Annexes

Annex A	Alamosa County
Annex B	Conejos County
Annex C	Costilla County
Annex D	Mineral County
Annex E	Rio Grande County
Annex F	Saguache County

Annex A Alamosa County

Annex A. Alamosa County

A.1. Mitigation Planning and County Planning Team

Alamosa County updated this annex during the development of the 2023-2028 San Luis Valley Regional Hazard Mitigation Plan. This County Annex builds upon previous version of the Alamosa County Hazard Mitigation Plan completed in 2018. As part of the regional planning process the County established a County Planning Team (CPT) to develop the mitigation plan and identify potential mitigation projects. The following jurisdictions participated in the DMA planning process for the County.

- Alamosa County
- City of Alamosa
- Alamosa County Fire Protection District
- Rio Grande Water Conservation District

The Town of Hooper (population 65) did not participate during the 2022 update. More details on the planning process followed and how the counties, municipalities and stakeholders participated can be referenced in Chapter 3 of the base plan. Details on which local government departments participated and who represented them are listed in the following table.

Table A-1 Alamosa County List of Participants

Name	Jurisdiction	Title
Amy McKinley	Alamosa County	Treasurer
Andrew Atencio	Alamosa County	Facilities Director
Beverly Strnad	Alamosa County	Public Health Director
Dennis Gutierrez	Alamosa County	Road and Bridge Director
Don Chapman	Alamosa County	Fire Chief
Eric Treinen	Alamosa County	Emergency Manager
Jason Kelly	Alamosa County	County Attorney
Logan Montoya	Alamosa County	EPR Coordinator
Lori Laske	Alamosa County	County Commissioner
Maricruz Mora	Alamosa County	Controller
Michael Yohn	Alamosa County	County Commissioner
Richard Hubler	Alamosa County	Land Use Director
Robert Jackson	Alamosa County	Sheriff
Roni Wisdom	Alamosa County	County Administrator
Sandra Hostetter	Alamosa County	Assessor
Shawn Woods	Alamosa County	Undersheriff
Trace Larson	Alamosa County	County Coroner
Will Hickman	Alamosa County	Airport Manager
Zach Cerny	City of Alamosa	Fire Department Lieutenant
Harry Reynolds	City of Alamosa	Public Works Director
Heather Brooks	City of Alamosa	City Manager
Kathy Woods	City of Alamosa	Economic Development Director
Ken Anderson	City of Alamosa	Chief of Police
Rachel Baird	City of Alamosa	Development Services Director
Harry Reynolds	City of Alamosa	Public Works Director
Bill Stone	Alamosa County Fire Protection District	Chief

Name	Jurisdiction	Title
Cleave Simpson	Rio Grande Water Conservation District	General Manager
Diana Jones	Alamosa School District	Superintendent

A.2. Geography and Climate

Alamosa County was carved out of Northwestern Costilla County by Colorado legislation on March 8th, 1913. The County encompasses 723 square miles, of which approximately 0.1% consists of water. It is comprised of the City of Alamosa, the Town of Hooper, the Census Designated Place of Alamosa East, and six unincorporated communities. It is also home to the Great Sand Dunes National Park and Preserve.

The County is known for its moderate summers and cold winters, with temperatures averaging 65°F in the summer and 14°F in the winter. Precipitation averages 7.6 inches annually, with 80% of the precipitation occurring between April and October in the form of light, scattered showers. Snowfall averages 41.7 inches annually, generally in the form of light snowfalls between September and May.

A.3. Population Trends

Alamosa County is the most populous county in the San Luis Valley planning area. The City of Alamosa serves both as the County seat and the largest population hub in the County. The population of the County remained largely stable in the years between 2015 and 2020, despite a 3.5% decline in the population of the City of Alamosa between 2018 and 2019.

A large portion of the County's residents, roughly 40%, live in unincorporated Alamosa County.

Table A-2 provides a summary of the population change in the County and its municipalities from 2015 to 2020.

Table A-2 Population Estimates for Communities 2015-2020

	2015	2016	2017	2018	2019	2020
Alamosa County total	16,269	16,353	16,345	16,444	16,107	1,6153
City of Alamosa	9,592	9,671	9,675	9,780	9,441	9,360
Town of Hooper	55	56	58	53	81	65
Unincorporated Alamosa County	6,622	6,626	6,612	6,611	6,585	6,728

Source: US Census ACS 5-Year Estimates

While Alamosa County has the lowest percentage of population over the age of 65 in the San Luis Valley planning area, it also has the largest percentage of population under the age of 5. This population may be especially vulnerable to injury or sickness. This vulnerability can be worsened during a natural disaster because they may not understand the measures that need to be taken to protect themselves from hazards. Select Census demographic and social characteristics for Alamosa are shown in Table A-3.

Table A-3 Alamosa County Demographic Profile

Characteristic	% of Total Population
Gender/ Age	
Male	49.4%
Female	50.6%

Characteristic	% of Total Population
Under 5 Years	6.7%
65 Years and Over	13.9%
Race/Ethnicity	
White	47.3%
American Indian/Alaska Native	1.5%
Asian	0.9%
Black or African American	0.3%
More Than One Race	2.1%
Hispanic or Latino of Any Race	47.1%
Education (25+ Years)	
High School Graduate or Higher	87.2%
Bachelor's Degree or Higher	24.5%

Source: U.S. Census Bureau, 2020 5-Year American Community Survey

1 The U.S. Census Bureau considers the Hispanic/Latino designation an ethnicity, not a race. The population self-identified as "Hispanic/Latino" is also represented within the categories in the "Race" demographic.

A.4. Development Trends

Much of the population growth in Alamosa County is occurring in unincorporated areas. In addition to logistical difficulties posed to remote populations during a hazard event, the growth in Alamosa County is encroaching on the wildland-urban interface (WUI). Unencumbered growth into the WUI will increase risk to people and property, as well as increase the likeliness of human-caused wildfire events. While the County does have a CWPP, it does not currently have a wildfire-specific ordinance or plan in place.

Additional growth is occurring in off-grid locations. These residents are especially vulnerable in the event of a power surge or blackout. Information regarding current or ongoing hazards is increasingly transmitted through electronic channels such as social media or cellular phone notifications. Without power, or if a cell tower fails, residents in off-grid locations may be completely cut off from critical information.

Commercial and residential growth is occurring on the west side of the City of Alamosa. This growth is in accordance with zoning codes and will help support a growing population.

A.5. Economy

Table A-4 below provides a brief overview of some economic characteristics of Alamosa County. The following information is provided by the U.S. Census Bureau American Community Survey (ACS) 5-years estimates from 2016-2020.

Table A-4 Alamosa County Economic Profile

	Alamosa County
Families Below Poverty Level	14%
Individuals Below Poverty Level	18.5%
Median Home Value	$153,700
Median Household Income	$41,121
Per Capita Income	$23,020
Population > 16 Years Old in Labor Force	62%
Population Employed	57.8%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

Table A-5 shows the breakdown of employment in Alamosa County by the industry sector. According to the ACS, the leading employment sectors in the county are the educational services, and health care and social assistance, arts, entertainment, and recreation, and accommodation and food services, retail trade, and agriculture, forestry, fishing and hunting, and mining sectors.

Table A-5 Alamosa County Occupations and Industries

Industry	Number Employed	Percent of Labor Force
Educational services, and health care and social assistance	2,149	29.4%
Arts, entertainment, and recreation, and accommodation and food services	950	13.0%
Retail trade	642	8.8%
Agriculture, forestry, fishing and hunting, and mining	543	7.4%
Construction	528	7.2%
Public administration	500	6.8%
Professional, scientific, and management, and administrative and waste management services	455	6.2%
Finance and insurance, and real estate and rental and leasing	450	6.2%
Transportation and warehousing, and utilities	332	4.5%
Other services, except public administration	299	4.1%
Wholesale trade	234	3.2%
Manufacturing	137	1.9%
Information	89	1.2%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

A.6. Hazard Identification and Risk Assessment

A.6.1. Identified Hazards

The CPT reviewed significant hazards for inclusion in the hazard mitigation plan. For the sake of consistency, the list of hazards for consideration began with the list of hazards found in San Luis Valley's Hazard Mitigation Plan, updated in 2018. In the 2022 update the CPT decided to add the following hazards: cyber-attack, hazardous materials, and pandemic/epidemic. Alamosa County's Table Overall Hazard Significance* Summary Table provides a summary of the overall hazard significance for the hazards evaluated in this plan, showing variability by jurisdiction in Table A-6 below.

Table A-6 Alamosa County Overall Hazard Significance* Summary Table

Hazard	Alamosa County	Alamosa	Hooper**	Alamosa County FPD	Rio Grande WCD
Avalanche	Low	Low	Low	Low	Low
Cyber Attack	Medium	Medium	Medium	Medium	Medium
Dam Failure	Medium	Medium	Medium	Medium	Medium
Drought	High	High	High	Medium	High
Earthquake	Low	Low	Low	Low	Low
Flood (Flash Flood & Levee Failure)	High	Medium	High	Medium	Medium
Hazmat	Medium	Medium	Medium	Medium	Medium
Hailstorm	Medium	Medium	Medium	Low	Low
Landslide	Low	Low	Low	Low	Low
Lightning	Low	Low	Low	Low	Low

Hazard	Alamosa County	Alamosa	Hooper**	Alamosa County FPD	Rio Grande WCD
Pandemic	Medium	Medium	Medium	Medium	Medium
Severe Winter Storm	High	High	High	Medium	Low
Tornado/High Winds	Medium	Medium	Medium	Medium	Medium
Wildland Fires	Medium	Medium	High	High	Medium

*Significance based on a combination of Geographic Extent, Potential Magnitude/Severity and Probability as defined below.**Not a participating jurisdiction in 2022 update

Geographic Extent Negligible: Less than 10 percent of planning area or isolated single-point occurrences Limited: 10 to 25 percent of the planning area or limited single-point occurrences Significant: 25 to 75 percent of planning area or frequent single-point occurrences Extensive: 75 to 100 percent of planning area or consistent single-point occurrences Potential Magnitude/Severity Negligible: Less than 10 percent of property is severely damaged, facilities and services are unavailable for less than 24 hours, injuries and illnesses are treatable with first aid or within the response capability of the jurisdiction. Limited: 10 to 25 percent of property is severely damaged, facilities and services are unavailable between 1 and 7 days, injuries and illnesses require sophisticated medical support that does not strain the response capability of the jurisdiction, or results in very few permanent disabilities. Critical: 25 to 50 percent of property is severely damaged, facilities and services are unavailable or severely hindered for 1 to 2 weeks, injuries and illnesses overwhelm medical support for a brief period of time or result in many permanent disabilities and a few deaths. overwhelmed for an extended period of time or many deaths occur. Catastrophic: More than 50 percent of property is severely damaged, facilities and services are unavailable or hindered for more than 2 weeks, the medical response system is overwhelmed for an extended period of time, or many deaths occur.	Probability of Future Occurrences Unlikely: Less than 1 percent probability of occurrence in the next year or has a recurrence interval of greater than every 100 years. Occasional: Between a 1 and 10 percent probability of occurrence in the next year or has a recurrence interval of 11 to 100 years. Likely: Between 10 and 90 percent probability of occurrence in the next year, or has a recurrence interval of 1 to 10 years Highly Likely: Between 90 and 100 percent probability of occurrence in the next year or has a recurrence interval of less than 1 year. **Overall Significance** Low: Two or more of the criteria fall in the lower classifications or the event has a minimal impact on the planning area. This rating is also sometimes used for hazards with a minimal or unknown record of occurrences/impacts or for hazards with minimal mitigation potential. Medium: The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is also sometimes utilized for hazards with a high impact rating but an extremely low occurrence rating. High: The criteria consistently fall along the high ranges of the classification and the event exerts significant and frequent impacts on the planning area. This rating is also sometimes utilized for hazards with a high psychological impact or for hazards that the jurisdiction identifies as particularly relevant.

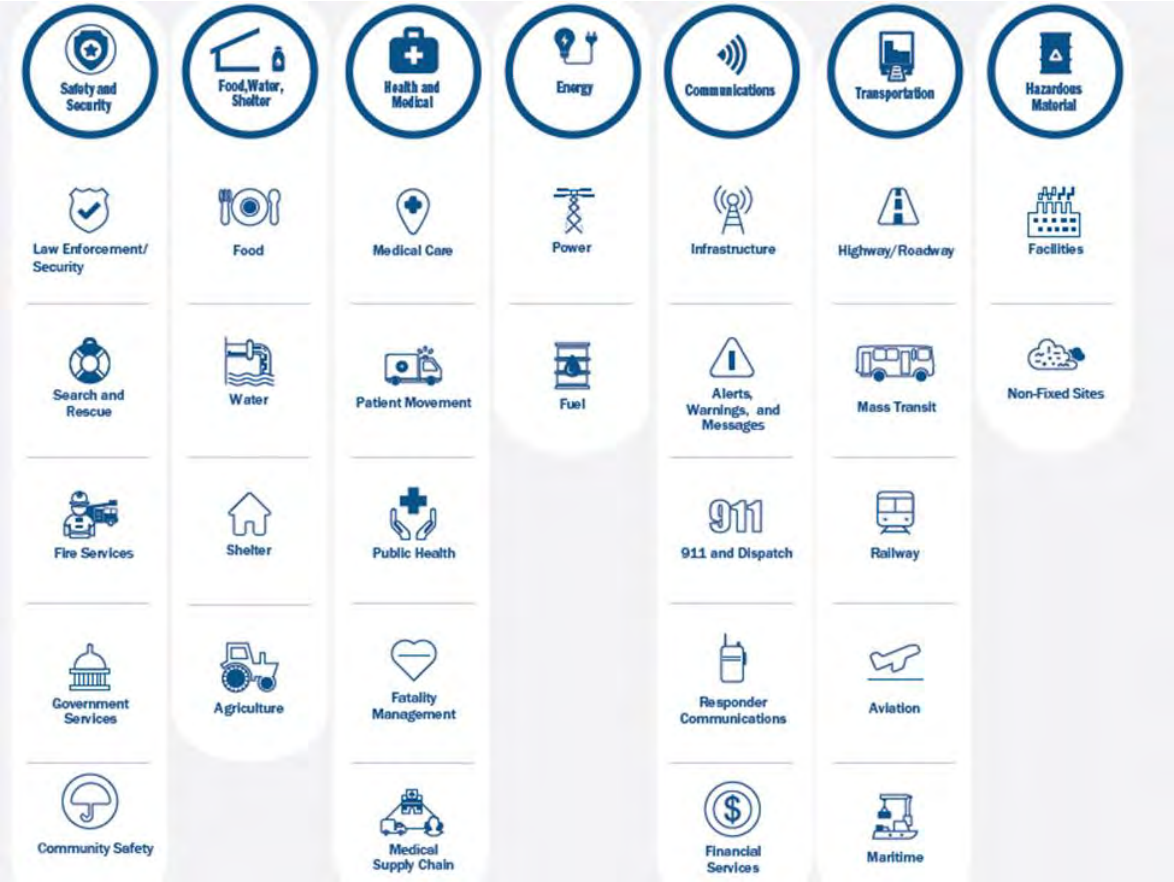
A.6.2. Building Inventory and Assets

Building Inventory and Assets for the San Luis Valley can be found in the 2022 San Luis Valley Regional Multi Hazard Mitigation Plan under the Risk Assessment and Hazard Identification section.

Critical Facilities, Infrastructure, and Other Important Community Assets

A critical facility is defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA organizes critical facilities into seven lifeline categories as shown in Figure A-1 for Alamosa County below.

Figure A-1 FEMA Lifeline Categories



A summary of the critical facilities exposure analysis can be found in Table A-7 below illustrates the number of critical facilities by jurisdiction.

Table A-7 Alamosa County Critical Facilities by Jurisdiction

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Total
Alamosa	21	3	1	5	21	20	2	**73**
Hooper	5	-	-	-	-	-	-	**5**
Unincorporated	21	18	-	5	6	7	17	**74**

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Total
Total	**47**	**21**	**1**	**10**	**27**	**27**	**19**	**152**

Source: CDPHE, CEPC, HIFLD, NBI, WSP GIS Analysis

Historic and Cultural Assets

National and state historic inventories were reviewed to identify historic and cultural assets in Alamosa 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 A-8 below lists the properties in Alamosa 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 A-8 Historic Properties and Districts on State and National Registers

Property Name	City/Town	Location	Date Listed
Alamosa County Courthouse*	Alamosa	702 Fourth Street	9/29/1995
Alamosa Masonic Hall	Alamosa	514 San Juan	5/14/1997
American National Bank Bldg.*	Alamosa	500 State Ave.	4/15/1999
Bain's Department Store	Alamosa	510 Main St. & 509 Hunt Ave.	9/13/1995
Denver-Rio Grande Railroad Depot*	Alamosa	610 State St.	2/11/1993
Denver-Rio Grande Railroad Locomotive #169	Alamosa	Cole Park	8/9/2000
First Baptist Church*	Alamosa	408 State Ave.	5/22/2005
Husung Hardware*	Alamosa	625 Main St.	1/28/2000
Mt. Pleasant School*	Alamosa	Junction of County Rd 3S and Rd. 103S	5/3/2006
Sacred Heart Catholic Church*	Alamosa	727 4th St	3/13/1996
St. Thomas Episcopal Church*	Alamosa	607 Fourth St.	3/4/2003
Hooper Store (Town Hall)*	Hooper	8681 Main St.	2/1/2006
Medano Ranch Headquarters*	Mosca (Unincorporated County)	Approximately 9 mi. NE of Mosca	2/4/2004
Superintendent's Residence, Great Sand Dunes NP	Mosca (Unincorporated County)	Colo. Highway 150, southwest of Mosca	11/2/1989
Trujillo Homestead*	Mosca (Unincorporated County)	Approximately 4 miles north of 6N Lane	2/4/2004
Zapata Ranch Headquarters*	Mosca (Unincorporated County)	5303 Colo. Hwy. 150	4/5/1993

Asterisk indicates properties on both the State and National Registers

Source: Directory of Colorado State Register Properties

According to the National Historic Preservation Act (NHPA), 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 NHPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

A.6.3. Vulnerability to Specific Hazards

This section details vulnerability to specific hazards, where quantifiable, only where it differs from that of the Region as a whole. The results of detailed GIS analyses used to estimate potential for future losses are presented here, in addition to maps of hazard areas and details by jurisdiction and building type. For a discussion of the methodology used to develop the loss estimates refer to Chapter 4 of the base plan. In many cases Chapter 4 contains information that differentiates the risk by county thus the information is not duplicated here. For most of the weather-related hazards the risk does not vary significantly enough from the rest of the Region and thus the reader should refer to Chapter 4. Only unique issues or vulnerabilities are discussed, where applicable.

- Avalanche
- Dam Incident
- Drought
- Earthquake
- Flood
- Hailstorm
- Severe Winter Weather
- Wildland Fires
- High Winds and Tornadoes
- Cyber Attack
- Hazardous Materials Incidents
- Pandemic

Avalanche

The avalanche risk is rated low for Alamosa County due to isolated impacts primarily in backcountry areas of the Sangre de Cristo Mountains.

Dam Incident

There are no high or significant hazard dams located in Alamosa County. However, due to the presence of several high hazard dams upstream of Alamosa County, there is considerable risk to lives and properties in Alamosa County, specifically to the City of Alamosa, in the event of a significant dam incident. High and significant hazard dams located upstream of Alamosa County include Beaver Park, Continental, Rio Grande, and Santa Maria dams. Table A-9 below shows the number of structures exposed to dam inundation from each upstream dam, and Figure A-2 illustrates the location of various dams in the county.

