #5 and #12). See Table 5.3 in Chapter Five for a summary of all 2016 Mitigation Actions.

Table 4.1 Significant Natural Hazards Affecting Conejos County

Significant Natural Hazards Affecting Conejos County		
Floods	Windstorms	Dam Failure
Wildfires	Tornadoes	Avalanches
Hail	Severe Winter Storms	Landslides
Lightning	Drought	Earthquakes

The Planning Team evaluated each of the identified hazards focusing on the number of previous occurrences, probability of future events, and the estimated magnitude and severity of impacts to community assets. The results of this analysis are indicated in the table below.

Table 4.2 Conejos County Risk Assessment 2016, Hazard Assessment Worksheet

Hazard	Location	Previous Occurrences (Last 50 Years)	Probability	Magnitude/Severity
Avalanche	South San Juan Mountains	1 fatality according to CAIC	Occasional	Critical
Drought	Countywide	1976-1977/2000-2003/2006/2007-2008	Likely	Critical
Earthquake	Countywide	None on record (Antonito EQ 12-7-52)	Occasional	Negligible
Flood	Rio Grande R., Conejos R., La Jara Creek	1970/1973/1977/1979/1981/1984/1994	Likely	Limited
Hail	Countywide	4 events (1997/1999/2006/2007)	Likely	Critical
Landslide	Western Conejos County	None on record	Unlikely	Limited
Dam Failure	2 Class I dams/ 2 Class II dams	None on record	Unlikely	Catastrophic
Lightning	Countywide	1972/1993 (2) (1 fatality in 1972)	Occasional	Limited
Severe Winter Storm	Countywide	8 events	Highly Likely	Critical
Tornado	Countywide	3 events: 1990/2005 (2) (all F0 or F1)	Occasional	Critical
Wildfire	Countywide	No large-scale wildfire events on record	Likely	Critical
Windstorm	Countywide	13 events	Likely	Critical

The Planning Team reached consensus on the hazard ratings above using the following guide:

- Location
  - Geographic extent and participating jurisdictions affected
- Previous Occurrences
  - Known hazard incidents and information related to impacts
- Probability
  - Highly Likely - Annual event or occurs at least once per year (~100% chance)
  - Likely - Recurrence interval of 10 years or less (10-100% chance/year)
  - Occasional - Occurs every 11-100 years (1-10% chance/year)
  - Unlikely - Occurs greater than every 100 years (<1% chance in next 100 years)
- Magnitude/Severity
  - Catastrophic - Multiple deaths; property destroyed and damaged; population displacement; infrastructure damages; service disruptions > 72 hours
  - Critical - Isolated deaths/injuries; major or long-term impacts to property, infrastructure and critical services; service disruptions 24-72 hours
  - Limited - Minor injuries and illnesses; minimal property damage; infrastructure and critical services disruptions of less than 24 hours
  - Negligible - No deaths; few injuries or illnesses; minor quality of life loss; brief service disruptions; but little or no other community impacts.

#### **4.1.2 Disaster Declaration History**

Federal and/or state disaster declarations histories help document past occurrences of hazards in Conejos County and Colorado. Disaster declarations are granted when the magnitude and severity of impacts caused by an event surpass the ability of the affected local government to respond and recover. Most disaster assistance programs are supplemental and require a local cost-sharing match. When the response capacity of an affected jurisdiction is exhausted, a state disaster declaration may be issued, allowing for the provision of state assistance, usually for the purpose of covering the costs of state assets committed to response operations.

Should the severity of the disaster event surpass both the local and state government response capacity, a federal emergency or disaster declaration may be issued, allowing for the provision of federal disaster assistance. Generally, the federal government issues disaster declarations through FEMA. However, federal assistance may also come from the U.S. Department of Agriculture (USDA), the Small Business Association (SBA), or other government programs such as the Fire Management Assistance Grant Program. FEMA also issues emergency declarations, which are more limited in scope and without the long-term federal recovery programs of major disaster declarations. The quantity and types of damage are the determining factors. Table 4.3 lists state and federal disaster declarations in which Conejos County was a designated county.

Table 4.3 FEMA and State Disaster Declaration History (1965-2016) for Conejos County

Year	Event Type	Disaster Number
1970	Heavy rains and flooding; Conejos County designated federal disaster area	DR-293

<b>1973</b>	Flooding and landslides; Conejos County designated federal disaster area	DR-396
<b>1984</b>	Severe winter storm	State Declaration
<b>2003</b>	USDA Secretarial Disaster declaration for drought and insects	S1843
<b>2005-2006</b>	USDA Secretarial Disaster declaration for drought, fire, high winds and heat	S2327
<b>2011</b>	USDA Secretarial Disaster declaration for drought	S3131/S3144
<b>2012</b>	USDA Secretarial Disaster declaration for drought, wind/high winds, and heat/excessive heat	S3260/S3282
<b>2013</b>	USDA Secretarial Disaster declaration for drought, wind/high winds, heat/excessive heat, and insects	S3518/S3545

Source: Colorado Natural Hazards Mitigation Plan (2013); Colorado Drought Hazard Mitigation Plan (2013); FEMA, [www.fema.gov/news/disasters.fema](http://www.fema.gov/news/disasters.fema)

## 4.2 Hazard Profiles

Each of the hazards identified as posing a threat in Conejos County are profiled in subsequent sections. Each profile includes a summary of the overall risk and vulnerability for each identified hazard for each participating jurisdiction. The sources used to collect information for the hazard profiles include, but are not limited to the following:

- State of Colorado Natural Hazards Mitigation Plan (2013)
- Information on past hazard events from the Spatial Hazard Event and Loss Database; (SHELDUS), a component of the University of South Carolina Hazards Research Lab, that compiles county-level hazard data for 18 natural hazard event types
- Information on past extreme weather and climate events from the National Oceanic and Atmospheric Administration's National Centers for Environmental Information (formerly the National Climatic Data Center or NCDC)
- Disaster declaration history from FEMA, the Public Entity Risk Institute (PERI), and the U.S. Department of Agriculture (USDA) Farm Service Agency
- State of Colorado datasets compiled by state and federal agencies;
- Existing plans and reports; and
- Information collected from the County Planning Team and additional stakeholders.

### 4.2.1 Hazard Profile Methodology

Each hazard is profiled in a similar format that describes hazard characteristics, hazard location, previous occurrences, probability, magnitude/severity, and vulnerable community assets.

- Hazard Description
  - This subsection provides a general description of the hazard and associated problems and considers the relationship between hazards.
- Geographic Location
  - This subsection identifies the areas within Conejos County that are vulnerable to each hazard, or whether potential impacts could affect the entire county.
- Previous Occurrences



- This subsection contains an overview of information on historic incidents, including major incident impacts where known.
- Probability of Future Occurrences
  - This subsection provides a general description of the hazard and associated problems and considers the relationship between hazards. The probability, or chance of occurrence, was calculated based on existing data. The probability was determined by dividing the number of events observed by the number of years and multiplying by 100. This provides the percent chance of the event happening in any given year. For example, three droughts occurring over a 30-year period suggests a 10 percent chance of a drought occurring in any given year.
  - Based on historical data, the probability of future occurrences is categorized as follows: **Highly Likely** (near 100 percent chance of occurrence next year or it happens every year); **Likely** (10-100 percent chance of occurrence next year or it has a recurrence interval of 10 years or less); **Occasional** (1-10 percent chance of occurrence in the next year or it has a recurrence interval of 11 to 100 years; and **Unlikely** (less than 1 percent chance of occurrence in the next 100 years or it has a recurrence interval of greater than every 100 years).
- Magnitude/Severity
  - This subsection summarizes the extent or potential extent of a hazard event in terms of deaths, injuries, property damage, and interruption of essential facilities and services. Magnitude/severity is categorized as follows: **Catastrophic** (multiple deaths; property destroyed and severely damaged; and/or interruption of essential facilities and service for more than 72 hours); **Critical** (isolated deaths and/or multiple injuries and illnesses; major or long-term property damage that threatens structural stability; and/or interruption of essential facilities and services for 24-72 hours); **Limited** (minor injuries and illnesses; minimal property damage that does not threaten structural stability; and/or interruption of essential facilities and services for less than 24 hours); and **Negligible** (no or few injuries or illnesses; minor quality of life loss; little or no property damage; and/or brief interruption of essential facilities and services).
- Vulnerability Assessment
  - This subsection describes the county's overall vulnerability to each hazard; identifies existing and future structures, critical facilities, and infrastructure in identified hazard areas; and estimates potential losses to vulnerable structures, where data is available.

#### 4.2.2 Flood

##### Hazard Description

**Flooding** in and around the San Luis Valley can occur as a result of rain, melting snow or rain on melting snow (or due to the failure of a dam or levee). According to the 2013 Colorado Flood Hazard Mitigation Plan, "A flood is a general and temporary condition of partial or complete inundation of normally dry land areas from: (1) the overflow of stream banks, (2) the unusual and rapid accumulation of runoff of surface waters from any source, or (3)

mudflows or the sudden collapse of shoreline land. Flooding results when the flow of water is greater than the normal carrying capacity of the stream channel.”<sup>2</sup>

The 100-year flood is the national standard to which communities regulate their floodplains through the National Flood Insurance Program (NFIP). Participation in the NFIP requires adoption of a local floodplain management ordinance and its enforcement within a mapped Special Flood Hazard Area. Regulation of floodplain development by the community entitles citizens to purchase federal flood insurance.

Conejos County is at risk to both riverine and stormwater flooding. Riverine flooding occurs when a stream exceeds its “bank-full” capacity and generally occurs as a result of prolonged rainfall, or rainfall that is combined with soils already saturated from previous rain events. The area adjacent to a river channel is its floodplain (i.e., the area that is inundated by the 100-year flood).

Stormwater refers to water that collects on the ground surface or is carried in the stormwater system when it rains. In runoff events where the amount of stormwater is too great for the system, or if the channel system is disrupted by vegetation or other debris that blocks inlets or pipes, excess water remains on the surface. This water may pond in low-lying areas, often in street intersections. Stormwater ponding, also known as localized flooding, may result in deep water and pollution. Stormwater can pick up debris, chemicals, dirt, and other pollutants from impervious surfaces.

The potential for flooding is altered by land use changes that change the impervious characteristics of the land surface. A change in environment can create localized flooding problems inside and outside of natural floodplains by altering or confining watersheds or natural drainage channels.

#### Geographic Location

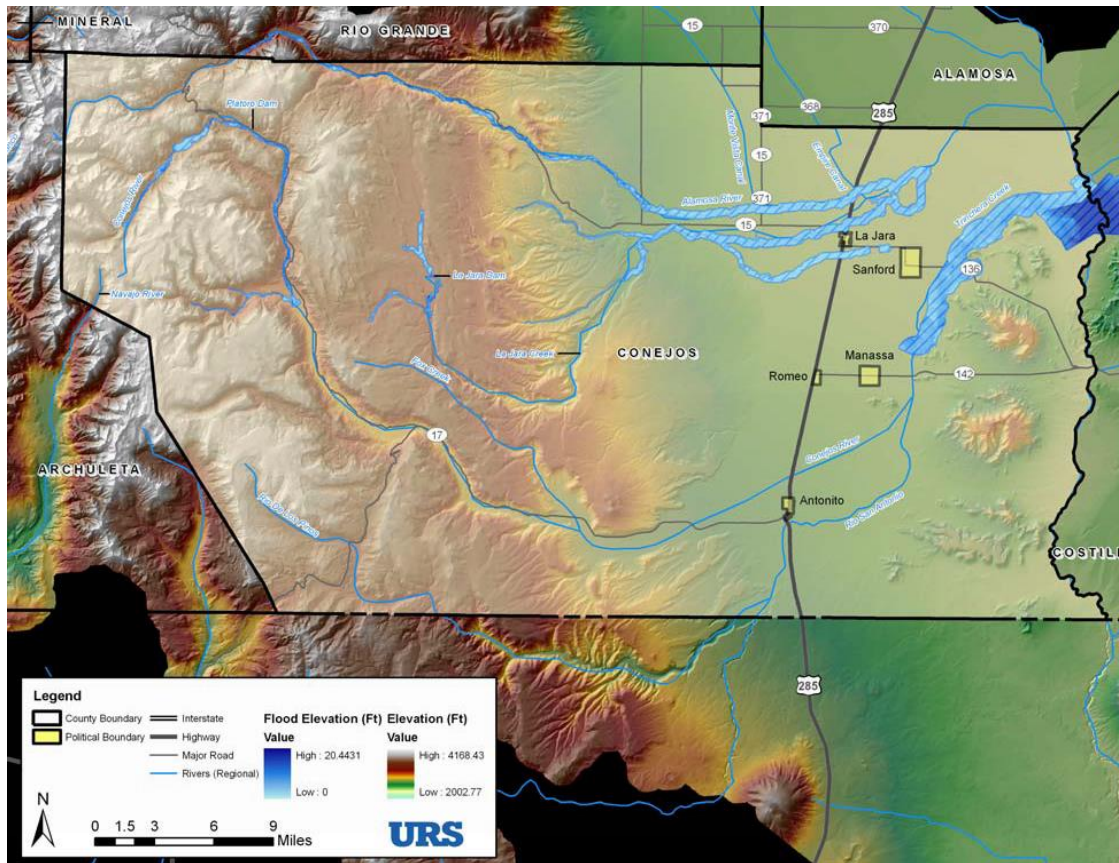
Conejos County is located within the Rio Grande River drainage basin in south central Colorado. The Rio Grande River is the greatest source of flood hazards. Conejos County is particularly vulnerable to flooding related to Severe Weather events between May and June when snowmelt runoff is flowing.

Conejos County does not currently have FEMA approved Digital Flood Insurance Rate Maps (DFIRMS). Data for riverine flooding in Conejos County was generated by HAZUS-MH MR3, FEMA’s software program for estimating potential losses from disasters. HAZUS was used to generate a 1 percent annual flood, or 100-year flood, in Conejos County. The software produces a flood polygon and flood-depth grid that represents the 100-year flood. While not as accurate as DFIRMS, these floodplain boundaries are useful for GIS-based loss estimation. Figure 4.1 is a map of the 100-year floodplain for Conejos County and each participating jurisdiction.

---

<sup>2</sup> Colorado Flood Hazard Mitigation Plan, Colorado Water Conservation Board, November 2013, p. 16

Figure 4.1 100-Year Floodplains in Conejos County



Source: HAZUS MH MR-3 (2009)

#### Previous Occurrences

The only designated high-risk flood area in Conejos County is located along La Jara Creek. The Conejos River, although not listed as high-risk, has a history of minor flooding. In 1994, several residents of Manassa suffered \$50,000 in property damage caused by flooding and the high water table along the Conejos River. Table 4.4 provides major flood events in Conejos County, compiled from a number of sources as noted.

Table 4.4 Significant Flood Events in Conejos County

Year	Location	Description
1970	Conejos County	Heavy rains and flooding; Conejos County designated federal disaster (DR-293)
1973	Conejos County	Flooding and landslides; Conejos County designated federal disaster (DR-396)
1977	Conejos County	Flooding and hail
1979	Conejos County	Flooding (severe storm)
1981	Conejos County	Flooding (severe storm)
1984	Conejos County	Flooding
1994	Manassa	Flash flood

2015	Bridge on CR 13	High water event; county bridge damaged and closed for several days (June 2015)
2015	CR H and CR 13	Ice dam caused water to approach homes; 3-day effort by Conejos County Road and Bridge crew to clear ice

Source: Colorado Natural Hazards Mitigation Plan (2013); SHELUDS

### Probability of Future Occurrences

The 1% annual chance flood event is the standard national measurement for flood mitigation actions and insurance. This recurrence level is an average and does not mean that a flood of that magnitude will occur exactly every 100 years. Likewise, the 500-year flood event has a 0.2% (or 1 in 500) chance of occurring in a given year.

Although flood events in Conejos County are rare, severe weather and snowmelt runoff present a threat of serious flooding along rivers and creeks in the county each year. As a result, the Planning Team has rated the probability of future flood events in Conejos County as **likely**, with a recurrence interval of 10 years or less (10-100% chance in a given year).

### Magnitude/Severity

Flooding presents a risk to life and property, including buildings, their contents, and their use. Floods can also affect lifeline utilities (e.g., water, sewage and power), transportation, the environment, jobs and the local economy. The extent of damage depends on the depth and velocity of floodwaters. Past flood events in Conejos County have damaged roads, bridges, private property, businesses, and public facilities. Future events may result in greater damages depending on patterns of growth and land use development. The Planning Team has rated the severity of the flood hazard in Conejos County **limited**, meaning that minor injuries and minor property damages are possible, with minimal disruptions to infrastructure and critical services.

### Vulnerability Assessment

The HAZUS flood analysis results provide the number of buildings impacted, estimates of the building repair costs, and the associated loss of building contents and business inventory. Building damage can cause additional losses to a community as a whole by restricting the building's ability to function properly, resulting in vacant homes and businesses. Income loss data accounts for losses such as business interruption and rental income losses as well as the resources associated with damage repair and job and housing losses. These losses are calculated by HAZUS using a methodology based on the building damage estimates. Flood damage is directly related to the depth of flooding. For example, a two-foot flood results in approximately 20% of the structure being damaged (or 20% of the structure's replacement value).

To identify critical facilities located in the floodplain, GIS data from Conejos County showing the locations of critical facilities was combined with the 100-year floodplain map. No critical facilities were identified in the 100-year floodplain.

Table 4.5 shows that HAZUS estimates total building damages of over \$4 million in Conejos County. In addition, HAZUS estimates that the number of people displaced by the flood event is 380 and the number of people requiring short-term sheltering is 132.

HAZUS estimates for direct economic losses for buildings are shown in the table below.

Table 4.5 Potential Flood Losses: HAZUS Estimates

Type of Loss	Damage Estimate
Building Damage	\$2,164,000
Contents Damage	\$2,127,000
Inventory Loss	\$110,000
Relocation Loss	\$4,000
Wage Losses	\$35,000
Rental Income Loss	0
<b>Total Loss</b>	<b>\$4,440,000</b>

Source: HAZUS-MH MR3 (2009)

It should be noted that the HAZUS-generated floodplain boundaries do not conform to the FEMA Flood Insurance Rate Map (FIRM) boundaries and are most useful for disaster-planning purposes. Conejos County has been mapped by the NFIP and published flood maps are more accurate than results from HAZUS. For normal local planning and development review, the most current FIRM is the regulation standard.

Conejos County joined the National Flood Insurance Program (NFIP) in 1990. Any structure built in the floodplain now has to meet Conejos County's floodplain requirements. Table 4.6 provides information on the NFIP participation of communities in Conejos County. NFIP insurance data indicates that as of July 31, 2016, there are seven flood insurance policies in force in the unincorporated areas of Conejos County, one policy in the Town of Manassa and one in the Town of Antonito (\$1,439,500 in total coverage). The Towns of Romeo and Sanford are not participating in the NFIP. There are no repetitive loss properties in Conejos County.

Table 4.6 Conejos County NFIP Information

Jurisdiction	Date Joined	Effective FIRM Date	Policies	Insurance in Force (\$)	Number of Claims	Total Claims (\$)
Conejos County	11-16-1990	11-16-1990	7	\$1,273,000	2	Closed w/o payment
Town of Antonito	11-5-1985	7-11-1975	1	\$280,000	0	0
Town of La Jara	6-30-1976	5-17-1974	0	\$0	0	0
Town of Manassa	2-19-1986	2-19-1986	1	\$80,000	1	Closed w/o payment
<b>Town of Romeo - not participating in NFIP</b>						
<b>Town of Sanford - not participating in NFIP</b>						

Source: FEMA Community Status Book Report (August 4, 2016); NFIP BureauNet Reports (July 31, 2016)

Development in floodplains could be regulated by adopting floodplain regulations where they don't currently exist. Floodplain management when properly enforced minimizes risk of flooding to future development. FEMA initiated the Map Modernization program in 2002 in which Digital Flood Insurance Rate Maps will eventually be produced for all Colorado Counties. This involves a public-private partnership in order to meet the needs of each entity. Several counties begin the process during each program year; however, Conejos County has not yet been included. Once these maps are complete and approved estimates of structures



and values within the floodplain should be revised using the Assessor's data and the new maps.

### **4.2.3 Wildfire**

#### **Hazard Description**

According to the 2013 Colorado Natural Hazards Mitigation Plan, a wildfire is “an unplanned, unwanted wildland fire including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out. Wildfires are divided into four categories:

- Wildland fire - fuel consists mainly of natural vegetation;
- Interface or intermix fire - urban/wildland fires that consist of vegetation and manmade fuel;
- Catastrophic fire - a very intense event that makes suppression very difficult and negatively impacts human values;
- Prescribed fire - Any fire ignited by management actions to meet specific objectives.”<sup>3</sup>

Three factors that contribute to fire ignition and growth are fuel, topography, and weather. Fuel sources include dead tree needles, leaves, twigs, branches, dead standing trees, live trees, brush, and cured grasses. Light fuels such as grasses burn quickly and serve as a catalyst for the spread of fire. “Ladder fuels” can spread a ground fire up through brush into trees, leading to a devastating crown fire in the upper canopy that cannot be controlled.

Topography, or an area's terrain and land slopes, affects its susceptibility to wildfire spread. Due to the convection of heat, both fire intensity and rate of fire spread increases as slope increases. Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out the fuels that feed the wildfire creating a situation where fuel will more readily ignite and burn more intensely. Winds are the most dangerous and unpredictable weather factor that affects fire behavior.

#### **Geographic Location**

As noted in the 2013 Colorado Natural Hazards Mitigation Plan, prolonged drought has resulted in extremely dry and volatile fuels and a corresponding upswing in large, erratic wildfires, on grasslands as well as in the forests. Wildfires occur naturally (often through lightning strikes) and also from human causes, including illegal outdoor fires, sparks from trains, discarded cigarettes, and outdoor cooking grills.

Conejos County has a diverse range of vegetation types from the dense cottonwoods in the riparian edge of the Rio Grande River to the desert shrubs on the valley floor. Vegetation on the eastern slopes of the San Juan Mountains includes high- elevation cold desert shrubs, pinyon-juniper, Ponderosa Pine, Douglas-fir, Aspen, Engelmann Spruce, and Alpine meadows.

---

<sup>3</sup> Colorado Natural Hazards Mitigation Plan (December 2013), Colorado Division of Homeland Security and Emergency Management, p. 3-214

The Ponderosa Pine and Douglas-fir forests are typically at higher risk for dense fire susceptibility.

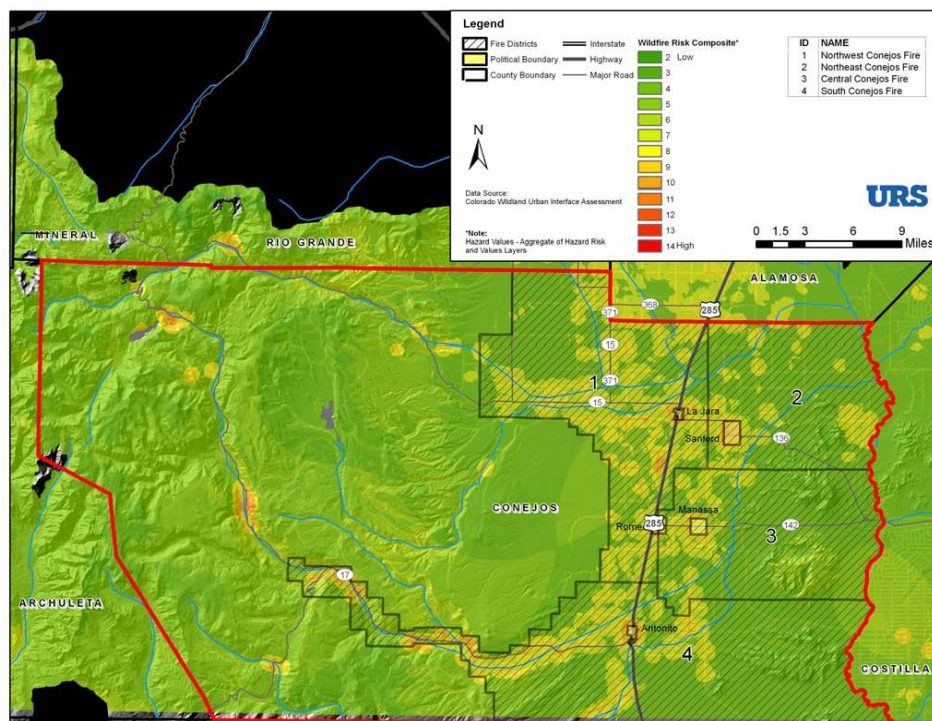
Much of the wildfire risk in the Valley is derived from agricultural ditches and overgrown grasses and weeds in the vicinity of these ditches. A majority of the wildland fires in the Valley occur when controlled burns ignite their immediate surroundings. Spring ditch burning season typically results in escaped wildfires.

The Colorado State Forest Service (CSFS) conducts regular assessments to evaluate wildfire risks and hazards in the state. CSFS uses the following three GIS layers to determine fire danger:

- Risk - probability of ignition
  - Lightning strike intensity
  - Road buffer (100-meter buffer of roads and railroads)
- Hazard - vegetative and topological features affecting intensity and rate of spread
  - Slope
  - Aspect
  - Fuels
- Values - natural or manmade components of the ecosystem on which a value can be placed
  - Housing density

Figure 4.2 below shows how these layers can be combined to create an overall risk composite ranking for Conejos County, with fire protection district boundaries.

Figure 4.2 Fire Protection Districts and Wildfire Risk Composite in Conejos County



Source: Created by URS

The assessment indicates that the wildfire hazard in Conejos County is fairly widespread, with significantly high risk across the valley, likely due to the greasewood fuels and wind patterns. The lower elevations of the San Juan Mountains are also at higher risk than other portions of the county due to slope, dense forestation, and inadequate roads. The wildfire risk is greatest in the wildland-urban interface areas (areas where development occurs within or immediately adjacent to wildlands, near fire-prone trees, brush, and/or other vegetation), and during the traditional spring ditch burning season, where property can easily be damaged when high winds turn an otherwise controlled burn into a conflagration.

There are four fire protection districts that completed their Community Wildfire Protection Plans in April 2009. These include the Central Conejos County Fire Protection District, the Northwest Conejos County Fire Protection District, the Northeast Conejos County Fire Protection District, and the South Conejos County Fire Protection District.

#### Central Conejos County Fire Protection District (CCCFPD)

The Central Conejos County Fire Protection District (CCCFPD) has a diverse range of vegetation types from the dense cottonwoods in the riparian edges of Conejos River and Rio San Antonio to the desert shrubs on the valley floor. Flat Top and Pinion Hills (on BLM land), and the steep-sided hills on deeded and State land within a couple miles of Manassa are part of the San Luis Hills, which make up most of the land in Conejos that has measurable topography. Much of the District is comprised of agricultural developments, rural residences, and riparian areas. The wildfire risk in the CCCFPD is mostly associated with agricultural ditches and overgrown grasses and weeds in the vicinity of these ditches. A majority of the wildland fires on the dry shrub valley floor occur when controlled burns ignite their immediate surroundings.

#### South Conejos County Fire Protection District (SCCFPD)

The South Conejos County Fire Protection District (SCCFPD) includes some of the most extreme elevation differences in the county. Much of the eastern portion of the district is agriculturally developed at lower elevations, whereas the western portion of the district begins to transition to the mountainous elevations vegetated heavily with Douglas fir, Ponderosa pine, Aspen montane, and Engelmann spruce forests. Within the district boundaries, there are numerous parcels of State and Federal lands. Therefore, the mitigation responsibilities will be shared between public and private agencies.

#### Northwest Conejos County Fire Protection District (NWCCFPD)

The Northwest Conejos County Fire Protection District (NWCCFPD) is classified as agricultural and rural lands. The higher mountainous elevations to the west of the district transition to the forests of Ponderosa Pine, Douglas Fir, Aspen Montane, and Engelmann Spruce. Should these areas to the west begin to develop, they will likely look to the NWCCFPD for fire protection.

#### Northeast Conejos County Fire Protection District (NECCFPD)

The Northeast Conejos County Fire Protection District (NECCFPD) is also relatively flat and primarily agriculturally developed. Some dry shrub stands of greasewood, sagebrush and salt bush can burn with high rates of intensity. There are few elevated areas in the district,



limited to those of the San Luis Hills in the southeast corner of the district, which hold a complex and variable list of fuels.

#### Previous Occurrences

Grassland and forest fires occur throughout the state, including the San Luis Valley, and every county has some area determined at least a moderate risk. The traditional wildfire season runs from March through August, but wildfires and grassfires can occur any time of the year. Historic occurrences of wildfire by county are not well documented. Although most are controlled when they are small (one acre or less), fire protection districts respond to a number of events each year. Fortunately, Conejos County has been spared to date from large fires like the West Fork Fire Complex in 2013 in nearby Mineral County.

#### Probability of Future Occurrences

The location of a fire is almost impossible to predict, since the factors which contribute to a fire are highly variable, including weather conditions, drought cycles, fuel-loading, lightning strikes, and human activities.

Chances for wildfires increase with periods of drought, high winds, and extreme heat conditions. Much of the wildfire risk in the San Luis Valley is associated with agricultural ditches and overgrown grasses and weeds (spring ditch burning season) and other controlled burns can ignite their immediate surroundings and result in escaped wildfires. Wildfires occur nearly every year in Conejos County. The Planning Team has rated the probability of future wildfire events as **likely**, with a recurrence interval of 10 years or less (10-100% chance in a given year).

#### Magnitude/Severity

The growth and behavior of wildfires and grassfires are influenced by topography, fuel, and weather. Additionally, other hazards can trigger wildfires, such as lightning or power lines brought down by high winds. Drought conditions increase wildfire potential by decreasing fuel moisture. When conditions combine to cause a fast-moving wildfire or grassfire, potential impacts include destruction of structures, vehicles, signage and other property, as well as smoke damage to buildings.

Wildfires can also impact utilities, watersheds, natural and cultural resources, range and crop lands, and local economies (e.g., fire expenditures/loss of tourism). Smoke and air pollution from wildfires can be a severe health hazard. Other secondary impacts include future flooding and erosion during heavy rains. The severity of the wildfire hazard in Conejos County is rated **critical** by the Planning Team, meaning that isolated deaths/injuries; major or long-term impacts to property, infrastructure and critical services; and service disruptions of 24-72 hours are possible.