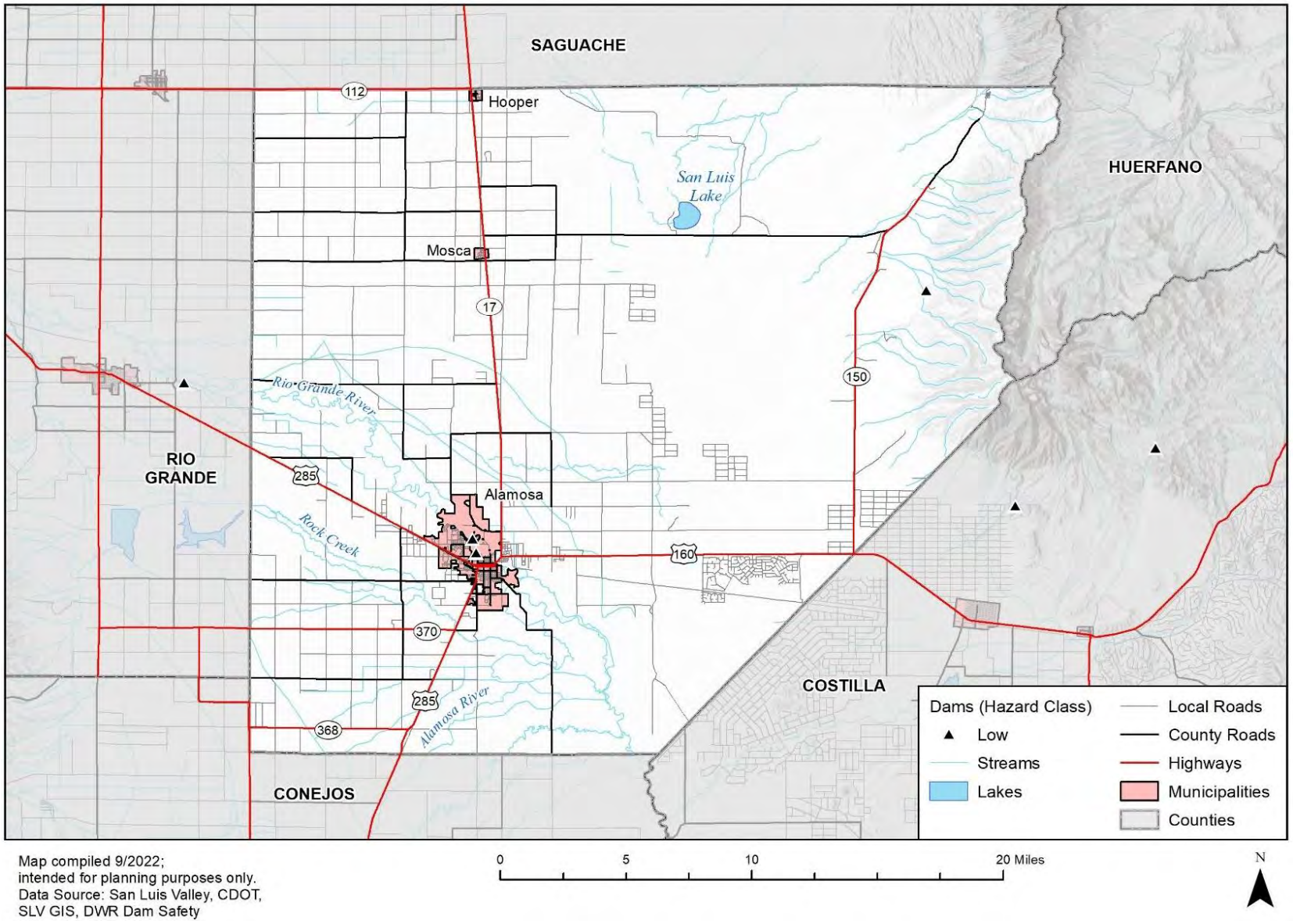
Table A-9 Structures at Risk to Dam Inundation by County and Jurisdiction

Dam Name (Hazard Class)	County	Jurisdiction	Structure Count
Beaver Park (High)	Alamosa	City of Alamosa	309
		Alamosa County	215
	Total		**524**
Continental (High)	Alamosa	City of Alamosa	42
		Alamosa County	600
	Total		**642**
Rio Grande (Significant)	Alamosa	City of Alamosa	3,682

Dam Name (Hazard Class)	County	Jurisdiction	Structure Count
		Alamosa County	1,228
	Total		**4,910**
Santa Maria (High)	Alamosa	City of Alamosa	3,651
		Alamosa County	1,072
	Total		**4,723**

Source: Microsoft Footprints 2021, DWR Dam Safety Program, WSP GIS Analysis

Figure A-2 Alamosa County Dams

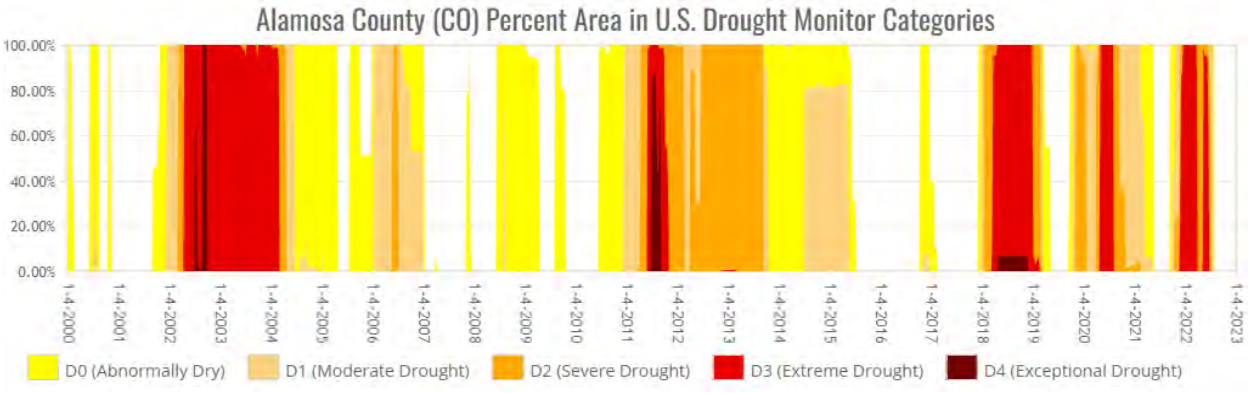


Drought

Drought was rated as a hazard of high concern in all counties in the planning area. Between 2012 and 2021, Alamosa County experienced 11 USDA emergency drought declarations. Alamosa County also recorded $30,308 in RMA indemnity payments in 2015 due to drought induced potato and barely loss.

The U.S. Drought Monitor (USDM) is a national data set released weekly, showing the severity of drought in locations across the nation. A time series showing the severity of drought in Alamosa County between 2000 and 2022 is shown below.

Figure A-3 USDM Drought Time Series for Alamosa County



Source: USDM; www.drought.gov

The National Drought Mitigation Center developed the Drought Impact Reporter in response to the need for a national drought impact database for the United States. Information comes from the public who visit the website and submit a drought-related impact for their region, members of the media, and members of relevant government agencies. Alamosa County had 42 reported impacts between 2013-2022.

Earthquake

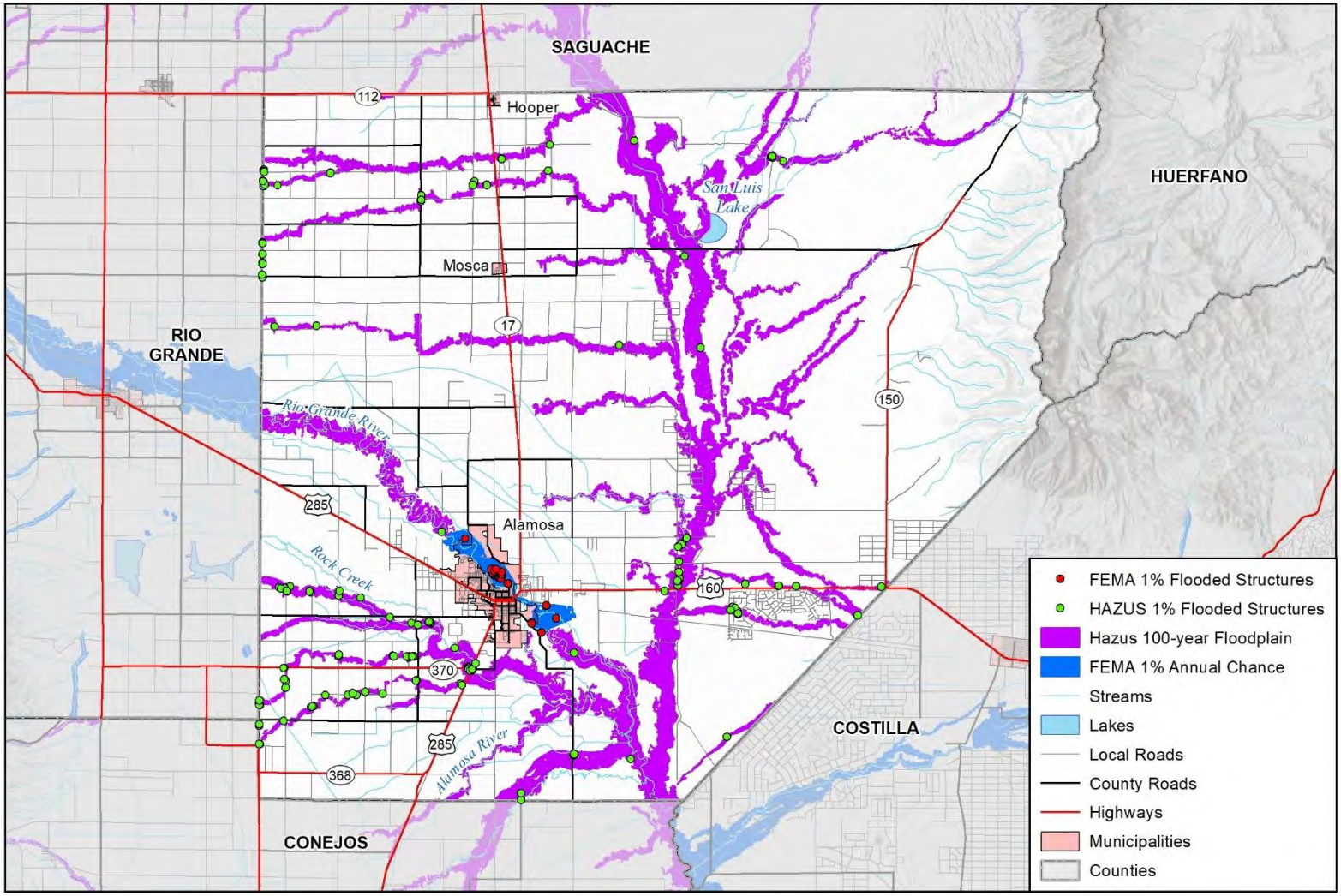
There are several known fault systems throughout the San Luis Valley, and the likelihood for seismic activity is fairly uniform throughout the region's counties. However, the potential severity of shaking and impacts to casualties and damage is not uniform. While there have been no past major earthquakes recorded with an epicenter within Alamosa County, the potential for a future earthquake centered in or nearby Alamosa County could have significant impacts. According to a Hazus analysis conducted, a 2,500-year probabilistic earthquake ground shaking could result in $475.4 million in total economic losses in the county. An estimated total of 2,278 buildings will experience at least moderate damage, and there would be an estimated 151 casualties, including 9 deaths, in this event scenario. These projections give Alamosa County the greatest expected losses of any county in the region for each metric analyzed by Hazus.

Refer to Chapter 4 for a discussion of the earthquake risk relative to Alamosa County and the wider Region.

Flood

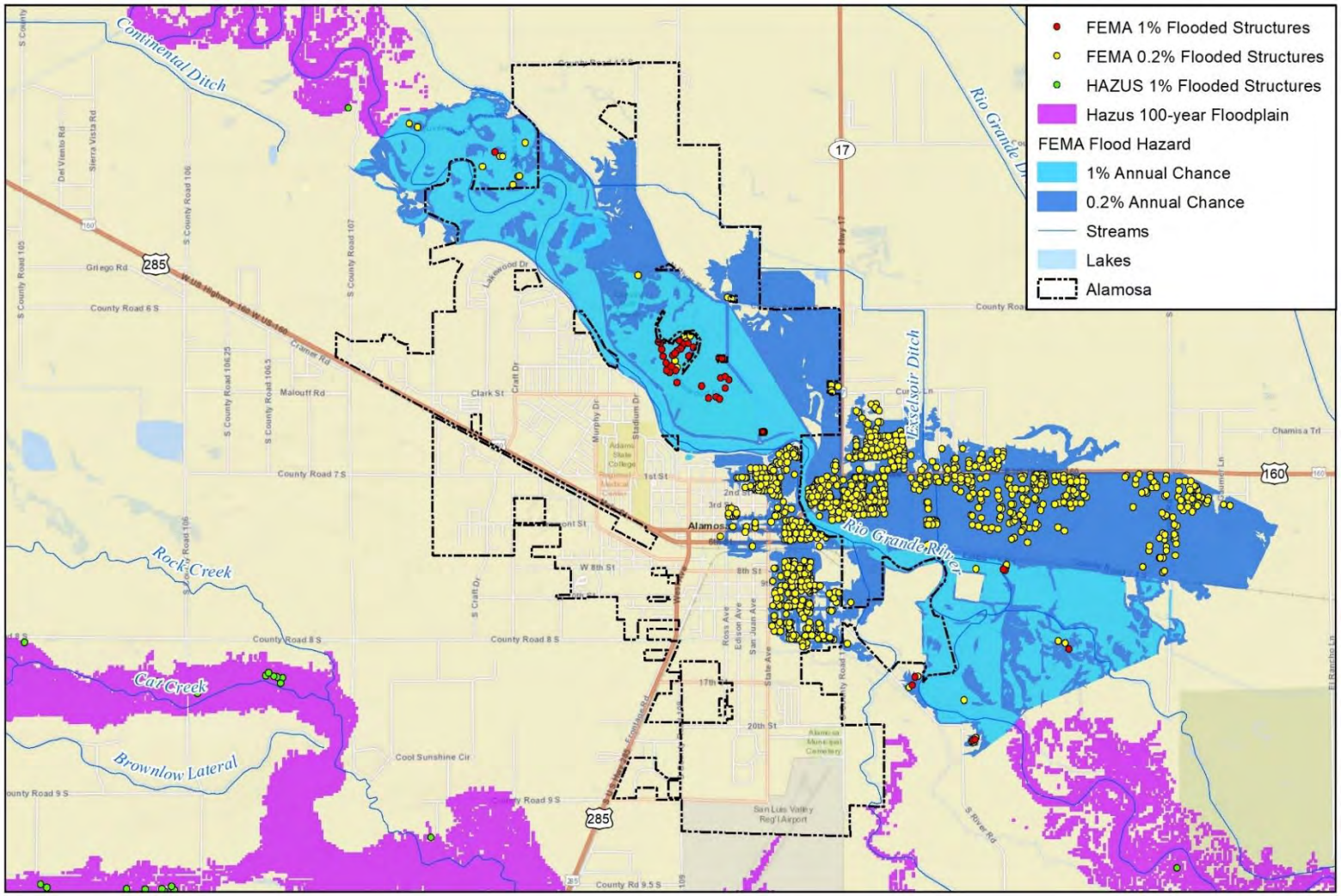
Figure A-4 and Figure A-5 shows the extent of the 1% annual chance floodplains throughout Alamosa County and the City of Alamosa.

Figure A-4 Alamosa County Flood Hazards & Structures



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Draft FEMA Flood Hazards for City of Alamosa,
FEMA Rio Grande NFHL 9/2/2011, Hazus 5.1

Figure A-5 City of Alamosa Flood Hazards



Structure Vulnerability Analyses and National Flood Insurance Program Statistics

An analysis of structures in the floodplain and NFIP claims data for the County and its municipalities can be found in the Base Plan under the Flooding Hazard Profile under the vulnerability assessment, people and property subsections.

Repetitive Loss Structures

There are no reported Repetitive Loss properties as of 2022 within the San Luis Valley.

Hailstorm

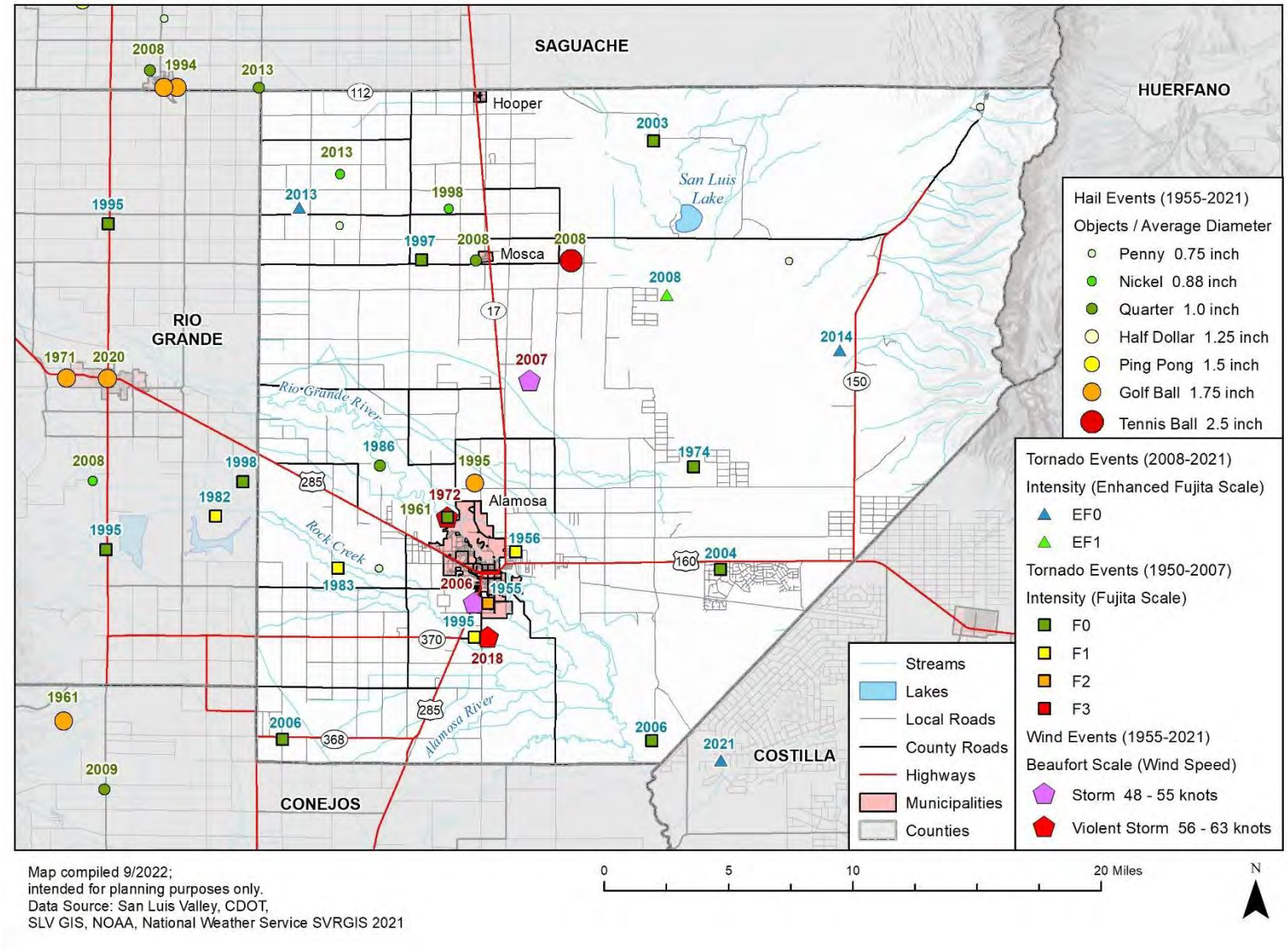
According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 67 years, from 1955-2022, there have been 14 hail events, none of which resulted in injuries or casualties. Most of the events took place in the City of Alamosa (5) followed by the towns of Hooper (3) and Mosca (2). The largest hailstone recorded in Alamosa County was 2.5 inches on August 16, 2008, in Mosca.

The only hail event recorded in Alamosa County that and resulted in damages occurred on August 10th, 1993, in near the City of Alamosa and resulted in $500,000 in property damages to aircrafts and cars at the airport, as well as $500,000 in estimated losses to barley fields. Members of the CPT noted that the 1982 hailstorm had significant impacts which also impacted the Hot Springs State Park.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 27,353.13 acres were lost to hail and $9,892,717.15 indemnity payments made to farmers in Alamosa County.

The figure below displays historic hail events in Alamosa County. Vulnerability to hail is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of hail risk related to Alamosa County and the Region.

Figure A-6 Alamosa County Historic Hail and Weather Events (1950-2021)



Lightning

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there have been 4 damaging lightning events in Alamosa County, one of which resulted in an injury. No casualties were recorded. Most of the events took place in the City of Alamosa (3) followed by the Town of Hooper (1).

On August 19th, 1996, a lightning event caused one injury when two 17-year-olds were struck by lightning in the City of Alamosa. One was taken to the hospital for observation and suffered a minor burn on her earlobe. A total of $42,000 in property damages due to lightning were recorded. On September 6th, 1997, $40,000 in damages occurred when lightning struck a mobile home in the City of Alamosa, setting it on fire and destroying the property. Additionally, $2,000 in damages were recorded on July 15th, 2007, when a lightning strike during the evening set 14 bales of hay on fire just west of Hooper.

Vulnerability to lightning is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of lightning risk related to Alamosa County and the Region.

Severe Winter Weather

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there have been a total of 375 winter weather related events in Alamosa County. Table A-10 summarizes these events. It is important to note that all winter weather related events are recorded on a zonal scale and therefore do not include information on nearest impacted city. Additionally, due to the nature of the zonal nature of these events, it is possible that some events and losses were duplicated in the datasets.

In total, $4,450,000 in property losses were recorded in the County, all due to blizzard events. The most destructive event occurred on April 11th, 2001, when a blizzard caused power loss to thousands of people for several days. Additionally, 200 people in busses needed to be rescued. The damages from the event were estimated to total $4,000,000.

No injuries were reported in the County, but two deaths were recorded. One occurred due to a blizzard on October 24th, 1997. The second occurred due to heavy snow on December 24th, 1997, when an 83-year-old slipped outside his home and died of exposure.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 8,311.57 acres were lost to cold weather-related events and $3,211,622 indemnity payments made to farmers in Alamosa County.

Vulnerability to severe winter weather is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of severe winter weather related to Alamosa County and the Region.

Table A-10 Summary of Winter Weather Events in Alamosa County

	Total Events	Days with Events	Property	Injury	Fatality
Blizzard	6	3	$4,450,000	0	1
Heavy Snow	107	71	$0	0	1
Winter Storm	246	134	$0	0	0
Winter Weather	16	7	$0	0	0
Total	**375**	**215**	**$4,450,000**	**0**	**2**

Source: NCEI

Wildland Fires

The most comprehensive fire data was available from the United States Department of Agriculture (USDA) Research Data Archive from 1992 to 2018. The dataset reported 127 fires of any size over the 26-year period in Alamosa County for a total of 704.11 acres burned.

The dataset provides information on fire size based on wildfire classes. The table below summarizes the number of wildfire events in the County based on class size. In Alamosa County, the most frequently occurring type of wildfire is a class A (one-fourth acre or less).

Table A-11 Alamosa County Wildfires by Class

Class	# of Events
Class A - one-fourth acre or less;	67
Class B - more than one-fourth acre, but less than 10 acres;	50
Class C - 10 acres or more, but less than 100 acres;	7
Class D - 100 acres or more, but less than 300 acres;	1
Class E - 300 acres or more, but less than 1,000 acres;	1
Class F - 1,000 acres or more, but less than 5,000 acres;	0
Class G - 5,000 acres or more.	0

Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

The figure below displays the frequency of wildfire events in the County by year. Alamosa County experienced the greatest frequency of wildfire events in 2011 (66 events) and 2010 (41 events).

Figure A-7 Alamosa County Wildfires by Year

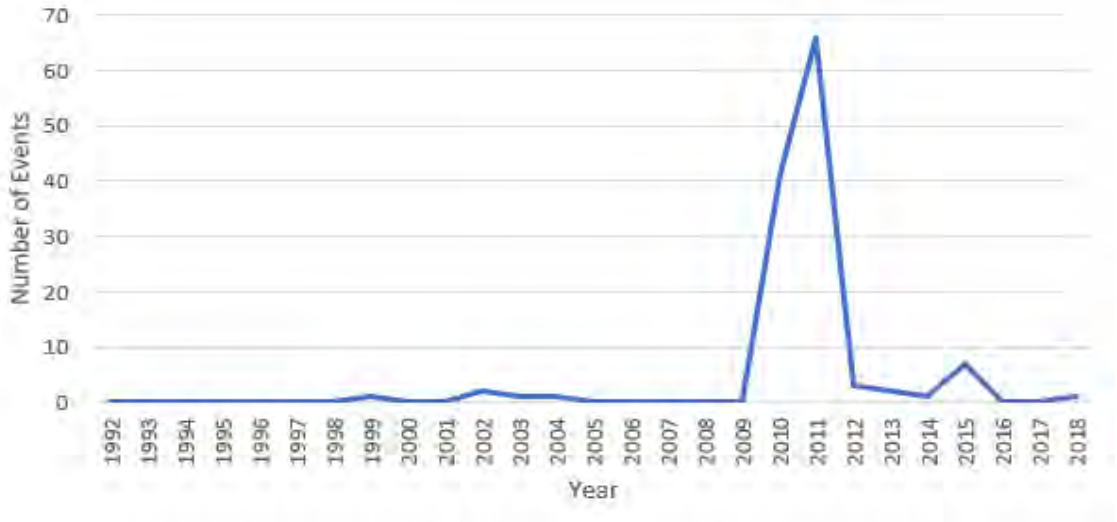


Figure by WSP, Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

Most of the wildfires that have occurred in Alamosa County do not have information on the cause of ignition (52.8%). However, for the fires that do have a confirmed cause, most were reported to be ignited by humans (40%).

Figure A-8 Alamosa County Wildfire Cause of Ignition

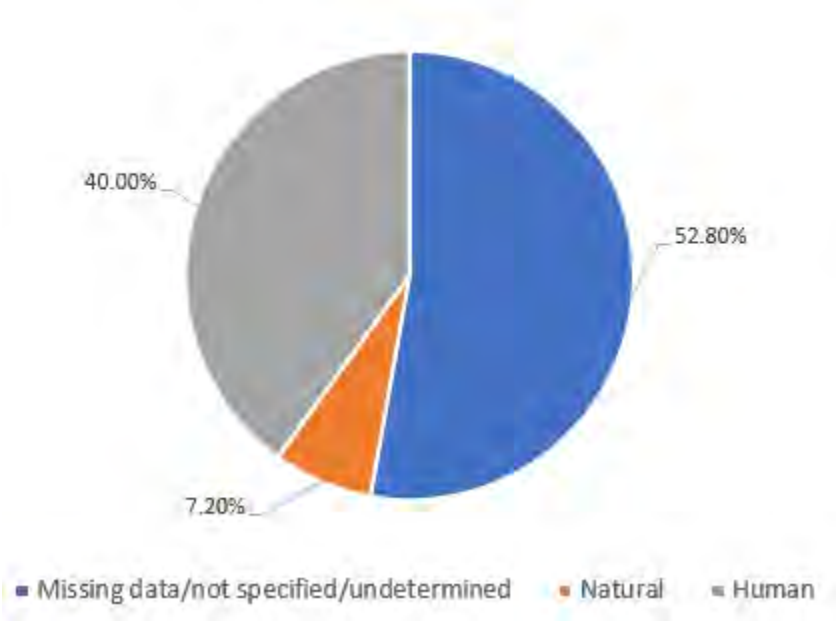
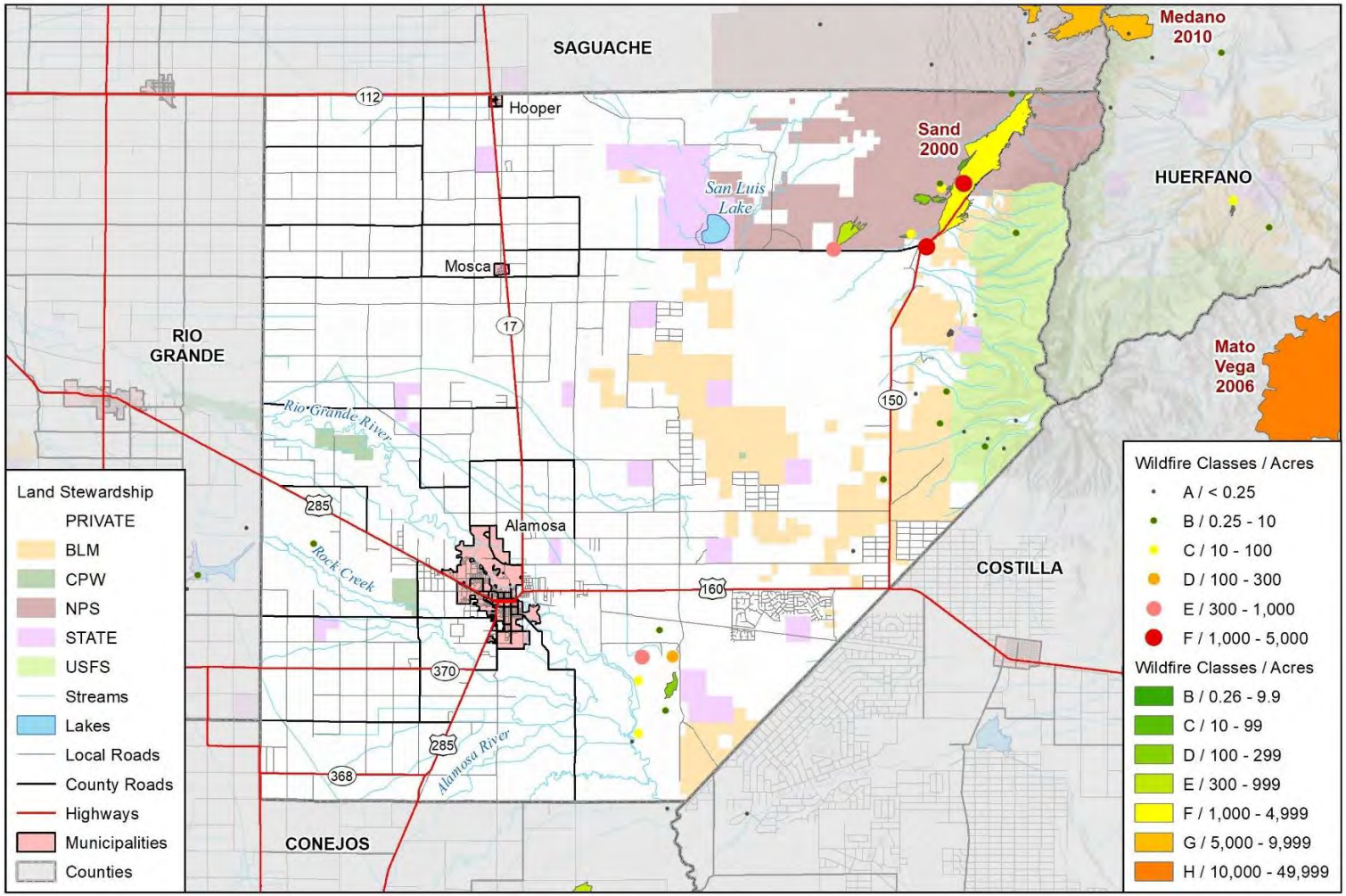


Figure by WSP, Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

According to the 2009 CWPP, the most significant wildfire hazard in the ACFPD is in the Zapata Subdivision, which has large homes with about 61 structures, 25 of which are occupied on a yearlong basis. The other identified WUI communities include Riverdance Preserves, San Luis Valley Ranches, Deer Valley Meadows, Hooper, Mosca, Sangre de Cristo Estates, Henry, 4-D Subdivision, and Cool Sunshine Ranch with low hazard ratings, Oasis with a moderate hazard rating, and Zapata/Urraca with a high hazard rating.

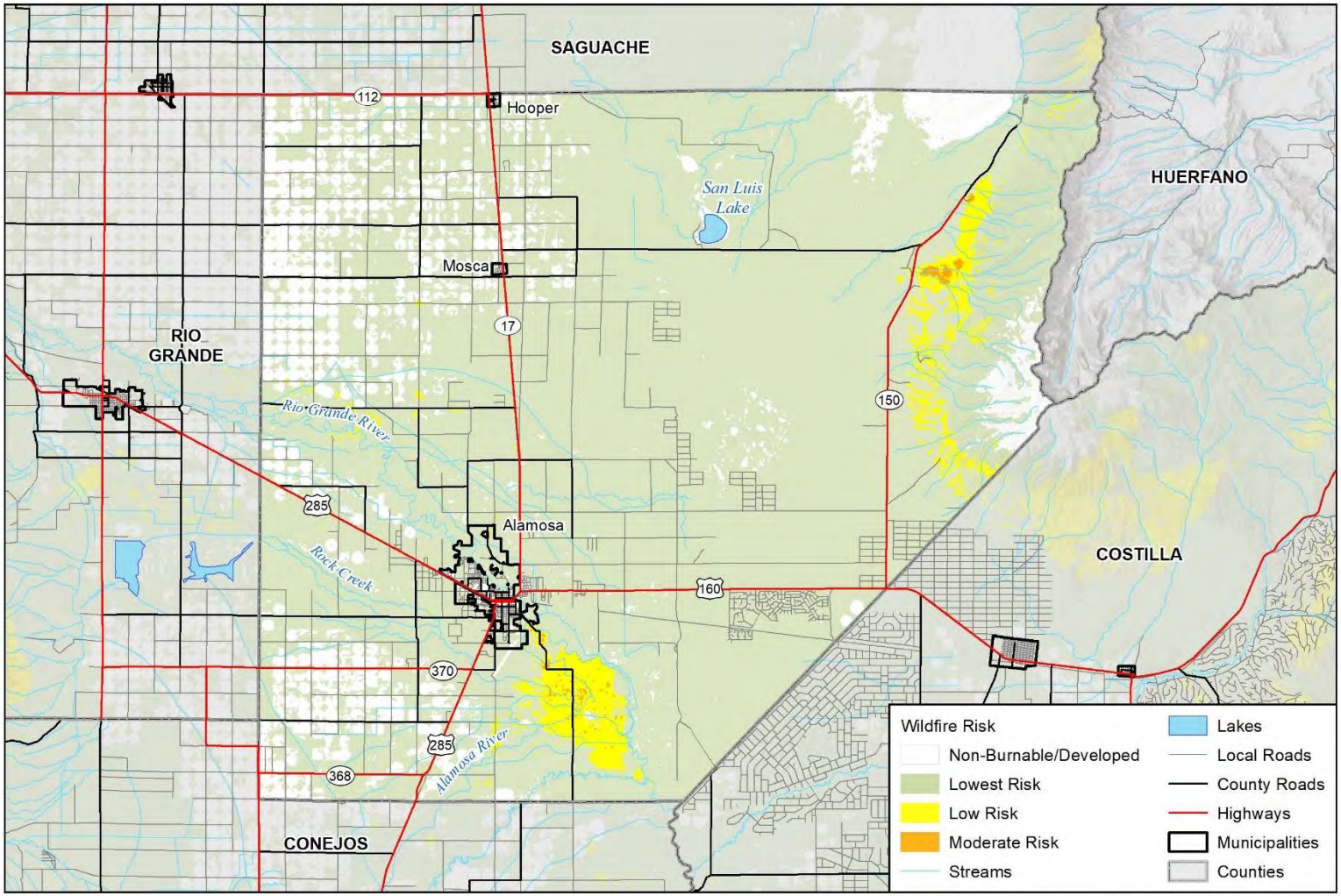
Alamosa County has one disaster declaration due to wildfires. This disaster declaration was declared in 2002 for the entire State of Colorado. The most significant wildfire to impact Alamosa County was the Sand Dunes Fire, which occurred in 2000 and burned over 8,500 acres between Alamosa County, Saguache County, and Costilla County. Figure A-9 below displays the history of wildfires in Alamosa County. Figure A-10 displays wildfire risk in the County. The two areas most likely to experience wildfire based on this map is the area southeast of the City of Alamosa and the eastern portion of the County. Figure A-11 and Figure A-12 display the wildland urban interface (WUI) and the WUI risk, which indicates the most vulnerable areas for human infrastructure to wildfire are in the City of Alamosa and a region in the eastern portion of the County along the mountain range.