#### Vulnerability Assessment

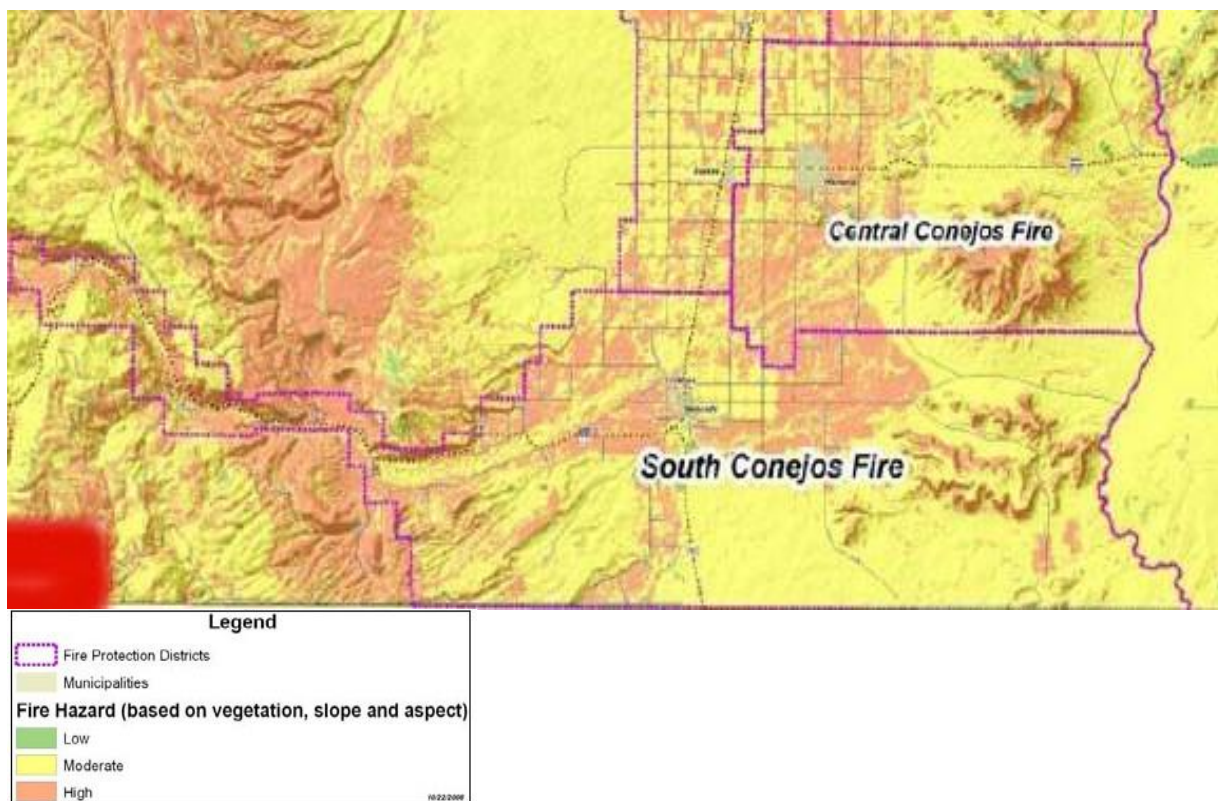
New development in the wildland-urban interface will place more people and property at risk. The threat of wildfire and potential losses will increase as population increases and the wildland-urban interface expands. Additionally, most Colorado forests have been infested with pine beetle or “bark beetle.” The San Juan mountain range will continue to be susceptible to future infestation. Older trees, trees in crowded or poor growing conditions,

and those with root damage or disease are most likely to be attacked. As the beetle population grows, so does the fuel for wildfire.

Within the four fire protection districts in Conejos County, there are 7,691 acres of wildland-urban Interface (WUI) areas. This represents approximately one percent of the total land area within Conejos County (1,291 sq. miles). According to the 2013 Colorado Natural Hazards Mitigation Plan, there are 36,600 acres in Conejos County within Moderate to High Hazard areas (4.43% of total land area).

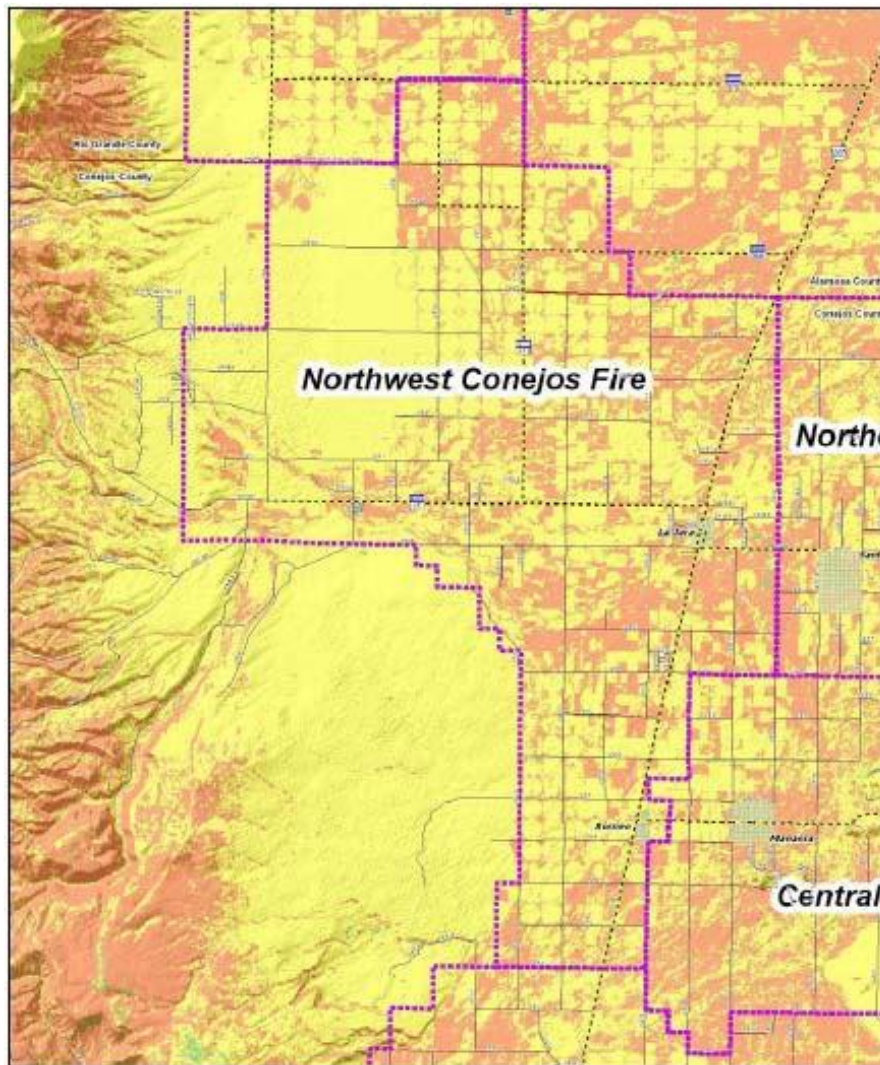
The three maps that follow are taken from the Conejos County Fire Protection District Community Wildfire Protection Plans and show the Conejos County Fire Hazard based on slope, aspect, and vegetation. The maps illustrate the high risk areas throughout the valley and the lower elevations of the mountainous regions.

Figure 4.3 South and Central Conejos County Fire Hazard based on Slope, Aspect and Vegetation



Source: South Central Conejos County Fire Protection District Community Wildfire Protection Plan (2009)

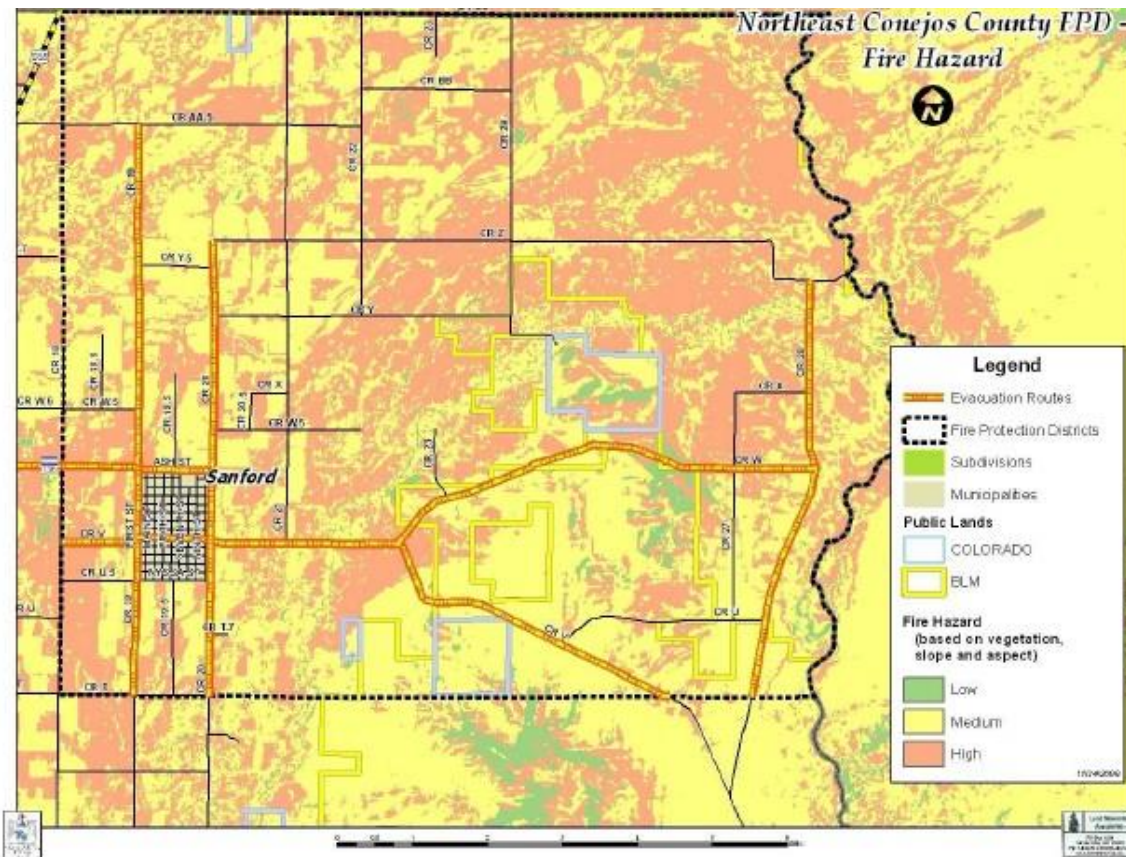
Figure 4.4 Northwest Conejos County Fire Hazard based on Slope, Aspect and Vegetation



Source: Northwest Conejos County Fire Protection District Community Wildfire Protection Plan (2009)



Figure 4.5 Northeast Conejos County Fire Hazard based on Slope, Aspect and Vegetation



Source: Northeast Conejos County Fire Protection District Community Wildfire Protection Plan (2009)

The most significant wildfire hazard areas include the Elk Ridge Estates and Blacktail Valley subdivisions, where limited access and higher elevations contribute to the overall risk. These areas are currently undeveloped. The most significant fire risk within the four Fire Protection Districts results from the traditional spring ditch burning, that can damage buildings and farms when winds carry flames into the surrounding fields.

#### 4.2.4 Hail

##### Hazard Description

According to the 2013 Colorado Natural Hazards Mitigation Plan, Colorado is one of the most hail-prone states in the country. The Northeast Plains and Front Range experience a higher frequency of large-diameter hail than any part of the state, but all regions of the state, including the San Luis Valley, are vulnerable to storms that can produce severe (>1 inch) hail. The Colorado hail season is April 15 to September 15. Colorado hailstorms occur most frequently in June and are most likely to be destructive in mid-June.<sup>4</sup>

<sup>4</sup> Colorado Natural Hazards Mitigation Plan, December 2013, Colorado Division of Homeland Security and Emergency Management, p. 3-62

Hail forms when updrafts carry raindrops into extremely cold areas of the atmosphere where they freeze and turn into ice. The hailstones fall downward when they become heavy enough to overcome the strength of the updraft, reaching speeds of 120 mph.

The National Weather Service classifies hail by diameter size in comparison to everyday objects to help relay scope and severity to the population. The table below indicates the hailstone measurements utilized by the National Weather Service.

Table 4.7 Hailstone Measurements

Severity	Description	Hail Diameter Size (Inches)
<b>Non-Severe Hail</b> Does not typically cause damage and does not warrant severe thunderstorm warning from NWS.	Pea	0.25
	M&M Plain	0.50
	Penny	0.75
	Nickel	0.875
<b>Severe Hail</b> Research has shown that damage occurs after hail reaches about 1" in diameter and larger. Hail of this size will trigger a severe thunderstorm warning from NWS.	Quarter	1.00
	Half Dollar	1.25
	Ping Pong Ball/Walnut	1.50
	Golf Ball	1.75
	Hen Egg/Lime	2.00
	Tennis Ball	2.50
	Baseball	2.75
	Teacup/Large Apple	3.00
	Grapefruit	4.00
	Softball	4.50
	<b>Average</b>	<b>0.75-1.50</b>

Source: Colorado Natural Hazards Mitigation Plan (December 2013)

### Geographic Location

Damaging hailstorms can occur anywhere in Conejos County and pose a risk to all participating jurisdictions.

### Previous Occurrences

According to SHELDS and the National Centers for Environmental Information, Conejos County has experienced 12 hailstorms that resulted in crop and/or property damages since 1960, five of which produced severe hail (one inch or greater diameter). No deaths or serious injuries were reported as a result of these hail events. The recorded size of hailstones for each event is shown in the table below.

Table 4.8 Conejos County Hail Events, 1960-2014

Date	Location	Hail Diameter Size (Inches)
September 9, 1960	Conejos County	N/A
July 8, 1961	Conejos County	1.75
July 23, 1966	Conejos County	N/A
August 4, 1966	Conejos County	N/A
August 20, 1967	Conejos County	N/A
July 20, 1977	Conejos County	N/A
August 21, 1997	Antonito	0.75
July 22, 2006	La Jara	1.00

July 23, 2007	Antonito	0.88
July 5, 2009	Capulin	1.00
June 5, 2010	La Jara/Sanford	1.00
July 31, 2014	Antonito	1.25

Source: National Centers for Environmental Information; SHELDUS

#### Probability of Future Occurrences

Although hail is a regular occurrence in the San Luis Valley, it is nearly impossible to pre-determine where hail may fall more than a few hours ahead of the storm. Atmospheric convection activity producing conditions favorable to hail events is expected to occur in the future as in the past. A hail storm with the potential to cause damage to crops and property can be expected to occur nearly every year. Hail events in Conejos County are considered **likely**, with a recurrence interval of 10 years or less (10-100% chance in a given year).

#### Magnitude/Severity

The severity of a hailstorm is influenced by a variety of factors, including hail diameter, hail density, fall speed and surface wind speeds. Hail is primarily a risk to property -- vehicles, roofs and landscaping are the property most commonly damaged by hail. However, large hail can also cause death or injury to people caught outside and exposed to the elements. Hail can also block culverts and drainage ditches, causing flooding. Although large hail events frequently result in high aggregate insured losses, property damages are generally limited, serious injuries are rare, and there is typically little or no impact to critical facilities, which are generally able to operate without disruption to services.

The Planning Team has rated the severity of the hail hazard as **critical**, meaning that isolated deaths/injuries; major or long-term impacts to property, infrastructure and critical services; and service disruptions of 24-72 hours are possible.

#### Vulnerability Assessment

In agricultural areas like the San Luis Valley, storms with large hail are capable of destroying crops, injuring livestock, and damaging glass and plastic structures. Although hail frequently results in extensive damage to property, most losses are usually covered by homeowners' and automobile insurance policies and the risks to public health and safety are minimal.

### **4.2.5 Lightning**

#### Hazard Description

Lightning is one of the more dangerous weather hazards in Colorado. Each year, lightning is responsible for deaths, injuries, and property damage, including damage to buildings, communications systems, power lines, and electrical systems. According to the National Lightning Safety Institute (NLSI), Colorado ranks third in the nation in deaths due to lightning strikes with 39 fatalities recorded between 1990 and 2003 (behind only Florida and Texas). Over the same period, Colorado also ranks third nationally in deaths per million people (behind only Utah and Wyoming). Nationwide, estimates of property damage, increased

operating costs, production delays, and lost revenue from lightning and secondary effects exceed \$8-10 billion per year.<sup>5</sup>

Cloud-to-ground lightning is the most damaging and dangerous type of lightning, though it is also less common. It frequently strikes away from the rain core, either ahead or behind the thunderstorm and can strike 5-10 miles from the storm in areas that most people do not consider to be a threat. According to the 2013 Colorado Natural Hazards Mitigation Plan, Colorado averages 529,000 cloud-to-ground lightning strikes per year and deaths and injuries due to lightning occur on a regular basis.<sup>6</sup>

### Geographic Location

Major lightning events can occur anywhere in Conejos County and the participating jurisdictions in this planning effort.

### Previous Occurrences

The table below identifies the number of deaths and injuries due to lightning over the last nine years in Colorado.

Table 4.9 Colorado Deaths and Injuries due to Lightning, 2008-2016

Year	Deaths	Injuries
2016	1*	2*
2015	1	13
2014	2	17
2013	0	25
2012	0	2
2011	0	9
2010	1	6
2009	1	14
2008	4	10

Source: Struckbylightning.org

\* Through August 2016

In addition to the events listed in Table 4.9, SHELDUS identified four lightning events causing death or injury or damaging private and public property in Conejos County. Lightning caused minor property damages on August 1, 1960 and a lightning strike on July 7, 1972 resulted in one fatality. On August 9, 1993, lightning struck a barn between La Jara and Sanford, starting a fire which consumed 50 large hay bales and damaged the structure. On September 7, 1993, lightning struck a water plant near Antonito, traveled along the pipeline, and caused a pipe break in the center of town. The line lost about 5,000 gallons of water. SHELDUS identified four significant lightning events since 1950, as shown in the table below.

<sup>5</sup> National Lightning Safety Institute web page. Available at [www.lightningsafety.com](http://www.lightningsafety.com)

<sup>6</sup> Colorado Natural Hazards Mitigation Plan, December 2013, Colorado Division of Homeland Security and Emergency Management

Table 4.10 Major Lightning Events in Conejos County, 1950-2016

Date	Location	Property/Crop Damages (ADJ 2014)	Deaths	Injuries
August 1, 1960	Conejos County	\$1,290	0	0
July 7, 1972	Conejos County	0	1	0
August 9, 1993	Conejos County	\$820	0	1
September 7, 1993	Antonito	\$8,192	0	0

Source: SHELDS

#### Probability of Future Occurrences

Lightning can occur anywhere there is a thunderstorm. The average number of lightning flashes by month is shown in Table 4.10. Over 4,000 lightning flashes are expected to occur on any given day during the months of July and August. The majority of lightning strikes that result in casualties occur between the hours of noon and 5:00 pm, spiking between 2:00 and 4:00 pm.

Table 4.11 Average Lightning Flashes in Colorado per Day by Month

Month	Number of Lightning Strikes
January	1
February	4
March	39
April	225
May	1,203
June	2,621
July	4,035
August	4,215
September	1,457
October	261
November	11
December	1

Source: 2013 Colorado Natural Hazards Mitigation Plan

Most lightning occurs during the summer months, but it can also strike in the winter months during rare weather events known as thunder snowstorms. Pockets of lightning intensity are found in the mountains where the topography causes thunderstorms to form with regularity. The probability of lightning in Conejos County in the future is rated **occasional** (occurs every 11-100 years, or a 1-10% chance per year).

#### Magnitude/Severity

People attending large outdoor gatherings (i.e., sporting events, concerts, fairs, festivals, etc.) are particularly vulnerable to death and injury from lightning strikes. Men are notably more likely to die from a lightning strike than women. According to the National Weather Service, during the period 2006-2015, male fatalities outnumbered female fatalities 246-63. Outdoor recreationists generally face a higher risk when hiking or camping in the lightning-prone high country. Wildfires and grassfires are frequently ignited by lightning strikes.



Buildings and equipment exposed to lightning strikes may be damaged and power surges can damage electronic equipment. Direct flash strikes near utility infrastructure can disrupt services. Many critical facilities are equipped with grounding systems. Most lightning events result in only personal property damage and do not significantly impact infrastructure or the delivery of critical services. Disruptions of electrical power due to lightning are generally short in duration (less than 24 hours). The Planning Team has rated the severity of the lightning hazard in Conejos County as **limited**, meaning that minor injuries and minor property damages are possible, with minimal disruptions to infrastructure and critical services.

#### Vulnerability Assessment

The greatest threat that lightning presents to community assets is the risk of death or injury. Colorado is one of the most lightning-prone states in the nation. People attending large outdoor gatherings (i.e., sporting events, concerts, fairs, festivals, etc.) are particularly vulnerable to death and injury from lightning strikes. In light of this vulnerability, prudent mitigation measures (e.g., building standards, grounding systems, preparedness, guidelines for outdoor events, lightning detection/warning systems) should be considered.

The preparation of site-specific emergency procedures for outdoor events by event organizers, response agencies and emergency management can help mitigate the public safety risk, especially when combined with technology that provides adequate early detection, monitoring, and warning of approaching thunderstorms.

#### **4.2.6 Windstorm**

##### Hazard Description

According to the 2013 Colorado Natural Hazards Mitigation Plan, windstorms are one of Colorado's costliest hazards. Over the last 60 years, wind events have caused a reported \$367 million in property and crop damage. Deaths and injuries are also a result of wind events in the state with 21 and 406 respectively between 1950 and 2010.<sup>7</sup>

Windstorms represent the most common type of severe weather. Often accompanying severe thunderstorms (convective windstorms), they can cause significant property and crop damage, threaten public safety, and disrupt utilities and communications. Straight-line winds are generally any wind not associated with rotation and in rare cases can exceed 100 miles per hour (mph). The National Weather Service defines high winds as sustained wind speeds of 40 mph or greater lasting for one hour or longer, or winds of 58 mph or greater for any duration. Windstorms are often produced by super-cell thunderstorms or a line of thunderstorms that typically develop on hot and humid days.

During blizzards, straight-line winds magnify the dangerous effects of cold temperatures and impede safe travel by reducing visibility. During dry periods, high winds can contribute to rapid fire growth in open spaces and other areas where natural grasses can grow tall and ultimately cure. High winds can also damage roofs and structures and cause secondary damages as a result of flying debris.

---

<sup>7</sup> Colorado Natural Hazards Mitigation Plan (December 2013), Colorado Division of Homeland Security and Emergency Management, p. 3-96

## Geographic Location

Wind speed is correlated with elevation, so higher, more exposed areas within the county are more susceptible to high winds, but all areas of the county are potentially vulnerable.

## Previous Occurrences

High winds can occur as part of a seasonal climate pattern or in relation to other severe weather events such as thunderstorms. One high wind event on January 7, 1969 caused almost \$20,000 in crop and property damages, which adjusted for inflation would have been \$124,050 in 2014. According to the National Centers for Environmental Information, 86 high wind events were reported in Conejos County between 1950 and 2016, twelve of which caused at least minor property damage. The table below identifies significant high wind events that have occurred in Conejos County since 1960 (damage amounts are not adjusted for inflation).

Table 4.12 Significant High Wind Events in Conejos County, 1960-2016

Date	Property and Crop Damages
January 8, 1962	\$7,937.00
January 7, 1969	\$19,231.00
November 17, 1975	\$22,727.00
November 26, 1983	\$7,937.00
September 24, 1986	\$7,937.00
May 1, 1988	\$12,500.00
May 2, 1988	\$16,667.00
May 6, 1988	\$15,783.00

Source: National Centers for Environmental Information; SHELDUS

A number of more recent high wind events have been documented in the southern San Luis Valley and eastern San Juan mountains. High winds of at least 60 miles per hour were recorded in Conejos County on the following dates:

- April 18, 2004
- May 11, 2004
- June 6, 2007
- May 24, 2010
- October 6, 2011
- March 18, 2012
- May 26, 2012

There were no reports of damages from these events.

## Probability of Future Occurrences

High wind events are a regular occurrence in Conejos County and the Planning Team has rated the probability of future events **likely**, with a recurrence interval of 10 years or less (10-100% chance in a given year).

### Magnitude/Severity

According to the Colorado Natural Hazards Mitigation Plan, the physical impacts of high wind events can be compared to those of a weak tornado in terms of the severity of property damage, but with a more widespread area of impact. “Structural collapse, and damages caused by falling trees/limbs, can cause injury and impairment of the residential and commercial use of the affected properties. It is very common for winds to cause trees and their limbs to break communication and power lines.”<sup>8</sup>

Windstorms in Conejos County are rarely life threatening, but do disrupt agriculture and cause damage to buildings. Impacts of strong, straight line winds can be erosion, dryland farming seed loss, windblown weeds, and building damage. The Planning Team has rated the severity of the windstorm hazard as **critical**, meaning that isolated deaths/injuries; major or long-term impacts to property, infrastructure and critical services; and service disruptions of 24-72 hours are possible.

### Vulnerability Assessment

In general, the height, rigidity, and surface area/weight ratio of objects are the primary indicators of their susceptibility to damage from windstorms. Trees, barns, mobile homes, high-profile vehicles, and power lines are at specific risk from either direct or indirect wind impacts. Roofs, windows, and wall assemblies of residential homes can be severely damaged as wind speeds increase.

In Conejos County, windstorms primarily damage structures, trees, utilities, and crops. Building codes are the greatest protection from wind. Damages are typically covered by private insurance.

Future residential or commercial buildings built to code should be less vulnerable to high winds. However, building standards can offer only limited protection. Increasing population growth and development increases vulnerability to windstorms.

### 4.2.7 Tornado

#### Hazard Description

The National Weather Service defines a tornado as *a violently rotating column of air touching the ground, usually attached to the base of a thunderstorm*. Tornadoes usually occur near the trailing edge of a thunderstorm and are often accompanied by hail and strong downburst winds. Tornadoes develop rapidly and dissipate quickly, with most on the ground for less than 15 minutes.

According to the 2013 Colorado Natural Hazards Mitigation Plan, tornadoes in Colorado are more likely to occur in the spring and early summer months when warm, moist air from the Gulf of Mexico collides with cold air from the Polar Regions to generate severe thunderstorms. “These thunderstorms often produce the violently rotating columns of wind known as funnel clouds. Colorado lies at the western edge of the nation's primary tornado belt, which extends from Texas and Oklahoma through Kansas and Nebraska. In Colorado, the

---

<sup>8</sup> Colorado Natural Hazards Mitigation Plan (December 2013), Colorado Division of Homeland Security and Emergency Management, p. 3-95

primary threat of tornado is east of the Continental Divide along the Front Range and across the Eastern Plains, although they have occurred statewide. Three counties, Adams, Weld, and Washington, have over 100 reported tornadoes reported between 1950 and 2013.”<sup>9</sup>

Tornado intensity is measured on the Enhanced Fujita Scale (see table below). The Enhanced Fujita Scale rates the intensity of a tornado based on damaged caused, not by its size.

Table 4.13 Enhanced Fujita Scale

EF Scale	Wind Estimates (mph)	Types and Intensity of Damage
<b>EF0</b>	65-85	Light damage: peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
<b>EF1</b>	86-110	Moderate damage: roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
<b>EF2</b>	111-135	Considerable damage: roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
<b>EF3</b>	136-165	Severe damage: entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
<b>EF4</b>	166-200	Devastating damage: well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
<b>EF5</b>	Over 200	Incredible damage: strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yds.); high-rise buildings have significant structural deformation; incredible phenomena will occur.

Source: National Oceanic and Atmospheric Administration

Most of Colorado’s tornadoes are relatively weak, with wind speeds of less than 110 mph (EF0 and EF1 on the standardized Enhanced Fujita Scale). From 2000-2010; however, four EF3 category tornadoes and seven EF2 tornadoes were recorded.

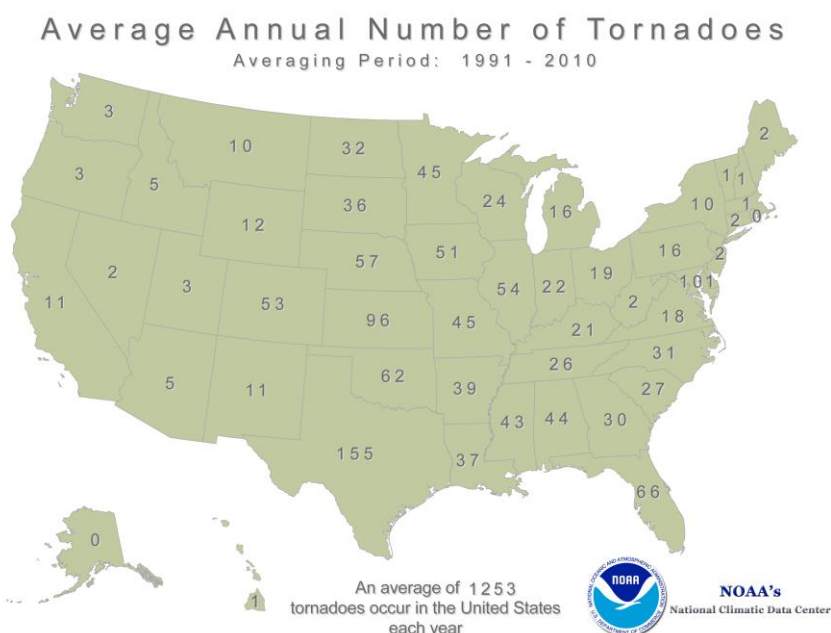
#### Geographic Location

Increases in the number of reported tornadoes over the last decade can be attributed to advances in technology and reporting (Doppler radar coverage, Storm Spotter training programs).

The figure below shows how the State of Colorado compares with the rest of the U.S. in terms of average annual number of tornadoes between 1991 and 2010.

<sup>9</sup> Colorado Natural Hazards Mitigation Plan (December 2013), Colorado Division of Homeland Security and Emergency Management, p. 3-105

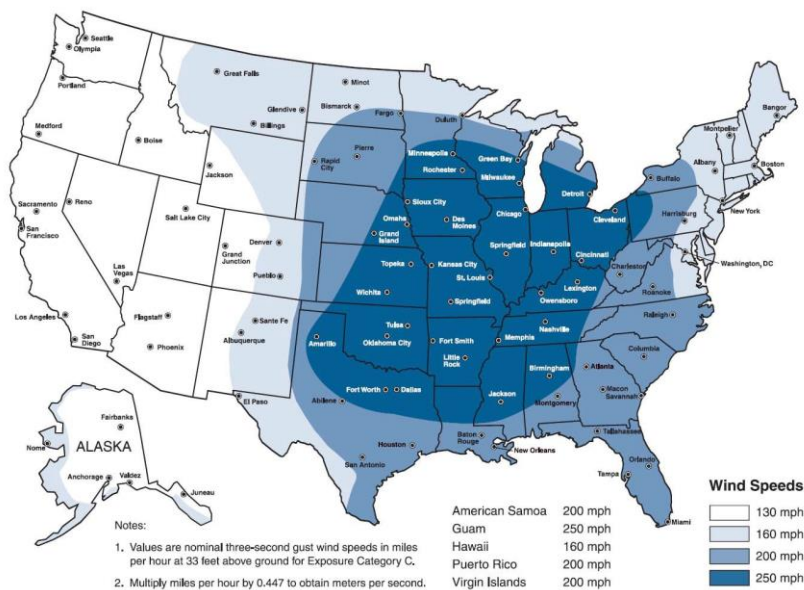
Figure 4.6 Average Annual Number of Tornadoes, 1991-2010



Source: National Centers for Environmental Information

Tornadoes can occur anywhere in Conejos County and pose a similar risk to all participating jurisdictions. FEMA's map of Wind Zones in the United States shows the San Luis Valley region located in Wind Zone II with tornado winds of up to 160 mph. Tornado Safe Room Design Speeds are illustrated in the figure below.