Figure A-9 Alamosa County Wildfire History Map (1950-2022)



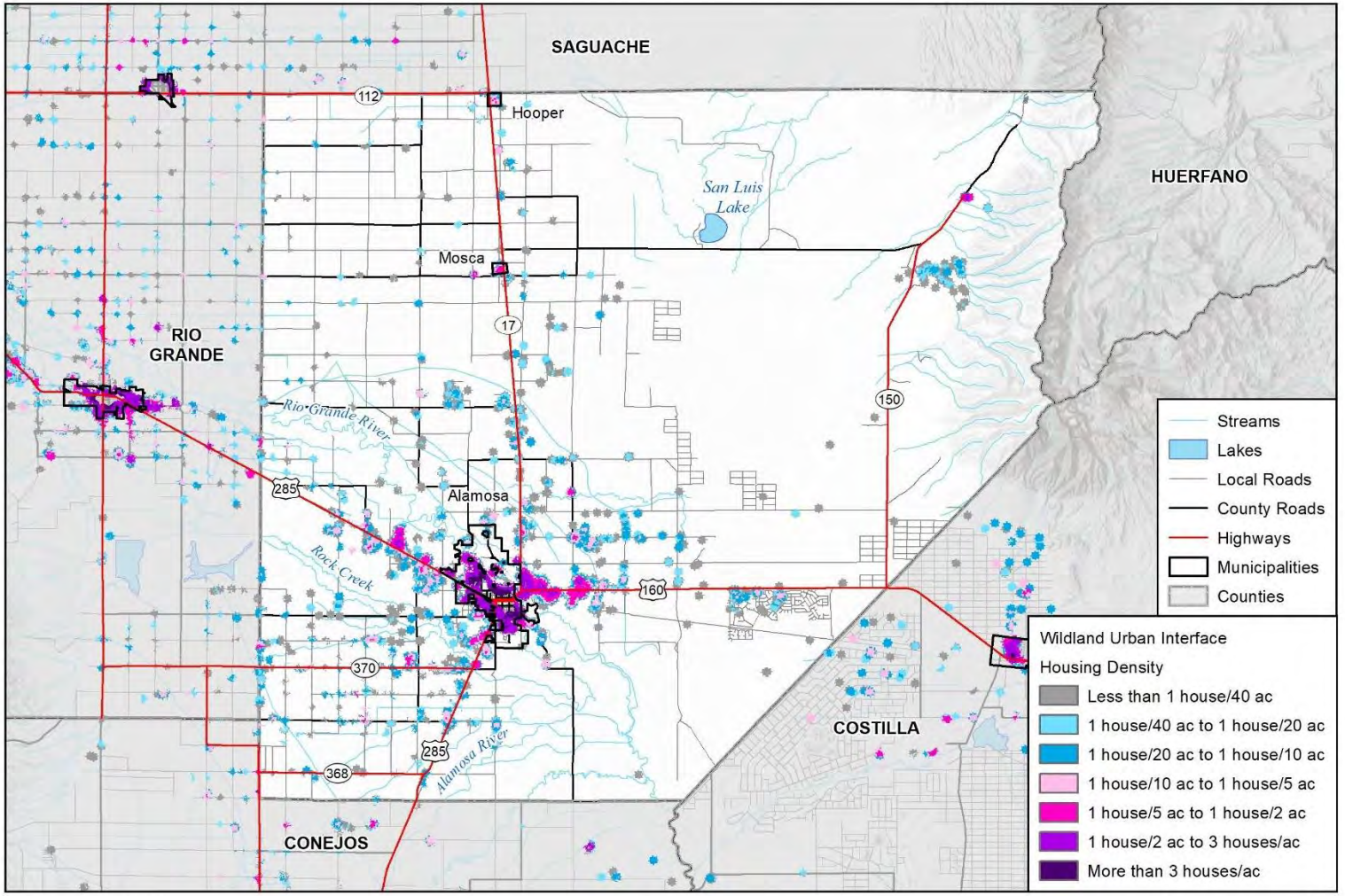
Map compiled 9/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, National Interagency Fire Center (NIFC),
USGS: BLM, FS, FWS, NPS

Figure A-10 Alamosa County Wildfire Risk Map



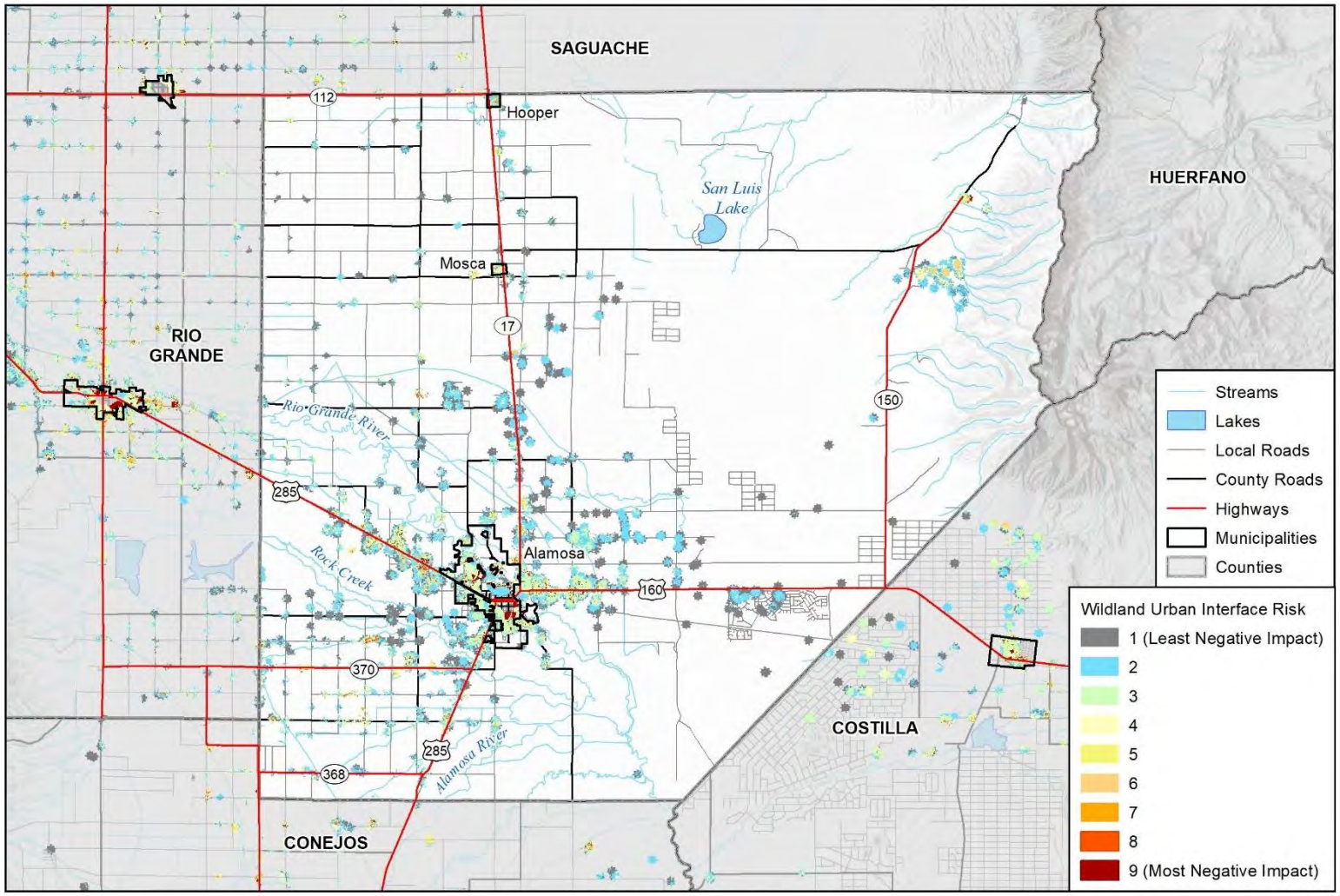
Map compiled 9/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

Figure A-11 Alamosa County Wildland Urban Interface



Map compiled 9/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

Figure A-12 Alamosa County Wildland Urban Interface Risk



Map compiled 9/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

High Winds and Tornadoes

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 72 years, from 1950-2022, there have been 179 high wind events, 11 thunderstorm wind events, and 17 tornado events in Alamosa County. While high wind events are recorded on a zonal scale and therefore do not include information on nearest impacted city, some thunderstorm and tornado events do. The most impacted city by thunderstorm wind events is the City of Alamosa (3) followed by the Town of Mosca (1). Similarly, the City of Alamosa was most frequently impacted by tornado events (7) followed by the Town of Mosca (4).

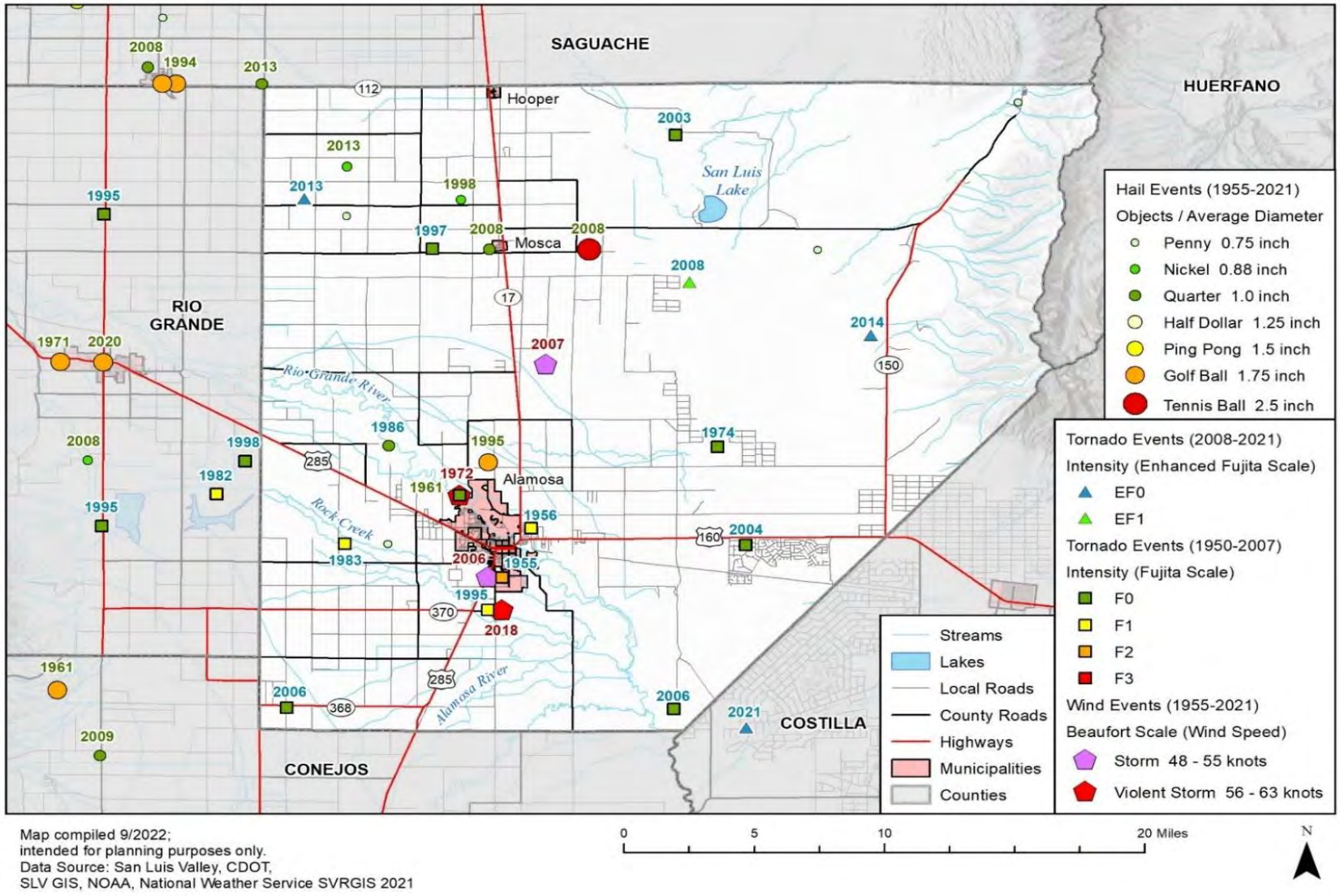
In total, six injuries were documented in the County, all due to high wind. Due to high winds being recorded on a zonal scale, it is uncertain if these injuries all occurred within the boundaries of Alamosa County, as they might have occurred in a nearby city outside of the County. No fatalities were recorded.

The highest windspeed recorded in Alamosa County reached 105 mph and the strongest tornado was an F2, which occurred on July 10th, 1955. In total, $381,840 in property damages were recorded in the County, $360,000 from high wind and $21,840 from seven tornado events. It is difficult to determine the exact location that high wind damage occurred in the County due to the zonal nature of the data. The most damaging tornado event in the County occurred on March 19th, 1995, when an F1 tornado touched down on a farm two miles south of the City of Alamosa and detached a large tractor shed from its foundation, causing $11,000 in damages.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 24,993.15 acres were lost to high winds and tornadoes and $3,044,899 indemnity payments made to farmers in Alamosa County.

The figure below displays historic high wind and tornado events in Alamosa County. Vulnerability to winds and tornadoes is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of wind risk related to Alamosa County and the Region.

Figure A-13 Alamosa County Historic Wind and Tornado Events (1950-2021)



Cyber Attack

All servers, networks, and users are vulnerable to cyber-attacks in the San Luis Valley Region. The Privacy Rights Clearinghouse lists 172 data breaches against systems located in Colorado, totaling over 5,812,743 impacted records; however, it is difficult to know how many of those affected residents in Alamosa County. Many small cyber-crimes also go unreported, so the true number of impacted residents in the community is likely much larger than the database estimates.

The database did report on one event that occurred in Alamosa County on June 11, 2006. The event took place in the City of Alamosa when a laptop computer stolen from a locked closet at Adams State College contained personally identifiable data belonging to 184 high school students who participated in the college's Upward Bound program over the last four years.

The San Luis Valley HMPC also noted that hospitals and elder populations have been popular targets for cyber-attacks across the region.

Vulnerability to cyber-attacks is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of cyber-attack risk related to Alamosa County and the Region.

Hazardous Materials Incidents

Hazardous materials vulnerability is significant within the San Luis Valley for transportation accidents due to the highways and railroad that passes through the County and all municipalities. Both Risk Management Plan and Tier II facilities are listed in the San Luis Valley's Multi Hazard Mitigation Plan in Table 4-75 and Table 4-74. According to San Luis Valley's Multi HMP, there have been 137 hazardous materials incidents in the project area from 1990 to 2021 with 31 of them taking place in Alamosa County. There are also multiple pipelines transporting hazardous materials across the counties in the study area as well.

Vulnerability of Special Districts

Alamosa County Fire Protection District (ACFPD)

The Alamosa County Fire Protection District (ACFPD) is an all-volunteer, paid per call department that provides fire suppression and rescue services in both the City and County of Alamosa. The ACFPD answers an average of 215 calls per year, ranging from structure and wildland fires to automobile accidents, in addition to routine investigations of smoke/odor reports and carbon monoxide alarms. The jurisdictional borders of the ACFPD coincide with the borders of Alamosa County except for two small areas in the northwest and southwest corners of the county that are serviced by neighboring fire departments. Consequently, the hazards, risks and potential consequences faced by the ACFPD are the same as those faced in the county at large.

The wildfire hazard in Alamosa County is elevated near the northeastern quadrant of the county, along the foothills of the Sangre de Cristo Mountains. The greatest vulnerability to wildland fire lies within the unincorporated parts of the county, where five significant wildfires have occurred since 2000 (see section 4.2.3 of this chapter). Chances for wildfires increase with periods of drought, high winds, and extreme heat conditions, all of which commonly occur in the San Luis Valley.

In May 2009, ACFPD completed a Community Wildfire Protection Plan (CWPP) that identifies 27,854 acres located within wildland-urban interface (WUI) areas (approximately 6.2 percent of the total 448,000 acres within Alamosa County). The overall risk from wildland fire varies depending on a variety of factors and vulnerability is generally limited to developed areas that are adjacent to wildland and agricultural fuel sources. Escaped open burns related to spring clearing of irrigation ditches are responsible for most of the

wildfire events within the fire protection district. Much of the privately-owned land area within the ACFPD been modified by agricultural production and other domestic uses.

According to the 2009 CWPP, the most significant wildfire hazard in the ACFPD is in the Zapata Subdivision, which has large homes with about 61 structures, 25 of which are occupied on a yearlong basis. Since 2009, internal subdivision plans that identify access and evacuation routes have been completed for the Zapata development and other subdivisions. One district-owned critical facility -- ACFPD Station 1 at 425 4th Street in Alamosa -- is located within the 100-year floodplain of the Rio Grande River.

Rio Grande Water Conservation District (RGWCD)

The Rio Grande Water Conservation District (RGWCD) is charged with implementing plans and policies to (1) improve total water management in the San Luis Valley, (2) maximize efficiency and water conservation, and (3) enhance and protect the water rights of citizens living within the district's boundaries. The borders of the RGWCD cover a five-county region, including Alamosa, Rio Grande, Conejos and portions of Saguache and Mineral Counties within the Rio Grande River basin. The RGWCD is authorized to collect taxes, fees, assessments, and surcharges to accomplish its mission.

With an average annual rainfall of only 7 inches, drought presents a continuous challenge to the RGWCD and other organizations attempting to meet the water supply needs of the agricultural economy of the San Luis Valley. Drought also disrupts normal recharge of the San Luis Valley aquifer from natural sources and river diversions. When water supply levels in the aquifer decline faster than they are recharged, farmers and ranchers face the risk of having wells shut off by state water regulators.

In 2006, the RGWCD initiated a groundwater management project designed to reverse a steady decline in aquifer levels. The strategy involved assessing farmers and ranchers for groundwater that they pumped and then using the funds to pay farmers to fallow parts of their fields, thereby limiting overall demand on the water supply. By 2012, the first phase of the initiative had resulted in a significant rebound in aquifer levels. However, more recent declines in the water table are a direct result of prolonged drought and increased groundwater consumption. The RGWCD coordinates its activities with fellow water management organizations in the Valley, including the Rio Grande Headwaters Restoration Project, Rio Grande Headwaters Land Trust, and the San Luis Valley Water Conservancy District.

A.7. Mitigation Capabilities Assessment

As part of the regional plan development, the Region and participating jurisdictions developed a mitigation capability assessment. Capabilities are those plans, policies and procedures that are currently in place that contribute to reducing hazard losses. Combining the risk assessment with the mitigation capability assessment results in "net vulnerability" to disasters and more accurately focuses the goals, objectives, and proposed actions of this plan. The CPT used a two-step approach to conduct this assessment. First, an inventory of common mitigation activities was made through the use of a matrix. The purpose of this effort was to identify policies and programs that were either in place or could be undertaken, if appropriate. Second, the CPT conducted an inventory and review of existing policies, regulations, plans, projects, and programs to determine if they contribute to reducing hazard related losses.

A.7.1. Alamosa County Regulatory Mitigation Capabilities

Table A-12 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the San Luis Valley and each participating jurisdiction. Excerpts from applicable policies, regulations, plans, and programs descriptions follow to provide more detail on existing mitigation capabilities.

Alamosa County, as well as the City of Alamosa, have adopted building codes as specified in Table A-12 without modifications. The county and communities will be evaluating codes in 2023 through a process being led by Colorado Counties Inc.

Table A-12 Alamosa County and Jurisdictions Regulatory Mitigation Capabilities

Planning & Regulatory Tools (ordinances, codes, plans)	Alamosa County	City of Alamosa	Town of Hooper	Alamosa County Fire Protection District	Rio Grande Water Conservation District
Comprehensive, Master, or General Plan	Yes (2008)	Yes	No	-	-
Emergency Operations Plan	Yes	No	No	-	-
Economic Development Plan	No	No	No	-	-
Capital Improvement Program or Plan (CIP)	No	Yes	No	-	-
Community Wildfire Protection Plan (CWPP)	Yes (2009)	Yes (2009)	Yes (2009)	Yes (2009)	-
Building Code	Yes	Yes	No	-	-
Building Code Year	2015 IBC	2015 IBC	No	-	-
Floodplain Ordinance	Yes	Yes	No	-	-
Zoning Ordinance	Yes	Yes	No	-	-
Subdivision Ordinance	Yes	Yes	No	-	-
Stormwater Ordinance	No	No	No	-	-
Site Plan Review Requirements	Yes (2009)	Yes (2009)	No	-	-
National Flood Insurance Program (NFIP) Participant	Yes	Yes	No - No SFHA	NA	NA
Community Rating System (CRS) Participant	Yes	Yes	No	NA	NA
Growth Management Ordinance	No	No	No	-	-
Floodplain Management Plan	No	-	No	-	-
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	No	-	No	-	-
BCEGS Rating	-	-	-	-	-
Erosion/Sediment Control Program	No	No	No	-	-
Flood Insurance Study	Yes	Yes	-	-	-
Floodplain Elevation Certificates	Yes	Yes	-	-	-
Other Hazard-Specific Ordinance or Plan (Steep Slope, Etc.)		-	-	-	-

A.7.2. Alamosa County Administrative and Technical Mitigation Capabilities

Table A-13 identifies the County and Town personnel responsible for activities related to mitigation and loss prevention in Alamosa County.