Figure 4.7 Tornado Safe Room Design Wind Speed Map



Source: <http://www.fema.gov/plan/prevent/saferoom/fema361>

## Previous Occurrences

According to the National Centers for Environmental Information, there have been four recorded tornadoes since 1950 in Conejos County. No deaths have been attributed to these events. The magnitude of these tornadoes ranged from F0 to F2. A tornado in July 1990 caused \$25,000 in property damage.

Table 4.14 Tornado Events in Conejos County, 1950-2016

Location	Date	Magnitude
Conejos County	June 17, 1953	F2
Conejos County	July 20, 1990	F0
Manassa	April 15, 2005	F0
Manassa	April 17, 2005	F0

Source: National Centers for Environmental Information and SHELDS

## Probability of Future Occurrences

The climatic conditions that lead to the formation of tornadoes in and around the San Luis Valley will continue to occur or possibly even increase if the current warming trend continues. The probability of tornado events in Conejos County in the future is rated **occasional** (occurs every 11-100 years, or a 1-10% chance per year).

## Magnitude/Severity

The severity of a tornado is based on wind speed and the amount of property damage incurred. Large tornadoes can injure and kill people and livestock and destroy structures, infrastructure, and crops. In a tornado it is common for tree branches and flying debris to cause serious damage. Typical damages from small tornado events include:

- roof, windows and exterior damage
- missing shingles
- bent, missing or damaged rain gutters
- broken, chipped or cracked windows

Tornadoes develop quickly and change direction rapidly, making response difficult, but most occur over open country and cause minimal damages. The tornado hazard in Conejos County is rated **critical** by the Planning Team, meaning that isolated deaths/injuries; major or long-term impacts to property, infrastructure and critical services; and service disruptions of 24-72 hours are possible.

## Vulnerability Assessment

Tornadoes can cause significant damage to structures, trees, utilities, crops, and have the potential to injure and kill people. Due to the erratic movement of tornadoes, destruction often appears random. Future residential or commercial buildings built to code should be less vulnerable to tornadoes. However, building standards can offer only limited protection.

#### 4.2.8 Severe Winter Storm

##### Hazard Description

Heavy snow, ice, severe winter storms, and blizzards are common occurrences in Colorado. “Hazardous winter weather includes events related to heavy snow, blowing snow, ice, sleet or freezing rain, and extreme cold temperatures. Blizzards are severe winter storms that pack a combination of blowing snow and wind resulting in very low visibilities. While heavy snowfalls and severe cold often accompany blizzards, they are not required. Sometimes strong winds pick up snow that has already fallen, creating a blizzard.”<sup>10</sup>

Some winter storms are accompanied by strong winds, creating blizzard conditions with blinding wind-driven snow, severe drifting, and dangerous wind chills. Extreme cold often accompanies or follows a winter storm.

The National Weather Service Glossary defines common winter storm characteristics as follows:

- **Blizzard:** A blizzard means that the following conditions are expected to prevail for a period of 3 hours or longer:
  - Sustained wind or frequent gusts to 35 miles an hour or greater; and
  - Considerable falling and/or blowing snow (i.e., reducing visibility frequently to less than ¼ mile).
- **Heavy Snow:** This generally means:
  - snowfall accumulating to 4" or more in depth in 12 hours or less; or
  - snowfall accumulating to 6" or more in depth in 24 hours or less.
  - In forecasts, snowfall amounts are expressed as a range of values, e.g., "8 to 12 inches." However, in heavy snow situations where there is considerable uncertainty concerning the range of values, more appropriate phrases are used, such as "...up to 12 inches..." or alternatively "...8 inches or more..."
- **Ice Storm:** An ice storm is used to describe occasions when damaging accumulations of ice are expected during freezing rain situations. Significant accumulations of ice pull down trees and utility lines resulting in loss of power and communication. These accumulations of ice make walking and driving extremely dangerous. Significant ice accumulations are usually accumulations of ¼" or greater.<sup>11</sup>

##### Geographic Location

All of Conejos County is subject to occasional blizzard, heavy snowfall and ice storm conditions. The size of events varies and may range from isolated (impacting only a portion of the area) to statewide. Most severe winter storms are widespread events, impacting multiple counties simultaneously and for extended time periods.

<sup>10</sup> Colorado Natural Hazards Mitigation Plan, Colorado Division of Homeland Security and Emergency Management, December 2013, p. 3-120

<sup>11</sup> National Weather Service, National Weather Service Glossary Website, [w1.weather.gov/glossary/](http://w1.weather.gov/glossary/)



## Previous Occurrences

According to the 2013 Colorado Natural Hazards Mitigation Plan, Conejos County experienced 40 winter storm events between 1960 and 2013, resulting in one death, one injury, \$112,000 in crop damages, and over \$1 million in property damages (for a total of \$1,141,122 damages during this period). According to the National Centers for Environmental Information (NCEI), there have been 213 winter storm events and 3 blizzard events in Conejos County from January 1, 1950 to May 31, 2016. Notable winter storm events are identified in the table below.

Table 4.15 Significant Winter Storms in Conejos County, 1950-2016

Year	Description of Impacts
1961	Early snow (September 2) caused approximately \$20,000 (ADJ 2014) in property and crop damages
1975	Heavy snow and wind produced by November storm front results in considerable damages throughout the county (\$22,727, ADJ 2014)
1982	Blizzard on December 23, 1982 caused more than \$800,000 damages (ADJ 2014)
1989	February storm with heavy snow caused approximately \$158,730 (ADJ 2014) in damages.
1996	Spring storm produced heavy snow and caused approximately \$75,000 (ADJ 2014) in damages
2001	Late storm on May 3, 2001 caused \$21,429 damages (ADJ 2014)
2008	Blizzard on Christmas with 70 mph winds also dropped 20-30 inches of snow
2010	Blizzard on November 21, 2010 with 70 mph winds dropped 8-18 inches of snow; avalanche during storm killed Wolf Creek Ski Area Director
2010	Blizzard conditions on November 24, 2010

Source: SHELUDS; National Centers for Environmental Information

## Probability of Future Occurrences

Atmospheric activity that produces winter weather conditions such as ice, snow, extreme cold, and high winds will continue to occur. Winter storms occur regularly in Conejos County and are considered **highly likely** to occur in the future (annual event or occurs at least once per year, i.e., 100% chance).

## Magnitude/Severity

Heavy snow can immobilize a region by stranding motorists, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can collapse roofs and tear down trees and power lines. Loss of power affects homes, businesses, and water, sewer, and other utility services operated by electric pumps. The cost of snow removal, damage repair, and business losses can have a tremendous impact.

Communications and power can be disrupted for days until damage can be repaired. Blowing snow can severely reduce visibility. Serious vehicle accidents can result with injuries and deaths. Prolonged exposure to the cold can cause frostbite or hypothermia and can become life-threatening; infants and the elderly are most at risk.



Extremely cold temperatures pose a risk to public safety and disrupt farm and ranch operations. According to the 2013 Colorado Natural Hazards Mitigation Plan, the coldest temperature ever recorded in Conejos County is 34 degrees below zero. The table below shows the average minimum and extreme minimum temperatures for Conejos County for the four coldest winter months (readings from closest station at San Luis Valley Regional Airport in Alamosa).

Table 4.16 Average Minimum Temperatures/Extreme Minimum Temperatures for Conejos County, 1996-2008

Month	Average Minimum Temperature (F)	Extreme Minimum Temperature (F)
November	12.5	-21 (November 30, 2006)
December	1.3	-33 (December 29, 2007)
January	0.2	-32 (January 17, 2008)
February	6.3	-26 (February 7, 2004)

Source: Western Regional Climate Center, [www.wrcc.dri.edu/](http://www.wrcc.dri.edu/)

The Planning Team has rated the severity of the winter storm hazard in Conejos County as **critical**, meaning that isolated deaths/injuries; major or long-term impacts to property, infrastructure and critical services; and service disruptions of 24-72 hours are possible.

#### Vulnerability Assessment

The water content or weight of the snow often determines the level of damages to structures, trees and utility lines. Although winter weather in the San Luis Valley is generally mild and dry, severe winter storms can occasionally strand motorists, disrupt emergency and medical services, bring down trees and power lines, freeze water pipes, and damage homes.

Winter storms will continue to occur with frequency throughout the county and occasionally cause widespread impacts. The greatest threat is to public safety. The rural nature of the county and isolated stretches of roadway can create problems with stranded motorists and access to supplies and emergency services. In rural areas, vulnerable populations and livestock may be isolated for days or weeks. Power outages caused by snow, ice, and wind accompanied by cold temperatures create additional need for shelter. Other impacts are related to school and business closures, road closures, snow removal, and maintaining critical services.

Fortunately, structure damage is typically covered by property insurance. New structures and facilities built to code should be able to withstand snow loads associated with winter storms. Future development, particularly in more isolated areas, will create emergency access issues and increase demand on road crews and emergency services.

#### **4.2.9 Drought**

##### Hazard Description

According to the 2013 Colorado Drought Mitigation and Response Plan, “Drought is a complex and a gradual phenomenon in Colorado. Although droughts can be characterized as emergencies, they differ from other emergency events in that most natural disasters, such as floods or forest fires, occur relatively rapidly and afford little time for preparing for disaster

response. Droughts typically occur slowly, over a multi-year period, and it is often not obvious or easy to quantify when a drought begins and ends.”<sup>12</sup>

Drought simply defined is a period of time where the amount of water available is insufficient to meet the demands on that water supply. Scientists and researchers also distinguish between the different types of drought:

- *Meteorological* drought is usually defined by a period of below average precipitation.
- *Agricultural* drought occurs when there is an inadequate water supply to meet the needs of agricultural operations, based on soil moisture deficiencies relative to water demands of crops and rangeland.
- *Hydrologic* drought refers to deficiencies in surface and subsurface water supplies and is measured as streamflow, snowpack, reservoir, and groundwater levels.
- *Socioeconomic* drought occurs when a drought impacts health, well-being, and quality of life, or when drought effects start to have an adverse economic impact on a region.<sup>13</sup>

There are also distinctions between drought mitigation planning and water conservation planning:

- drought mitigation planning identifies temporary responses to potential water supply shortages, such as mandatory restrictions on certain water uses, water allocation or the temporary use of an alternative water supply. These measures are intended to be temporary responses to water supply shortages
- water conservation planning involves long-term improvements in water use efficiency, such as managing landscape irrigation, implementing conservation water rate structures, and replacing or retrofitting water fixtures.

Drought is a gradual phenomenon. Although droughts are sometimes characterized as emergencies, they differ from typical emergency events. Most natural disasters, such as floods or wildfires, occur relatively rapidly and afford little time for preparing for disaster response. Droughts occur slowly, over a multi-year period, and it is often not obvious or easy to quantify when a drought begins and ends.

### Geographic Location

Drought is a regional phenomenon that affects all areas within the county equally. Drought impacts are most severe for agricultural and commercial interests that rely on an uninterrupted supply of water. The U.S. Drought Monitor provides online maps of the current drought status nationwide, updated weekly

### Previous Occurrences

Colorado has experienced seven multi-year droughts since 1893, with the most devastating taking place in the 1930s and 1950s. Historic dry and wet periods are shown in the table below.

<sup>12</sup> Colorado Drought Mitigation and Response Plan, Colorado Water Conservation Board, August 2013, p. 19

<sup>13</sup> Colorado Drought Mitigation and Response Plan, Colorado Water Conservation Board, August 2013, p. 19

Table 4.17 Historic Dry and Wet Periods in Colorado

Date	Dry	Wet	Duration (Years)
1893-1905	x		12
1905-1931		x	26
1931-1941	x		10
1941-1951		x	10
1951-1957	x		6
1957-1959		x	2
1963-1965	x		2
1965-1975		x	10
1975-1978	x		3
1979-1999		x	20
2000-2006	x		6
2007-2010		x	3
2010-2013	x		3

Source: 2013 Colorado Drought Mitigation and Response Plan (Colorado Water Conservation Board)

The most intense single year of drought in state history occurred in 2002, an extremely dry year imbedded in an extended dry period between 2000 and 2006. Drought conditions in 2002 resembled those of 1934, the worst of the Dust Bowl years between 1931 and 1941. The magnitude of drought conditions in 2002 was rated as “exceptional” by the U.S. Drought Monitor, making 2002 the most severe drought in the state since the 1930s.<sup>14</sup> The 2011-2013 drought was the result of minimal snowpack followed by a hot, dry summer, creating serious impacts for agriculture in the Valley and around the state.

Since 2003, Conejos County has received five USDA Secretarial declarations for drought:

1. 2003 (S1843)
2. 2005-2006 (S2327)
3. 2011 (S3131/S3144)
4. 2012 (S3260/S3282)
5. 2013 (S3518/S3545)

Table 4.18 Significant Drought Periods Affecting Conejos County

Years	Location/Description	Cost	Data Source
<b>1930-1940</b>	Widespread, severe and long-lasting drought in Colorado	N/A	CWCB
<b>1950-1956</b>	Statewide extreme drought conditions; federal funds authorized to defray costs of transporting hay (13 counties)	\$40 million	NCEI
<b>1976-1977</b>	Statewide drought with driest winter on record on Western Slope and in high country	\$110 million	NCEI
<b>2000-2003</b>	Severe drought conditions over multiple years; entire state declared a drought disaster area	\$1.1 billion	CWCB

<sup>14</sup> Colorado Natural Hazards Mitigation Plan, December 2013, Colorado Division of Homeland Security and Emergency Management, p. 3-22

<b>2006</b>	USDA designated 59 of 64 counties (including Conejos County) for drought assistance	N/A	NCEI
<b>2007-2008</b>	Drought contributed to high number of wildfires human-bear conflicts (due to change in hibernation patterns)	N/A	NCEI
<b>2011-2013</b>	Major agricultural impacts result in USDA Secretarial Disaster designation for Conejos County each of the 3 years		CWCB

Source: Colorado Water Conservation Board (CWCB); National Centers for Environmental Information (NCEI)

### Probability of Future Occurrences

Drought is a frequent occurrence in the San Luis Valley, where a prolonged drought develops approximately every 15-20 years. According to projections in the Colorado Natural Hazards Mitigation Plan (2013), drought is expected to persist or intensify throughout most of Colorado, including the San Luis Valley region. The Planning Team has rated the drought hazard in Conejos County **likely**, with a recurrence interval of 10 years or less (10-100% chance in a given year).

### Magnitude/Severity

Periods of drought are common occurrences in Colorado and can cause significant economic and environmental impacts. The severity of a drought depends on the degree of moisture deficiency, duration, and size of the affected area. Drought is a common natural phenomenon in Colorado, requiring continuous monitoring and foresight to lessen the drought-related impacts to agricultural and municipal users. The objective of drought mitigation planning is to identify actions for responding to a supply shortage before an actual water supply emergency occurs. The state Water Availability Task Force (WATF) monitors conditions that affect Colorado's water supply (i.e., snowpack, precipitation, reservoir storage, streamflow and weather forecasts) and determines when there is a need to activate the Colorado Drought Mitigation and Response Plan to address physical, social and economic impacts due to drought. The WATF is comprised of Colorado's water supply specialists, emergency management professionals, federal land managers, scientists and experts in climatology and weather forecasting.<sup>15</sup>

According to the Colorado Natural Hazards Mitigation Plan, "Drought impacts are wide reaching and may come in different forms, such as economic, environmental, and/or societal. The most significant impacts associated with drought in Colorado are those related to water intensive activities such as agriculture, wildfire protection, municipal usage, commerce, tourism, recreation, and wildlife preservation. A reduction of electric power generation and water quality deterioration are also potential effects. Drought conditions can also cause soil to compact, decreasing its ability to absorb water, making an area more susceptible to flash flooding and erosion."<sup>16</sup>

<sup>15</sup> Colorado Water Conservation Board, [cwcb.state.co.us/technical-resources/drought-planning-toolbox/](http://cwcb.state.co.us/technical-resources/drought-planning-toolbox/)

<sup>16</sup> Colorado Natural Hazards Mitigation Plan, December 2013, Colorado Division of Homeland Security and Emergency Management, p. 3-26

Drought can also cause structural damage to dams and ditches (high sedimentation loads from pulling water from the bottom of reservoirs can damage dam works).

The Planning Team has rated the severity of the drought hazard as **critical**, meaning that isolated deaths/injuries; major or long-term impacts to property, infrastructure and critical services; and service disruptions of 24-72 hours are possible.

#### Vulnerability Assessment

The most significant impacts from drought are related to water-intensive activities, such as agriculture (both crops and livestock), wildfire protection, municipal usage, commerce, recreation, and wildlife preservation, as well as a reduction of electric power generation and water quality deterioration. Secondary impacts of drought are wildfires, wind erosion, and soil compaction that can make an area more susceptible to flooding. Drought impacts increase with the length of a drought.

Drought does not usually present life safety issues or directly impact critical infrastructures such as roads, bridges, utilities, communications systems, or public safety resources. However, drought presents ongoing challenges for most Colorado communities, requiring sustained planning and conservation efforts to ensure a reliable water supply to meet current and future needs. Although entities in the San Luis Valley have addressed conservation and water supply issues on a number of levels, the persistence of the hazard will require sustained mitigation efforts. Water supply planners must also be cognizant of the effects of climate change on the frequency and severity of future droughts.

The Drought Impact Reporter documented 91 drought impacts from drought conditions in Conejos County between March 2010 and May 2013. The highest number of impacts in Conejos County by far were related to agriculture, but impacts were also felt in a range of sectors such as business/industry, public health, tourism/recreation, water supply, wildlife, wildfire and emergency response. The unincorporated areas of the county are most vulnerable to drought impacts related to agriculture and wells.

#### **4.2.10 Dam Failure**

##### Hazard Description

**Dam failure floods** result from a sudden uncontrolled release, or excessive controlled release, of water from an impounding structure. The release may be caused by damage to or failure of the structure, flood conditions unrelated to failure, or any condition that may affect the safe operation of the dam. Depending on dam conditions and the location of downstream development, a dam failure flood may present a danger for human life, downstream property, or the operation of the structure.<sup>17</sup>

Dams are manmade structures built for a variety of uses, including flood protection, power, agriculture, water supply, and recreation. Dams typically are constructed of earth, rock, concrete, or mine tailings. Two factors that influence the potential severity of a full or partial dam failure are the amount of water impounded and the density, type, and value of development and infrastructure located downstream. Dam failures can result from any one or

---

<sup>17</sup> Federal Guidelines for Emergency Action Planning for Dams, FEMA P-64 (July 2013), Federal Emergency Management Agency (p. I-2)

a combination of causes, including prolonged periods of rainfall and flooding, improper design or maintenance, negligent operation, or internal erosion caused by embankment or foundation leakage, piping, or rodent activity.

Dams are classified based on the potential loss of life and property to the downstream area resulting from failure of the dam or facilities, not from the condition or probability of the dam failing

Dams are categorized into four classes. The 2013 Colorado Natural Hazards Mitigation Plan defines Class I (High Hazard) dams as structures that, in the event of a failure, would be expected to cause loss of life and/or significant property damage within the floodplain areas below the dams. Class II (Significant Hazard) dams as those rated based on expected significant damage, but not loss of human life. Significant damage refers to structural damage where humans live, work, or recreate; or to public or private facilities exclusive of unpaved roads and picnic areas. Damage refers to making the structures uninhabitable or inoperable.<sup>18</sup>

Privately-owned Class I and II dams are required by Colorado regulations to have Emergency Action Plans (EAPs) in place. Federally-owned Class I dams are also required to have EAPs by Federal Regulations. According to the 2013 State Hazard Mitigation Plan, all high-hazard dams in Colorado have EAPs in place, which detail the emergency response procedures in the event of a dam emergency event. According to the Colorado Division of Water Resources, there are a total of 373 Class I dams in Colorado (federal and non-federal) and 333 Class II dams (federal and non-federal) in the state.<sup>19</sup>

#### Geographic Location

There are two Class I dams (High Risk) and two Class II dams (Significant Risk) in Conejos County, as shown in the table below.

Table 4.19 Dams in Conejos County

Dam Name	Year Built	Hazard Class	Stream	Storage (Acre Ft.)	EAP	Comments
<b>Alta Lake</b>	1888	Low	Punche Arroyo	72	No	Abandoned
<b>Trujillo Meadows</b>	1956	Significant	Los Pinos River	913	2016	Downstream: Antonito (36 mi.)
<b>Ostrich</b>	1963	Low	Rio Grande River	90	No	
<b>Goshawk</b>	1963	Low	Rio Grande River	191	No	

<sup>18</sup> Colorado Natural Hazards Mitigation Plan (December 2013), Colorado Division of Homeland Security and Emergency Management, p. 3-48

<sup>19</sup> *State Engineer's 27<sup>th</sup> Annual Report on Dam Safety to the Colorado General Assembly*, Colorado Division of Water Resources (April 2013)

<b>La Jara</b>	1906	Significant	La Jara Creek	14,055	2010	Downstream: Capulin (24 mi.)
<b>Platoro</b>	1951	High	Conejos River	59,571	1994	Downstream: Platoro (1 mi.)
<b>Terrace</b>	1912	High	Alamosa River	15,182	2013	Downstream: Capulin (12 mi.)
<b>Lake Annella</b>	N/A	Low	Alamosa River	25	No	
<b>Silver Lakes #2</b>	1910	Low	French Creek	60	No	

Source: Colorado Division of Water Resources

NPH = No Public Hazard

Platoro Dam, located on the Conejos River about one mile above the town of Platoro in Conejos County, is the only federal dam in the San Luis Valley. The reservoir formed by the earthfill dam has a capacity of 59,570 acre-feet, 6,060 acre-feet of which are for flood control and 53,510 acre-feet for joint use. Platoro Dam and Reservoir are located in a geologic area consisting of a complex volcanic bedrock material.

#### Previous Occurrences

There are no recorded dam failure incidents in Conejos County.

#### Probability of Future Occurrences

Dams are considered “high potential loss facilities” by FEMA/DHS and are also a critical part of the infrastructure system. The High Hazard and Significant Hazard dams listed in the table above are routinely inspected, structurally sound and have emergency action plans in place. The probability of future occurrences is rated **unlikely** (less than 1 percent chance of occurrence in the next 100 years or it has a recurrence interval of greater than every 100 years).

#### Magnitude/Severity

Conejos County has 11 major dams or earthen levees that serve the county's residents and businesses. The consequences of a dam failure can range from localized street flooding with minor property damage to the need to evacuate populations to assure life safety. Roads, bridges, structures and other infrastructure are expected to be damaged during an event. In addition, human lives and livestock would be potentially endangered following a dam failure. The Planning Team has therefore rated the severity of the dam failure hazard **catastrophic** (e.g., possibility of multiple deaths; property destroyed and damaged; population displacement; infrastructure damages; and service disruptions of 72 hours or longer).

#### Vulnerability Assessment

The State of Colorado requires Emergency Action Plans (EAPs) for all High (Class I) and Significant (Class II) Hazard dams due to the potential for loss of life and/or property damage in the event of a dam failure. The EAP is a formal document that outlines possible emergency conditions at a dam, sets forth actions to minimize damages and danger, and includes a plan



for the dam owner to moderate or alleviate the problems at the dam. The EAP contains inundation map exhibits to help emergency management authorities identify the critical areas for action in case of an emergency. Should an emergency arise, the dam owner should refer to preplanned EAP procedures for issuing an early warning and notifying downstream emergency management authorities of the situation.

#### **4.2.11 Avalanche**

##### **Hazard Description**

According to the 2013 Colorado Natural Hazards Mitigation Plan, an avalanche is a mass of snow, ice, and debris flowing and sliding rapidly down a steep slope. Avalanches are also referred to as snow slides. Snow avalanches are defined in Colorado state statutes as a geologic hazard.

Deep snow deposits often become susceptible to avalanche based on the slope stability and the structure of the snow deposits through multiple storms. An avalanche occurs when the deposit reaches its breaking point, whether triggered naturally or by human intervention. Avalanches can be naturally-triggered (by wind, snow, rain, etc.) or human-triggered (skiers, snowboarders, snowmobilers, climbers, etc.). There are more avalanche-related deaths in Colorado than any other state.

Slab avalanches are the most dangerous type of avalanche. They form when stronger snow overlies weaker snow. Often, human triggered slab avalanches are one to two feet deep, have an area about half the size of a football field, and can reach speeds over 20 mph within seconds.<sup>20</sup>

##### **Geographic Location**

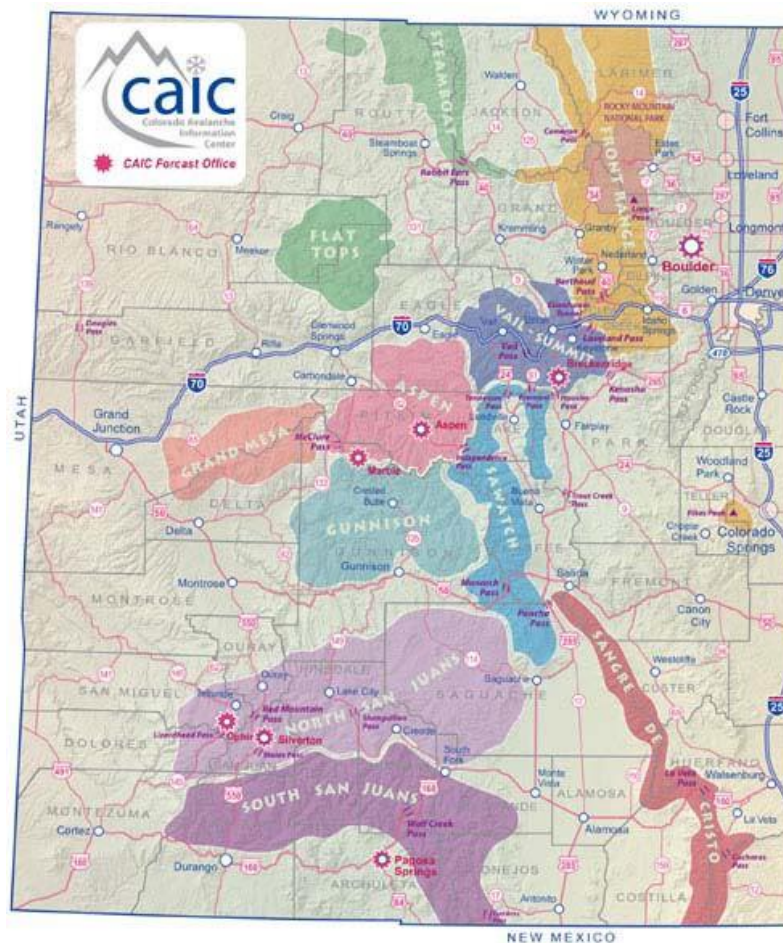
The Colorado Geological Survey (CGS) and the Colorado Avalanche Information Center (CAIC) have mapped the State's areas susceptible to avalanche activity. The CAIC forecasts backcountry avalanche and mountain weather conditions for 10 Zones in the mountains of Colorado.

---

<sup>20</sup> Colorado Department of Transportation, [www.codot.gov](http://www.codot.gov)



Figure 4.8 Colorado Avalanche Zones



Source: Colorado Avalanche Information Center

The Colorado Department of Transportation (CDOT) has mapped avalanche corridors on the state highway system, and the approximate number of slide paths that CDOT and CAIC crews monitor and/or control on each. In the San Luis Valley region, CDOT conducts avalanche-mitigation operations at the following locations:

1. SH 17, Cumbres and La Manga Passes (15 slide paths) in Conejos County
2. US 160, Wolf Creek Pass (61 slide paths) in Mineral County
3. US 285 Poncha Pass (2) in Saguache County

Slopes in the South San Juan Mountains on the western half of Conejos County are susceptible to avalanche. The Wolf Creek Pass area is notorious for avalanche activity, where snowfall levels on average are among the highest in the state.

#### Previous Occurrences

According to the Colorado Avalanche Information Center (CAIC), there were four deaths attributed to avalanche from 2010-2016 in the Wolf Creek Pass area. In 2010 (November 22), a ski patroller conducting avalanche control at the Wolf Creek Ski Area was killed by an avalanche within the ski area boundary. In 2012 (February 16), one backcountry skier was

killed and another injured by an avalanche in the area of Lobo Overlook and Gibbs Creek near Wolf Creek Pass. On March 4, 2014, another ski patroller died after being buried by an avalanche outside of the boundary of the Wolf Creek Ski Area. On February 2, 2016, a snowmobiler died after triggering a soft slab avalanche in the Lost Mine Creek area east of Wolf Creek Pass. Each of these fatal avalanches occurred near, but not in Conejos County.

#### Probability of Future Occurrences

According to the 2013 Colorado Natural Hazards Mitigation Plan, it is difficult to determine the number of persons at risk from avalanche, but a half dozen can be expected every year in Colorado. “There is no way to determine the number of people caught or buried in avalanches each year, because non-fatal avalanche incidents are increasingly under reported. The American Institute for Avalanche Research and Education reports that 90 percent of avalanche victims die in slides triggered by themselves or a member of their group. Obtaining a better understanding of outdoor recreation in avalanche-prone areas may lead toward a better understanding of future probability for this hazard.”<sup>21</sup>

The likelihood of an avalanche increases with heavy accumulation of snow. The probability of future occurrence will depend on weather patterns and levels of recreational activity within known avalanche zones. The probability of avalanche events that cause death or injury in Conejos County in the future is rated **occasional** (occurs every 11-100 years, or a 1-10% chance per year).

#### Magnitude/Severity

In an avalanche, the impact forces of the rapidly moving snow and debris and the burial of areas in the run out zone can result in the destruction of structures and anything else in its path. Areas prone to avalanche hazards in and around the San Luis Valley are generally not heavily populated. Avalanches causing death or injury are usually human-triggered in the backcountry and therefore can result in isolated injuries or fatalities. On rare occasions, roads, highways and railroads may be damaged and blocked by snow and debris, resulting in travel delays and costly efforts to clear and repair transportation routes. Otherwise, impacts to critical facilities and interruption of essential services are not expected. The avalanche hazard is rated **critical** by the Planning Team in light of the risk to public safety, meaning that isolated deaths/injuries; major or long-term impacts to property, infrastructure and critical services; and service disruptions of 24-72 hours are possible.