Table A-13 Alamosa County Jurisdictions Administrative/Technical Mitigation Capabilities

Administrative/Technical Resources	Alamosa County	City of Alamosa	Town of Hooper	Alamosa County Fire Protection District	Rio Grande Water Conservation District
Planner/Engineer (with knowledge of development practices)	Yes	Yes	No	N/A	N/A
Engineer/Professional (trained in construction practices)	Yes	Yes	No	N/A	N/A
Planner/Engineer/Scientist (with understanding of natural hazards)	Yes	Yes	No	N/A	N/A
GIS Capability	No	No	No	N/A	N/A
Full-Time Building Official	Yes	Yes	No	N/A	N/A
Floodplain Administrator	Yes	Yes	No	N/A	N/A
Emergency Manager	Yes	Yes	No	N/A	N/A
Grant Writing	Yes	Yes	No	N/A	N/A
Warning Systems / Services (general)	Yes	Yes	Yes	N/A	N/A
- Sirens	No	No	No	N/A	N/A
- Reverse 911	Yes	Yes	Yes	N/A	N/A
- IPAWS/Wireless Emergency Alerts	Yes	Yes	Yes	N/A	N/A
- Opt-In Notifications (CodeRed, Everbridge, etc.)	Yes	Yes	Yes	N/A	N/A
- Other warning systems	Social Media	Social Media	Social Media	N/A	N/A
Transportation Planner	No	No	No	N/A	N/A
Resiliency Planner	No	No	No	N/A	N/A
Other?	-	-	-	N/A	N/A

A.7.3. Alamosa County Financial Capabilities

Table A-14 identifies the County and Town financial tools or resources that the jurisdictions have access or are eligible to use and could potentially be used to help fund mitigation activities.

Table A-14 Alamosa County Jurisdictions Financial Capabilities

Financial Resources	Alamosa County	City of Alamosa	Town of Hooper	Alamosa County Fire Protection District	Rio Grande Water Conservation District
Levy for Specific Purposes with Voter Approval	Yes	Yes	No	-	Yes
Utilities Fees (Water, Sewer, Gas, or Electric Services)	Yes	Yes	No	-	Yes
Impact Fees for New System Development	No	No	No	-	-
Incur Debt through General Obligation Bonds	Yes	Yes	No	-	-
Incur Debt through Special Tax Bonds	Yes	Yes	No	-	-
Withhold Spending in Hazard-Prone Areas	Yes	Yes	No	-	-
Stormwater Service Fees	Yes	Yes	No	-	-
Capital Improvement Project Funding	Yes	Yes	No	-	-
Community Development Block Grants (CDBG)	Yes	Yes	No	-	-
Other?	-	-	-	-	-

A.7.4. Alamosa County Education and Outreach Capabilities

Table A-15 shows the mitigation education and outreach capabilities the County and jurisdictions have in place now. Additional information shared by the CPT is listed after the table.

Table A-15 Alamosa County Education and Outreach Capabilities

Education & Outreach	Alamosa County	City of Alamosa	Town of Hooper	Alamosa County Fire Protection District	Rio Grande Water Conservation District
Public Education / Outreach Program	Yes	Yes	No	-	-
Local Citizen Groups That Communicate Hazard Risks	No	No	No	-	-
Firewise	No	No	No	-	-

Education & Outreach	Alamosa County	City of Alamosa	Town of Hooper	Alamosa County Fire Protection District	Rio Grande Water Conservation District
StormReady	No	No	No	-	-
Other?	-	-	-	-	-

A.7.5. Opportunities for Enhancement

Based on the capabilities assessment, Alamosa County has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the County to expand or improve on their policies, programs and fiscal capabilities and further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Additional training opportunities will help to inform County and Town staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train staff on mitigation and the hazards that pose a risk to the Alamosa County will lead to more informed staff members who can better communicate this information to the public.

Other opportunities include improved cross-jurisdictional communication on evacuation and awareness to mitigate life safety impacts during dam incidents, floods, or wildfires including the development of brochures and using existing communication capabilities through social media such as Facebook. Other opportunities could include:

- Become StormReady

A.8. Mitigation Strategy

This section describes the mitigation strategy and mitigation action plan for Alamosa County. See Chapter 5 of the base plan for more details on the process used to develop the mitigation strategy.

A.8.1. Goals

During the creation of the 2022 Regional Plan, the Alamosa County planning team decided to revise their goals slightly from their previous iteration. The adopted goals are as follows:

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

A.8.2. Progress of 2018 Actions

During the 2022 planning process the Alamosa County Planning Team reviewed all the mitigation actions from the 2018 plan. Of their 44 mitigation actions from 2018, 30 of the actions are continuing and are implemented annually, demonstrating ongoing progress and building the community's resiliency to disasters. One (1) action was completed since 2018 and is detailed below (Table A-16).

Table A-16 Completed and Deleted Actions

2018 ID	Mitigation Action	Hazards Mitigated	Jurisdiction	Priority	Status/Implementation Notes
Alamosa - 11	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.	Flash Flood, Hail, Tornado, Wind, Winter Storm	Alamosa County	High	Completed.

A.8.3. Mitigation Action Plan

As a part of the 2022 regional planning process, the CPT reviewed the list hazard mitigation actions or projects specific to Alamosa County and its jurisdictions from the previous HMP and brainstormed ideas for new actions. The process used to identify, develop, and prioritize these actions is described in Chapter 5 of the base plan. In lieu of developing new actions, some jurisdictions chose to focus on the actions previously identified that are either in progress or still need to be completed.

The County Planning Team identified and prioritized the following mitigation actions based on risk assessments, goals, and objectives. Background information as well as information on how the action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and timeline also are described. Per the DMA requirement, actions have been identified that address reducing losses to existing development as well as future development. Those that reduce losses to future development are indicated by an asterisk (*) in the Action Identification (ID) column in Table A-17.

Table A-17 Alamosa County Mitigation Action Plan

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
A.1	Goals: 1, 2	Improve education and awareness of fuels reduction techniques in wildland-urban interface areas.	Wildland Fires	Alamosa County, Alamosa Fire Protection District	Alamosa Fire Protection District, Colorado State Forest Service	Annual Implementation	< $10,000; existing county budgets, CSFS, USFS	High	Continue – In Progress.
A.2	Goals: 1, 2, 3	Seek updated FEMA digital flood maps (DFIRMs) and explore local Base Flood Elevation (BFE) mapping opportunities.	Flood	Alamosa County	Land Use	2025	more than $20,000; existing county budgets, grant funding	High	Continue – In Progress.
A.3	Goals: 2	Continue to implement the recommendations of the Rio Grande Headwaters Restoration Project (RGHRP). The Rio Grande is suffering from heavily eroding banks, degraded riparian areas, sedimentation, and a shallow channel. Phase 5 of the Streambank	Flood, Drought; Collectively, these efforts have resulted in improved bank stability and water quality, reconnected floodplains, restored riparian vegetation and aquatic habitat, and improved flood and	Alamosa County	Rio Grande Headwaters Restoration Project (RGHRP)	Annual Implementation	more than $20,000; State Water Plan funding, CWCB, National Fish and Wildlife Foundation and the Wells Fargo Foundation	High	Continue – In Progress. In 2019, the Restoration Project received a $200,000 Resilient Communities Grant from the National Fish and Wildlife Foundation and the Wells Fargo Foundation for Phase 5. Along with grants from the Colorado

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		Stabilization and Riparian Restoration Program will address these issues on several bends upstream of Alamosa through bank stabilization, channel shaping, and revegetation. The completion of these four sites will have the added benefit of connecting previously restored sections of river, creating a restored reach of the Rio Grande nearly 4 miles long.	drought resiliency.						Water Conservation Board, Colorado Healthy Rivers Fund, San Luis Valley Conservation Connection Initiative, American Forests, and community donations, funding was secured for four project sites upstream of Alamosa. Robins Construction began work in the winter of 2020 restoring streambanks within the Alamosa Riparian Park.
A.4	Goals: 1, 2	Increase public awareness of severe weather hazards and identify opportunities for exposing	Flash Flood, Hail, Tornado, Wind, Winter Storm	Alamosa County	OEM	Annual Implementation	less than $5,000; existing county and school budgets, FEMA HMA	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		students to mitigation studies, actions and plans.					grant funding		
A.5	Goals: 1	Increase shelter capacity throughout the county (coordinate with the Red Cross).	Flood, Winter Storm	Alamosa County	OEM Red Cross	Annual Implementation	less than $10,000; existing county budgets, Red CRoss	High	Continue – In Progress.
A.6	Goals: 1, 2, 3	Revise land use regulations to include flood and wildfire mitigation.	Flood, Wildland Fires	Alamosa County	Land Use	2025	less than $10,000; existing county budgets, staff time	Medium	Continue – In Progress.
A.7	Goals: 1, 2	Improve flood permitting process and regulate floodplain in conformance with NFIP requirements.	Flood	Alamosa County	Land Use	2026	less than $10,000; existing county budgets, staff time	Medium	Continue – In Progress.
A.8	Goals: 1	Conduct study and develop a shelter plan for vulnerable populations in unincorporated areas, including the town of Hooper.	Winter Storm	Alamosa County	OEM Hooper	2025	less than $10,000; existing county budgets, staff time	High	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
A.9	Goals: 1	Incorporate student population into mitigation studies, actions, and/or planning.	Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildfire	Alamosa County	OEM	Annual Implementation	less than $10,000; existing county budgets, staff time	Medium	Continue – In Progress.
A.10	Goals: 1, 2	Improve preparedness for long-term power outages and increase awareness of alternate energy sources.	Wind, Winter Storm	Alamosa County	OEM/Land Use	2026/annual	more than $20,000; existing county budgets, grant funding	Medium	Continue – In Progress.
A.11	Goals: 1	Investigate opportunities for mitigating health hazards resulting from windstorms that produce particulate matter in excess of health standards.	Wind	Alamosa County	Public Health/Emergency Preparedness and Response	Annual Implementation	less than $10,000; existing budgets, staff time	Medium	Continue – In Progress.
A.12	Goals: 2, 3	Address issues raised in the US Army Corps of Engineers Study Continuing Eligibility	Flood	City of Alamosa	Alamosa Public Works	2025	less than $10,000; Grant Funding, USACE cost sharing programs	High	Continue – In Progress. Compliance and maintenance issues with USACE are being evaluated by the

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		Inspection (CEI) 9/15/2008.							USACE and the City of Alamosa. Without certification of the levee, the USACE has placed the project on the inactive status for the rehabilitation inspection program.
A.13	Goals: 1, 2	Improve flood permitting process and regulate floodplain in conformance with NFIP requirements.	Flood	City of Alamosa	City of Alamosa Floodplain Administrator	2026	more than $100,000; FEMA HMA grant, Existing city budget	High	Continue – In Progress.
A.14	Goals: 1, 2, 3	Seek updated FEMA digital flood maps (DFIRMs) and explore local Base Flood Elevation (BFE) mapping opportunities.	Flood	City of Alamosa	City of Alamosa Floodplain Administrator	2026	Less than $10,000; existing city budgets, grant funding	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
A.15	Goals: 1	Develop shelter plan for vulnerable populations within the City of Alamosa.	Flood, Winter Storms	City of Alamosa	Alamosa FPD	2026	less than $20,000; Staff time and existing budget	High	Continue – In Progress.
A.16	Goals: 1, 2	Increase public awareness of severe weather hazards and identify opportunities for exposing students to mitigation studies, actions and plans.	Flash Flood, Hail, Tornado, Wind, Winter Storm	City of Alamosa	OEM, City of Alamosa	2025	Less than $10,000; existing city budgets, FEMA HMA grnat funds	High	Continue – In Progress.
A.17	Goals: 1, 2	Improve preparedness for long-term power outages and increase awareness of alternate energy sources.	Wind, Winter Storm	City of Alamosa	Alamosa Public Works	2025	Less than $10,000; existing city budgets, staff time	Medium	Continue – In Progress.
A.18	Goals: 1, 2, 3	Incorporate goals and principles of the Alamosa County Hazard Mitigation Plan	Avalanche, Dam Incident, Drought, Earthquake, Flood,	City of Alamosa	City of Alamosa	2026	Less than $10,000; existing city budgets, staff time	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		into process of developing new City Comprehensive Plan.	Landslide/Debris Flow Rockfall, Lightning, Severe Winter Weather, Wildland Fires						
A.19	Goals: 1, 2, 3	Rio Grande River Levee System Recertification and implementation of 2019 Phase 1 Levee Assessment Report to enhance resilience of levee system	Flood	City of Alamosa	Alamosa Development Services, public works, Parks and Recreation, County Land Use	2023-2024	More than $100k; USACE grant funding or cost sharing, FEMA HMA grant	High	New in 2022 – RFP for consultant released in Dec 2022
A.20	Goals: 1, 2, 3	Provide guidance and educational materials to property owners in the Hooper-Mosca area to enhance local wildfire mitigation efforts, including fuel reduction, defensible-spacing, weed abatement, brush	Wildland Fires, Windstorms	Town of Hooper	Town of Hooper	2027	Less than $10,000; CSFS grants, staff time, existing budgets	High	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		management, open-burn coordination, and use of fire-resistant building materials.							
A.21	Goals: 1	Increase public awareness of severe weather hazards.	Hail, Tornado, Wind, Winter Storm	Town of Hooper	OEM/Town of Hooper	2024	Less than $5,000; Staff time, existing budgets	Medium	Continue – In Progress.
A.22	Goals: 1, 2, 3	Implement recommended actions identified in the ACFPD Community Wildfire Protection Plan (2009), including fuels treatments along evacuation routes and safety zones and other ongoing efforts to reduce fuel loads, coordinate ditch-burning, and create defensible and survivable spaces.	Wildland Fires	Alamosa County Fire Protection District	OEM/ACFPD	2024	Less than $5,000; Staff time, existing budgets	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
A.23	Goals: 2, 3	Establish and maintain a water conservation process for protecting aquifer levels.	Drought	Rio Grande Water Conservation District	Rio Grande Water Conservation District	Annual Implementation	Less than $5,000; Staff time, existing budget	Medium	Continue – In Progress.
A.24	Goals: 1, 2, 3	Develop a wildland urban interface code	Wildland Fires	Alamosa County	Land Use/Zoning	2026	$20,000; CSFS Grants, Staff time, existing budgets	Medium	New in 2022
A.25	Goals: 1, 2	Zapata Evacuation Plan. Includes 2nd egress route	Wildland Fires	Alamosa County	OEM	2026	Less than $20,000; CSFS Grants, Staff time, existing budgets	High	New in 2022
A.26	Goals: 2	Identify and promote groundwater recharge projects where feasible to increase resiliency to drought.	Drought	Alamosa County	OEM; San Luis Valley Water Conservancy District; Rio Grande Water Conservancy District	2023-2028	more than $100,000; FEMA HMA Grant, BRIC	Low	New in 2022
A.27	Goals: 2	Enhance power grid resiliency through coordination with local utility	Earthquake, flooding, hailstorm, high winds and tornadoes,	Alamosa County	OEM, Utility providers	2023-2028	More than $100,000; Private-public partnerships,	High	New in 2022

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		providers and partnerships on mitigation where possible.	lightning, severe winter storm, wildland fires, cyber attack				FEMA HMA Grant, BRIC		
A.28	Goals: 2, 3	Increase coordination with federal partners (Sand Dunes) related to wildfire mitigation efforts.	Wildland Fires	Alamosa County; Alamosa County Fire Protection District	OEM	2023-2028	Less than $20,000; CSFS Grants, Staff time, existing budgets	Low	New in 2022

A.9. Plan Implementation and Maintenance

Moving forward the Alamosa County HMPC will use the mitigation action table in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 6 of the base plan.

A.9.1. Incorporation into Existing Planning Mechanisms

As described in the capability assessment, the County already implements policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. Where applicable, these existing mechanisms could include:

- Alamosa County Master Plan
- Alamosa County Emergency Operations Plan
- Alamosa County Community Wildfire Protection Plan (2009)
- 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 process for incorporation of the Regional Hazard Mitigation Plan into other planning mechanisms can be as simple as cross-referencing the Hazard Mitigation Plan where applicable. Integrated planning is a key to building community resiliency.

Annex B Conejos County

Annex B. Conejos County

B.1. Mitigation Planning and County Planning Team

Conejos County updated this annex during the development of the 2023-2028 San Luis Valley Regional Hazard Mitigation Plan. This County Annex builds upon previous versions of the Conejos County Hazard Mitigation Plan completed in 2018. As part of the regional planning process the County established a County Planning Team (CPT) to develop the mitigation plan and identify potential mitigation projects. The following jurisdictions participated in the DMA planning process for the County.

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

More details on the planning process followed and how the counties, municipalities and stakeholders participated can be referenced in Chapter 3 of the base plan. Details on which local government departments participated and who represented them are listed in the following table.

Table B-1 Conejos County List of Participants

Name	Jurisdiction	Title
Annarae Smith	Conejos County	Public Health EPR & Office Manager
Denise Jiron	Conejos County	Public Health Director
Linda DeHerrera	Conejos County	Land Use Administrator
Lionel Valdez	Northwest Conejos Fire Protection District, Capulin Fire	Chief Capulin Fire Department
Mitchell Jarvies	Conejos County	Commissioner
Carlos Garcia	Conejos County	Commissioner
Joseph Baros	Conejos County	Commissioner
Tressesa Martinez	Conejos County	Chief Financial Officer & Administrator
Connie Ricci	Conejos County	Human Relations & PIO
Rodney King	Conejos County	Emergency Management Coordinator
Paul Jiron	Town of Antonito	Mayor
Paula Medina	Town of La Jara	Mayor
Larry Zaragoza	Town of La Jara	Town Manager
Dan Bond	Town of Manassa	Mayor
Don Martinez	Town of Romeo	Mayor
Brian Crowther	Town of Sanford	Mayor
Austin Valdez	Northwest Conejos Fire Protection District, LaJara Fire Chief	Fire Chief
Paul Duran	South Conejos Fire Protection District	Chief Antonito Fire Department
Richard Martin	Central Conejos Fire Protection District	Chief Manassa Fire Department

B.2. Geography and Climate

Conejos County, originally called Guadalupe County, was one of the original 17 counties created by the Colorado legislature on November 1st, 1861. While it formerly had included much of the southwestern

corner of Colorado, in 1874 much of the western and northern portions of the County were carved out to form other counties, including the Rio Grande County. It is comprised of five towns, Antonito, La Jara, Manassa, Romeo, and Sanford, two census-designated places (CDP), Capulin and Conejos, and 21 unincorporated communities.

About half of the County's 1,291 square miles lay on the floor of the San Luis Valley at an altitude of 7,700 feet above sea level. The western half of the County spans gently rolling foothills to the peaks of the San Juan Mountains, reaching about 13,000 feet.

The County is known for its moderate summers and cool winters, with temperatures averaging 62°F in the summer and 22°F in the winter. Much of the 15.3 inches of annual precipitation in Conejos County falls between June and September, with August being the wettest month. Snowfall averages 77.6 inches annually, falling primarily between September and June.

B.3. Population Trends

The population of Conejos County has remained largely stable in the years between 2015 and 2020.

Roughly half of the County's residents live in unincorporated Conejos County, although this trend has been waning in recent years. Between 2019 and 2020, the population of unincorporated Conejos County decreased by 8.5%, formerly representing 52.7% of the County's total population down to 48.2%. During the same time frame the population of the Town of Sanford increased by 37.3%.

Table B-2 provides a summary of the population change in the county and its municipalities from 2015 to 2020.

Table B-2 Population Estimates for Communities 2015-2020

	2015	2016	2017	2018	2019	2020
Conejos County Total	**8,249**	**8,213**	**8,147**	**8,142**	**8,128**	**8,130**
Town of Antonito	757	789	806	645	656	730
Town of La Jara	713	666	677	835	817	880
Town of Manassa	1,060	990	1,005	1,020	996	1,039
Town of Romeo	337	340	305	312	305	306
Town of Sanford	918	897	855	935	1,073	1,260
Unincorporated Conejos County	4,464	4,531	4,499	4,395	4,281	3,915

Source: US Census ACS 5-Year Estimates

Select Census demographic and social characteristics for Conejos County are shown in Table B-3. The table indicates the proportion of the population that may have special needs, such as elderly or children under 5 years of age.