#### Vulnerability Assessment

According to the CAIC, avalanches have killed more people in Colorado than any other natural hazard since 1950, and Colorado accounts for one-third of all avalanche deaths in the United States. Every year, snow avalanches kill and injure winter recreationists in Colorado’s high country, including cross-country skiers, downhill skiers, snowshoers and snowmobilers. Private property losses are rare, due to local regulation of known avalanche zones, although lack of knowledge of avalanche run-out potential (the farthest reach of snow and debris) has occasionally resulted in damages to residences and private vehicles in Colorado.

---

<sup>21</sup> Colorado Natural Hazards Mitigation Plan, December 2013, Colorado Division of Homeland Security and Emergency Management, p. 3-142

Avalanche prone areas within the county are primarily accessible only by means of public trail systems. Snowmobilers, skiers, snowboarders, hikers, climbers, and snowshoers are all at risk when participating in activities near known avalanche zones. In particularly heavy snow years, the avalanche risk is greater. With prime conditions of wind or snow load, avalanches can be triggered easily.

According to the 2013 Colorado Natural Hazards Mitigation Plan, the avalanche hazard is localized in mountain regions: “Avalanche-prone areas are well known; avalanche chutes identify where they will likely occur again...the complex interaction of weather and terrain factors contributes to the location, size, and timing of avalanches. In the absence of detailed scientific observation, any accumulation of snow on a slope steeper than 20 degrees should be considered a potential avalanche hazard.”<sup>22</sup>

#### **4.2.12 Landslide**

##### **Hazard Description**

The 2013 Colorado Natural Hazards Mitigation Plan defines landslides as the “downward and outward movement of slopes composed of natural rock, soils, artificial fills, or combinations thereof.” Landslides can damage infrastructure, destroy or destabilize structures, and cover rail and roadways, resulting in extended closures and temporary disruptions of utility services. Damage to oil and natural gas pipelines and electrical conduits may result in an interruption of services both in the affected areas and those further down the pipelines from affected areas. Landslides are most common in areas with steep slopes and grading, but may occur anywhere that natural or artificial materials may shift or slide.<sup>23</sup>

There are various types of landslides, including slumps, rockslides, debris slides, lateral spreading, debris flows, earth flows, and soil creep. Rock falls are the falling of a detached mass of rock from a cliff or down a very steep slope. In general, areas prone to the landslide hazard are also susceptible to flows and rock falls.

##### **Geographic Location**

As noted in the 2013 Colorado Natural Hazards Mitigation Plan, movement related to landslides, mud and debris flows, and rock falls occurs naturally across Colorado on an ongoing basis. The landslide hazard occurs in all mountainous regions of the state, including the San Juan Mountain range. Factors that influence risk from landslides include elevation, slope, soil moisture and susceptibility.

The eastern half of Conejos County lies within the San Luis Valley floor and is not susceptible to landslide. However, the western half of the county lies deep within the Rio Grande and San Juan National Forests of the San Juan Mountains. The greatest potential risk for landslides is in western Conejos County in the South San Juan Wilderness area. There is a fair amount of steep terrain in this area, particularly near the borders with Archuleta County and New Mexico.

---

<sup>22</sup> Colorado Natural Hazards Mitigation Plan, December 2013, Colorado Division of Homeland Security and Emergency Management, p. 3-149

<sup>23</sup> Colorado Natural Hazards Mitigation Plan, December 2013, Colorado Division of Homeland Security and Emergency Management, p. 3-180

### Previous Occurrences

During the 1980s and 1990s, landslide activity intensified due to an extended period of higher than normal annual precipitation levels; however, there are no documented landslide events in Conejos County.

### Probability of Future Occurrences

The Colorado Geological Survey (CGS) has not identified any vulnerable communities, areas, or facilities in Conejos County and landslides do not present an immediate risk to populated areas, transportation systems, public infrastructure or the economy. Geologic studies can determine the location of historic landslide paths and deposits and unstable and instruments can measure activity to determine whether movement is occurring. The Planning Team has rated the probability of future landslide occurrences **unlikely** (less than 1 percent chance of occurrence in the next 100 years or it has a recurrence interval of greater than every 100 years).

### Magnitude/Severity

Saturated soils due to heavy precipitation or melting snowpack are often the determining factors in the frequency and magnitude and frequency of land movements. Landslides can also be triggered by loss of vegetation after a wildfire and erosion of the toe of the slope by rivers, earthquakes or land development activities.

As noted in the 2013 Colorado Natural Hazards Mitigation Plan, the potential for property and infrastructure damages is considerable: “Landslides occur commonly throughout Colorado, and the annual damage is estimated to exceed \$3 million dollars to buildings alone.”<sup>24</sup> Transportation infrastructure is typically the most impacted resource from landslides in Colorado although residential structures have also been impacted.

Figure 4.9 West Salt Creek Landslide (Mesa County)



Source: Colorado Geological Survey

<sup>24</sup> Colorado Natural Hazards Mitigation Plan, December 2013, Colorado Division of Homeland Security and Emergency Management, p. 3-185



Although rare, deaths and injuries can occur from landslides. On May 25, 2014 the longest landslide in the state's history occurred in Mesa County, six miles southeast of the town of Collbran, resulting in the deaths of three local men. The landslide was 2.8 miles long and dropped approximately 2,100 feet in elevation, moving at speeds of up to 85 miles per hour. The landslide covered almost a square mile of West Salt Creek valley, stopping just short of active gas-production wellheads and irrigation ditches and ponds used by local farmers and ranchers.<sup>25</sup>

More typically, landslide events are gradual movements in areas of steep topography and where the soil conditions contribute to the movement of the slope. Damages are often limited to cracks in foundations and damage to roads. Individual property owners may experience more or less damage depending on site specific movement. Rockfall, on the other hand, is a sudden movement, and could potentially result in significant damages, injuries, or death.

The Planning Team has rated the severity of the landslide hazard in Conejos County as **limited**, meaning that minor injuries and minor property damages are possible, with minimal disruptions to infrastructure and critical services.

#### Vulnerability Assessment

In and around the San Luis Valley, most areas susceptible to landslides are publicly owned and there is a relatively low risk for injury, loss of life, or damage to property. The most significant risk is likely along the highways. Ongoing pressures for residential and business growth in areas highly impacted by landslides will continue as available land for development decreases in mountain communities.

The conditions resulting in a landslide are site-specific. A major landslide could potentially destroy anything in its path. The vulnerability of individual structures could be assessed through detailed studies of buildings and infrastructure located within known landslide areas. Future development in areas where landslide potential exists should undergo geotechnical studies to determine slope stability.

#### **4.2.13 Earthquake**

##### Hazard Description

An earthquake is caused by a sudden slip on a fault. Stresses in the earth's outer layer push the sides of the fault together. Stress builds up and the rocks slip suddenly, releasing energy in waves that travel through the earth's crust and cause the shaking that is felt during an earthquake. "Sudden movement on faults is responsible for earthquakes. An earthquake is simply the vibrations caused by the blocks of rock on either side of a fault rubbing against each other as they move in opposite directions. The bigger the movement, the bigger the earthquake. Because the mountains are still rising in Colorado, earthquakes will continue to accompany the faulting that enables them to grow."<sup>26</sup>

Earthquake research in Colorado focuses on the thousands of faults in the state to determine whether they have moved in the recent geologic past and whether they are capable of moving again in the near future. Magnitude and intensity are used to describe seismic activity:

<sup>25</sup> Colorado Geological Survey, [coloradogeologicalsurvey.org](http://coloradogeologicalsurvey.org)

<sup>26</sup> Colorado Geological Survey, [dnrwebcomapg.state.co.us/CGSOnline](http://dnrwebcomapg.state.co.us/CGSOnline)

magnitude is a measure of the total energy released (each earthquake has one magnitude) and intensity describes the effects of the earthquake at a particular place (intensity differs throughout the area). The Richter Scale is commonly used to measure magnitude and the Modified Mercalli Scale is used for intensity.

Table 4.20 Richter Scale

Magnitude	Typical Maximum Intensity
1.0 - 3.0	I
3.0 - 3.9	II - III
4.0 - 4.9	IV - V
5.0 - 5.9	VI - VII
6.0 - 6.9	VII - IX
7.0 and higher	VIII or higher

Source: Colorado Geological Survey

Intensity is an expression of the amount of shaking at any given location on the ground surface as felt by humans and defined in the Modified Mercalli Intensity scale below.

Table 4.21 Modified Mercalli Intensity (MMI) Scale

MMI	Felt Intensity
I	Not felt except by a very few people under special conditions. Detected mostly by instruments.
II	Felt by a few people, especially those on upper floors of buildings. Suspended objects may swing.
III	Felt noticeably indoors. Standing automobiles may rock slightly.
IV	Felt by many people indoors, by a few outdoors. At night, some people are awakened. Dishes, windows, and doors rattle.
V	Felt by nearly everyone. Many people are awakened. Some dishes and windows are broken. Unstable objects are overturned.
VI	Felt by everyone. Many people become frightened and run outdoors. Some heavy furniture is moved. Some plaster falls.
VII	Most people are alarmed and run outside. Damage is negligible in buildings of good construction, considerable in buildings of poor construction.
VIII	Damage is slight in specially designed structures, considerable in ordinary buildings, great in poorly built structures. Heavy furniture is overturned.
IX	Damage is considerable in specially designed buildings. Buildings shift from their foundations and partly collapse. Underground pipes are broken.

X	Some well-built wooden structures are destroyed. Most masonry structures are destroyed. The ground is badly cracked. Considerable landslides occur on steep slopes.
XI	Few, if any, masonry structures remain standing. Rails are bent. Broad fissures appear in the ground.
XII	Virtually total destruction. Waves are seen on the ground surface. Objects are thrown in the air.

Source: Federal Emergency Management Agency

### Geographic Location

Colorado is considered a region of relatively minor earthquake activity. Geologic studies indicate there are more than 90 potentially active faults in Colorado with documented movement within the last 1.6 million years. Potentially active faults present the greatest earthquake hazard (those that have ruptured to the ground surface during the Holocene period, or about the last 15,000 years).

Although there are documented faults in Conejos County, much of the significant fault activity lies within neighboring counties along the Sangre de Cristo and the San Juan Mountain ranges. One of the three USGS operated permanent seismic stations in Colorado is located in northeastern Alamosa County. According to the Colorado Geological Survey, a small earthquake occurred on October 7, 1952 in Antonito.

### Previous Occurrences

There are no damaging earthquakes on record for Conejos County. According to the Colorado Geological Survey, the most economically damaging earthquake in Colorado's history occurred on August 9, 1967 in the northeast Denver metropolitan area. The magnitude 5.3 earthquake, centered near Commerce City, caused more than a million dollars (approximately \$8 million in 2015 dollars) in damage in Denver and the northern suburbs. This earthquake is believed to have been triggered by the deep injection of liquid waste into a borehole at Rocky Mountain Arsenal.

Table 4.22 Colorado's Largest Earthquakes

Date	Location	Magnitude	Maximum Intensity
1870 (Dec 4)	Pueblo/Ft. Reynolds	N/A	VI
1871 (Oct)	Lily Park, Moffat County	N/A	VI
1880 (Sep 17)	Aspen	N/A	VI
1882 (Nov 7)	North Central Colorado	6.6	VII
1891 (Dec 1)	Axial Basin (Maybell)	N/A	VI
1901 (Nov 15)	Buena Vista	N/A	VI
1913 (Nov 11)	Ridgway Area	N/A	VI
1944 (Sep 9)	Montrose/Basalt	N/A	VI
1955 (Aug 3)	Lake City	N/A	VI
1960 (Oct 11)	Montrose/Ridgway	5.5	V
1966 (Jan 5)	NE of Denver	5.0	V



1966 (Jan 23)	CO-NM border near Dulce, NM	5.5	VII
1967 (Aug 9)	NE of Denver	5.3	VII
1967 (Nov 27)	NE of Denver	5.2	VI
2011 (Aug 22)	Trinidad (Cokedale)	5.3	VII

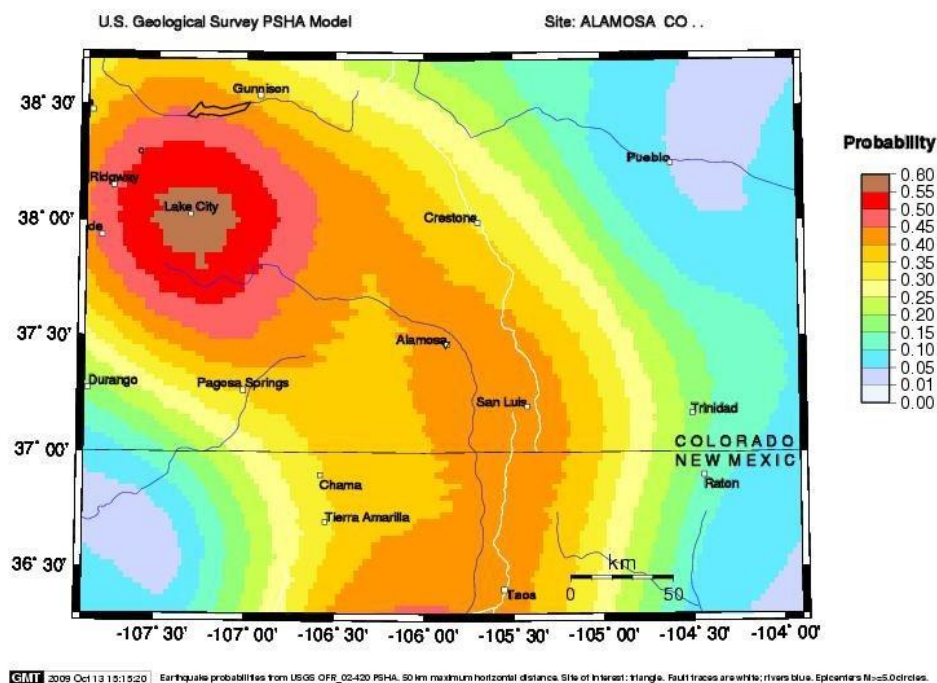
Source: Colorado Geological Survey

### Probability of Future Occurrences

There have been no past damaging events in Conejos County. The occurrence of earthquakes is relatively infrequent in Colorado, and the historical earthquake record is short (only about 130 years). Given the short history of recorded events, it is impossible to accurately estimate the timing or location of future strong earthquakes in Colorado. “Relative to other western states, Colorado’s earthquake hazard is higher than Kansas or Oklahoma, but lower than Utah and certainly much lower than Nevada and California. Even though the seismic hazard in Colorado is low to moderate, it is likely that future damaging earthquakes will occur. Based on the historical earthquake record and geologic studies in Colorado, an event of magnitude 6.5 to 7.5 could occur somewhere in the state.”<sup>27</sup>

The figure below illustrates the probability of a 5.0 or greater magnitude earthquake occurring within the San Luis Valley area in the next 150 years. This map shows a 35-45% probability of an earthquake of that magnitude in and around Conejos County in the next 150 years.

Figure 4.10 Probability of a 5.0 or Greater Magnitude Earthquake in next 150 years



Source: U.S. Geological Survey

<sup>27</sup> Colorado Geological Survey, [coloradogeologicalsurvey.org/geologic-hazards/earthquakes-2/](http://coloradogeologicalsurvey.org/geologic-hazards/earthquakes-2/)

The Planning Team has rated the probability of future earthquake events **occasional** (occurs every 11-100 years, or a 1-10% chance per year).

#### Magnitude/Severity

According to the 2013 Colorado Natural Hazards Mitigation Plan, the seismic hazard in Colorado is rated low-to-moderate, but the risk may have been underestimated. “Colorado’s earthquake hazard and risk has historically been rated lower than most knowledgeable scientists in the state consider justified. As a result, local emergency managers are generally unaware of the size and consequences of an earthquake that could occur in the state. HAZUS 99 gave a probabilistic Annualized Earthquake Loss (AEL) of \$5.8 million which ranked Colorado 30th in the nation. In early 2013, the Colorado Geological Survey ran a series of deterministic scenarios for selected faults around the state using HAZUS MH. The earthquake magnitudes used for each fault were the “Maximum Credible Earthquake” taken from the USGS Quaternary Fault and Fold Database or from the USGS National Earthquake Hazard Map. The results demonstrate that the probabilistic AEL value of \$5.8 million does not begin to convey the size of the loss that would occur in the event of a strong earthquake on any of these faults.”<sup>28</sup>

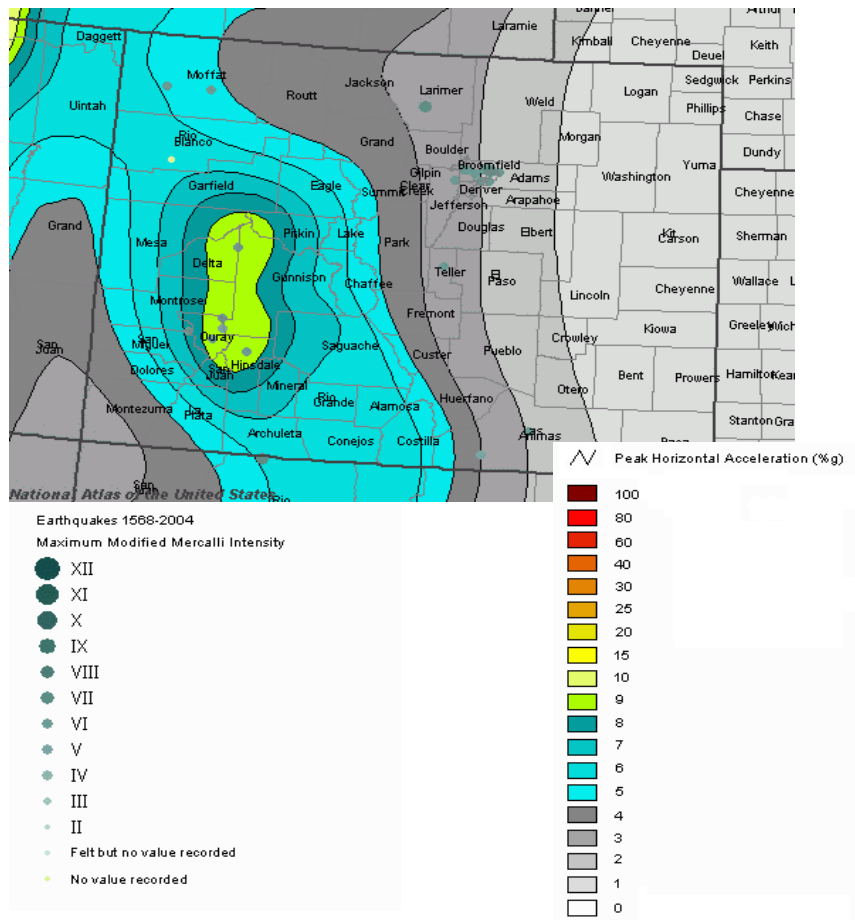
Earthquakes can cause structural damage, injury, and loss of life, as well as damage to public safety, health care and infrastructure facilities (e.g., water, wastewater, power, communication, and transportation). Seismic shaking is typically the greatest cause of losses to structures during earthquakes.

As shown in Figure 4.11, in Conejos County the shaking level, with a 10 percent chance of being exceeded over a period of 50 years, is 6 percent peak acceleration. Significant earthquake damage typically does not occur until peak accelerations are greater than 30 percent. Secondary impacts of earthquakes may include landslides, seiches, liquefaction, fires, and dam failure. The Planning Team has rated the seismic hazard in Conejos County **negligible** (no or few injuries or illnesses; minor quality of life loss; little or no property damage; and/or brief interruption of essential facilities and services).

---

<sup>28</sup> Colorado Natural Hazards Mitigation Plan, December 2013, Colorado Division of Homeland Security and Emergency Management, p. 3-159

Figure 4.11 Colorado Seismic Hazard Map - 10% Probability of Exceedance in 50 Years



Source: U.S. Geological Survey

### Vulnerability Assessment

The overall vulnerability to earthquake hazards is low for all participating jurisdictions due to the low probability and magnitude and the low density of population and structures. All structures in Conejos County are potentially vulnerable to seismic ground shaking. The most vulnerable are historic buildings constructed of unreinforced masonry. Other critical facilities or infrastructure at risk are unknown; their construction determines their ability to withstand seismic shaking.

The adoption and enforcement of building codes may provide the most effective local mitigation tool for substantially reducing the potential cost of damages to future structures from earthquakes. The magnitude and intensity of any earthquake will be the key determinant as to total damages.

### 4.3 Vulnerability Assessment

#### 4.3.1 Vulnerability Assessment Methodology

This Vulnerability Assessment examines vulnerable community assets by describing the population, the rate of population growth, and a general description of growth and development trends. The Vulnerability Assessment also quantifies, to the extent possible, assets at risk to natural hazards and estimated potential losses.

According to the 2013 Colorado Natural Hazards Mitigation Plan, “Coloradans become vulnerable to hazards when they live, work, or visit an area where these events occur. Individuals and communities that prepare for the occurrence of a hazard are less vulnerable to its consequences than those that do not. The vulnerability of Colorado’s population is rooted in a relationship between the occurrence of hazard events, the proximity of people and property to these occurrences, and the degree that a community and its members are committed and prepared to cope with these occurrences and mitigate their effects.”<sup>29</sup>

#### 4.3.2 Community Asset Inventory

The community asset inventory describes the assets at risk to natural hazards in Conejos County, including the total exposure of people and property; critical facilities and infrastructure; natural, cultural, and historic resources; and economic assets. Table 4.22 shows the total population, number of structures, and assessed value of improvements to parcels in the county.

HAZUS was used to estimate the exposure of people and buildings in Conejos County. HAZUS estimates exposure to 8,388 individuals (2007 total population) and 5,653 structures (2000), with the assessed value of these structures totaling \$388,000,000 (2000). Building counts and values (including building contents) were taken from HAZUS census block-level data. Land values were purposely excluded because land remains following Colorado disasters, and subsequent market devaluations are frequently short term and difficult to quantify. Additionally, state and federal disaster assistance programs generally do not address loss of land or its associated value.

#### Critical Facilities, Infrastructure, and Other Important Community Assets

A critical facility can be defined as one that if damaged would have devastating impacts on disaster response and recovery operations. Facilities that are commonly considered *critical* include law enforcement facilities, fire service facilities, health care facilities, government facilities, emergency operations centers, public shelters, transportation systems, water supply facilities, wastewater treatment facilities, agricultural production facilities, electrical power systems and other utilities. In addition, critical facilities are those that house vulnerable populations, such as schools and assisted living or senior housing.

---

<sup>29</sup> Colorado Natural Hazards Mitigation Plan (December 2013), Colorado Division of Homeland Security and Emergency Management

Table 4.23 Critical Facilities in Conejos County

Facility Type	Facility Name	Facility Address	Estimated Replacement Value
Hospital	Conejos County Hospital	19021 U.S. 285	\$3,395,000
Police Station	Antonito Police Department	303 Main St.	\$1,358,000
Police Station	Conejos County Sheriff	6686 C.R. 13	\$1,358,000
Police Station	Manassa Police Department	401 Main St.	\$1,358,000
Police Station	La Jara Police Department	402 Broadway	\$1,358,000
School	Centauri Middle School	17891 U.S. 285	\$485,000
School	Centauri High School	17889 U.S. 285	\$485,000
Courthouse	Conejos County Courthouse	Conejos County	\$250,000

Source: HAZUS-MH MR3 (2009) and Conejos County Hazard Mitigation Planning Team

Table 4.24 Critical Facilities in Antonito

Facility Type	Facility Name	Facility Address	Estimated Replacement Value
Town Hall	Antonito Town Hall	Antonito	\$1,000,000
School	South Conejos	Antonito	\$1,000,000
Business	Red Rock Industry	Antonito	N/A
Community Assistance	SPMDTU	Antonito	N/A
Historic Building	Perlite Mill	Antonito	N/A
Historic Building	Denver and Rio Grande Depot	Antonito	N/A

Source: Conejos County Hazard Mitigation Planning Team

Table 4.25 Critical Facilities in La Jara

Facility Type	Facility Name	Facility Address	Estimated Replacement Value
Town Hall	La Jara Town Hall	La Jara	\$300,000
School	Centauri School	La Jara	\$1,200,000
School	North Conejos	La Jara	\$500,000
Nursing Home	Rio Grande Inn	La Jara	\$2,000,000
Police Station	La Jara Police Department	La Jara	N/A
EMS	Conejos County EMS	La Jara	N/A
Communications	CenturyTel	La Jara	N/A
Fire Department	La Jara Fire Department	La Jara	N/A
Church	Our Lady of the Valley	La Jara	\$700,000

Source: Conejos County Hazard Mitigation Planning Team

Table 4.26 Critical Facilities in Manassa

Facility Type	Facility Name	Facility Address	Estimated Replacement Value
EMS	Conejos County EMS	Manassa	N/A
Communications	CenturyTel	Manassa	N/A

Source: Conejos County Hazard Mitigation Planning Team

Table 4.27 Critical Facilities in Romeo

Facility Type	Facility Name	Facility Address	Estimated Replacement Value
Town Hall	Romeo Town Hall	315 2 <sup>nd</sup> Ave.	\$100,000
Fire Department	Romeo Fire Department	Main St.	\$100,000
Water System	Well Water #1	2 <sup>nd</sup> and Conejos	\$500,000
Propane Storage	Amerigas	West of Romeo	N/A
WWTP	Wastewater Treatment Plant	North of Romeo	\$500,000

Source: Conejos County Hazard Mitigation Planning Team

Table 4.28 Critical Facilities in Sanford

Facility Type	Facility Name	Facility Address	Estimated Replacement Value
School	Sanford Public School	755 2 <sup>nd</sup> St.	\$15,000,000
Community Center	Town Hall Community Center	Sanford	\$5,000,000
Fire Department	Sanford Fire Department	Sanford	\$2,000,000
Church	Sanford LDS	Sanford	\$5,000,000
Post Office	Sanford Post Office	Sanford	\$250,000
EMS	Conejos County EMS	Sanford	N/A
Town Hall	Sanford Town Hall	Sanford	\$700,000

Source: Conejos County Hazard Mitigation Planning Team

### Natural, Historic and Cultural Resources

Assessing the vulnerability of Conejos County to disaster also involves inventorying the natural, historic, and cultural assets of the area. This step is important for the following reasons:

- The community may decide that these types of resources warrant a greater degree of protection due to their unique and irreplaceable nature and contribution to the overall economy.
- If these resources are impacted by a disaster, knowing this ahead of time allows for more prudent care in the immediate aftermath, when the potential for additional impacts are higher.
- The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.
- Natural resources can have beneficial functions that reduce the impacts of natural hazards, such as wetlands and riparian habitat, which help absorb and attenuate floodwaters.

Natural resources are important to include in benefit-cost analyses for future projects. They may be used to leverage additional funding for projects that contribute to other community goals as well. A number of natural resources exist in Conejos County, including wetlands and endangered species.



Wetlands are valuable because of their ability to improve water quality, limit erosion, protect wildlife and reduce flood peaks while slowly releasing floodwaters to downstream areas. Wetlands also provide drought relief in water-scarce areas where the relationship between water storage and streamflow regulation are vital.

An *endangered species* is any species of fish, plant life, or wildlife that is in danger of extinction throughout all or most of its range. A *threatened species* is a species that is likely to become an endangered species within the foreseeable future. Both endangered and threatened species are protected by law and any future hazard mitigation projects are subject to these laws. *Candidate species* are plants and animals that have been proposed as endangered or threatened but are not currently listed.

Endangered, threatened, and candidate species located in Conejos County are listed in Table 4.29 below.

Table 4.29 Rare Species in Conejos County

Common Name	Scientific Name	Type of Species	Status
Black-footed Ferret	<i>Mustela nigripes</i>	Mammal	Endangered
Canada Lynx	<i>Lynx canadensis</i>	Mammal	Threatened
Gunnison Sage Grouse	<i>Centrocercus minimus</i>	Bird	Threatened
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	Bird	Threatened
Southwestern Willow Flycatcher	<i>Empidonax taillii extimus</i>	Bird	Endangered
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	Bird	Threatened

Source: U.S. Fish and Wildlife Service

National and state historic inventories were reviewed to identify historic and cultural assets in Conejos County. The National Register of Historic Places is the nation's official list of cultural resources worthy of preservation. The Colorado State Register of Historic Properties is a listing of the state's significant cultural resources worthy of preservation for the future education and enjoyment of Colorado's residents and visitors. Table 4.30 lists the properties in Conejos County that are on the Colorado State Register of Historic Properties. Those properties that are also on the National Register of Historic Places are indicated with an asterisk.

Table 4.30 Historic Properties and Districts on State and National Registers

Property Name	Location	Date Listed
Costilla Crossing Bridge*	Antonito	2-4-1985
Denver & Rio Grande Railroad San Juan Extension*	Antonito to Chama, NM	1-16-1973
Denver & Rio Grande Railroad Antonito Depot	Front St., Antonito	8-31-2006
Denver & Rio Grande Railroad Engine 463*	Antonito/U.S. 285	5-12-1975
Florence & Cripple Creek RR Combination Car No. 60*	Antonito/Cumbres	6-9-1999
Palace Hotel	429 Main St., Antonito	8-19-1994
SPMDTU Concilio Superior*	603 Main St., Antonito	3-29-2001

Warshauer Mansion*	515 River St., Antonito	8-30-1974
La Jara Depot (La Jara Town Hall)*	Broadway & Main, La Jara	5-12-1975
La Capilla de San Antonio de Padua	County Road 28, Lasasuses	12-10-1997
San Rafael Presbyterian Church	County Road 9, Mogote	6-9-1999
Mcintire Ranch*	County Road V, Sanford	3-26-2008
Pike's Stockade Site*	CO 136, 4 miles east of Sanford	7-4-1961

Asterisk indicates properties on both the State and National Registers

Source: Directory of Colorado State Register Properties

According to the National Environmental Policy Act (NEPA), any property over 50 years of age is considered a historic resource and is potentially eligible for the National Register. As a result, alterations to listed properties must be evaluated under the guidelines set forth by NEPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

### Economic Assets

In addition to direct impacts and damages to critical facilities, major disasters can result in large amounts of debris, business interruptions, increased emergency response times and costs, loss of income for businesses and residents, increased demands for health services, and the need to replace roads, bridges and public buildings. After a disaster, economic recovery is the highest recovery priority, next to public health and safety. When major employers are unable to return to normal operations, long-term impacts may be felt throughout the community. Table 4.31 lists the top employers in Conejos County by number of employees.