Table B-3 Conejos County Demographic Profile

Characteristic	% of Total Population
Gender/ Age	
Male	50.3%
Female	49.7%
Under 5 Years	6.4%
65 Years and Over	19.0%
Race/Ethnicity	
White	44.8%

Characteristic	% of Total Population
American Indian/Alaska Native	0.9%
Asian	0.3%
Black or African American	0.3%
More Than One Race	1.4%
Hispanic or Latino of Any Race[1]	52.2%
Education (25+ Years)	
High School Graduate or Higher	87.7%
Bachelor's Degree or Higher	25.5%

Source: U.S. Census Bureau, 2020 5-Year American Community Survey

1 The U.S. Census Bureau considers the Hispanic/Latino designation an ethnicity, not a race. The population self-identified as "Hispanic/Latino" is also represented within the categories in the "Race" demographic.

B.4. Development Trends

Between 2015 and 2020, the population of unincorporated Conejos County decreased significantly. However, the losses in unincorporated areas were outpaced by gains in incorporated areas. Specifically, between 2015 and 2020, the Town of La Jara experienced a 23.4% increase in population, and the Town of Sanford experienced an increase of 37.3%.

According to the 2020 American Community Survey 5-Year Estimates, approximately 19.1% of the total housing stock in Conejos County are manufactured or mobile homes, compared to 3.9% for the State of Colorado and 5.6% for the entire United States. While recent legislation has set a higher standard for the quality of manufactured homes, many older homes are unequipped to withstand hazards such as high winds or floods. Additionally, occupants of manufactured homes tend to have lower incomes, leaving them with less resources to prepare for, or respond to, a hazard event.

B.5. Economy

Table B-4 below provides a brief overview of some economic characteristics of Conejos County. The following information is provided by the U.S. Census Bureau American Community Survey (ACS) 5-years estimates from 2016-2020.

Table B-4 Conejos County Economic Profile

	Alamosa County
Families Below Poverty Level	16.6%
Individuals Below Poverty Level	20.8%
Median Home Value	$123,000
Median Household Income	$33,611
Per Capita Income	$20,139
Population > 16 Years Old in Labor Force	56.6%
Population Employed	51.1%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

Table B-5 shows the breakdown of employment in Conejos County by the industry sector. According to the ACS, the leading employment sectors in the county are the educational services, and health care and social assistance, construction, arts, entertainment, and recreation, and accommodation and food services, and agriculture, forestry, fishing and hunting, and mining sectors.

Table B-5 Conejos County Occupations and Industries

Industry	Number Employed	Percent of Labor Force
Educational services, and health care and social assistance	855	26.6%
Construction	383	11.9%
Arts, entertainment, and recreation, and accommodation and food services	320	10.0%
Agriculture, forestry, fishing and hunting, and mining	309	9.6%
Retail trade	270	8.4%
Public administration	219	6.8%
Finance and insurance, and real estate and rental and leasing	200	6.2%
Other services, except public administration	171	5.3%
Transportation and warehousing, and utilities	160	5.0%
Professional, scientific, and management, and administrative and waste management services	159	4.9%
Manufacturing	88	2.7%
Wholesale trade	50	1.6%
Information	31	1.0%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

B.6. Hazard Identification and Risk Assessment

B.6.1. Identified Hazards

The CPT reviewed significant hazards for inclusion in the hazard mitigation plan. For the sake of consistency, the list of hazards for consideration began with the list of hazards found in San Luis Valley's Hazard Mitigation Plan, updated in 2018. In the 2022 update the CPT decided to add the following hazards: cyber-attack, hazardous materials, and pandemic/epidemic. Table B-6 provides a summary of the overall hazard significance for the hazards evaluated in this plan, showing variability by each jurisdiction in Conejos County.

Table B-6 Conejos County Overall Hazard Significance* Summary Table

Hazard	Conejos County	Antonito	La Jara	Manassa	Romeo	Sanford
Avalanche	Low	Low	Low	Low	Low	Low
Cyber Attack	Medium	Medium	Medium	Medium	Medium	Medium
Dam Failure	High	Medium	Medium	Medium	Medium	Medium
Drought	High	High	High	High	High	High
Earthquake	Low	Low	Low	Low	Low	Low
Flood (Flash Flood & Levee Failure)	Medium	Medium	Medium	Medium	Medium	Medium
Hazmat	Medium	Medium	Medium	Medium	Medium	Medium
Hailstorm	Medium	Medium	Medium	Medium	Medium	Medium
Landslide	Low	Low	Low	Low	Low	Low
Lightning	Low	Low	Low	Low	Low	Low
Pandemic	Medium	Medium	Medium	Medium	Medium	Medium
Severe Winter Storm	High	High	High	High	High	High
Tornado/High Winds	Medium	Medium	Medium	Medium	Medium	Medium
Wildland Fires	Medium	Medium	Medium	Medium	Medium	Medium

*Significance based on a combination of Geographic Extent, Potential Magnitude/Severity and Probability as defined below.

Geographic Extent Negligible: Less than 10 percent of planning area or isolated single-point occurrences Limited: 10 to 25 percent of the planning area or limited single-point occurrences Significant: 25 to 75 percent of planning area or frequent single-point occurrences Extensive: 75 to 100 percent of planning area or consistent single-point occurrences Potential Magnitude/Severity Negligible: Less than 10 percent of property is severely damaged, facilities and services are unavailable for less than 24 hours, injuries and illnesses are treatable with first aid or within the response capability of the jurisdiction. Limited: 10 to 25 percent of property is severely damaged, facilities and services are unavailable between 1 and 7 days, injuries and illnesses require sophisticated medical support that does not strain the response capability of the jurisdiction, or results in very few permanent disabilities. Critical: 25 to 50 percent of property is severely damaged, facilities and services are unavailable or severely hindered for 1 to 2 weeks, injuries and illnesses overwhelm medical support for a brief period of time or result in many permanent disabilities and a few deaths. overwhelmed for an extended period of time or many deaths occur. Catastrophic: More than 50 percent of property is severely damaged, facilities and services are unavailable or hindered for more than 2 weeks, the medical response system is overwhelmed for an extended period of time, or many deaths occur.	Probability of Future Occurrences Unlikely: Less than 1 percent probability of occurrence in the next year or has a recurrence interval of greater than every 100 years. Occasional: Between a 1 and 10 percent probability of occurrence in the next year or has a recurrence interval of 11 to 100 years. Likely: Between 10 and 90 percent probability of occurrence in the next year, or has a recurrence interval of 1 to 10 years Highly Likely: Between 90 and 100 percent probability of occurrence in the next year or has a recurrence interval of less than 1 year. **Overall Significance** Low: Two or more of the criteria fall in the lower classifications or the event has a minimal impact on the planning area. This rating is also sometimes used for hazards with a minimal or unknown record of occurrences/impacts or for hazards with minimal mitigation potential. Medium: The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is also sometimes utilized for hazards with a high impact rating but an extremely low occurrence rating. High: The criteria consistently fall along the high ranges of the classification and the event exerts significant and frequent impacts on the planning area. This rating is also sometimes utilized for hazards with a high psychological impact or for hazards that the jurisdiction identifies as particularly relevant.

B.6.2. Building Inventory and Assets

Critical Facilities, Infrastructure, and Other Important Community Assets

A critical facility is defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA organizes critical facilities into seven lifeline categories as shown in Figure A-1. A summary of the critical facilities exposure analysis can be found in Table B-7 below.

Table B-7 Conejos County Critical Facilities by Jurisdiction

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Total
Antonito	2	-	-	-	4	3	-	**9**
La Jara	2	-	-	1	1	4	-	**8**
Manassa	1	-	-	1	-	3	-	**5**
Romeo	1	-	-	-	-	1	-	**2**
Sanford	2	-	-	-	-	6	-	**8**
Unincorporated	17	8	1	4	2	12	62	**106**
Total	**25**	**8**	**1**	**6**	**7**	**29**	**62**	**138**

Source: CDPHE, CEPC, HIFLD, NBI, WSP GIS Analysis

Historic and Cultural Assets

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 B-8 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 B-8 Historic Properties and Districts on State and National Registers

Property Name	Location	Date Listed
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, Lasauses	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 Historic Preservation Act (NHPA), 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 NHPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

B.6.3. Vulnerability to Specific Hazards

This section details vulnerability to specific hazards, where quantifiable, only where it differs from that of the Region as a whole. The results of detailed GIS analyses used to estimate potential for future losses are presented here, in addition to maps of hazard areas and details by jurisdiction and building type. For a discussion of the methodology used to develop the loss estimates refer to Chapter 4 of the base plan. In many cases Chapter 4 contains information that differentiates the risk by county thus the information is not duplicated here. For most of the weather-related hazards the risk does not vary significantly enough from the rest of the Region and thus the reader should refer to Chapter 4. Only unique issues or vulnerabilities are discussed, where applicable.

- Avalanche
- Dam Incident
- Drought
- Earthquake
- Flood
- Hailstorm
- Severe Winter Weather
- Wildland Fires
- High Winds and Tornadoes
- Cyber Attack
- Hazardous Materials Incidents
- Pandemic

Avalanche

The avalanche risk is rated low for Conejos County due to isolated impacts primarily in backcountry areas of the San Juan Mountains in the western portion of the County.

Dam Incident

There are several high or significant hazard dams located in Conejos County which create a considerable risk to lives and properties in Conejos County in the event of a significant dam incident. Table B-9 details the high and significant hazard dams located within Conejos County.

Table B-9 High and Significant Hazard Dams in Conejos County

Dam Name	Owner	River	Hazard Class	Nearest Downstream Community	Distance to Nearest Downstream Community (Miles)	EAP
La Jara – Dam No. 1	Colorado Parks and Wildlife	La Jara Creek	S	Capulin	24	Y
La Jara – Dam No. 2	Colorado Parks and Wildlife	La Jara Creek	S	Capulin	24	Y
Platoro	U.S. Bureau of Reclamation	Conejos River	High	Platoro	1	Y
Terrace	Terrace Irrigation Company	Alamosa River	High	Capulin	12	Y

Dam Name	Owner	River	Hazard Class	Nearest Downstream Community	Distance to Nearest Downstream Community (Miles)	EAP
Trujillo Meadows	Colorado Parks and Wildlife	Los Pinos River	High	Antonito	36	Y

Source: National Inventory of Dams

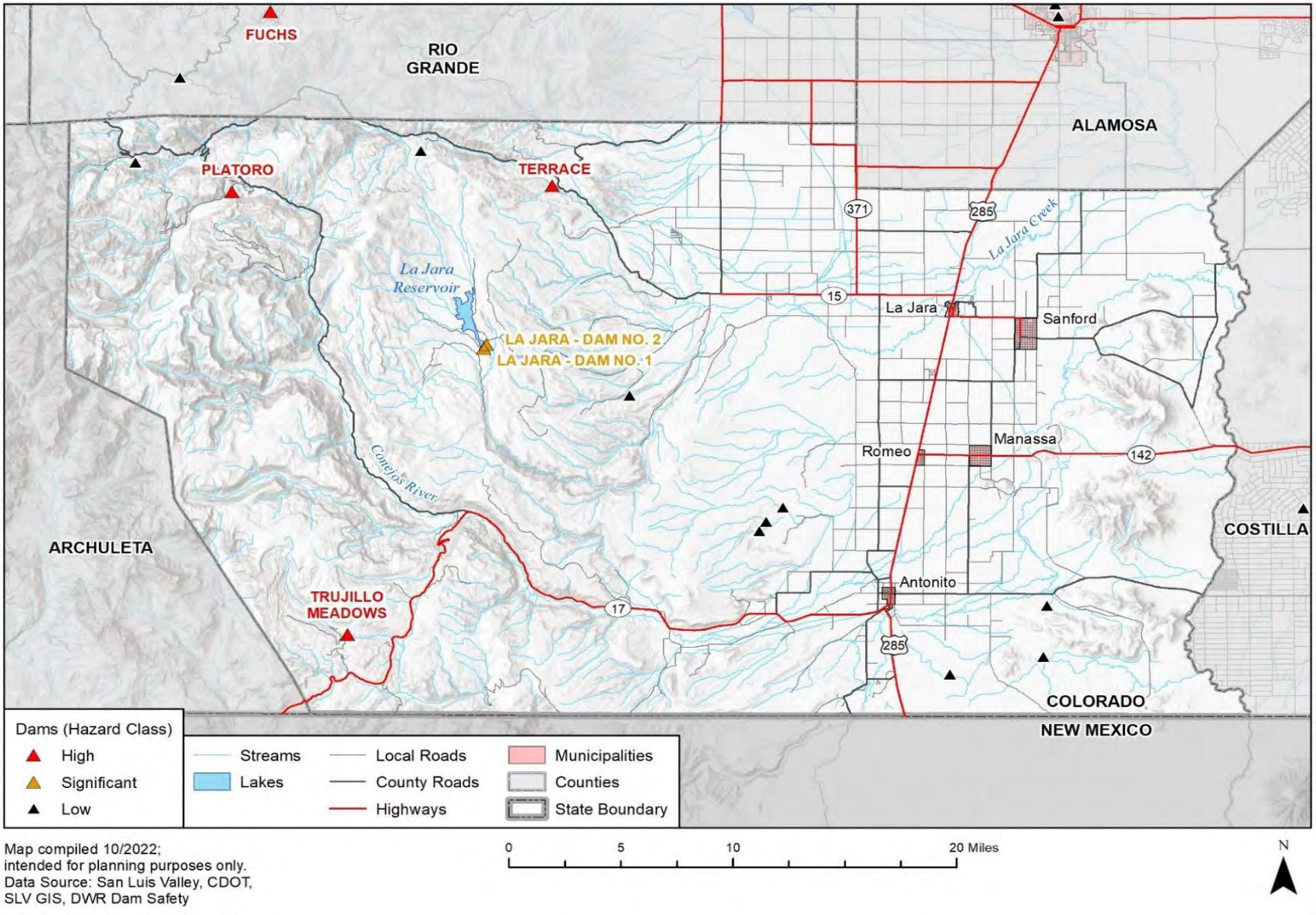
The High and significant hazard dams listed above, as well as some located upstream of Conejos County present some risk for property damage, injury, or loss of life in a significant dam incident. Table B-10 below shows the number of structures exposed to dam inundation from each upstream dam, and Figure B-1 illustrates the locations of high and significant hazard dams in the county.

Table B-10 Structures at Risk to Dam Inundation by Jurisdiction

Dam Name (Hazard Class)	Jurisdiction	Structure Count
La Jara Dam No. 1 (Significant)	Conejos County	188
	Total	188
Mountain Home (High)	Conejos County	1
	Total	1
Rio Grande (Significant)	Conejos County	2
	Total	2
Sanchez – Main Dam (High)	Conejos County	3
	Total	3
Santa Maria (High)	Conejos County	1
	Total	1
Terrace (High)	La Jara	454
	Conejos County	1,200
	Total	1,654
Trujillo Meadows (High)	Conejos County	13
	Total	13

Source: Microsoft Footprints 2021, DWR Dam Safety Program, WSP GIS Analysis

Figure B-1 Conejos County Dams

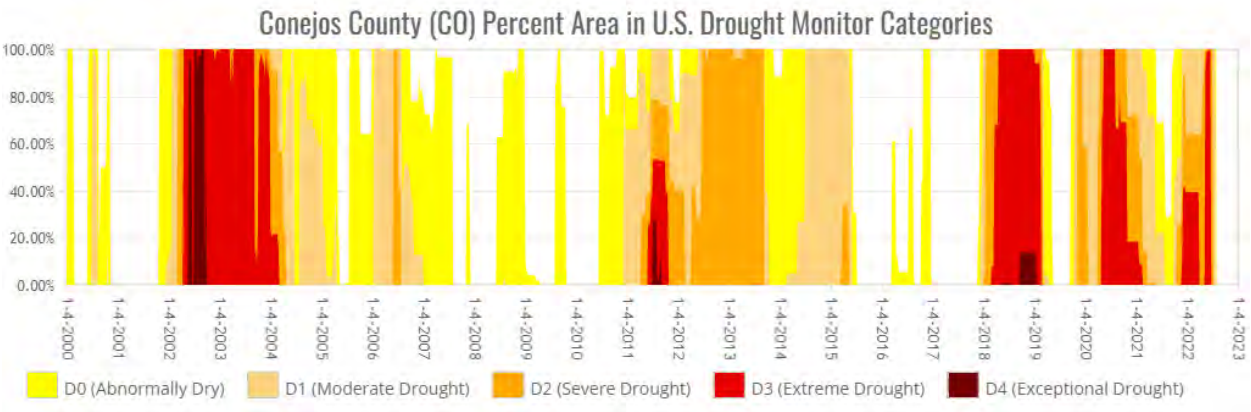


Drought

Drought was rated as a hazard of high concern in all counties in the planning area. Between 2012 and 2021, Conejos County experienced 19 USDA emergency drought declarations, one of which was unique to the region. Conejos County also recorded $15,693 in RMA indemnity payments in 2019 due to drought induced crop loss.

The U.S. Drought Monitor (USDM) is a national data set released weekly, showing the severity of drought in locations across the nation. A timeseries showing the severity of drought in Conejos County between 2000 and 2022 is shown below.