Table 4.31 Top Employers in Conejos County

Employer Name	Location (City/Town)
<b>100-250 Employees</b>	
Antonito High School District 10	Antonito
<b>50-100 Employees</b>	
Child Development Center	Conejos
Conejos County Hospital	La Jara
Sanford School District 6J	La Jara

### Social Vulnerability

Certain demographic and housing characteristics affect overall vulnerability to hazards. These characteristics, such as age, race/ethnicity, income levels, gender, building quality, public infrastructure, all contribute to social vulnerability. Factors of social vulnerability hold many implications for disaster response and recovery and are important considerations when identifying and prioritizing mitigation goals and actions. *Age* can affect the ability of individuals to safely evacuate away from hazardous conditions. *Language and cultural barriers* can affect the communication of warning information and access to post-disaster information. *Low-income residents* generally have fewer resources available for mitigation, preparedness, and recovery and are more likely to live in vulnerable structures. Individuals

and communities with greater wealth have more ability to absorb disaster impacts and losses, due to factors such as insurance and social safety nets.

Table 4.32 Social Vulnerability Indicators from U.S. Census, 2010-2014

Jurisdiction	Total Population	Housing Units	% Female	% 18 Yrs. and Under	% 65 and Over	% Non-English at Home	Individuals Below Poverty Level (%)
<b>Conejos County</b>	8,276	4,286	50.3	27.7	16.4	35.1	18.6
<b>Antonito</b>	774	436	49.0	21.2	18.7	54.0	33.6
<b>La Jara</b>	835	385	47.9	22.8	18.7	34.9	19.4
<b>Manassa</b>	1,031	447	52.5	26.5	17.0	27.6	24.4
<b>Romeo</b>	335	149	46.0	31.1	11.3	43.1	38.2
<b>Sanford</b>	865	359	50.8	27.7	10.4	26.5	15.1

Source: U.S. Census Bureau, American Community Service, 2010-2014 5-Year Population Estimate

#### 4.3.3 Key Hazard Issues in Participating Jurisdictions

The natural hazards profiled earlier in this chapter addressed the probability and potential severity of hazards that occur throughout Conejos County. The towns of Antonito, La Jara, Manassa, Romeo and Sanford are located in the eastern half of Conejos County on the floor of the San Luis Valley and face common risks from natural hazards. The natural hazards that present the greatest threat to people and property in and near these five communities are atmospheric hazards and severe weather events, including hail, flooding, lightning, severe winter storms, tornadoes, and windstorms. Drought is another hazard caused by climate patterns and conditions that can result in significant adverse impacts to the agriculture-based economy of the area. Drought and high wind events can also lead to escaped open burns during spring ditch-burning activities that can ignite adjacent fuel sources and nearby structures.

##### Drought

- Prolonged drought conditions in eastern Conejos County can result in loss of livestock and crops as well as economic losses to businesses that support and rely on agricultural production. Since 2003, Conejos County has received five USDA Secretarial disaster declarations for drought. Secondary impacts of drought are wildfires, wind erosion, and soil compaction.

##### Flooding

- La Jara Creek is a designated high-risk flood area in Conejos County. Other rivers with a history of flooding include the Alamosa, Conejos, San Antonio, and Rio Grande Rivers. Although not listed as a high-risk area, the Conejos River has caused minor flooding several times. The high-water table aggravates flooding in the area. There are seven flood insurance policies in force in the unincorporated areas of Conejos County, one policy in the Town of Manassa and one in the Town of Antonito (\$1,439,500 in total coverage). The Towns of Romeo and Sanford are not participating in the NFIP. There are no repetitive loss properties in Conejos County.

## Hail

- Conejos County has experienced 12 hailstorms that resulted in crop and/or property damages since 1960, five of which produced severe hail (one inch or greater diameter). In agricultural areas like eastern Conejos County, storms with large hail can destroy crops, killing and injuring livestock, and damaging glass and plastic structures. A hail storm with the potential to cause damage to crops and property can be expected to occur nearly every year in this part of the Valley.

## Lightning

- The greatest threat that lightning presents to communities in eastern Conejos County is the risk of death or injury. Ranchers, farmers and other agricultural interests are particularly vulnerable due to the outdoor nature of their work. Wildfires and grassfires are secondary hazards that are frequently ignited by lightning strikes.

## Severe Winter Storms

- Conejos County experienced 40 winter storm events between 1960 and 2013, resulting in one death, one injury, \$112,000 in crop damages, and over \$1 million in property damages (for a total of \$1,141,122 damages during this period). Severe winter storms can strand motorists, disrupt emergency and medical services, bring down trees and power lines, freeze water pipes, and damage homes. Residents in and around the towns of Antonito, La Jara, Manassa, Romeo and Sanford can become isolated and cut off from normal services during blizzards and high-snowfall events. Communications and power can be disrupted for days until damage can be repaired. Extremely cold temperatures pose a risk to public safety and disrupt farm and ranch operations.

## Tornadoes

- There have been four recorded tornadoes since 1950 in Conejos County. No deaths were attributed to these events and the magnitude of these tornadoes ranged from F0 to F2. Two of these tornadoes were reported in Manassa, both occurring in April 2005. Though rare in eastern Conejos County, large tornadoes are capable of injuring and killing people and livestock and destroying structures, infrastructure, and crops.

## Wildfires

- In communities in eastern Conejos County, the greatest wildland fire hazard is related to spring ditch-burning season, when farmers and ranchers annually clear irrigation ditches of vegetation with prescribed burns. Burns that escape may threaten or damage farm/ranch buildings and homes in the area, especially in the spring when strong westerly winds typically occur. Creating defensible spaces around structures and eliminating debris piles and other flammable materials can provide the best protection, in addition to close coordination of burn activities with local fire officials.

## Windstorms

- High wind events can occur in eastern Conejos County as part of a seasonal climate pattern or in relation to other severe weather events such as thunderstorms. Windstorms in Conejos County are rarely life threatening, but do occasionally disrupt

agriculture and cause damage to buildings. The impacts of strong, straight line winds can be erosion, dryland farming seed loss, windblown weeds, grassfires, and building damage.

Due to their location in relatively flat terrain, the towns of Antonito, La Jara, Manassa, Romeo and Sanford are not susceptible to avalanches or landslides. The unique risks and vulnerabilities of the towns participating in the update of this plan are summarized below.

#### **Town of Antonito**

Three significant hail events have been recorded in Antonito in the last 20 years, including one on July 31, 2014 that produced 1.25-inch diameter hailstones. On September 7, 1993, lightning struck a water plant near Antonito and traveled along a pipeline into the center of town, resulting in a break in the line and the loss of 5,000 gallons of water. Located near the Conejos River, the Town of Antonito joined the NFIP in 1985 and has one policy in force. The community is also located 49 miles downstream from Platoro Dam, a High Hazard (Class I) dam with a 60,000 acre feet storage capacity on the Conejos River, and 36 miles downstream from Trujillo Meadows Dam (930 acre feet), a Significant Hazard (Class II) dam on the Los Pinos River.

#### **Town of La Jara**

Two events that produced severe hail (1" diameter or greater) have occurred in La Jara in the last 10 years, one on July 22, 2006 and another on June 5, 2010. On August 9, 1993, lightning struck a barn between La Jara and Sanford, damaging the structure and consuming 50 large bales of hay. Located near La Jara Creek, the Town of La Jara joined the NFIP in 1976, with no policies currently in force. Town officials have identified their domestic water system as vulnerable to natural hazards and will consider possible mitigation actions in the future. The Town of La Jara adopted new building codes in 2012.

#### **Town of Manassa**

Located near the Conejos River, the Town of Manassa joined the NFIP in 1986 and has one policy in force. In 1994, a flood event damaged several homes in Manassa, resulting in an estimated \$50,000 in damage at the time. In April 2005, the Town of Manassa experienced an F0-rated tornado on two different dates (April 15 and April 17), though neither tornado caused major damage. Due to severe weather hazards, Town officials have identified the need for back-up electrical power at critical facilities, including Town Hall.

#### **Town of Romeo**

There are no recorded natural hazard events specific to the Town of Romeo. The community does not participate in the NFIP and there are no mapped floodplains or known flood hazard areas within the Town of Romeo. The greatest risks to people and property in Romeo are related to hazardous-material transportation through town by rail and along U.S. 285.

#### **Town of Sanford**

The Town of Sanford is not located in or near the 100-year floodplain and does not participate in the NFIP. A severe storm on June 5, 2010 produced severe hail of approximately one-inch

diameter. On August 9, 1993, lightning struck a barn between La Jara and Sanford, damaging the structure and consuming 50 large bales of hay.

#### 4.3.4 Growth and Development Trends

This section provides a general description of land uses and development trends within the county and includes data on growth in population and housing units for each jurisdiction.

Table 4.33 Population Growth in Conejos County, 2010-2015

Jurisdiction	2010	2015 (Estimated)	Percent Change
Conejos County	8,256	8,130	-1.52
Antonito	781	759	-2.82
La Jara	818	835	2.08
Manassa	991	966	-2.52
Romeo	404	387	-4.21
Sanford	879	852	-3.07

Source: Department of Local Affairs, State Demography Office, [www.dola.colorado.gov/dlg/demog](http://www.dola.colorado.gov/dlg/demog)

The Town of Romeo is the only participating jurisdiction to experience an increase in population between 2010 and 2015 (2.08%).

Table 4.34 below shows the rate of growth in housing units for Conejos County and Partner Jurisdictions between 2010-2014.

Table 4.34 Growth in Housing Units in Conejos County, 2010-2014

Jurisdiction	2010	2014	Percent Change (%)
Conejos County	4,286	4,286	0.00
Antonito	407	436	7.13
La Jara	355	385	8.46
Manassa	425	447	5.18
Romeo	156	149	-4.49
Sanford	350	359	2.57

Source: Department of Local Affairs, State Demography Office, [www.dola.colorado.gov/dlg/demog](http://www.dola.colorado.gov/dlg/demog)

Between 2010 and 2015, Conejos County issued an average of 14 building permits per year.

According to the State Demography Office, Conejos County is projected to grow at a slow rate (approximately 0.5%) between 2000 and 2050.



Table 4.35 Projected Population Growth in Conejos County, 2000-2050

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
<b>Pop.</b>	8,407	8,500	8,282	8,270	8,457	8,706	9,073	9,381	9,691	9,994	10,301
<b>Percent Change</b>		0.2	-0.5	0.0	0.4	0.6	0.8	0.7	0.7	0.6	0.6

Source: Department of Local Affairs, State Demography Office, [www.dola.colorado.gov/dlg/demog](http://www.dola.colorado.gov/dlg/demog)

#### 4.4 Capability Assessment

Mitigation capabilities refer to the programs and policies currently in place to reduce hazard impacts, principally through the identification and implementation of cost-effective hazard mitigation measures. Capabilities can take the form of regulatory requirements (e.g., building codes or hazard-specific zoning ordinances), plans (e.g., hazard mitigation plans or stormwater master plans), certification programs (e.g., *StormReady* or the Community Rating System), personnel (e.g., floodplain administrators and community planners), insurance (e.g., National Flood Insurance Program), and structural projects that protect critical facilities and other property. Hazard awareness and public education programs are also proven measures for preparing citizens to cope with hazard events that cannot be avoided.

This capability assessment is divided into three sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, and fiscal mitigation capabilities.

##### Regulatory Mitigation Capabilities

The political jurisdictions within Conejos County enforce a range of regulations that support mitigation goals and principles by restricting development in areas prone to natural hazards. The existing regulatory tools and planning mechanisms for Conejos County and other jurisdictions are summarized in Table 4.36 below.

Table 4.36 Regulatory Mitigation Capabilities

Regulatory Capability	Conejos County	Antonito	La Jara
Comprehensive or Master Plan	Yes (2003)	No	No
Emergency Operations Plan	Yes	No	No
Economic Development Plan	No	No	No
Capital Improvements Plan	No	No	No
Community Wildfire Protection Plan	Yes (2009)	Yes (2009)	Yes (2009)
Building Code	No	No	Yes
Building Code Year	N/A	No	2012
Floodplain Ordinance	Yes	Yes	Yes
Zoning Ordinance	Yes (2005)	No	No
Subdivision Ordinance	Yes (2005)	No	No
Stormwater Ordinance	No	No	No
Site Plan Review Requirements	Yes	No	No
National Flood Insurance Program	Yes	Yes	Yes
Community Rating System (CRS)	No	No	No

<b>Regulatory Capability</b>	<b>Manassa</b>	<b>Romeo</b>	<b>Sanford</b>
Comprehensive or Master Plan	No	No	No
Emergency Operations Plan	No	Yes	No
Economic Development Plan	No	No	No
Capital Improvements Plan	No	No	No
Community Wildfire Protection Plan	Yes (2009)	Yes (2009)	Yes (2009)
Building Code	No	No	No
Building Code Year	N/A	N/A	N/A
Floodplain Ordinance	Yes	No	No
Zoning Ordinance	No	No	No
Subdivision Ordinance	No	No	No
Stormwater Ordinance	No	No	No
Site Plan Review Requirements	No	No	No
National Flood Insurance Program	Yes	No	No
Community Rating System (CRS)	No	No	No

### Administrative and Technical Mitigation Capabilities

Table 4.37 below identifies the personnel responsible for activities related to mitigation and loss prevention in Conejos County and other jurisdictions.

Table 4.37 Administrative and Technical Capabilities

<b>Administrative and Technical Resources</b>	<b>Conejos County</b>	<b>Antonito</b>	<b>La Jara</b>
Planner/Engineer (with knowledge of land development practices)	Yes	No	No
Engineer/Professional (trained in construction practices related to buildings/infrastructure)	Yes	No	No
Planner/Engineer/Scientist (with understanding of natural hazards)	Yes	No	No
GIS Capabilities	Yes	No	No
Full-Time Building Official	Yes	No	No
Floodplain Administrator	Yes	Yes	Yes
Emergency Manager	Yes	No	No
Grant Writer	Yes	No	No
Warning Systems/Services	Yes	Yes	Yes

<b>Administrative and Technical Resources</b>	<b>Manassa</b>	<b>Romeo</b>	<b>Sanford</b>
Planner/Engineer (with knowledge of land development practices)	No	No	No
Engineer/Professional (trained in construction practices related to buildings/infrastructure)	No	No	No
Planner/Engineer/Scientist (with understanding of natural hazards)	No	No	No
GIS Capabilities	No	No	No
Full-Time Building Official	No	No	No
Floodplain Administrator	Yes	No	No
Emergency Manager	No	Yes	No

Grant Writer	No	Yes	No
Warning Systems/Services	Yes	Yes	Yes

### Fiscal Mitigation Capabilities

Table 4.38 Fiscal Mitigation Capabilities

<b>Financial Resources</b>	<b>Conejos County</b>	<b>Antonito</b>	<b>La Jara</b>
Authority to Levy Taxes for Specific Purposes	Yes	Yes	Yes
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes	Yes
Impact Fees for New Development	No	No	No
Incur Debt through General Obligation Bonds	Yes	Yes	Yes
Incur Debt through Special Tax Bonds	Yes	Yes	Yes
Withhold Spending in Hazard-Prone Areas	No	No	No

<b>Financial Resources</b>	<b>Manassa</b>	<b>Romeo</b>	<b>Sanford</b>
Authority to Levy Taxes for Specific Purposes	Yes	Yes	Yes
Fees for Water, Sewer, Gas or Electric Services	Yes	Yes	Yes
Impact Fees for New Development	No	No	No
Incur Debt through General Obligation Bonds	Yes	Yes	Yes
Incur Debt through Special Tax Bonds	Yes	Yes	Yes
Withhold Spending in Hazard-Prone Areas	No	No	No

# Chapter Five

## Mitigation Strategy

This chapter describes the mitigation strategy developed by the Conejos County Hazard Mitigation Planning Team (Planning Team), based on the risk assessment that was updated by the Planning Team at both planning meetings. The Planning Team developed goals and mitigation actions according to the following definitions:

- **Goals** are general guidelines that explain what the Plan means to achieve. Goals are defined before considering how to accomplish them so that they are not dependent on the means of achievement. They are meant to be achieved over the long term and typically consist of broad policy statements.
- **Mitigation Actions** are specific actions that implement the objective and provide clear direction towards fulfilling the goals.

### 5.1 Plan Goals

At the second planning meeting on August 30, 2016 in La Jara, the Planning Team validated the goals for the 2016 plan update, based on: (1) an updated analysis of significant hazards, (2) an updated vulnerability assessment that estimates the potential impacts of the hazards identified, (3) an updated capability assessment that identifies efforts currently in place to reduce potential hazard impacts, and (4) a mitigation strategy and action plan intended to reduce risks in the future. For the 2016 update, the Planning Team reaffirmed the goals established in the previous plan:

1. Reduce the loss of life and personal injury caused by natural hazards;
2. Reduce damage to critical facilities, personal property, and other community assets caused by natural hazards; and
3. Minimize economic losses associated with natural hazards.

### 5.2 Incorporation of 2010 Plan into Other Planning Mechanisms

The 2010 Conejos County Hazard Mitigation Plan encouraged the incorporation of recommended mitigation actions into other local government planning mechanisms, such as master or comprehensive land-use plans, when appropriate. Due to the broad scope and general nature of many of the recommended actions, the initiatives outlined in the 2010 plan were not completely incorporated; however, progress with integration into other planning mechanisms has been made, as described in the 2016 Mitigation Actions section of this chapter.

As indicated in the Capability Assessment (Section 4.4), Conejos County and the other jurisdictions participating in the mitigation planning effort enforce a range of regulations that support mitigation goals and principles by restricting development in areas prone to natural hazards. The primary local planning mechanisms that support hazard mitigation include comprehensive plans, site plan review requirements, zoning ordinances, subdivision regulations, and regulations related to floodplain and stormwater management.

The 2016 update of this plan provides additional opportunities for improving integration with other local plans and programs. Multiple disciplines are reflected in Planning Team

membership, broadening opportunities for identifying and supporting meaningful mitigation actions. Outside of formal meetings, Planning Team members can promote mitigation plan goals by (1) attending other planning/program meetings, (2) participating in other planning processes, and (3) remaining cognizant of outreach opportunities to engage stakeholders. The Conejos County Office of Emergency Management will be responsible for incorporating an annual hazard mitigation plan review to assess progress and identify opportunities for implementing recommended actions.

### 5.3 Identification of Mitigation Action Alternatives

At the second planning team meeting on August 30, 2016, the Planning Team reviewed the types and categories of mitigation actions, as identified in the table below.

Table 5.1 Types of Mitigation Actions

Mitigation Type	Description	Examples
<b>Local Plans and Regulations</b>	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.	<ul style="list-style-type: none"> <li>·Comprehensive plans</li> <li>·Land use ordinances</li> <li>·Subdivision regulations</li> <li>·Development review</li> <li>·Building codes/enforcement</li> <li>·NFIP Community Rating System</li> <li>·Capital improvement programs</li> <li>·Open space preservation</li> <li>·Stormwater management plans and regulations</li> </ul>
<b>Structure and Infrastructure Protection</b>	These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.	<ul style="list-style-type: none"> <li>·Acquisition/removal of structures in hazard-prone areas</li> <li>·Utility undergrounding</li> <li>·Structural retrofits</li> <li>·Floodwalls and retaining walls</li> <li>·Detention/retention structures</li> <li>·Culverts</li> <li>·Safe rooms</li> </ul>
<b>Natural Systems Protection</b>	These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.	<ul style="list-style-type: none"> <li>·Sediment and erosion control</li> <li>·Stream corridor restoration</li> <li>·Forest management</li> <li>·Conservation easements</li> <li>·Wetland restoration and preservation</li> </ul>
<b>Education and Awareness Programs</b>	These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs such as <i>Firewise</i> .	<ul style="list-style-type: none"> <li>·Radio or television spots</li> <li>·Websites with maps and information</li> <li>·Real estate disclosure</li> <li>·Presentations to school groups or neighborhood organizations</li> <li>·Mailings to residents in hazard-prone areas</li> <li>·StormReady/Firewise Communities</li> </ul>

Source: Local Mitigation Planning Handbook, FEMA (March 2013)

Four jurisdictions -- Conejos County, Antonito, La Jara and Manassa -- currently participate in the National Flood Insurance Program (NFIP). These jurisdictions will continue participation in and compliance with the NFIP. Specific activities that the jurisdictions will undertake to continue compliance include the following:

- Attend NFIP training sponsored by the State;
- Update floodplain regulations throughout the county; and
- Work with FEMA to update county DFIRMs.

#### 5.4 Prioritization of Mitigation Actions

The Planning Team discussed a wide range of possible mitigation actions, and employed the STAPLEE methodology endorsed by FEMA to evaluate and prioritize each proposed action. For each recommended action, the Planning Team developed a project summary that included a description of the action, the department or agency responsible for implementing it, and an estimated timeframe for completion. While STAPLEE provided a template for the Planning Team to evaluate a range of specific mitigation actions and projects, the results of the risk assessment were also considered (i.e., probability and severity of impacts for each hazard). Planning Team members also weighed the pros and cons of proposed actions based on their judgement, subject matter expertise and experience with local hazards. Priorities in 2016 were also influenced by the effects of prolonged drought on natural hazards, including beetle infestation and the resulting increase in the risk of wildfire in forested areas of the county.

The STAPLEE evaluation tool was used as the primary method for evaluating the effectiveness of each action item. STAPLEE considers social, technical, administrative, political, legal, economic, and environmental constraints and benefits of a proposed activity.

- Social: Does the measure treat people fairly?
- Technical: Will it work? Does it solve the problem? Is it feasible?
- Administrative: Is there capacity to implement and manage the project?
- Political: Who are the stakeholders? Did they get to participate? Is there public support? Is political leadership willing to support the project?
- Legal: Does your organization have the authority to implement? Is it legal? Are there liability implications?
- Economic: Is it cost-beneficial? Is there funding? Does it contribute to the local economy or economic development? Does it reduce direct property losses or indirect economic losses?
- Environmental: Does it comply with environmental regulations or have adverse environmental impacts?

STAPLEE Method for Evaluating Potential Mitigation Actions	Yes	No
1. Is the action socially acceptable (compatible with community values)?		
2. Is the strategy technically feasible?		



3. Does the community have the capacity to implement and maintain the action?		
4. Is there public support to implement and maintain the action?		
5. Does the community have the legal authority to implement the strategy?		
6. Is the action cost-effective?		
7. Is the strategy consistent with environmental policies and goals?		

1-2 yes = low priority

3-4 yes = medium priority

5-6 yes = high priority

### 5.5 Status of 2010 Mitigation Actions

Table 5.2 below provides a report on the status of Mitigation Actions identified in the previous 2010 version of this plan. Progress in implementing mitigation actions identified in 2010 has been mixed, but a number of projects have been completed and many others are in process. The following mitigation actions that were identified in the 2010 plan have been completed:

- The town of La Jara adopted new 2012 editions of the international building codes;
- Conejos County acquired variable message boards to display information about natural hazard events and related warnings to the public;
- Conejos County OEM established a process for disseminating information about natural hazards and disasters to participating jurisdictions and the public via social media;
- New snow fences were installed at various locations in the county;
- Conejos County OEM and public safety agencies within the county established the Everbridge communications system for notifying responders and sharing critical information during emergencies and disasters;
- Analyses of treatments at sewer lagoon systems were completed by the towns of La Jara and Romeo.

Table 5.2 Status of 2010 Mitigation Actions

2010 Mitigation Actions			
#	Description/Benefits	Lead Agency	Status
<b>Conejos County</b>			
1	Create and post flash flooding warning signs in appropriate locations.	Conejos County OEM	Complete - portable variable message boards acquired to display public warning information
2	Increase awareness of existing wildfire red flag warnings for ditch burns.	Conejos County OEM	Ongoing - for 2016, revised to compliance with State Certified Burner Program as 2016 Mitigation Action (MA) #1
3	Consider additional staff to improve enforcement of current laws addressing burning permits.	Conejos County Sheriff	Ongoing - for 2016, revised to study of existing burn permit laws and opportunities for improving enforcement (2016 MA #2)
4	Improve communication among jurisdictions within the county by	Conejos County OEM	Complete - regular updates provided to County MAC Group via social media, in addition to regular MAC Group meetings

	developing a bi-monthly newsletter or scheduling a regular meeting.		
5	Develop a winter storm public education plan.	Conejos County OEM	Ongoing - for 2016, revised to coordination between Everbridge system and public school safety plans (2016 MA #3)
6	Identify areas for snow fence installation.	Conejos County Road & Bridge	Ongoing - new fences installed, but additional areas need protection (2016 MA #4)
7	Identify vulnerable populations and develop a plan for reaching them after a storm to ensure that they have necessities.	Conejos County Public Health	Ongoing - vulnerable populations in County identified, but preparedness planning is continuous process (2016 MA #5)
8	Identify or construct at least one safe room within each community that is accessible to the public (perhaps in a public school).	Conejos County OEM	Ongoing - public shelter planning is continuous process -- no new safe rooms built in previous 5 years (2016 MA #6)
9	Update the county website to include information about natural hazards and ways to protect people and property from damages.	County Staff	Ongoing - regular updates provided to general public via social media/Facebook (2016 MA #7)
10	Develop a subwater mitigation plan, including analysis on lagoon treatments.	Conejos County EMS	Lagoon updates completed; subwater planning is responsibility of local water conservation districts (this MA not retained for 2016 update)
11	Adopt municipal building codes.	La Jara Town Manager	Complete -- town of La Jara adopted new building codes in 2012
12	Develop a drought action plan based on state guidelines.	Rio Grande WCD	Responsibility of local water conservancy districts (this MA not retained for 2016)
13	Develop warning and evacuation plans to address dam failure.	Conejos County OEM	Responsibility of dam owners (this MA not retained for 2016)
14	Work with the SLV GIS/GPS Authority to identify at-risk subdivisions and provide information to residents about the wildfire risk and ways to protect people and structures.	Conejos County OEM	Ongoing - for 2016, revised to remove reference to SLV GIS/GPS Authority and add areas that may become isolated in flood events (2016 MA #8)
15	Educate code enforcement staff about NFIP requirements and promote participation by residents and business-owners in the NFIP.	Conejos County OEM	Ongoing - for 2016, revised to promote NFIP and practice effective floodplain and stormwater management (2016 MA #9)
16	Review and update maintenance and Emergency Action Plans for dams.	Conejos County OEM	For 2016, revised to participate in EAP updates and exercises (2016 MA #10)
<b>Town of La Jara</b>			
17	Adopt municipal building codes.	La Jara Town Manager	Complete - Town adopted ICC 2012 codes
18	Identify or construct at least one safe room within each community that is accessible to the public (perhaps in a public school).	La Jara Town Manager	Ongoing - public shelter planning is continuous process - no new safe rooms built in previous 5 years (2016 MA #19)
19	Develop a subwater mitigation plan, including analysis on lagoon treatments.	La Jara Town Manager	Lagoon updates completed; subwater planning is responsibility of local water conservation districts (this MA not retained for 2016)

20	Educate code enforcement staff about NFIP requirements and promote participation by residents and business-owners in the NFIP.	La Jara Town Manager	Ongoing - for 2016, revise to promote NFIP and practice effective floodplain and stormwater management (2016 MA #20)
<b>Town of Romeo</b>			
21	Identify or construct at least one safe room within each community that is accessible to the public (perhaps in a public school).	Town of Romeo	Ongoing - public shelter planning is continuous process -- no new safe rooms built in previous 5 years (2016 MA #27)
22	Develop a subwater mitigation plan, including analysis on lagoon treatments.	Town of Romeo	Lagoon updates completed; subwater planning is responsibility of local water conservation districts (this MA not retained for 2016)
23	Adopt municipal building codes.	Town of Romeo	Not complete - for 2016, revised and included as MA #28
24	Educate code enforcement staff about NFIP requirements and promote participation by residents and business-owners in the NFIP.	Town of Romeo	Town of Romeo does not participate in the NFIP (this MA not retained for 2016)

### 5.6 2016 Mitigation Actions

The Planning Team ranked proposed mitigation actions high, medium, or low based on the County's goals. The results of this effort are summarized in Table 5.3 below, including a description of each mitigation action, the action's priority, and the lead agency. Although severe winter storms are the most likely hazard to occur in Conejos County, the Planning Team is concerned that prolonged drought conditions in the region will continue to lead to beetle-infestations and an increase in the frequency and severity of wildfire events. As a result, three of the seven High Priority Mitigation Actions in 2016 will address the wildfire hazard (Mitigation Actions #1, #8 and #13) and three of the High Priority projects will address the severe winter storm hazard (Mitigation Actions #4, #5 and #12).

For certain natural hazards that towns in eastern Conejos County have in common, there also exist common solutions that can be transferred between communities. Two examples are establishing safe shelters in each town and adopting building codes for new construction where they don't currently exist, both of which remain a priority for town officials.

The Conejos County Emergency Manager conducted one-on-one interviews with representatives of each of the five towns to develop new mitigation actions and to determine which of the previous actions are still relevant and should be continued. The mitigation actions identified for each of the towns in Table 5.3 below have been vetted and validated by Town officials for inclusion in the updated plan. At least one new mitigation action has been identified for each community and Town officials reauthorized several actions from the 2010 plan that were not completed.

Table 5.3 below identifies mitigation actions, lead agencies, hazards addressed, and priorities for each of the participating jurisdictions.