Figure B-2 USDM Drought Timeseries for Conejos County



Source: USDM; www.drought.gov

The National Drought Mitigation Center developed the Drought Impact Reporter in response to the need for a national drought impact database for the United States. Information comes from the public who visit the website and submit a drought-related impact for their region, members of the media, and members of relevant government agencies. Conejos County had 41 reported impacts between 2013-2022. Earthquake

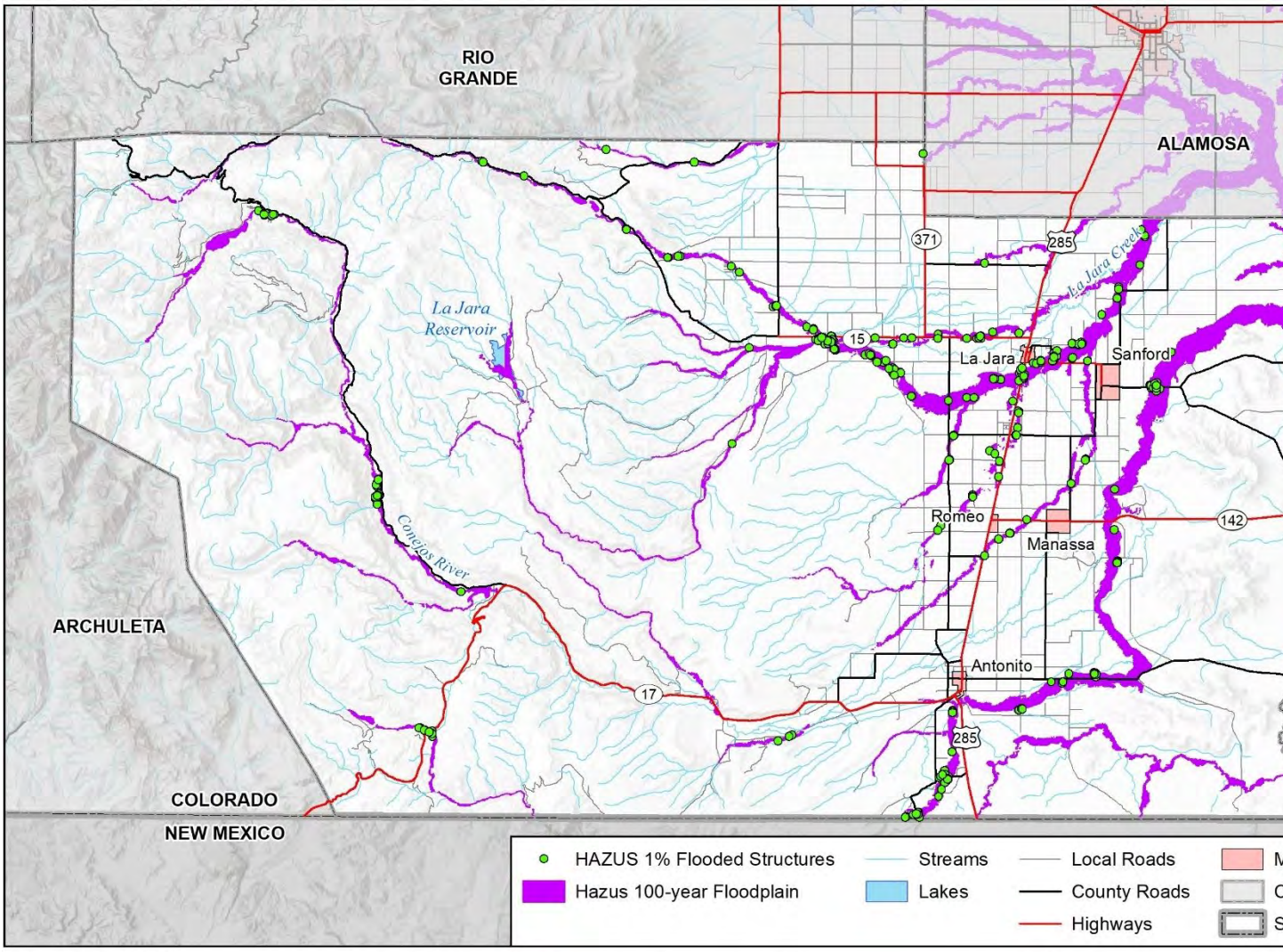
There are several known fault systems throughout the San Luis Valley, and the likelihood for seismic activity is fairly uniform throughout the region's counties. However, the potential severity of shaking and impacts to casualties and damage is not uniform. While there have been no past major earthquakes recorded with an epicenter within Conejos County, the potential for a future earthquake centered in or nearby Conejos County could have significant impacts. According to a Hazus analysis conducted, a 2,500-year probabilistic earthquake ground shaking could result in $120.3 million in total economic losses in the county. An estimated total of 683 buildings will experience at least moderate damage, and there would be an estimated 14 injuries in this event scenario.

Refer to Chapter 4 for a discussion of the earthquake risk relative to Conejos County and the wider Region.

Flood

A flood, as defined by the National Flood Insurance Program (NFIP), is a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of waters, unusual and rapid accumulation, or runoff of surface waters from any source, or a mudflow. Floods can be slow or fast rising, but generally develop over a period of many hours or days. Flooding events occurring within the San Luis Valley are generally attributed

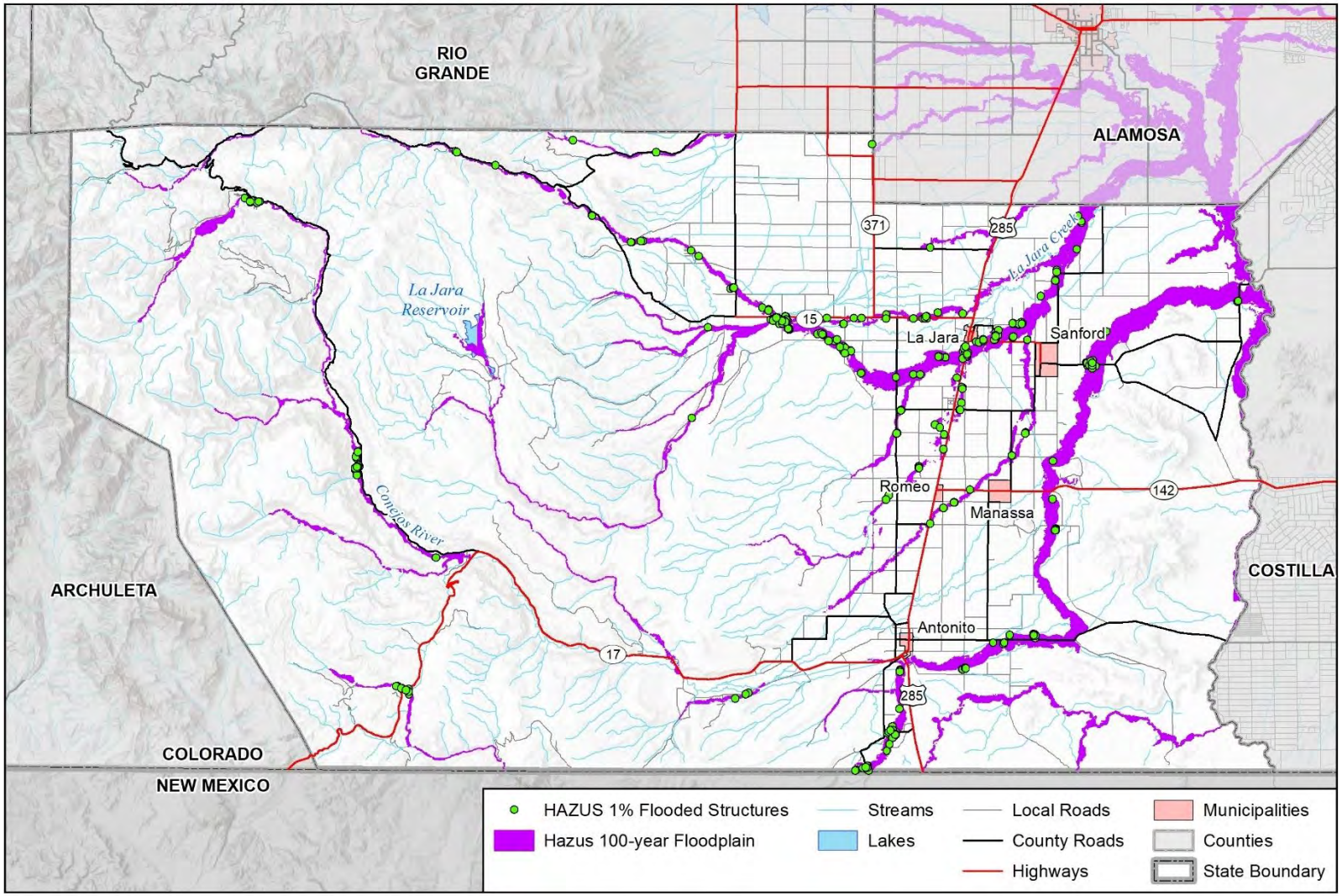
to three factors (1) winter thaws and spring break up within the project areas watersheds (sometimes with associated ice jams), (2) rapid snow melt and or heavy rains in higher elevations, and (3) spring or summer deluges that result in flash flooding. Figure B-3, Figure B-3 Conejos County Flood Hazards & Structures



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Hazus 5.1

Figure B-4, Figure B-5, Figure B-6, Figure B-7, and Figure B-8 shows the extent of the 1% annual chance floodplains throughout Conejos County.

Figure B-3 Conejos County Flood Hazards & Structures



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Hazus 5.1

Figure B-4 Antonito Flood Hazards

Figure B-5 La Jara Flood Hazards

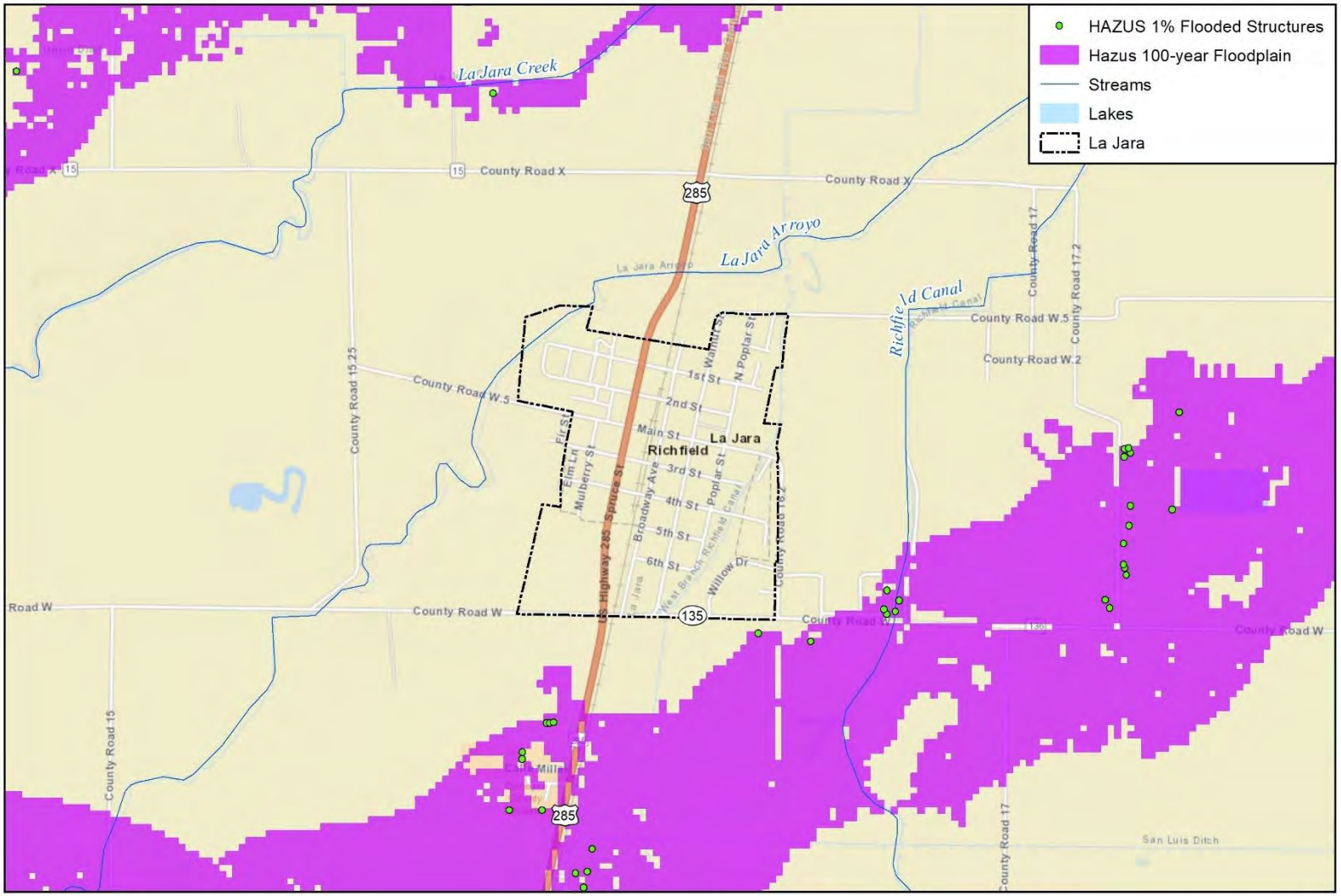


Figure B-6 Manassa Flood Hazards

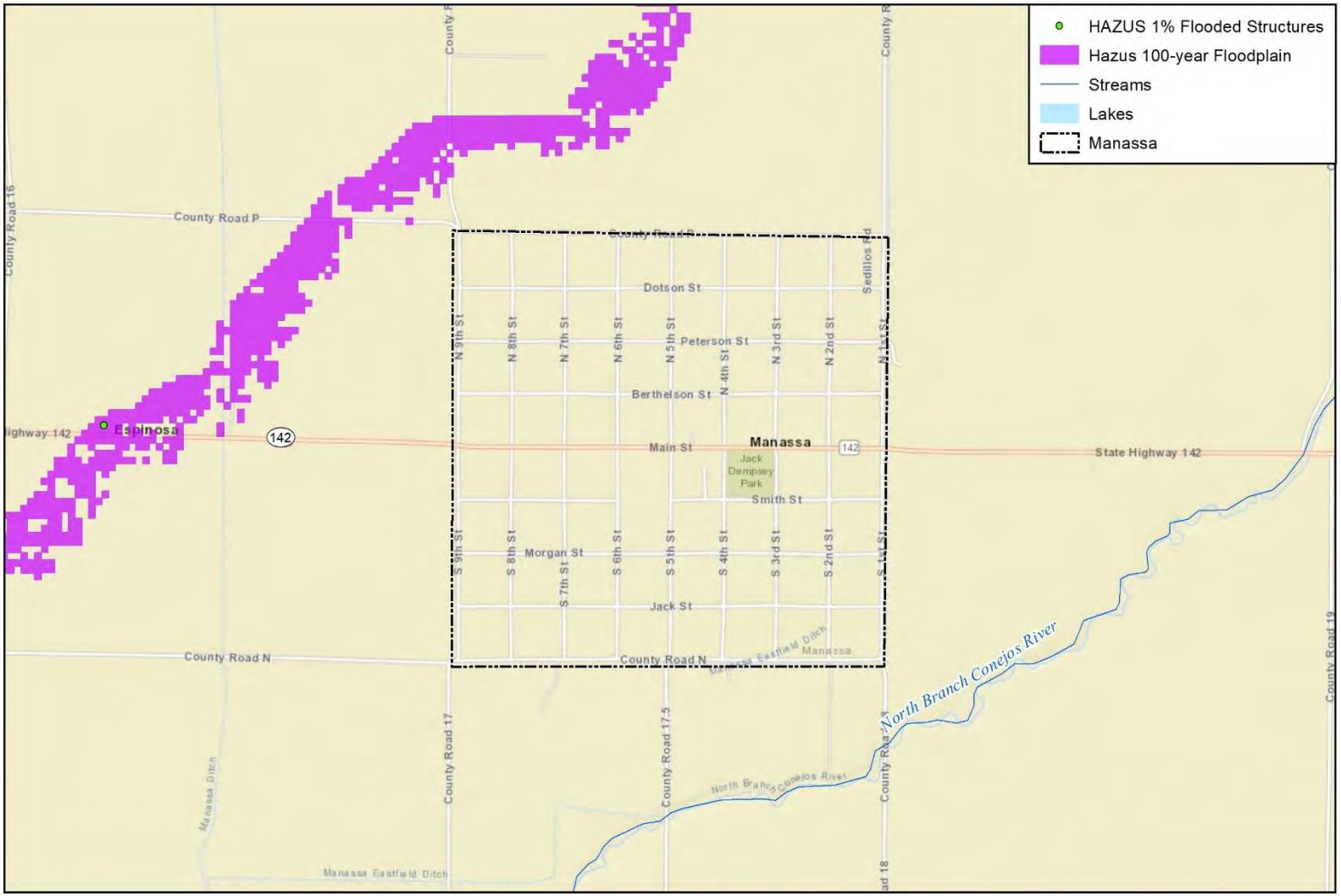
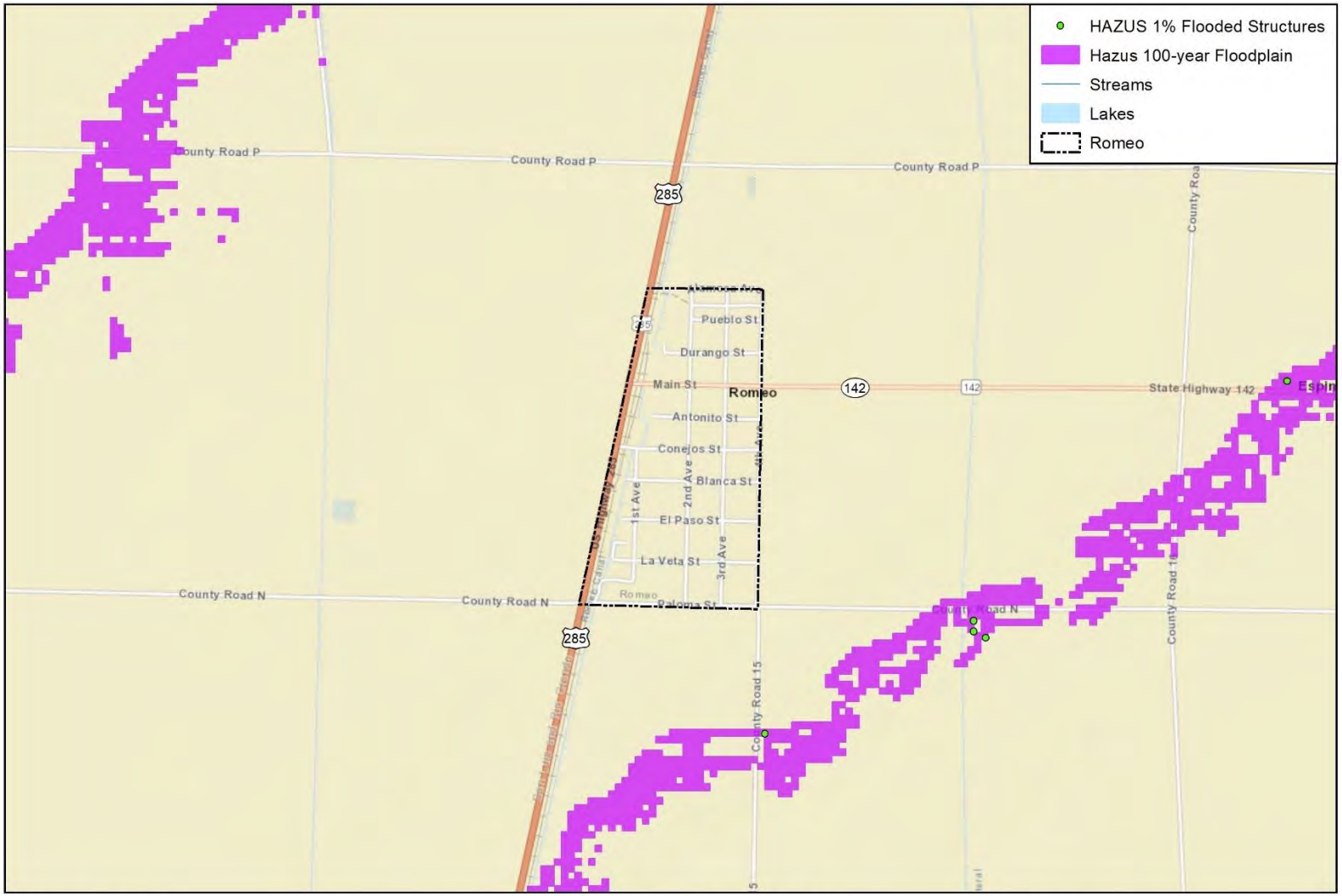
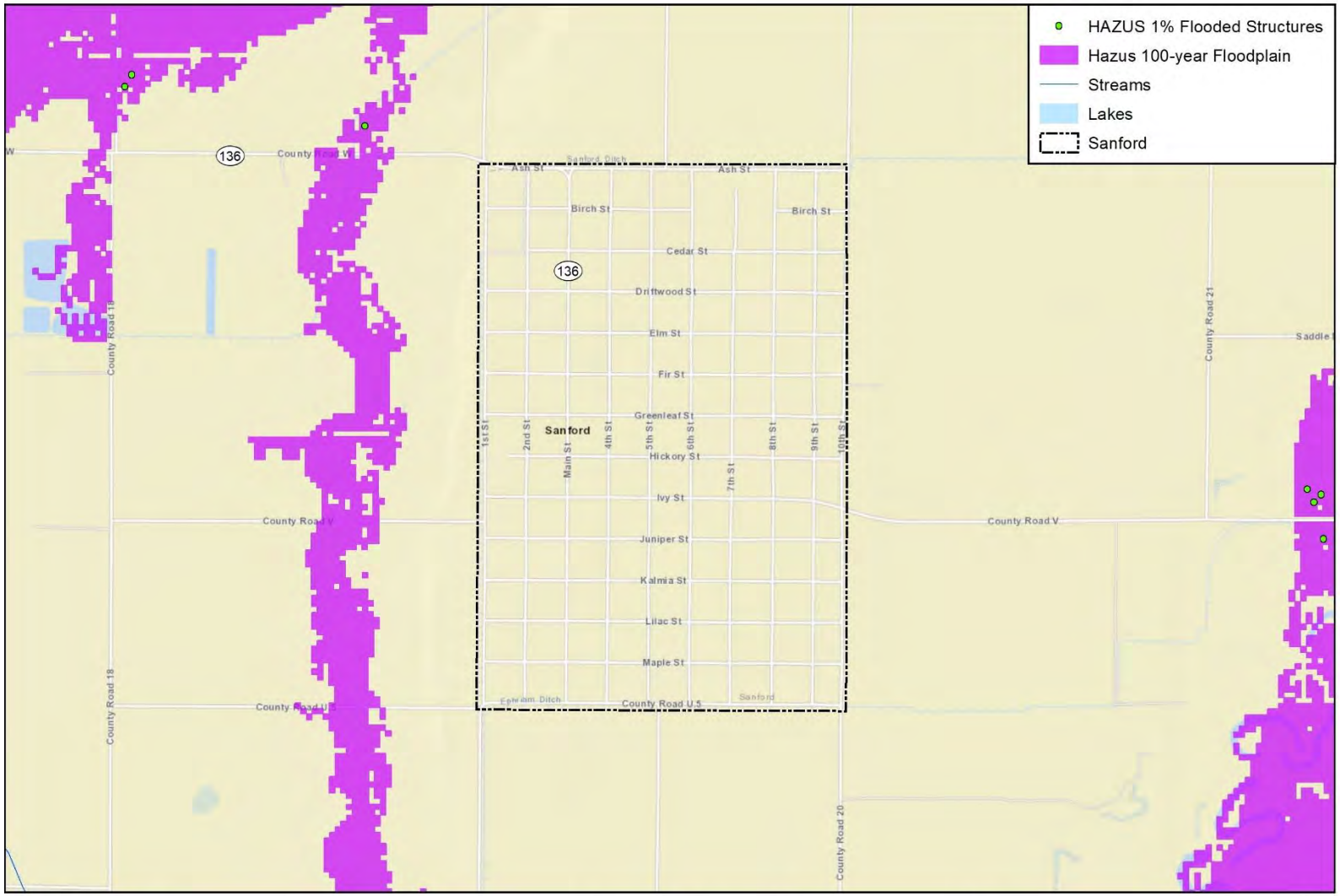