Table 5.3 Mitigation Action Matrix, 2016 Mitigation Actions

2016 Mitigation Actions				
#	Description/Benefits	Lead Agency	Hazard	Priority
<b>Conejos County</b>				
1	Adopt Colorado Certified Burner program endorsed by the Colorado Division of Fire Prevention and Control and increase awareness of existing wildfire red flag warnings for ditch burns.	Conejos County Sheriff/Conejos County OEM/Fire Protection Districts	Wildfire	High
2	Conduct study of existing burn permit laws and identify opportunities for improving enforcement.	Conejos County Sheriff/OEM	Wildfire	Medium
3	Facilitate coordination between Everbridge notification system and public school safety plans to improve communication in winter storms and other events.	Conejos County OEM and school districts	All Hazards	Medium
4	Identify areas for snow fence installation.	Conejos County Road & Bridge	Severe Winter Storm	High
5	Identify vulnerable populations and develop a plan for reaching them after a severe storm or natural hazard event to ensure that basic needs are being met.	Conejos County Public Health	All Hazards	High
6	Identify or construct at least one safe shelter within each community that is accessible to the public (perhaps in a public school).	Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
7	Provide regular updates to the general public via social media (Facebook), to include information about natural hazards and ways to protect people and property from damages.	Conejos County OEM	All Hazards	Medium
8	Identify subdivisions at risk to wildfire and areas that could become isolated in a flood and provide preparedness information to local residents.	Conejos County OEM	Flood, Wildfire	High
9	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices.	Conejos County OEM	Flood	Medium
10	Participate in Emergency Action Plan updates and exercises for dams that could potentially affect people and property in Conejos County.	Conejos County OEM	Dam Failure	Medium
11	Seek updated FEMA digital flood maps (DFIRMs) from FEMA and the Colorado Water Conservation Board.	Conejos County OEM	Flood	High
12	Work with the State of Colorado and the National Weather Service to identify funding and support for the placement of a Doppler radar tower in the area to improve weather predictions and warnings.	Conejos County OEM	Flood, Hail, Lightning, Tornado, Severe Winter Storm	High
13	Improve education and awareness of fuels reduction techniques in wildland-urban interface areas.	Local Fire Districts/Colorado State Forest Service	Wildfire	High

<b>Town of Antonito</b>				
14	Minimize new development in dam inundation zones and educate public on relevant information about dam structures and warning/evacuation plans for downstream communities.	Town of Antonito/Conejos County OEM	Flood	Medium
15	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Town of Antonito/Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
16	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Town of Antonito	All Hazards	Medium
17	Provide guidance and educational materials to property owners in the Antonito area to enhance local wildfire mitigation efforts, including fuel reduction, defensible-spacing, weed abatement, brush management, open-burn coordination, and use of fire-resistant building materials.	Town of Antonito/South Conejos County FPD/Conejos County OEM/Colorado State Forest Service	Wildfire	Medium
18	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain/stormwater management practices.	Town of Antonito	Flood	Medium
<b>Town of La Jara</b>				
19	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Town of La Jara/Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
20	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices.	Town of La Jara	Flood	Medium
21	Identify, evaluate and implement mitigation opportunities for reducing the vulnerability of the Town's municipal water system from natural hazards.	Town of La Jara	Lightning, Flood, Severe Winter Storm	Medium
<b>Town of Manassa</b>				
22	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Town of Manassa/Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
23	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Town of Manassa	All Hazards	Medium
24	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices.	Town of Manassa	Flood	Medium
25	Provide backup power to Town Hall and designated shelter facilities, fixed generator or pre-wiring buildings so that they can accept portable generators when needed.	Town of Manassa	All Hazards	Medium

<b>Town of Romeo</b>				
26	Provide backup power to critical facilities and designated shelter facilities, by fixed generator or pre-wiring buildings so that they can accept portable generators when needed.	Town of Romeo/Conejos County OEM	Flood, Severe Winter Storm, Windstorm	Medium
27	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Town of Romeo/Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
28	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Town of Romeo	All Hazards	Medium
<b>Town of Sanford</b>				
29	Provide guidance and educational materials to property owners in the Sanford area to enhance local wildfire mitigation efforts, including fuel reduction, defensible-spacing, weed abatement, brush management, open-burn coordination, and use of fire-resistant building materials.	Town of Sanford/ South Conejos County FPD/ Conejos County OEM/ Colorado State Forest Service	Wildfire	Medium
30	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Town of Sanford/Conejos County OEM	Tornado, Windstorm, Severe Winter Storm	Medium
31	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Town of Sanford	All Hazards	Medium

## 5.7 Mitigation Funding Sources

The Colorado Division of Homeland Security and Emergency Management (DHSEM) Mitigation Team is the primary state entity responsible for coordinating and facilitating technical assistance for local hazard mitigation planning. The mission of the Mitigation Team is to promote community resiliency and sustainability for the people of Colorado by fostering partnerships and maximizing the availability of mitigation and recovery resources.

### Federal Programs

Federal mitigation programs serve as critical funding sources to reduce the risk of natural hazards to Colorado's people, property, environment, and economy. Colorado and its mitigation partners attempt to maximize the application of federal funding from FEMA, USDA, USACE, HUD, SBA, and other agencies each year. Mitigation money from FEMA supports several mitigation projects each year. The State will continue to apply for mitigation grants through the Hazard Mitigation Assistance (HMA) Program, specifically its Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation (PDM) grants, as the availability of funds is announced. These grants support the development of local hazard mitigation plans as well as construction activities.

Education projects, outreach programs, repeater sites, early detection and warning/notification systems, generators for backup power, and chippers for slash and mulch projects are very popular in Colorado. Local communities are constantly seeking sources of



funding to maintain programs and install or upgrade systems. Unfortunately, funds for these types of projects are limited and the need strongly outweighs the availability. In spite of this, Colorado communities have made great strides and progress in prevention and preparedness activities and continue to do more each year by taking advantage of limited opportunities.

### State Programs

The state has loan and grant programs for which mitigation activities are eligible. Funding sources traditionally used have been energy impact funds, gaming funds, general funds, and severance tax funds. Many state agencies have grant programs, including, but not limited to, DHSEM, Colorado State Forest Service and the Departments of Agriculture, Local Affairs, and Natural Resources.

State agencies continually work to identify new strategies for implementing mitigation projects, including new funding sources. The DHSEM Mitigation Team works with local communities to expand the number of FEMA HMA programs for which communities are eligible to qualify.

# Chapter Six

## Plan Adoption, Maintenance and Evaluation

### 6.1 Formal Plan Adoption

Following approval by the Conejos County Hazard Mitigation Planning Team (Planning Team), the next step in the process of local adoption is the submission of the final draft document to the Colorado Division of Homeland Security and Emergency Management (CDHSEM) for state-level review and recommended changes prior to FEMA review. FEMA then reviews the plan and, pending any further recommended changes, issues a notice that the plan is Approved Pending Adoption (APA) by the governing body of each participating jurisdiction. The plan must be formally adopted by participating jurisdictions within one calendar year of receiving notice of APA status.

### 6.2 Plan Maintenance and Evaluation

Regular maintenance of this plan will help maintain a focus on hazards that pose the greatest risks and on the recommended measures for reducing future potential hazard losses. The Conejos County Emergency Manager will serve as the primary point of contact and will coordinate all local efforts to monitor, evaluate, and update this plan. Participating jurisdictions and individual departments are responsible for implementing their specific mitigation actions and reporting on the status of these actions to the Emergency Manager.

Plan maintenance involves an ongoing effort to monitor and evaluate the implementation of identified action items in the plan, and to update the plan as progress, opportunities, obstacles, or changing circumstances are encountered.

The Planning Team will convene at least once each year to review and update the status of recommended mitigation actions. The Emergency Manager will schedule these meetings and invite members of the Planning Team to attend. At this review meeting, the Planning Team will review new hazards data or studies, discuss new capabilities or changes in capabilities, consider any input received from the public, evaluate the effectiveness of existing mitigation actions, and modify or add mitigation actions.

The results of the formal review meeting will be captured by the Emergency Manager and summarized in an annual progress status report. These progress status reports will guide and inform future five-year plan updates. Throughout the year, the Emergency Manager will monitor the progress of mitigation efforts through site visits, phone calls and/or emails with the agencies responsible for mitigation actions.

Updates to this plan will follow the most current FEMA and CDHSEM planning guidance. The Emergency Manager will initiate a five-year plan update process within the time necessary to ensure that the current plan does not expire before the updated plan is approved. The schedule should allow time for contracting of technical or professional services, state and FEMA reviews, revisions based on FEMA review comments, and the formal adoption process.

### 6.3 Mitigation Actions and Other Plans and Programs

Mitigation is most successful when it is incorporated within the day-to-day operations of land use planning, road and bridge/public works, public health and other mainstream functions of local government. Multi-objective projects that mutually benefit partners and stakeholders are usually more cost-effective and more-broadly supported. Many other local plans present opportunities to address hazard mitigation in a way that can support multiple community objectives.

Ideally, identified mitigation actions should be implemented through existing plans and policies, which already have support from the community and policy makers. The incorporation of elements of this plan into existing planning mechanisms requires coordination between the Emergency Manager and the staff of each department responsible for implementing specific mitigation actions.

The Emergency Manager, with support and guidance provided by the Planning Team, will work with the responsible agencies to incorporate this Plan into the following existing planning mechanisms:

- Conejos County Comprehensive Plan
- Conejos County Emergency Operations Plan
- Current/future master plans of the other participating jurisdictions
- Zoning, subdivision, and floodplain ordinances
- Capital improvement plans and county and municipal budgets
- Other plans and policies outlined in the capability assessment

The Risk Assessment (Chapter Four) included in this plan provides data, analysis, and maps that can be integrated into other plans to inform policies and decision-making. Considering hazard information in land use plans, zoning and subdivision codes, and the development review process is a proven method for guiding future development away from identified hazard areas. This information can also be used to design and site future public facilities to minimize exposure to hazards.

### 6.4 Continued Public Involvement

In order to provide an ongoing opportunity to raise community awareness of natural hazards, this plan will be posted on the County web page and public comments can be addressed to the Emergency Manager at the contact information provided. The five-year update process provides an opportunity to build public support by publicizing success stories related to implementation of mitigation actions.

All stakeholders in the planning process will be invited to participate in the next five-year update of this plan and additional participation will be solicited from the public, partner agencies, new entities and community groups in the future. The plan maintenance and update process will include continued opportunities for public and stakeholder involvement and input through attendance at open public meetings, web postings, and press releases to local media.

In addition, the Emergency Manager and other members of the Planning Team will identify opportunities to raise community awareness, including attendance and provision of materials

at county, municipal, and school-sponsored events, activities of the fire protection districts, and through the American Red Cross and public mailings.

All public comments received about the plan will be collected by the Emergency Manager, incorporated into mitigation progress status reports, and considered in future plan updates.

# Chapter Seven

## Regional Coordination

### 7.1 Tradition of Regional Cooperation

The natural hazards profiled in this plan are common throughout the region and are the same 12 hazards profiled in the updated plans of each of the partner counties.

Natural hazards affect all of these counties without respect for political boundaries. As a result, these five counties routinely share resources during emergencies and maintain a strong tradition of cooperative planning. The 2016 update of these plans further demonstrates the region's commitment to reducing risks from natural hazards. Regional cooperation allows counties to stretch resources, share best practices, and potentially implement more mitigation actions.

Conejos County and its partner counties in the San Luis Valley cooperatively obtained a federal grant to develop 2016 updates to county-level hazard mitigation plans concurrently. In addition, the five Emergency Managers and other stakeholders met collectively to identify opportunities for collaborating on regional mitigation efforts in the San Luis Valley. The results of the most recent (2015) regional Threat Hazard Identification and Risk Assessment (THIRA) were discussed to determine where potential mitigation actions in this plan might dovetail with priorities identified in the THIRA.

For the 2016 update of this plan, priority risks identified in the THIRA, specifically wildfires and long-term power disruptions, were considered in the risk assessment process and in the development of new mitigation actions. As a result, two of the four regional mitigation actions identified in this chapter address these cross-cutting concerns. Through regional collaboration, the San Luis Valley is taking advantage of shared resources, engaging regional expertise, and preventing duplication of efforts to ensure that communities in the Valley continue building resiliency to natural disasters.

### 7.2 Regional Hazard Events Since 2010

Several significant natural hazard events have occurred since the last update of this plan, most notably the West Fork Fire Complex in June 2013, a federally-declared fire emergency that cost more than \$31 million to contain. The West Fork Complex Fire burned 109,615 acres, making it the second largest wildfire in modern Colorado history. The fire demonstrated extreme behavior as a result of dead fuels, primarily pine- and spruce-beetle killed trees, high winds and drought conditions. Although the fire threatened a number of neighborhoods and caused the evacuation of the Town of South Fork for several days, there were no fatalities as a result of the event and no structures were lost. Information about that event, as well as other smaller-scale events, is provided in the table below.

Table 7.1 Significant Regional Events, 2010-2016

Incident	Date(s)	Location	Impacts
<b>Streams Lake Fire</b>	May 31-June 2, 2013	Mineral County	Approximately 100 acres of forest burned
<b>West Fork Fire Complex</b>	June 5-July 31, 2013	Mineral County	109,615 acres burned; FEMA PA Grant: \$7.9 million
<b>Flood-Crestone</b>	June 4-June 16, 2015	Saguache County, Town of Crestone	Federally declared for Public Assistance (DR-4229); >\$100,000 damage to roads and bridges
<b>High Water Event</b>	June 8, 2015	Conejos County	County bridge on CR 13 damaged and closed for several days
<b>Ice Jam Flood</b>	December 28, 2015	Conejos County	Ice dam at CR H and CR 13 caused water to approach homes; 3-day effort by Road/Bridge to clear ice
<b>Beaver Park Dam Incident</b>	February 24-March 20, 2016	Rio Grande County	Depressions on dam embankment triggered drawdown of reservoir until stabilization work completed

Source: After-Action Reports 2010-2016, Colorado Division of Homeland Security and Emergency Management

As a result of prolonged drought conditions in and around the San Luis Valley, forests and grasslands have been and continue to be extremely dry, leading to regular recurrence of wildfire incidents. Communities in the Valley are also vulnerable to severe weather events and loss of power as a result of unique conditions related to Doppler radar coverage and the lack of a reliable backup source of electricity. Finally, local land use decisions about development in and near floodplains are hampered by old, outdated flood maps.

### 7.3 Regional Mitigation Actions

The regional mitigation actions presented in this chapter are also included as county mitigation actions and have been identified as high priority actions by the SLV Steering Committee. The purpose of highlighting these four actions is to draw attention to recommended actions, engage potential partners, and hopefully improve opportunities for financial assistance from government and the private sector. By emphasizing the importance of these mitigation actions to the entire region, the intent is to improve opportunities for implementation through strength in numbers.

#### Regional Mitigation Action #1 - Improve Wildfire Awareness and Public Compliance with Burn Restrictions

- Priority: High
- Problem
  - The combination of an extended drought in the Valley and extensive pine- and spruce-beetle kill in the forests has resulted in unprecedented fuel accumulation, or fuel loads, that allows wildfires and grassfires to ignite more easily, spread quickly and burn more intensely.
- Proposed Action
  - (1) Develop county-level plans to support information-sharing during Red Flag warnings;
  - (2) Adopt Colorado Certified Burner Program (CBP) endorsed by the Colorado Division of Fire Prevention and Control and increase awareness of existing wildfire Red Flag warnings for ditch burns.

- Potential Partners/Funding Sources
  - Fire Protection Districts, Colorado Division of Fire Prevention and Control, Colorado State Forest Service, County Sheriff and Emergency Management, Colorado Division of Homeland Security and Emergency Management

#### Regional Mitigation Action #2 - Improve Doppler Radar for Region

- Priority: High
- Problem
  - Insufficient weather radar coverage in wide area including the San Luis Valley and Four Corners area (including the three bordering states), resulting in challenges for warning coordination meteorologists in providing timely warning and watch information related to severe weather events, including flash flooding, hail and lightning.
- Proposed Action
  - Obtain funding and support to place another Doppler radar tower in the SLV area to improve weather predictions and warnings.
- Potential Partners/Funding Sources
  - National Weather Service, Colorado Division of Homeland Security and Emergency Management, local funds

#### Regional Mitigation Action #3 - Plan for Power Grid Disruptions and Failure

- Priority: High
- Problem
  - There is no “loop” in the grid to provide an alternate power source in the Valley -- in a prolonged power outage, electricity, communications, normal emergency services, fuel, sanitation, food, medications and public transportation may all be unavailable.
- Proposed Action
  - Continue to support the efforts of public health, emergency management and nonprofit organizations to expand awareness of natural hazards, strengthen family and business emergency preparedness, identify and equip public shelters, and identify and support the needs of people with disabilities and other vulnerable population groups.
- Potential Partners/Funding Sources
  - SLV Emergency Preparedness and Response (EPR), County Public Health, American Red Cross

#### Regional Mitigation Action #4 - Flood Mapping/Seek Updated DFIRMs

- Priority: High
- Problem
  - A common issue with many communities in the San Luis Valley is outdated flood maps that make it difficult to make informed decisions on the ground by local land use staff.
- Proposed Action



- (1) Determine process for requesting updated flood maps and whether a schedule exists for modernizing local maps;
- (2) Identify state and/or agencies to direct requests for updated mapping and procedures for petitioning the agencies to expedite mapping;
- (3) Determine benefits if any to coming together to make a joint, multi-county request.
- Potential Partners/Funding Sources
  - Colorado Water Conservation Board (CWCB), FEMA, Colorado Division of Homeland Security and Emergency Management

Facilitation, monitoring and implementation of these regional mitigation actions will be the responsibility of the San Luis Valley Hazard Mitigation Steering Committee and other agencies and individuals that participate in collaborative planning within the San Luis Valley All-Hazards Region.



West Fork Fire Complex, Mineral County, June 2013

# Appendices

- A. Acronyms
- B. Plan Participants
- C. References and Resources
- D. Documentation of the Planning Process
- E. Disaster Mitigation Act of 2000 (DMA 2000) Summary
- F. FEMA Plan Review Tool (Pending)
- G. Record of Adoption (Pending)

# Appendix A

## Acronyms

ARC	American Red Cross
BFE	Base Flood Elevation (The 100-year-flood, the 1% event)
CDHSEM	Colorado Division of Homeland Security and Emergency Management
CDOT	Colorado Department of Transportation
CGS	Colorado Geological Survey
CDPHE	Colorado Department of Public Health & Environment
CRS	Community Rating System
CSFS	Colorado State Forest Service
CSP	Colorado State Patrol
CWCB	Colorado Water Conservation Board
DFIRM	Digital Flood Insurance Rate Map
DFPC	Division of Fire Protection and Control (Department of Natural Resources)
DHS	U.S. Department of Homeland Security
DMA	Disaster Mitigation Act (2000)
DNR	Department of Natural Resources
DOLA	Department of Local Affairs
DWR	Division of Water Resources (Department of Natural Resources)
DWSA	Drought & Water Supply Assessment
EAP	Emergency Action Plan
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHBM	Flood Hazard Boundary Map
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
GIS	Global Information System

HMGP	Hazard Mitigation Grant Program
LEOP	Local Emergency Operations Plan
LOMR	Letter of Map Revision
NCEI	National Centers for Environmental Information (formerly the National Climatic Data Center)
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resource Conservation Service
NWS	National Weather Service
PDM	Pre-Disaster Mitigation (Program)
RMIIA	Rocky Mountain Insurance Information Association
SBA	Small Business Administration
SDO	State Demographic Office
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Officer
SLV EPR	San Luis Valley Emergency Preparedness and Response
SLV RETAC	San Luis Valley Regional Emergency Trauma Advisory Council
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
WUI	Wildland Urban Interface

# Appendix B

## Plan Participants

### Conejos County Hazard Mitigation Planning Team

Participant	Position	Jurisdiction/ Department	Email Address
Jeff Babcock	HS Coordinator	CDHSEM	jeff.babcock@state.co.us
Gary Bailey	Mayor	Town of Sanford	(719) 274-4382
Dan Bond	Mayor	Town of Manassa	(719) 843-5207
Jean Borrego	HS Coordinator	CDHSEM	slvhls5@gmail.com
Diana Cantu	Mayor	Town of Romeo	dcantu@northconejos.com
Chris Crown	Undersheriff	CCSO	chris.crown@co.conejos.co.us
Cameron Decker		SLV ARCC/CSP	cameron.decker@cdps.state.co.us
Linda DeHerrera		CC Land Use Office	linda@co.conejos.co.us
April Dominguez		CC Sheriff's Office	aprilseriah79@yahoo.com
Paul Duarte		USFS	paul.duarte@state.co.us
Paul Duran	Chief	Antonito FD	paulduran@yahoo.com
Connie Edgar	Public Health	Conejos County	connie@co.conejos.co.us
Alice Espinoza	Town Clerk	Town of Romeo	aliceoza@gmail.com
Jim Felmlee	Emergency Manager	Saguache County	jfelmlee@saguachecounty-co.gov
Lawrence Gallegos	County Clerk	Conejos County	lawrence.gallegos@co.conejos.co.us
Patricia Gavelda	Mitigation Program Mgr.	CDHSEM	patricia.gavelda@state.co.us
Devin Haynie		CDFPC	devin.haynie@state.co.us
Andrea Jones	District Ranger	USFS	amjones@fs.fed.us
Rodney King	Emergency Manager	Conejos County	rodneykk@hotmail.com
Ruby King	Volunteer	CC OEM	(719) 588-5135
Dennis Koenig	Town Manager	Town of La Jara	lajaratownmanager@gmail.com
Brent Lehto		CC Hospital	brent.lehto@slvrnc.org
Chad Lewis	FMO	USFS	chadlewis@fs.fed.us
Jerry Lujan		La Jara PD	jlujan@lajarapolicedept.com
Robert Marquez		NWFPD	robertmarquez@centurytel.com
Richard Martin	Coroner/CCFPD	Coroner/CCFPD	imrichardmartin@hotmail.com
Jon Montano	Coordinator	SLV RETAC	slvretac@gmail.com
Matt Montoya		CCSO/LJFD	montoyamat21@gmail.com
Adam Moore	District Forester	CSFS	adam.moore@colostate.edu
David Osborn	SLV Field Manager	CDHSEM	david.osborn@state.co.us
Carol Osburn	Volunteer		cosbornslv@gmail.com
Shawn Pagnotta	Town Clerk	Town of La Jara	lajaratownclerk@yahoo.com
Chris Rodriguez	Emergency Manager	Costilla County	chris.rodriguez@costillacounty-co.gov
Linda Smith	Coordinator	SLV EPR	lsmith@alamosacounty.org
Francis Song	Emergency Manager	Alamosa County	fsong@alamosacounty.org
Steven Sorensen		Romeo FD	stvsorensen@gmail.com
Joleen Trujillo	Public Health Planner	SLV EPR	jtrujillo@alamosacounty.org
Austin Valdez		La Jara FD	avaldezncs@yahoo.com
Lionel Valdez		Capulin FD	lionelv@jojade.org
Terry Wetherill	Emergency Manager	Mineral County	mincoemc@gmail.com
Curt Wilson		NCSD	cwilson@northconejos.com

# Appendix C

## References and Resources

Colorado Department of Local Affairs, [www.dola.colorado.gov](http://www.dola.colorado.gov)

Colorado Department of Public Health and Environment, [www.colorado.gov/pacific/cdphe](http://www.colorado.gov/pacific/cdphe)

Colorado Department of Transportation, [www.codot.gov](http://www.codot.gov)

Colorado Division of Homeland Security and Emergency Management,  
[www.coemergency.com](http://www.coemergency.com)

Colorado Drought Mitigation and Response Plan, August 2013, Colorado Water Conservation Board

Colorado Flood Hazard Mitigation Plan, November 2013, Colorado Water Conservation Board

Colorado Geological Survey (CGS), [coloradogeologicalsurvey.org](http://coloradogeologicalsurvey.org)

Colorado Natural Hazards Mitigation Plan, December 2013, Colorado Division of Homeland Security and Emergency Management

Colorado State Demography Office, [www.dola.colorado.gov/dlg/demog](http://www.dola.colorado.gov/dlg/demog)

Colorado State Forest Service, [csfs.colostate.edu/wildfire-mitigation](http://csfs.colostate.edu/wildfire-mitigation)

Colorado Water Conservation Board (CWCB), [cwcb.state.co.us](http://cwcb.state.co.us)

Department of Homeland Security, [www.ready.gov](http://www.ready.gov)

Federal Emergency Management Agency, [www.fema.gov](http://www.fema.gov)

Federal Guidelines for Emergency Action Planning for Dams, FEMA P-64, July 2013, FEMA

Local Mitigation Planning Handbook, March 2013, FEMA

Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards, January 2013, FEMA

National Centers for Environmental Information (formerly National Climatic Data Center),  
[www.ncdc.noaa.gov](http://www.ncdc.noaa.gov)

National Lightning Safety Institute, [www.lightningsafety.com](http://www.lightningsafety.com)

National Institute of Building Sciences, Multihazard Mitigation Council, [www.nibs.org](http://www.nibs.org)

National Oceanic and Atmospheric Administration (NOAA), National Weather Service,  
[www.nws.noaa.gov](http://www.nws.noaa.gov)

Rocky Mountain Insurance Information Association (RMIIA), [www.rmiiia.org](http://www.rmiiia.org)

Spatial Hazard Event and Losses Database for the United States (SHELDUS), University of South Carolina

*State Engineer's 27<sup>th</sup> Annual Report on Dam Safety to the Colorado General Assembly*, Division of Water Resources (April 2013)

The Geological Society of America, [geology/gsapubs.org](http://geology/gsapubs.org)

Threat Hazard Identification and Risk Assessment, San Luis Valley Region, April 2015

Understanding Your Risks: Identifying Hazards and Estimating Losses, August 2001, FEMA

U.S. Census Bureau



# Appendix D

## Documentation of the Planning Process

### Contents

Kickoff Meeting Summary

Information Collection Tool

Mid-Project Progress Report

Public Comment/Feedback Form

Mitigation Action Workshop Meeting Summary

Identifying and Prioritizing Mitigation Actions

Letters of Intent (Under Separate Cover)

Planning Team Meeting Sign-In Sheets (Under Separate Cover)

2016 Conejos County Hazard Mitigation Plan Update  
Kickoff Meeting  
March 16, 2016  
5:00-6:30  
La Jara, Colorado

## **Meeting Summary**

The initial planning meeting to update the Conejos County Hazard Mitigation Plan was conducted on March 16, 2016, 5:00-6:30, in La Jara, Colorado. Twenty-seven (27) attendees representing more than 20 local, regional and state agencies participated in the kickoff meeting, including mayors and other representatives from the towns of La Jara, Romeo and Sanford. The meeting agenda included an overview of the plan update process, a discussion of potential mitigation projects and funding sources, and a discussion of risks associated with natural hazards in Conejos County.

## **Project Overview**

Rodney King, Conejos County Emergency Manager, welcomed the group, led introductions, and provided an overview of the project. By participating in the plan update process, Mr. King explained, Conejos County and its local government partners remain eligible for federal hazard mitigation grants, including Pre-Disaster Mitigation (PDM), Hazard Mitigation Grant Program (HMGP), and Flood Mitigation Assistance (FMA) grants from the Federal Emergency Management Agency (FEMA). The process of updating the previous (2010) plan will take approximately six months, culminating in September 2016.

To assist in completing plan updates, Conejos County partnered with four neighbors (Alamosa, Mineral, Rio Grande and Saguache Counties) to obtain a federal grant and hire a planning consultant.

### **Project Team**

- Project Manager: Rodney King, Emergency Manager
- Conejos County Planning Team
- Consultant: Robert “Bob” Wold

### **Technical Planning Assistance**

- San Luis Valley Hazard Mitigation Steering Committee (Emergency Managers from Alamosa, Conejos, Mineral, Rio Grande and Saguache Counties)
- Patricia Gavelda, Local Hazard Mitigation Planning Program Manager, Colorado Division of Homeland Security and Emergency Management
- David Osborn, San Luis Valley Regional Field Manager, Colorado Division of Homeland Security and Emergency Management

## **Hazard Mitigation Overview**

Mr. Wold provided an overview of hazard mitigation concepts, benefits, projects, and the requirements for local participation as per the Disaster Mitigation Act of 2000 (DMA 2000). Mr. Wold reviewed the types of projects that are eligible for grant-funding and that have been funded to address flood, wildfire, geologic and other natural hazards in Colorado. During the period 2011-present, 105 projects totaling \$85,473,423 were approved for funding in Colorado for a range of flood reduction, wildfire mitigation, landslide stabilization, planning grants and other types of projects.

## Hazard Mitigation Plan Update Process

Mr. Wold outlined the key steps, timelines, and federal requirements for meeting deadlines related to state review and FEMA approval. The process includes an opportunity for the public to comment on the plan prior to federal approval and local plan adoption. An open public meeting will be conducted in September 2016 and a draft of the updated plan will be posted online to allow citizens to submit comments.

The updated plan will identify opportunities for reducing risks and mitigating future losses from natural hazard events. Mr. Wold discussed the step-by-step process for updating the plan, including determining current risks, vulnerabilities and capabilities and identifying opportunities for implementing specific mitigation actions. Conejos County Planning Team members will support the process by attending planning meetings, assisting with data acquisition, and reviewing and approving the final draft before submittal to the State and FEMA.

## Risk Assessment

Due to time limitations, a discussion of the 12 natural hazards profiled in the previous 2010 plan, in terms of probability and potential consequences, was not completed. Following the meeting, County Planning Team members were provided with a risk assessment worksheet that rated hazards according to probability and magnitude/severity (concurrence on hazard ratings will be finalized at the mid-project review in July 2016).

To clarify distinctions between commonly-used hazard assessment terms, the following definitions are provided from FEMA's Local Mitigation Planning Handbook (2013):

### Hazard Assessment Terminology

**Natural hazard** - source of harm or difficulty created by a meteorological, environmental, or geological event

**Community assets** - the people, structures, facilities, and systems that have value to the community

**Vulnerability** - characteristics of community assets that make them susceptible to damage from a given hazard

**Impact** - the consequences or effects of a hazard on the community and its assets

**Risk** - the potential for damage, loss, or other impacts created by the interaction of natural hazards with community assets

**Hazard assessment** - product or process that collects information and assigns values to risks for the purpose of informing priorities, developing or comparing courses of action, and informing decision making

**Threat or human-caused incident** - intentional actions of an adversary, such as a threatened or actual chemical or biological attack or cyber event.

## Potential Mitigation Actions

Mitigation Actions established in the previous (2010) version of the plan will be reviewed to determine which were accomplished, which are in process, which are ongoing and which should be removed because they are no longer feasible. The County Planning Team will also attempt to identify new Mitigation Actions that can be implemented in the next five-year period. Mr. King discussed one possible new Mitigation Action to improve weather predictions and warnings in Conejos County and surrounding counties by obtaining a new Doppler radar tower for the SLV region.

## Plan Development Timeline

PRIMARY TASKS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1. Conduct Initial Plan Development Strategy Meeting									
2. Form/Reconvene County Planning Team									
3. Conduct Kickoff Meeting									
4. Develop Public Involvement Strategy									
5. Document Planning Process									
6. Conduct Risk Assessment Research/Complete HIRA									
7. Conduct Vulnerability Assessment									
8. Conduct Capability Assessment									
9. Identify 2016 Mitigation Goals and Objectives									
10. Develop a Mitigation Strategy (Mitigation Actions)									
11. Prepare a Final Draft Plan									
12. Submit Final Draft to State/FEMA for Approval									

## Future Planning Team Meetings/Next Steps

The Emergency Manager and/or contractor will reach out to County Planning Team members as needed for help in acquiring data or other information needed to update the plan. One additional County Planning Team meeting will be conducted in July to finalize the risk assessment and identify 2016 mitigation actions. In September, a final meeting will be held to discuss the final draft document and provide an opportunity for citizens to attend and offer input.

## Information Collection Tool Conejos County

1. Demographic Information
2. Vulnerability Assessment
3. Capability Assessment
4. Status of 2010 Mitigation Actions

### 1. Demographic Information

Demographic Information			
	County	Towns	Others
<b>Facts and Figures</b>			
Latitude			
Longitude			
Land Area (Square Miles)			
Elevation			
Population (2010)			
Population 2014 (ACS 5-Year Estimated)			
Population (2015 Estimated)			
<b>Population Characteristics</b>			
Median Age			
Population 65 Years and Over			
Female Population			
Male Population			
Average Household Size (2010)			
Average Family Size (2010)			
Percent of Total Population with Disabilities			
Residents w/Disabilities less than 18 Years Old			
Residents with Disabilities 18-64 Years Old			
Residents with Disabilities over 65 Years Old			
Residents with Health Insurance Coverage			
Percent of Residents with High School Degree			
Percent of Residents with Bachelor's Degree			
<b>Economic and Housing Statistics</b>			
Median Household Income			
Percent of Total Population that is Unemployed			
Percent of Families Living below Poverty Level			
Percent of People Living below Poverty Level			
Total Housing Units			
Vacant Housing Units			
Homeowner Vacancy Rate			
Rental Vacancy Rate			
Net Building Permits			

## 2. Vulnerability Assessment

Vulnerability Assessment			
	County	City	Town
Number of Structures			
Value of Structures			
Number of Companies			
New Critical Facilities (since 2010)			
New Major Employers (since 2010)			
Population Growth 2010-2015			
Growth in Housing Units 2005-2010			
Population Density 2010 (per Square Mile)			
Housing Density 2010 (per Square Mile)			
Projected Population Growth 2000-2050			

## 3. Capability Assessment

Capability Assessment			
	County	City	Town
<b>Regulatory Mitigation Capability</b>			
Comprehensive or Master Plan			
Emergency Operations Plan			
Economic Development Plan			
Capital Improvements Plan			
Community Wildfire Protection Plan			
2012 International Fire Code			
Building Code			
Building Code Year			
Floodplain Ordinance			
Zoning Ordinance			
Subdivision Ordinance			
Stormwater Ordinance			
Growth Management Ordinance			
Site Plan Review Requirements			
Erosion/Sediment Control Program			
Stormwater Management Program			
Flood Insurance Rate Maps (FIRMs)			
National Flood Insurance Program Participant			
Community Rating System (CRS) Participant			
<b>Administrative and Technical Resources</b>			
Planner/Engineer (with knowledge of land development practices)			
Engineer/Professional (trained in construction practices related to buildings/infrastructure)			
Planner/Engineer/Scientist (with understanding of natural hazards)			
GIS Capabilities			
HAZUS Analysis			

Full-Time Building Official
Floodplain Administrator
Emergency Manager
Grant Writer
Warning Systems/Services
<b>Financial Resources</b>
Community Development Block Grants
Capital Improvements Project Funding
Authority to Levy Taxes for Specific Purposes
Fees for Water, Sewer, Gas or Electric Services
Impact Fees for New Development
Incur Debt through General Obligation Bonds
Incur Debt through Special Tax Bonds
Withhold Spending in Hazard-Prone Areas

#### 4. Status of 2010 Mitigation Actions

Status of 2010 Mitigation Actions		
Mitigation Action	Responsible Agency	Status
<b>County</b>		
<b>City</b>		
<b>Town</b>		



**Progress Report**  
**SLV Hazard Mitigation Plan Updates**  
**June 29, 2016**

The overall process of updating the five County plans can be broken down into three categories of activity: research, planning tasks and document preparation. Highlighted sections are the tasks where help from Emergency Managers is needed; in a nutshell:

- Nail down 2016 “participating jurisdictions” (cities, towns, special districts)
- Assist with collection of needed information to help fill in the plan details
- Determine current status of 2010 Mitigation Actions
- Schedule 2<sup>nd</sup> County Planning Team meeting and final open public meeting
- Review final draft for accuracy and completeness.

**Research**

<b>Research</b>	<b>Status/Estimated Completion Date</b>
Review 2010 county hazard mitigation plans	Complete
Identify elements (text and graphics) from each 2010 plan where the information is valid/current for inclusion in 2016 updates	Complete
Research census and other demographic data to update population, housing and economic statistics for each county	Complete
Develop Hazard Worksheets for each county to facilitate updates to hazard profiles concerning hazard location, probability and severity	Complete
Collect and review after-action reports, studies and other information related to hazard events/incidents occurring 2010-2016	July 31, 2016
Review national data sets (i.e., FEMA, NOAA NCEI, SHELDUS) to update information on natural hazard events and impacts	July 31, 2016
Review latest state and federal guidance (e.g., 2013 Colorado Natural Hazards Mitigation Plan) to incorporate most current hazard data/statistics and ensure 2016 plan updates conform to standards	July 31, 2016
Collect information from participating jurisdictions to complete the Vulnerability and Capability Assessment sections of Chapter 4	August 31, 2016

**Tasks**

<b>Tasks</b>	<b>Status/Estimated Completion Date</b>
Conduct Initial Planning Meeting – SLV Steering Committee	Complete
Schedule/conduct County-Level Kickoff Meetings	Complete
Validate new and continuing Participating Jurisdictions (cities, towns, special districts) and identify and reach out to stakeholders as needed (e.g., RWEACT, Rio Grande Water Conservancy District)	July 31, 2016
Schedule and conduct a planning meeting with the SLV Hazard Mitigation Steering Committee to discuss content and mitigation actions of the regional element of each plan	August 31, 2016

Establish dates, times and locations for 2 <sup>nd</sup> County Planning Team meetings	July 31, 2016
Develop invitation, agenda, handouts and slides for 2 <sup>nd</sup> round of County Planning Team meetings	July 31, 2016
Determine status of 2010 Mitigation Actions (i.e., accomplished, complete, incomplete, ongoing, withdrawn)	August 10, 2016
Conduct 2 <sup>nd</sup> round of County Planning Team Meetings to review progress and identify 2016 mitigation actions	August 31, 2016
Schedule and conduct a planning meeting with the SLV Hazard Mitigation Steering Committee to discuss content and mitigation actions of the regional element of each plan	August 31, 2016
Establish dates, times and locations for open public meeting during the month of October to solicit public comment and input	August 31, 2016
Complete press release and public comment form and provide to EMs with final draft to post on web sites and release to media, as appropriate	September 30, 2016
Provide final draft document to County Planning Teams for review, comment, and recommended changes	September 30, 2016
Conduct one open public meeting in each county to provide a formal opportunity for public comment	October 28, 2016
Complete County Planning Team review and incorporate edits and recommended changes	October 14, 2016
Submit final draft to Colorado DHSEM for review/comment prior to submission to FEMA	October 17, 2016

### Document Preparation

The primary document preparation task is to complete final drafts by the end of the grant performance period September 30, 2016 and forward to each County Planning Team member for review and comment. (Note: contractor remains responsible for incorporating all changes recommended by County Planning Teams, Colorado DHSEM, and FEMA after the end of the grant performance period).

<b>Plan Updates</b>	<b>Status/Estimated Completion Date</b>
Frame document shell (format, organization, style, contents, headings, headers/footers, captions, bibliography)	Complete
Executive Summary	Complete
Chapter 1, Introduction	July 15, 2016
Chapter 2, Community Profile	July 31, 2016
Chapter 3, Planning Process	July 31, 2016
Chapter 4, Risk Assessment	September 16, 2016
Chapter 5, Mitigation Strategy	September 30, 2016
Chapter 6, Plan Maintenance	August 15, 2016
Chapter 7, Regional Element	September 30, 2016
Appendix Information	September 23, 2016
Bibliography	September 30, 2016

## 2016 \_\_\_\_\_ County Hazard Mitigation Plan Update

### Public Involvement Comment Form

\_\_\_\_\_ County is currently engaged in a planning process to become less vulnerable to disasters resulting from natural and human-caused hazards, and your participation is important to us!

\_\_\_\_\_ County, in cooperation with its partners and stakeholders, is now preparing a five-year update of the local hazard mitigation plan. The purpose of this Plan is to identify and assess natural hazards and determine how to best minimize or manage associated risks. Upon completion, the Plan will provide \_\_\_\_\_ County with a comprehensive hazard mitigation strategy.

This survey public comment form provides an opportunity for you to share your opinions and participate in the mitigation planning process. The information you provide will help us better understand your hazard concerns and can lead to mitigation activities that lessen the impact of future hazard events.

Please help us by completing this comment form and returning it **no later than October 20, 2016** to:

Emergency Manager: Name

Address:

Phone:

Email:

If you have comments regarding this plan, please fill them in below. All comments will be reviewed and considered by the \_\_\_\_\_ County Hazard Mitigation Planning Team.

Do you have specific comments, recommendations or corrections related to the 2016 draft of the \_\_\_\_\_ *County Hazard Mitigation Plan* (please note chapter and page number)?

In your opinion, what are some steps your local government could take to reduce or eliminate the risk of future hazard damages in your neighborhood or community?

Are there any other issues regarding the reduction of risk and loss associated with natural hazards or disasters in the community that you think are important?

**THANK YOU FOR YOUR PARTICIPATION!**

This survey may be submitted anonymously, however if you provide us with your name and contact information below we will have the ability to follow up with you to learn more about your ideas or concerns (optional):

Name:

---

Address:

---

---

Phone:

---

E-mail:

---

**Conejos County Hazard Mitigation Plan Update  
Mitigation Actions Workshop  
August 30, 2016**

**Meeting Summary**

The second and final meeting of the Conejos County Hazard Mitigation Planning Team was conducted on August 30, 2016, 5:30-7:30, at the Wagon Wheel in La Jara. The purpose of the meeting was to update the Planning Team on progress to date and to identify and discuss potential hazard mitigation actions to include in the updated plan. At the meeting, the Planning Team reviewed and evaluated a range of specific mitigation actions and projects to reduce the impacts of the hazards identified in the risk assessment.

Participants provided updates on mitigation actions identified in the 2010 plan and weighed the pros and cons of those and other proposed mitigation actions, ranking the highest priority actions for implementation. The results of the discussion at the workshop are shown in the two tables below. Table 1 provides a report on the status of each of the 2010 Mitigation Actions. Table 2 identifies the 2016 Mitigation Actions, lead agencies and priority rankings.

**Table 1. Status of 2010 Mitigation Actions**

<b>2010 Mitigation Actions</b>			
<b>#</b>	<b>Description/Benefits</b>	<b>Lead Agency</b>	<b>Status</b>
<b>Conejos County</b>			
1	Create and post flash flooding warning signs in appropriate locations	Conejos County OEM	Completed - portable variable message boards acquired to display public warning information
2	Increase awareness of existing wildfire red flag warnings for ditch burns	Conejos County OEM	Ongoing - for 2016, revise to compliance with State Certified Burner Program
3	Consider additional staff to improve enforcement of current laws addressing burning permits	Conejos County Sheriff	Ongoing - for 2016, revise to study of existing burn permit laws and opportunities for improving enforcement
4	Improve communication among jurisdictions within the county by developing a bi-monthly newsletter or scheduling a regular meeting	Conejos County OEM	Complete - regular updates provided to County MAC Group via social media, in addition to regular MAC Group meetings
5	Develop a winter storm public education plan	Conejos County OEM	Ongoing - for 2016, revise to coordination between Everbridge system and public school safety plans
6	Identify areas for snow fence installation	Conejos County Road & Bridge	Ongoing - new fences installed, but additional areas need protection
7	Identify vulnerable populations and develop a plan for reaching them after	Conejos County Public Health	Ongoing - vulnerable populations in County

	a storm to ensure that they have necessities		identified, but preparedness planning is continuous process
8	Identify or construct at least one safe room within each community that is accessible to the public (perhaps in a public school)	Conejos County OEM	Ongoing - public shelter planning is continuous process (no new safe rooms built in previous 5 years)
9	Update the county website to include information about natural hazards and ways to protect people and property from damages	County Staff	Ongoing - regular updates provided to general public via social media (Facebook)
10	Develop a subwater mitigation plan, including analysis on lagoon treatments	Conejos County EMS	Lagoon updates completed; subwater planning is responsibility of local water conservation districts
11	Adopt municipal building codes	La Jara Town Manager	Responsibility of Town of La Jara
12	Develop a drought action plan based on state guidelines	Rio Grande WCD	Responsibility of local water conservancy districts
13	Develop warning and evacuation plans to address dam failure	Conejos County OEM	Responsibility of dam owners
14	Work with the SLV GIS/GPS Authority to identify at-risk subdivisions and provide information to residents about the wildfire risk and ways to protect people and structures	Conejos County OEM	Ongoing - for 2016, revise by removing reference to SLV GIS/GPS Authority and adding areas that may become isolated in flood events
15	Educate code enforcement staff about NFIP requirements and promote participation by residents and business-owners in the NFIP	Conejos County OEM	Ongoing - for 2016, revise to promote NFIP and practice effective floodplain and stormwater management
16	Review and update maintenance and Emergency Action Plans for dams	Conejos County OEM	For 2016, revise to participate in EAP updates and exercises
<b>Town of La Jara</b>			
17	Adopt municipal building codes	La Jara Town Manager	Complete
18	Identify or construct at least one safe room within each community that is accessible to the public (perhaps in a public school)	La Jara Town Manager	Ongoing - public shelter planning is continuous process (no new safe rooms built in previous 5 years)
19	Develop a subwater mitigation plan, including analysis on lagoon treatments	La Jara Town Manager	Lagoon updates completed; subwater planning is responsibility of local water conservation districts
20	Educate code enforcement staff about NFIP requirements and promote participation by residents and business-owners in the NFIP	La Jara Town Manager	Ongoing - for 2016, revise to promote NFIP and practice effective floodplain and stormwater management
<b>Town of Romeo</b>			
21	Identify or construct at least one safe room within each community that is	Town of Romeo	Ongoing - public shelter planning is continuous process

	accessible to the public (perhaps in a public school)		(no new safe rooms built in previous 5 years)
22	Develop a subwater mitigation plan, including analysis on lagoon treatments	Town of Romeo	Lagoon updates completed; subwater planning is responsibility of local water conservation districts
23	Adopt municipal building codes	Town of Romeo	Not complete
24	Educate code enforcement staff about NFIP requirements and promote participation by residents and business-owners in the NFIP	Town of Romeo	Ongoing - for 2016, revise to promote NFIP and practice effective floodplain and stormwater management

**Table 2. Proposed 2016 Mitigation Actions**

<b>2016 Mitigation Actions</b>			
<b>#</b>	<b>Description/Benefits</b>	<b>Lead Agency</b>	<b>Priority</b>
<b>Conejos County</b>			
1	Adopt Colorado Certified Burner program endorsed by the Colorado Division of Fire Prevention and Control and increase awareness of existing wildfire red flag warnings for ditch burns	Conejos County Sheriff/OEM and local fire protection districts	High
2	Conduct study of existing burn permit laws and identify opportunities for improving enforcement	Conejos County Sheriff/OEM	Medium
3	Facilitate coordination between Everbridge notification system and public school safety plans to improve communication in winter storms and other events	Conejos County OEM and school districts	Medium
4	Identify areas for snow fence installation	Conejos County Road & Bridge	High
5	Identify vulnerable populations and develop a plan for reaching them after a storm to ensure that they have necessities	Conejos County Public Health	High
6	Identify or construct at least one safe room within each community that is accessible to the public (perhaps in a public school)	Conejos County OEM	Medium
7	Provide regular updates to the general public via social media (Facebook), to include information about natural hazards and ways to protect people and property from damages	Conejos County OEM	Medium
8	Identify subdivisions at risk to wildfire and areas that could become isolated in a flood and provide preparedness information to residents	Conejos County OEM	High
9	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices	Conejos County OEM	Medium
10	Participate in Emergency Action Plan updates and exercises for dams in Conejos County	Conejos County OEM	Medium
11	Seek updated FEMA digital flood maps (DFIRMs) from FEMA and the Colorado Water Conservation Board	Conejos County OEM	High
12	Work with the State of Colorado and the National Weather Service to identify funding and support for the	Conejos County OEM	High



	placement of a Doppler radar tower in the area to improve weather predictions and warnings		
13	Improve education and awareness of fuels reduction techniques in wildland-urban interface areas	Local Fire Protection Districts/Colorado State Forest Service	High
<b>Town of Antonito</b>			
14	Identify or construct at least one safe room within each community that is accessible to the public (e.g., public school)	Town of Antonito/Conejos County OEM	Medium
15	Consider adopting building codes that conform to standards of the International Code Council (ICC)	Town of Antonito	Medium
16	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices	Town of Antonito	Medium
<b>Town of La Jara</b>			
17	Identify or construct at least one safe room within each community that is accessible to the public (e.g., public school)	Town of La Jara/Conejos County OEM	Medium
18	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices	Town of La Jara	Medium
<b>Town of Manassa</b>			
19	Identify or construct at least one safe room within each community that is accessible to the public (e.g., public school)	Town of Manassa/Conejos County OEM	Medium
20	Consider adopting building codes that conform to standards of the International Code Council (ICC)	Town of Manassa	Medium
21	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices	Town of Manassa	Medium
<b>Town of Romeo</b>			
22	Identify or construct at least one safe room within each community that is accessible to the public (e.g., public school)	Town of Romeo/Conejos County OEM	Medium
23	Consider adopting building codes that conform to standards of the International Code Council (ICC)	Town of Romeo	Medium
24	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices	Town of Romeo	Medium
<b>Town of Sanford</b>			
25	Identify or construct at least one safe room within each community that is accessible to the public (e.g., public school)	Town of Sanford/Conejos County OEM	Medium
26	Consider adopting building codes that conform to standards of the International Code Council (ICC)	Town of Sanford	Medium
27	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices	Town of Sanford	Medium



# Identifying and Prioritizing Potential Mitigation Actions

## I. Types of Mitigation Actions

### Local Plans and Regulations

These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built.

- Comprehensive plans
- Land use ordinances
- Subdivision regulations
- Development review
- Building codes and enforcement
- NFIP Community Rating System
- Capital improvement programs
- Open space preservation
- Stormwater management regulations and master plans

### Structure and Infrastructure Projects

These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards. Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance program.

- Acquisitions and elevations of structures in flood prone areas
- Utility undergrounding
- Structural retrofits
- Floodwalls and retaining walls
- Detention structures
- Culverts
- Safe rooms

### Natural Systems Protection

These are actions that minimize damage and losses and also preserve or restore the functions of natural systems.

- Sediment and erosion control
- Stream corridor restoration
- Conservation easements
- Wetland restoration and preservation

### Emergency Services

These are actions that improve public health and safety.

- Warning systems

- Critical facilities protection

## Education and Awareness Programs

These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady or Firewise Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.

- Radio or television spots
- Websites with maps and information
- Real estate disclosure
- Presentations to school groups or neighborhood organizations
- Mailings to residents in hazard-prone areas.

## II. STAPLEE Method

Social  
 Technical  
 Administrative  
 Political  
 Legal  
 Economic  
 Environmental

STAPLEE Method for Evaluating Potential Mitigation Actions	Yes	No
1. Is the action socially acceptable (compatible with community values)?		
2. Is the strategy technically feasible?		
3. Does the community have the capacity to implement and maintain the action?		
4. Is there public support to implement and maintain the action?		
5. Does the community have the legal authority to implement the strategy?		
6. Is the action cost-effective?		
7. Is the strategy consistent with environmental policies and goals?		

1-2 yes = low priority  
 3-4 yes = medium priority  
 5-6 yes = high priority

# Appendix E

## Disaster Mitigation Act of 2000 (DMA 2000) Summary

### SUMMARY

**Title I: Predisaster Hazard Mitigation** - Amends the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the Act) to authorize the President to establish a program of technical and financial assistance to States and local governments to assist in the implementation of pre-disaster hazard mitigation measures that are cost-effective and are designed to reduce injuries, loss of life, and property damage and destruction, including damage to critical services and facilities under the jurisdiction of the States or local governments. Authorizes the President to provide technical and financial assistance from the National Predisaster Mitigation Fund (established under this Act) to each State and local government that has identified all natural disaster hazards in its jurisdiction and has demonstrated its ability to form effective public-private disaster hazard mitigation partnerships.

Directs that such assistance be used by States and local governments principally to implement pre-disaster hazard mitigation measures that are cost-effective and that are described in proposals approved by the President under this title. Authorizes such assistance to be used to: (1) support effective public-private partnerships; (2) improve the assessment of a community's natural hazards vulnerabilities; or (3) establish a community's mitigation priorities.

Requires the President, in determining whether to provide technical and financial assistance to a State or local government, to take into account: (1) the extent and nature of the hazards to be mitigated; (2) the degree of commitment of the State or local government to reduce damages from future natural disasters; (3) the degree of commitment by the State or local government to support ongoing non-Federal support for the hazard mitigation measures to be carried out using the assistance; (4) the extent to which the hazard mitigation measures carried out contribute to the mitigation goals and priorities established by the State; (5) the extent to which such assistance is consistent with other assistance provided under this Act; (6) the extent to which prioritized, cost-effective mitigation activities that produce meaningful and definable outcomes are clearly identified; (7) the extent to which the activities identified are consistent with any State or local mitigation plan submitted; (8) the opportunity to fund activities that maximize net benefits to society; (9) the extent to which assistance will fund mitigation activities in small impoverished communities; and (10) such other criteria as the President establishes in consultation with State and local governments.

Authorizes the President to establish the National Predisaster Mitigation Fund.

Requires the President to report to Congress recommending a process for transferring to capable States greater authority and responsibility over such assistance program.

(Sec. 103) Directs the President to establish an interagency task force to coordinate the implementation of predisaster hazard mitigation programs administered by the Federal Government.

(Sec. 104) Requires State, local, or tribal governments, as a condition of receipt of an increased Federal share for hazard mitigation measures, to develop and submit for approval to the President a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under government jurisdiction.

Authorizes the President to increase the Federal share of hazard mitigation measures to 20 percent if at the time of the declaration of a major disaster a State has in effect an approved mitigation plan. Directs the President, in determining whether to increase the maximum percentage, to consider whether the State has established: (1) eligibility criteria for property acquisition and other types of mitigation measures; (2) requirements for cost effectiveness that are related to the eligibility criteria; (3) a system of priorities related to the criteria; and (4) a process by which an assessment of the effectiveness of a mitigation action may be carried out after the mitigation action is complete.

Revises provisions of the Act concerning standards for repair and construction financed with disaster loans or grants. Permits the President to require safe land use and construction practices. Directs the President to increase the maximum percentage under the Act for hazard mitigation from 15 to 20 percent for any major disaster in Minnesota for which assistance is being provided as of the date of this Act's enactment, with a cap of \$6 million for additional assistance. Requires that the mitigation measures assisted be related to losses in that State from straight line winds.

**Title II: Streamlining and Cost Reduction** - Amends the Act to define "management cost" to include any indirect cost, administrative expense, and other expense not directly chargeable to a specific project under a major disaster, emergency, or disaster preparedness or mitigation activity or measure. Directs the President to: (1) establish management cost rates for grantees and sub-grantees that shall be used to determine contributions under the Act for management costs; and (2) review the management cost rates established within three years after the date of their establishment and periodically thereafter.

Makes the Act applicable to major disasters declared under the Act on or after the date of this Act's enactment. Grants interim authority with respect to the establishment of management cost rates.

Requires the President to provide for public notice and opportunity for comment before adopting any new or modified policy that: (1) governs implementation of the public assistance program administered by the Federal Emergency Management Agency (FEMA) under the Act; and (2) could result in a significant reduction of assistance under the program.

(Sec. 204) Authorizes a State to apply to the President for delegation of the authority to administer the hazard mitigation grant program under the Act.

(Sec. 205) Rewrites Act provisions regarding assistance to repair, restore, reconstruct, or replace damaged facilities to place limitations on the "associated expenses" incurred by a person that owns or operates a private nonprofit facility damaged or destroyed by a major disaster for which such person may be reimbursed. Defines such term to include: (1) the costs of mobilizing and employing the National Guard for performance of eligible work; (2) the costs of using prison labor to perform eligible work; and (3) base and overtime wages for the employees and extra hires of a State, local government, or person that performs eligible work, plus certain fringe benefits.

Authorizes the President to make contributions to a private nonprofit facility only if: (1) the facility provides "critical services" in the event of a major disaster; or (2) the owner or operator of the facility has applied for a disaster loan under the Small Business Act (SBA) , and has been determined to be ineligible for such a loan or has obtained such a loan in the maximum amount for which the SBA determines the facility is eligible. Defines "critical services" to include power, water, sewer, wastewater treatment, communications, and emergency medical care.

Revises provisions regarding the minimum Federal share and regarding large in lieu contributions to limit the Federal share under specified circumstances. Directs the President, acting through the Director of FEMA, to establish an expert panel to develop recommendations concerning: (1) procedures for estimating the cost of repairing, restoring, reconstructing, or replacing a facility consistent with industry practices; and (2) ceiling and floor percentages of estimated costs. Requires the President to review the procedures and percentages. Requires the expert panel to report periodically to Congress.

(Sec. 206) Rewrites provisions regarding temporary housing assistance to authorize the President, in accordance with this section and in consultation with the Governor of a State, to provide financial assistance and, if necessary, direct services to individuals and households in the State who, as a direct result of a major disaster, have necessary expenses and serious needs and are unable to meet such expenses or needs through other means.

(Sec. 207) Prohibits major disaster community loans from exceeding \$5 million. Prohibits further assistance to a community that is in arrears on payments under a previous loan.

(Sec. 208) Requires: (1) the President to submit to Congress a report describing the results of the State Management of Small Disasters Initiative; and (2) the Director of the Congressional Budget Office to complete a study estimating the reduction in Federal disaster assistance that has resulted and is likely to result from the enactment of this Act.

**Title III: Miscellaneous** - Amends the Act to expand the definition of: (1) "local government" to include a municipality, township, local public authority, school district, special district, intrastate district, council of governments (regardless of whether incorporated as a nonprofit corporation under State law), regional or interstate government entity, or agency or instrumentality of a local government; and (2) "private nonprofit facility" to include private nonprofit irrigation facilities.

(Sec. 303) Authorizes the President to provide assistance to State and local governments (currently, only States) for the mitigation, management, and control of any fire (currently, fire suppression) on public or private forest land or grassland which threatens destruction that would constitute a major disaster.



(Sec. 304) Prohibits any administrative action to recover payment made to a State or local government for disaster or emergency assistance under the Act from being initiated beyond three years after the date of transmission of the final expenditure report for the disaster or emergency, except where there is evidence of fraud. Specifies that: (1) in any dispute arising beyond the three year period, there shall be a presumption that accounting records were maintained that adequately identify the source and application of funds provided for financially assisted activities; and (2) a State or local government shall not be liable for reimbursement or any other penalty for any payment made under this Act if the payment was authorized by an approved agreement specifying the costs, the costs were reasonable, and the purpose of the grant was accomplished.

(Sec. 305) Amends the Omnibus Crime Control and Safe Streets Act of 1968 to make FEMA employees and employees of State, local, or tribal emergency management or civil defense agencies who perform official duties relating to a major disaster that are determined to be hazardous duties eligible for public safety officers' death benefits.

(Sec. 306) Prohibits funds authorized under this Act from being expended by an entity not in compliance with the Buy American Act. Provides for debarment of persons convicted of fraudulent use of "made in America" labels.

(Sec. 307) Directs that specified real property located in the Maple Terrace subdivisions of the city of Sycamore, DeKalb County, Illinois, shall not be considered to be, or to have been, located in any area having special flood hazards.

(Sec. 308) Requires the Director of FEMA to conduct a study of participation by Indian tribes in emergency management, and to report to Congress.

**Source: Library of Congress, <https://www.congress.gov/bill/106th-congress/house-bill/707>**

---

# **Appendix F**

## **FEMA Plan Review Tool**

FEMA Approval Letter  
Local Mitigation Plan Review Tool

U.S. Department of Homeland Security  
Region VIII  
Denver Federal Center, Building 710  
P.O. Box 25267  
Denver, CO 80225-0267



**FEMA**

R8-MT

February 21, 2018

Mitchell Jarvies, Chairman  
Board of Conejos County Commissioners  
PO Box 157  
6683 County Road 13  
Conejos, Colorado 81129

Dear Chairman Jarvies:

We are pleased to announce the approval of the Conejos County Hazard Mitigation Plan as meeting the requirements of the Stafford Act and Title 44 Code of Federal Regulations §201.6 for a local hazard mitigation plan. The plan approval extends to Conejos County and the Towns of Antonito, La Jara, Manassa, Romeo, and Sanford.

The approved jurisdictions are eligible for FEMA Hazard Mitigation Assistance grant programs. All requests for funding will be evaluated individually according to the specific eligibility and other requirements of the particular programs under which the application is submitted.

The plan is approved through February 20, 2023. A local jurisdiction must revise its plan and resubmit it for approval within five years to continue to be eligible for mitigation project grant funding. We have provided recommendations for the next plan update on the enclosed Plan Review Tool.

We wish to thank all the jurisdictions that participated in the planning process and commend your continued commitment to mitigation planning. Please contact Steve Boand, Acting State Hazard Mitigation Officer, Colorado Department of Emergency Services, at [steven.boand@state.co.us](mailto:steven.boand@state.co.us) or (303) 915-6063 with any questions on the plan approval or mitigation grant programs.

Sincerely,



Jeanine D. Petterson  
Mitigation Division Director

Enclosure

cc: Steve Boand, Acting State Hazard Mitigation Officer, Colorado Department of Emergency Services

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

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

<b>Jurisdiction:</b> Conejos County	<b>Title of Plan:</b> Conejos County Hazard Mitigation Plan	<b>Date of Plan:</b> February 2, 2017
<b>Local Point of Contact:</b> Rodney King	<b>Address:</b> 17705 U.S. Highway 285, Suite B La Jara, CO 81140-0244	
<b>Title:</b> Emergency Manager		
<b>Agency:</b> Conejos County		
<b>Phone Number:</b> (719) 580-4133	<b>E-Mail:</b> rodneykk@hotmail.com	

<b>State Reviewer:</b> Patricia L. Gavelda  Mark W. Thompson	<b>Title:</b> State & Local Hazard Mitigation Planning Program Manager Mitigation Planning Specialist	<b>Date:</b> 2/13/2017
---	--	---------------------------

<b>FEMA Reviewer:</b> Sloane Weidmann Margaret Doherty	<b>Title:</b> Technical Specialist, CERC Community Planner, Baker	<b>Date:</b> March 7, 2017 March 8, 2017
<b>Date Received in FEMA Region VIII</b>	February 17, 2017	
<b>Plan Not Approved</b>	March 13, 2017	
<b>Plan Approvable Pending Adoption</b>	April 19, 2017	
<b>Plan Approved</b>	February 21, 2018	

---

**Local Mitigation Plan Review Tool****SECTION 1:****MULTI-JURISDICTION SUMMARY SHEET**

---

MULTI-JURISDICTION SUMMARY SHEET									
#	Jurisdiction Name	Jurisdiction Type	Jurisdiction Contact	Email	Requirements Met (Y/N)				
					A. Planning Process	B. HIRA	C. Mitigation Strategy	D. Update Rqmts.	E. Adoption Resolution
1	Conejos	County	Rodney King	rodneykk@hotmail.com	Y	Y	Y	Y	Y
2	Antonito	Town	Paul Duran	paulduran@yahoo.com	Y	Y	Y	Y	Y
3	La Jara	Town	Shawn Pagnotta	lajaratownclerk@yahoo.com	Y	Y	Y	Y	Y
4	Manassa	Town	Dan Bond	(719) 843-5207	Y	Y	Y	Y	Y
5	Romeo	Town	Alice Espinoza	aliceoza@gmail.com	Y	Y	Y	Y	Y
6	Sanford	Town	Gary Bailey	(719) 274-4382	Y	Y	Y	Y	Y

---

## Local Mitigation Plan Review Tool

### SECTION 2:

## REGULATION CHECKLIST

REGULATION CHECKLIST		Location in Plan (section and/or	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)				
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))	Chapter 3, Pgs. 1925	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))	Chapter 3 Pg. 23 Chapter 7, Pg. 94	X		
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Chapter 3 Pgs. 2223	X		
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Chapter 3, Pg. 23 Chapter 4, Pgs. 27 Chapter 5, Pgs. 82-83, 85-87	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))	Chapter 6, Pg. 92	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))	Chapter 6, Pg. 91	X		
ELEMENT A: REQUIRED REVISIONS				
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))	Chapter 4, Pgs. 3172	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))	Chapter 4, Pgs. 2830, 33-34	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))	Chapter 4 Pgs. 28, 31-72, 73-78, and 79-81	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))	Chapter 4, Pg. 35	X	

REGULATION CHECKLIST		Location in Plan	Met	Not Met
Regulation (44 CFR 201.6 Local Mitigation Plans)		(section and/or		
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))	Chapter 4, Pgs. 7981	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))	Chapter 4, Pg. 35 Chapter 5, Pg. 84	X		
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Chapter 3, Pg. 24	X		
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Chapter 5, Pgs. 8794	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))	Chapter 5, Pgs. 84, 87-89	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))	Chapter 6, Pg. 92	X		
ELEMENT C: REQUIRED REVISIONS				

<b>ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION</b> (applicable to plan updates only)				
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Chapter 4	X		
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Chapter 5	X		
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Chapter 5	X		
<b><u>ELEMENT D: REQUIRED REVISIONS</u></b>				
<b>REGULATION CHECKLIST</b>		<b>Location in Plan</b> (section and/or	<b>Met</b>	<b>Not Met</b>
<b>Regulation</b> (44 CFR 201.6 Local Mitigation Plans)				
<b>ELEMENT E. PLAN ADOPTION</b>				
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))			NA	
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Chapter 6, Pg. 91	X		
<b><u>ELEMENT E: REQUIRED REVISIONS</u></b> E2. Pending FEMA approval.				
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)</b>				
F1.				
F2.				
<b><u>ELEMENT F: REQUIRED REVISIONS</u></b>				



## SECTION 3: PLAN ASSESSMENT

### A. Plan Strengths and Opportunities for Improvement

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

#### Element A: Planning Process

- The March 16, 2016 meeting was very well attended.
- Coordination through the San Luis Valley Region is a best practice.
- Although challenging, it's critical that each jurisdiction develop mitigation actions that reflect their unique risks; this may require private meetings and/or follow-up with busy local representatives.

#### Element B: Hazard Identification and Risk Assessment

- The discussion of how the hazards relate to each other is an excellent way to reinforce how these events may compound each other.
- The plan does a good job of clearly identifying local fire protection districts as well as identifying the most significant wildfire hazard areas.

#### Element C: Mitigation Strategy

- The planning team did a good job of clearly documenting specific authorities, plans, resources and programs that currently exist.
- Although FEMA pays for generators with Hazard Mitigation Assistance funding, they are not considered 'true' mitigation because they do not represent a long term solution to reducing impacts.
- For the next plan update, elaborate on how the community can improve/strengthen their existing capacities. In what specific ways can they improve their zoning and subdivision ordinances, legal and regulatory capabilities, and administration/technical capacity to achieve their risk reduction goals? If possible, focus on improvements that are easily achievable and do not require much time or resources. A key opportunity here, is to identify updates to these capacities as mitigation actions (i.e. Update to a Community Wildfire Protection Plan).

#### Element D: Plan Review, Evaluation, and Implementation

- The plan includes a good discussion of the processes undertaken to update the previous version of the Conejos County Hazard Mitigation Plan document and provides a thorough description of changes that have been made since the prior version of the plan document.
- The status of mitigation actions previously recommended in the previous version of the hazard mitigation plan are included, which helps set the stage for the current mitigation strategy.

- Throughout the plan review, evaluation, and implementation process, consider putting extra energy towards helping the municipality identify their un-tapped resources, engage local champions for mitigation projects, and implement their strategies for new and/or improved local risk-reduction policies and programs.

## B. Resources for Implementing Your Approved Plan

### FEMA FUNDING SOURCES

**Hazard Mitigation Grant Program (HMGP).** The HMGP is a post-disaster mitigation program. It is made available to states by FEMA after each Federal disaster declaration. The HMGP can provide up to 75 percent funding for hazard mitigation measures. The HMGP can be used to fund cost-effective projects that will protect public or private property in an area covered by a federal disaster declaration or that will reduce the likely damage from future disasters. Examples of projects include acquisition and demolition of structures in hazard prone areas, flood-proofing or elevation to reduce future damage, minor structural improvements and development of state or local standards. Projects must fit into an overall mitigation strategy for the area identified as part of a local planning effort. All applicants must have a FEMA-approved Hazard Mitigation Plan (this plan).

Applicants who are eligible for the HMGP are state and local governments, certain nonprofit organizations or institutions that perform essential government services, and Indian tribes and authorized tribal organizations. Individuals or homeowners cannot apply directly for the HMGP; a local government must apply on their behalf. Applications are submitted to Montana DES and placed in rank order for available funding and submitted to FEMA for final approval. Eligible projects not selected for funding are placed in an inactive status and may be considered as additional HMGP funding becomes available.

**Flood Mitigation Assistance (FMA) Program.** The FMA combines the previous Repetitive Flood Claims and Severe Repetitive Loss Grants into one grant program. FMA provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP. The FMA is funded annually; no federal disaster declaration is required. Only NFIP insured homes and businesses are eligible for mitigation in this program. Funding for FMA is very limited and, as with the HMGP, individuals cannot apply directly for the program. Applications must come from local governments or other eligible organizations. The federal cost share for an FMA project is 75 percent. At least 25 percent of the total eligible costs must be provided by a non-federal source. Of this 25 percent, no more than half can be provided as in-kind contributions from third parties. At minimum, a FEMA-approved local flood mitigation plan is required before a project can be approved. FMA funds are distributed from FEMA to the state. Montana DES serves as the grantee and program administrator for FMA.

**FEMA, Pre-Disaster Mitigation Competitive (PDMC) Grant Program.** The PDM program is an annually funded, nationwide, competitive grant program. No disaster declaration is required. Federal funds will cover 75 percent of a project's cost up to \$3 million. As with the HMGP and FMA, a FEMA-approved local Hazard Mitigation Plan is required to be approved for funding under the PDM program.

**FEMA, Readiness, Response and Recovery Directorate, Fire Management Assistance Grant Program.**

This program provides grants to states, tribal governments and local governments for the mitigation, management and control of any fire burning on publicly (non-federal) or privately owned forest or grassland that threatens such destruction as would constitute a major disaster. The grants are made in the form of cost sharing with the federal share being 75 percent of total eligible costs. Grant approvals are made within 1 to 72 hours from time of request.

**Fire Prevention and Safety Grants.** The Fire Prevention and Safety Grants (FP&S) are part of the Assistance to Firefighters Grants, and are administered by the FEMA. FP&S Grants support projects that enhance the safety of the public and firefighters from fire and related hazards. The primary goal is to target high-risk populations and reduce injury and prevent death. Eligibility includes fire departments, national, regional, state, and local organizations, Native American tribal organizations, and/or community organizations recognized for their experience and expertise in fire prevention and safety programs and activities. Private non-profit and public organizations are also eligible. Interested applicants are advised to check the website periodically for announcements of grant availability. More information: <https://www.fema.gov/welcome-assistance-firefighters-grantprogram>

## OTHER MITIGATION FUNDING SOURCES

Grant funding is available from a variety of federal and state agencies for training, equipment, and hazard mitigation activities. Several of these programs are described below.

**Program 15.228: Wildland Urban Interface Community and Rural Fire Assistance.** This program is designed to implement the National Fire Plan and assist communities at risk from catastrophic wildland fires. The program provides grants, technical assistance, and training for community programs that develop local capability, including: Assessment and planning, mitigation activities, and community and homeowner education and action; hazardous fuels reduction activities, including the training, monitoring or maintenance associated with such hazardous fuels reduction activities, on federal land, or on adjacent nonfederal land for activities that mitigate the threat of catastrophic fire to communities and natural resources in high risk areas; and, enhancement of knowledge and fire protection capability of rural fire districts through assistance in education and training, protective clothing and equipment purchase, and mitigation methods on a cost share basis. More information:

<http://www.federalgrantswire.com/wildland-urban-interface-community-and-rural-fireassistance.html#.WCx8ekYzWUk>

**Secure Rural Schools and Community Self-Determination Act - Title III- County Funds.**

The Self-Determination Act has recently been reauthorized and now includes specific language regarding the Firewise Communities program. Counties seeking funding under Title III must use the funds to perform work under the Firewise Communities program. Counties applying for Title III funds to implement Firewise activities can assist in all aspects of a community's recognition process, including conducting or assisting with community assessments, helping the community create an action plan, assisting with an annual Firewise Day, assisting with local wildfire mitigation projects, and communicating with the state liaison and the national program to ensure a smooth application process. Counties that previously used Title III funds for other wildfire preparation activities such as the Fire Safe Councils or similar would be able to carry out many of the same activities as they had before. However, with the new language,

counties would be required to show that funds used for these activities were carried out under the Firewise Communities program. More information:

[http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04\\_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtDDw9\\_Al8zPwhQoY6BdkOyoCAPkATIA!/?ss=119985&navtype=BROWSEBYSUBJECT&cid=FSE\\_003853&navid=0910000000000000&pnavid=null&position=BROWSEBYSUBJECT&ttype=main&pname=Se-cure%20Rural%20Schools-%20Home](http://www.fs.usda.gov/wps/portal/fsinternet!/ut/p/c4/04_SB8K8xLLM9MSSzPy8xBz9CP0os3gjAwhwtDDw9_Al8zPwhQoY6BdkOyoCAPkATIA!/?ss=119985&navtype=BROWSEBYSUBJECT&cid=FSE_003853&navid=0910000000000000&pnavid=null&position=BROWSEBYSUBJECT&ttype=main&pname=Se-cure%20Rural%20Schools-%20Home)

**Community Planning Assistance for Wildfire.** Established in 2015 by Headwaters Economics and Wildfire Planning International, Community Planning Assistance for Wildfire (CPAW) works with communities to reduce wildfire risks through improved land use planning. CPAW is a grant-funded program providing communities with professional assistance from foresters, planners, economists and wildfire risk modelers to integrate wildfire mitigation into the development planning process. All services and recommendations are site-specific and come at no cost to the community. More information: <http://planningforwildfire.org/what-we-do/>

**Urban and Community Forestry (UCF) Program.** A cooperative program of the U.S. Forest Service that focuses on the stewardship of urban natural resources. With 80 percent of the nation's population in urban areas, there are strong environmental, social, and economic cases to be made for the conservation of green spaces to guide growth and revitalize city centers and older suburbs. UCF responds to the needs of urban areas by maintaining, restoring, and improving urban forest ecosystems on more than 70 million acres. Through these efforts the program encourages and promotes the creation of healthier, more livable urban environments across the nation. These grant programs are focused on issues and landscapes of national importance and prioritized through state and regional assessments. Information: <http://www.fs.fed.us/managing-land/urban-forests/ucf>

**Western Wildland Urban Interface Grants.** The National Fire Plan (NFP) is a long-term strategy for reducing the effects of catastrophic wildfires throughout the nation. The Division of Forestry's NFP Program is implemented within the Division's Fire and Aviation Program through the existing USDA Forest Service, State & Private Forestry, State Fire Assistance Program.

Congress has provided increased funding assistance to states through the U.S. Forest Service State and Private Forestry programs since 2001. The focus of much of this additional funding was mitigating risk in WUI areas. In the West, the State Fire Assistance funding is available and awarded through a competitive process with emphasis on hazard fuel reduction, information and education, and community and homeowner action. This portion of the National Fire Plan was developed to assist interface communities manage the unique hazards they find around them. Long-term solutions to interface challenges require informing and educating people who live in these areas about what they and their local organizations can do to mitigate these hazards.

The 10-Year Comprehensive Strategy focuses on assisting people and communities in the WUI to moderate the threat of catastrophic fire through the four broad goals of improving prevention and suppression, reducing hazardous fuels, restoring fire-adapted ecosystems, and promoting community assistance. The Western States Wildland Urban Interface Grant may be used to apply for financial assistance towards hazardous fuels and educational projects within the four goals of: improved prevention, reduction of hazardous fuels, restoration of fire-adapted ecosystems and promotion of community assistance. Information: <https://www.westernforesters.org/sites/default/files/2017WUI-Applications-Instructions-and-Criteria-CLEAN-COPY-002b.pdf>

**U.S. Fish & Wildlife Service, Rural Fire Assistance Grants.** Each year, the U.S. Fish & Wildlife Service (FWS) provides Rural Fire Assistance (RFA) grants to neighboring community fire departments to enhance local wildfire protection, purchase equipment, and train volunteer firefighters. Service fire staff also assist directly with community projects. These efforts reduce the risk to human life and better permit FWS firefighters to interact and work with community fire organizations when fighting wildfires. The Department of the Interior (DOI) receives an appropriated budget each year for an RFA grant program. The maximum award per grant is \$20,000. The [DOI assistance program](http://www.fws.gov/fire/living_with_fire/rural_fire_assistance.shtml) targets rural and volunteer fire departments that routinely help fight fire on or near DOI lands. More information: [http://www.fws.gov/fire/living\\_with\\_fire/rural\\_fire\\_assistance.shtml](http://www.fws.gov/fire/living_with_fire/rural_fire_assistance.shtml)

**U.S. Bureau of Land Management, Community Assistance Program.** BLM provides funds to communities through assistance agreements to complete mitigation projects, education and planning within the WUI. More information: [http://www.blm.gov/nifc/st/en/prog/fire/community\\_assistance.html](http://www.blm.gov/nifc/st/en/prog/fire/community_assistance.html)

**Fire Management Assistance Program.** This program is authorized under Section 420 of the Stafford Act. It allows for the mitigation, management, and control of fires burning on publicly or privately owned forest or grasslands that threaten destruction that would constitute a major disaster. More information: <http://www.fema.gov/fire-management-assistance-grant-program>

**NOAA Office of Education Grants.** The Office of Education supports formal, informal and non-formal education projects and programs through competitively awarded grants and cooperative agreements to a variety of educational institutions and organizations in the United States. More information: <http://www.noaa.gov/office-education/grants>

**NRCS Environmental Quality Incentives Program (EQIP).** The Environmental Quality Incentives Program, administered through the NRCS, is a cost-share program that provides financial and technical assistance to agricultural producers to plan and implement conservation practices that improve soil, water, plant, animal, air and related natural resources on agricultural land and nonindustrial private forestland. Owners of land in agricultural or forest production or persons who are engaged in livestock, agricultural or forest production on eligible land and that have a natural resource concern on that land may apply to participate in EQIP. Eligible land includes cropland, rangeland, pastureland, non-industrial private forestland and other farm or ranch lands. EQUIP is another funding mechanism for landowner fuel reduction projects. More information: <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/>

**U.S. Department of Agriculture, Community Facilities Loans and Grants.** Provides grants (and loans) to cities, counties, states and other public entities to improve community facilities for essential services to rural residents. Projects can include fire and rescue services; funds have been provided to purchase fire-fighting equipment for rural areas. No match is required. More information: [http://www.usda.gov/wps/portal/usda/usdahome?navid=GRANTS\\_LOANS](http://www.usda.gov/wps/portal/usda/usdahome?navid=GRANTS_LOANS)

**General Services Administration, Sale of Federal Surplus Personal Property.** This program sells property no longer needed by the federal government. The program provides individuals, businesses and organizations the opportunity to enter competitive bids for purchase of a wide variety of personal property and equipment. Normally, there are no restrictions on the property purchased. More information: <http://www.gsa.gov/portal/category/21045>

**Hazardous Materials Emergency Preparedness Grants.** Grant funds are passed through to local emergency management offices and HazMat teams having functional and active LEPC groups. More information: <http://www.phmsa.dot.gov/hazmat/grants>

**U.S. Department of Homeland Security.** Enhances the ability of states, local and tribal jurisdictions, and other regional authorities in the preparation, prevention, and response to terrorist attacks and other disasters, by distributing grant funds. Localities can use grants for planning, equipment, training and exercise needs. These grants include, but are not limited to areas of Critical Infrastructure Protection Equipment and Training for First Responders, and [Homeland Security Grants](#). More information: <http://www.dhs.gov/>

**Community Development Block Grants (CDBG).** The U.S. Department of Commerce administers the CDBG program which are intended to provide low and moderate-income households with viable communities, including decent housing, as suitable living environment, and expanded economic opportunities. Eligible activities include community facilities and improvements, roads and infrastructure, housing rehabilitation and preservation, development activities, public services, economic development, planning, and administration. Public improvements may include flood and drainage improvements. In limited instances, and during the times of “urgent need” (e.g. post disaster) as defined by the CDBG National Objectives, CDBG funding may be used to acquire a property located in a floodplain that was severely damaged by a recent flood, demolish a structure severely damaged by an earthquake, or repair a public facility severely damaged by a hazard event. CDBG funds can be used to match FEMA grants. More Information: <http://www.hud.gov/offices/cpd/communitydevelopment/programs/>

**Volunteer Fire Assistance Program Grants.** The purpose of these grants is to organize, train and equip local firefighters to prevent and suppress wildfires. Communities under 10,000 in population are eligible for the funding. Smaller communities may join together in a group and or county effort to submit an application, even if their combined population is over 10,000. There is no pre-set award amount. Financial assistance on any project, during any fiscal year, requires a non-federal match for project expenditures. More information: <http://dnrc.mt.gov/grants-and-loans>

**Conservation District Grants.** This program provide funds to increase conservation district employee's hours to assist in planning, securing funding, and implementing programs that improve public outreach, improve conservation district administrative capabilities, and implement conservation plans. There is a \$10,000 award amount. More information: <http://dnrc.mt.gov/grants-and-loans>

**Hazardous Fuel Reduction Grants.** These grants are for hazardous fuel reduction on private lands to protect communities adjacent to National Forest System Lands where prescribed fire activities are planned. Prescribed fire activities must be imminent (to take place within 3 years of the award). Nonprofit organizations, conservation districts, county and municipal governments, fire departments are eligible for this funding. Award amounts typically range from \$50,000 to \$100,000 depending upon availability of funding. More information: <http://dnrc.mt.gov/grants-and-loans>

**Renewable Resource Grant Program.** Administered by the Montana DNRC, this program provides both grant and loan funding for public facility and other renewable resource projects. Projects that conserve, manage, develop or protect Montana's renewable resources are eligible for funding. Numerous public facility projects including drinking water, wastewater and solid waste development and improvement

projects have received funding through this program. Other projects that have been funded include irrigation rehabilitation, dam repair, soil and water conservation and forest enhancement. More information: <http://dnrc.mt.gov/grants-and-loans>

**Building Blocks for Sustainable Communities.** The EPA Office of Sustainable Communities sometimes offers grants to support activities that improve the quality of development and protect human health and the environment. When these grants are offered, they will always be announced on [www.grants.gov](http://www.grants.gov). More information: <https://www.epa.gov/smartgrowth/building-blockssustainable-communities#2016>

## OTHER RESOURCES

**FEMA: Grant Application Training.** Each year, FEMA partners with the State on training courses designed to help communities be more successful in their applications for grants. Contact your State Hazard Mitigation Officer for course offering schedules. Example Courses:

- Unified Hazard Mitigation Grant Assistance Application Development Course □  
[Benefit Cost Analysis \(BCA\)](#) Course

**FEMA: Community Assistance Visit.** It may be appropriate to set up a Community Assistance Visit with FEMA to provide technical assistance to communities in the review and/or updating of their floodplain ordinances to meet the new model ordinance. Consider contacting your State NFIP Coordinator for more information.

**FEMA: Building Science.** The Building Science branch develops and produces multi-hazard mitigation publications, guidance materials, tools, technical bulletins, and recovery advisories that incorporate the most up-to-date building codes, floodproofing requirements, seismic design standards, and wind design requirements for new construction and the repair of existing buildings. To learn more, visit: <https://www.fema.gov/building-science>

**EPA: Smart Growth in Small Towns and Rural Communities.** EPA has consolidated resources just for small towns and rural communities to help them achieve their goals for growth and development while maintaining their distinctive rural character. To learn more, visit: <https://www.epa.gov/smartgrowth/smart-growth-small-towns-and-rural-communities>

**EPA: Hazard Mitigation for Natural Disasters: A Starter Guide for Water and Wastewater Utilities.** The EPA released guidance on how to mitigate natural disasters specifically for water and wastewater utilities. For more information, visit: <https://www.epa.gov/waterutilityresponse/hazard-mitigation-natural-disasters>

**National Integrated Drought Information System.** The National Drought Resilience Partnership may provide some additional resources and ideas to mitigate drought hazards and increase awareness of droughts. Visit: <https://www.drought.gov/drought/what-nidis/national-drought-resiliencepartnership>.

**STAR Community Rating System.** Consider measuring your mitigation success by participating in the STAR Community Rating System. Local leaders can use the STAR Community Rating System to assess how sustainable they are, set goals for moving ahead and measure progress along the way. To get started, go to <http://www.starcommunities.org/get-started>



**Beyond the Basics: Best Practices in Local Mitigation Planning.** The product of a 5-year research study where the Coastal Hazards Center and the Center for Sustainable Community Design analyzed local mitigation plans to assess their content and quality. The website features numerous examples and best practices that were drawn from the analyzed plans. Visit: <http://mitigationguide.org/>

**Flood Economics.** The Economist Intelligence Unit analyzed case studies and state-level mitigation data in order to gain a better understanding of the economic imperatives for investment in flood mitigation. To learn more, visit: <http://floodeconomics.com/>

**Headwaters Economics.** Headwaters Economics is an independent, nonprofit research group that works to improve community development and land management decisions in the West. To learn more, visit: <https://headwaterseconomics.org/>



# **Appendix G**

## **Record of Adoption**

Conejos County  
Town of Antonito  
Town of La Jara  
Town of Manassa  
Town of Romeo  
Town of Sanford

BEFORE THE BOARD OF COUNTY COMMISSIONERS  
OF  
CONEJOS COUNTY, COLORADO  
RESOLUTION No. C-3-17

A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONER OF CONEJOS COUNTY,  
COLORADO, ADOPTING THE 2016 CONEJOS COUNTY HAZARD MITIGATION PLAN

**WHEREAS**, Conejos County recognizes the threat that natural hazards pose to people and property within our community; and

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

**WHEREAS**, an adopted hazard mitigation actions plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

**WHEREAS**, the Colorado Division of Emergency Management and Federal Emergency Agency, Region VIII, officials have reviewed the 2016 Conejos County Hazard Mitigation Plan and have approved said plan as meeting the requirements of the Stafford Act and Title 44 Code of Federal Regulations 201.6 for a local hazard mitigation plan; and

**WHEREAS**, Conejos County staff fully participated in the mitigation planning process to prepare the 2016 Conejos County Hazard Mitigation Plan and recommends approval by the Board of County Commissioners.

**NOW THEREFORE BE IT RESOLVED;**

1. That Conejos County hereby adopts the 2016 Conejos County Hazard Mitigation Plan, as the multi-hazard mitigation plan for Conejos County, Colorado; and
2. That Conejos County Office of Emergency Management is authorized to submit this resolution and related documents to the Colorado Division of Emergency Management and Federal Emergency Management Agency, Region VIII, officials to enable the Plan's formal approval.

**THIS RESOLUTION WAS CONSIDERED, DISCUSSED AND ADOPTED THE 4<sup>th</sup> DAY OF MAY 2017, AT A REGULARLY SCHEDULED MEETING OF THE BOARD.**

ATTEST:



Mitchell Jarvies  
Mitchell Jarvies, Chairman

Steve McCarroll  
Steve McCarroll, Vice Chairman

John Sandoval  
John Sandoval, Vice Chairman

**TOWN OF ANTONITO, COLORADO**  
**RESOLUTION NO. \_\_\_\_\_**

**A RESOLUTION ADOPTING THE CONEJOS COUNTY MITIGATION PLAN**

**WHEREAS**, the Town of Antonito with assistance from Conejos County has gathered information and prepared the Conejos County Mitigation Plan; and

**WHEREAS**, the Conejos County Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and

**WHEREAS**, the Town of Antonito has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

**NOW THEREFORE BE IT RESOLVED**, by the Board of Trustees of the Town of Antonito, Colorado, that the Conejos County Mitigation Plan is adopted as this jurisdiction's multi-hazard mitigation plan.

Done and Adopted this 11<sup>th</sup> day of May, 2017.

  
\_\_\_\_\_  
Aaron Abeyta, Mayor

ATTEST:

  
\_\_\_\_\_  
Stephanie Trujillo, Town Clerk

RESOLUTION NO. 2017-2

A RESOLUTION OF THE BOARD OF TRUSTEES OF THE TOWN OF LA JARA ADOPTING THE  
2016 CONEJOS COUNTY MITIGATION PLAN

WHEREAS, The Town of La Jara, with the assistance from Rodney King, Conejos County Emergency Manager, has gathered information and prepared the Conejos County Hazard Mitigation Plan; and,

WHEREAS, the Conejos County Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R 2016; and,

WHEREAS, the Town of La Jara is a location 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

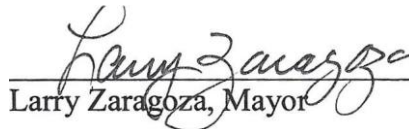
WHEREAS, the Town of La Jara has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF TRUSTEES OF THE TOWN OF LA JARA, COLORADO, That the Town of La Jara adopts the Conejos County Hazard Mitigation Plan as this jurisdiction's Multi-Hazard Plan, and resolves to execute the actions in the Plan.

ADOPTED this 9th day of May, 2017 at the regular meeting of the Board of Trustees of the Town of La Jara, at which a quorum was present.

THE BOARD OF TRUSTEES OF THE TOWN OF LA JARA, ATTEST

  
Shawn Pagnotta, La Jara Town Clerk

  
Larry Zaragoza, Mayor



TOWN OF MANASSA, COLORADO  
RESOLUTION NO. -IL-QI  
A RESOLUTION ADOPTING THE CONEJOS COUNTY  
HAZARD MITIGATION PLAN


WHEREAS, the Town of Manassa with assistance from Conejos County, has gathered information and prepared the 2016 Conejos County Hazard Mitigation Plan; and

WHEREAS, the 2016 Conejos County Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and


WHEREAS, the Town of Manassa has reviewed the Plan, and affirms that the Plan will be updated no less than every five years;

NOW, THEREFORE, BE IT RESOLVED, by the Board of Trustees of the Town of Manassa, Colorado, that the 2016 Conejos County Hazard Mitigation Plan is adopted as this jurisdiction's multi-hazard mitigation plan.

Done and adopted this                      day of June, 2017.

  
\_\_\_\_\_  
Dan Bond, Mayor

AITEST:

  
\_\_\_\_\_  
Evelyn Tibbitts.  
Acting Town Clerk

TOWN OF ROMEO, COLORADO RESOLUTION

NO. R17-01

A RESOLUTION ADOPTING THE CONEJOS COUNTY 2016 HAZARD MITIGATION  
PLAN

WHEREAS, the Town of Romeo with assistance from Conejos County has gathered information and prepared the 2016 Conejos County Hazard Mitigation Plan; and

WHEREAS, the 2016 Conejos County Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the Town of Romeo has reviewed the Plan and affirms that the Plan will be updated no less than every five years;

Now THEREFORE BE IT RESOLVED, by the Board of Trustees of the Town of Romeo, Colorado, that the 2016 Conejos County Hazard Mitigation Plan is adopted as this jurisdiction's multi-hazard mitigation plan.

Done and adopted this 22<sup>nd</sup> day of May, 2017



Diana Cantu, Mayor

ATTEST:



, Town Clerk



# TOWN OF SANFORD

## RESOLUTION Adopting the Conejos County Hazard Mitigation Plan

### RESOLUTION NO. 2017-02

#### A RESOLUTION OF THE TOWN OF SANFORD ADOPTING THE COMPREHENSIVE UPDATE TO THE CONEJOS COUNTY HAZARD MITIGATION PLAN

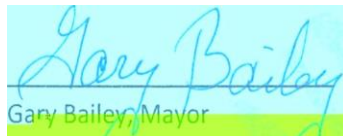
WHEREAS, the Town of Sanford, with assistance from the Conejos County Hazard Mitigation Planning Team, which inventories the threats that natural hazards pose to people and property within our community, has gathered information and prepared the Comprehensive Update to the Conejos County Hazard Mitigation Plan; and

WHEREAS, the Town of Sanford has been prepared in accordance with FEMA requirements at 44 C.F.R. 201.6; and

WHEREAS, the Town of Sanford is a local government and has afforded citizens the opportunity to comment and provide input during a Regular Town Board Meeting; and

WHEREAS, the Town of Sanford has reviewed the comprehensive Mitigation Plan updates and affirms the Mitigation Plan will be updated no less than every five years;

NOW THEREFORE, BE IT RESOLVED BY THE SANFORD TOWN BOARD OF THE TOWN OF SANFORD adopts the 2016 Comprehensive Update to The Conejos County Hazard Mitigation Plan, as presented during the June 8, 2017 meeting of the Sanford Town Board, as the Multi-Hazard Mitigation Plan for the Town of Sanford and resolves to execute the actions in the Plan.



Gary Bailey, Mayor

ADOPTED THIS 8<sup>TH</sup> DAY OF June, A.D. 2017.

Attest:



Ariel Ruvolo, Town Clerk