Figure B-7 Romeo Flood Hazards



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Hazus 5.1

Figure B-8 Sanford Flood Hazards



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Hazus 5.1

Structure Vulnerability Analyses and National Flood Insurance Program Statistics

An analysis of structures in the floodplain and NFIP claims data for the County and its municipalities can be found in the Base Plan under the Flooding Hazard Profile under the vulnerability assessment, people and property subsections.

Repetitive Loss Structures

There are no reported Repetitive Loss properties as of 2022 within the San Luis Valley.

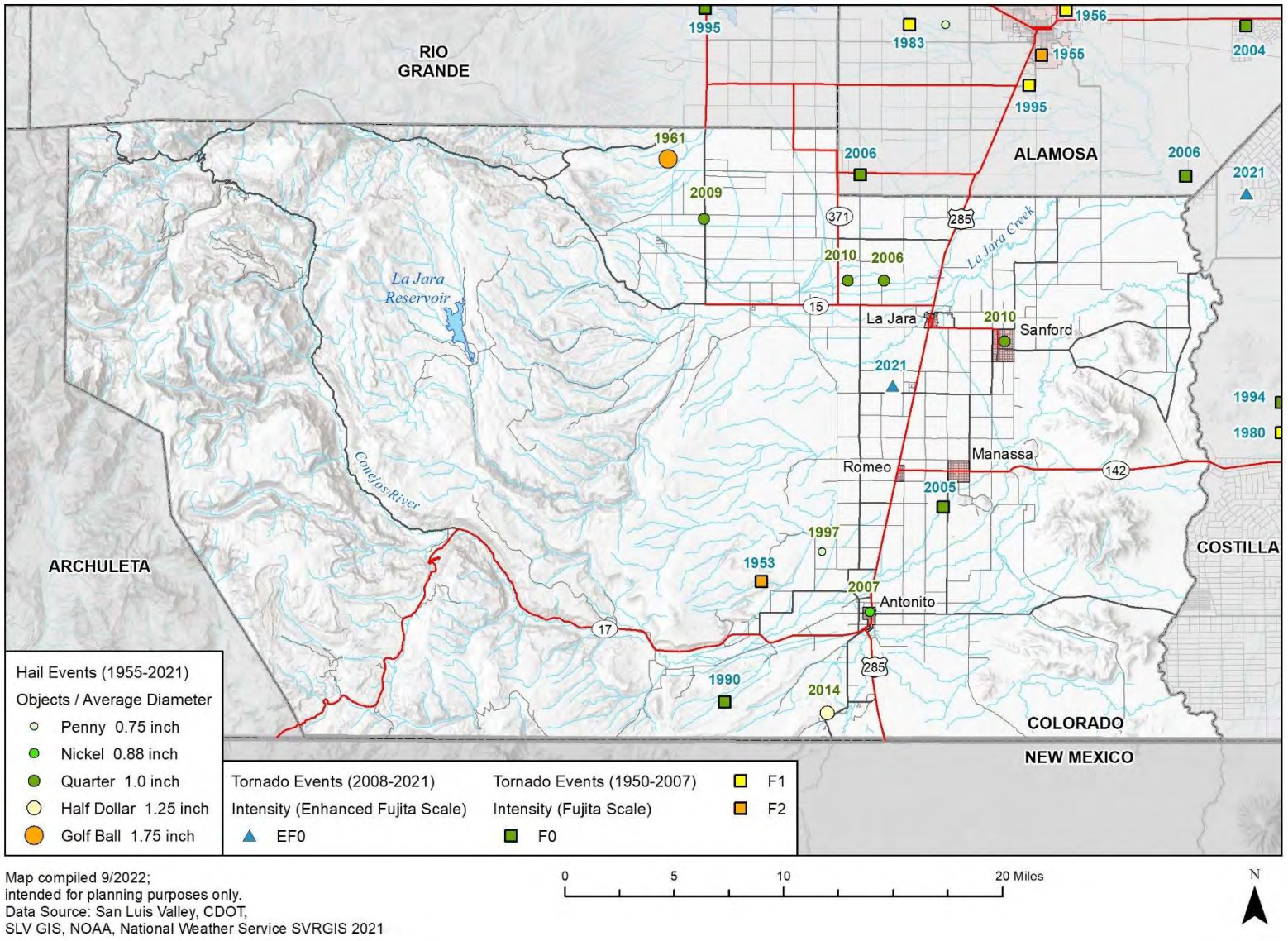
Hail

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 67 years, from 1955-2022, there have been 8 hail events, none of which resulted in injuries or casualties, in Conejos County. Most of the events took place in the Town of Antonio (3) followed by the Town of La Jara (2). The Towns of Capulin and Sanford also were documented as experiencing one hail event in this time frame. None of these events resulted in recorded property losses. The largest hailstone recorded in Conejos County was 1.75 inches on July 8, 1961.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 11,711.02 acres were lost to hail and $2,615,557 indemnity payments made to farmers in Conejos County.

The figure below displays historic hail events in Conejos County. Vulnerability to hail is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of hail risk related to Conejos County and the Region.

Figure B-9 Conejos County Historic Hail and Weather Events (1950-2021)

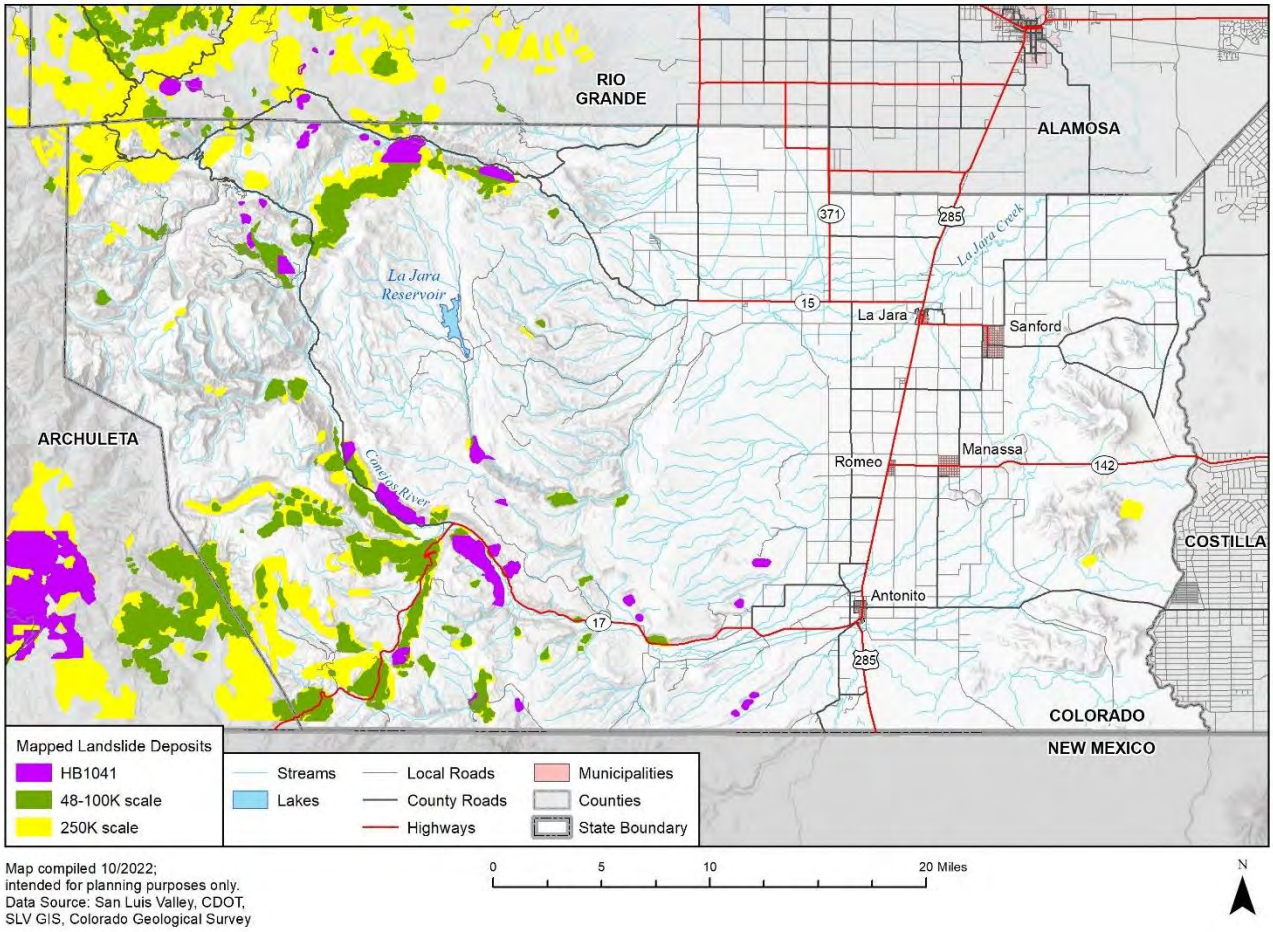


Map compiled 9/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, NOAA, National Weather Service SVRGIS 2021

Landslide/Debris Flow/Rockfall

Conejos County has much more mountainous terrain over a larger area of its territory than some other counties in the San Luis Valley, creating conditions more conducive for landslides or rockfall to occur. However, there is very little development or infrastructure in this area at risk to landslide, since the municipalities in the county are mostly located on flatter terrain at a lower elevation. There are some backcountry recreational areas and roads and highways in this area however, where travelers or recreationists may be involved in an incident. According to GIS analysis conducted for this plan update, there are an estimated 135 structures throughout Conejos County at risk to landslides, valued at $27.4 million, and 15 structures at risk to rockfall. An estimated 345 people reside in areas at risk to landslide throughout the county as well. Figure B-10 below illustrates the extent of mapped landslide deposits in the county.

Figure B-10 Mapped Landslide Deposits in Conejos County



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Geological Survey

Lightning

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there have been no damaging lightning events in Conejos County. However, damaging lightning events are still possible in the future.

Despite no documented historic lightning events, all exterior infrastructure and property are equally vulnerable to damages from lightning across the region. Vulnerability to lightning is not noticeably different

from the rest of the region. Refer to Chapter 4 for a discussion of lightning risk related to Conejos County and the Region.

Severe Winter Weather

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there have been a total of 406 winter weather related events in Conejos County. Table B-11 summarizes these events. It is important to note that all winter weather related events are recorded on a zonal scale and therefore do not include information on nearest impacted city. Additionally, due to the nature of the zonal nature of these events, it is possible that some events and losses were duplicated in the datasets.

In total, $420,000 in property losses were recorded in the County due to blizzard and winter storm events. Additionally, six injuries and seven fatalities were documented in the County. The most destructive blizzard event occurred on October 24th, 1997, when a blizzard caused $350,000 in damages, as well as two injuries and four fatalities.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 901.90 acres were lost to cold weather-related events and $248,600 indemnity payments made to farmers in Conejos County.

Vulnerability to severe winter weather is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of severe winter weather related to Conejos County and the Region.

Table B-11 Summary of Winter Weather Events in Conejos County

	Total Events	Days with Events	Property	Injury	Fatality
Blizzard	5	4	$350,000	2	4
Heavy Snow	128	95	$0	4	2
Winter Storm	256	191	$70,000	0	1
Winter Weather	17	17	$0	0	0
Total	**406**	**307**	**$420,000**	**6**	**7**

Source: NCEI

Wildland Fires

The most comprehensive fire data was available from the United States Department of Agriculture (USDA) Research Data Archive from 1992 to 2018. The dataset reported 166 fires of any size over the 26-year period in Conejos County for a total of 1,220.4 acres burned.

The dataset provides information on fire size based on wildfire classes. The table below summarizes the number of wildfire events in the County based on class size. In Conejos County, the most frequently occurring type of wildfire is a class A (one-fourth acre or less).

Table B-12 Conejos County Wildfires by Class

Class	# of Events
Class A - one-fourth acre or less;	123
Class B - more than one-fourth acre, but less than 10 acres;	37
Class C - 10 acres or more, but less than 100 acres;	5
Class D - 100 acres or more, but less than 300 acres;	0

Class	# of Events
Class E - 300 acres or more, but less than 1,000 acres;	1
Class F - 1,000 acres or more, but less than 5,000 acres;	0
Class G - 5,000 acres or more.	0

Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

The figure below displays the frequency of wildfire events in the County by year. Conejos County experienced the greatest frequency of wildfire events in 2011 (20 events) and 2010 (11 events). There is an increasing trend of wildfire events occurring in the County over the past 26 years, as seen in the figure below.

Figure B-11 Conejos County Wildfires by Year

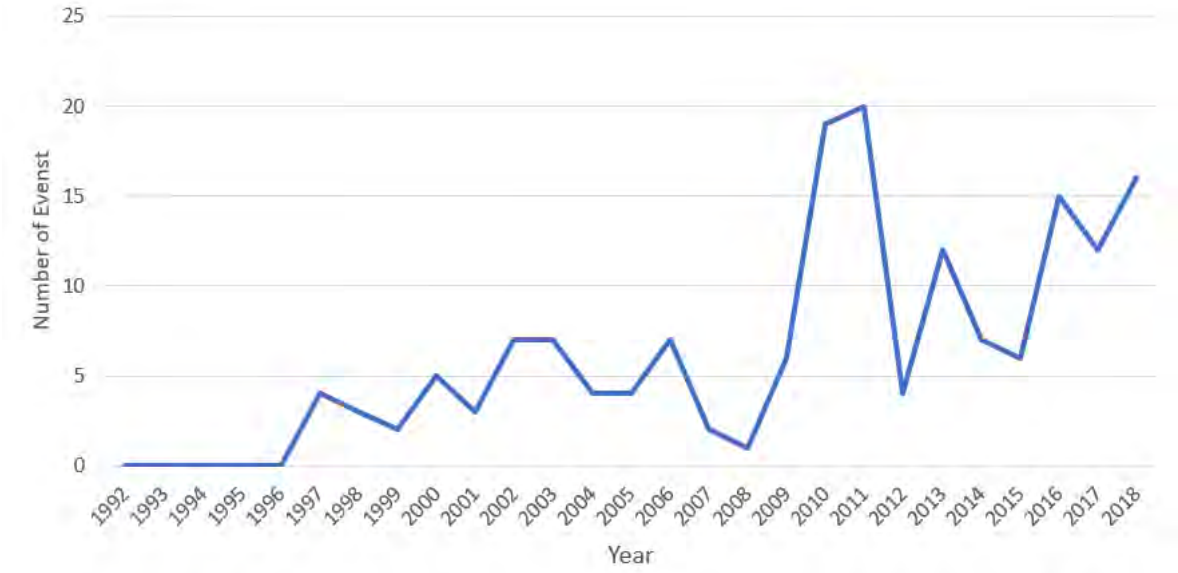


Figure by WSP, Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

Most of the wildfires that have occurred in Conejos County have been caused by humans (46.99%), but almost as many have been caused naturally (40.96%). The figure below displays wildfire events in Conejos County by ignition types.

Figure B-12 Conejos County Wildfire Cause of Ignition

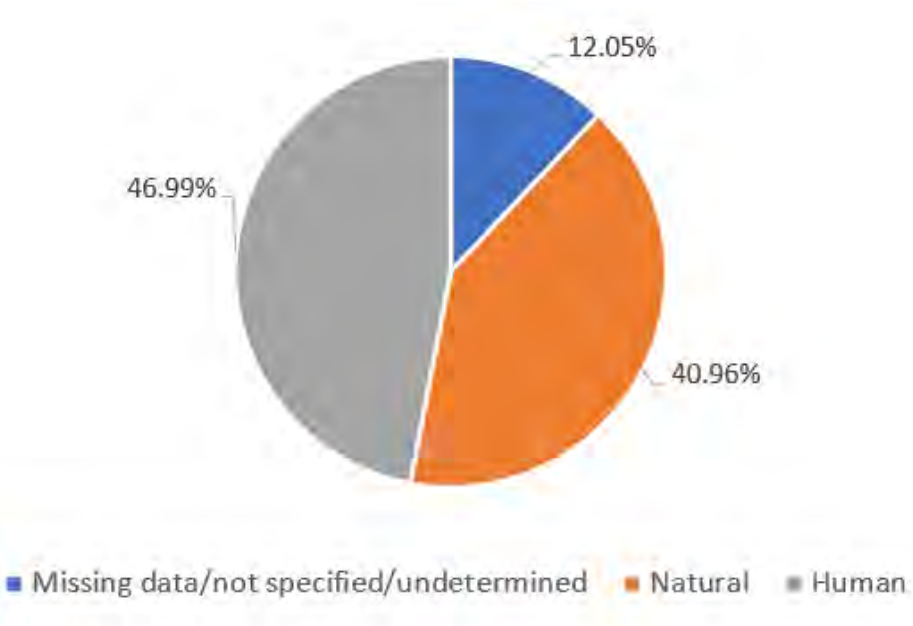
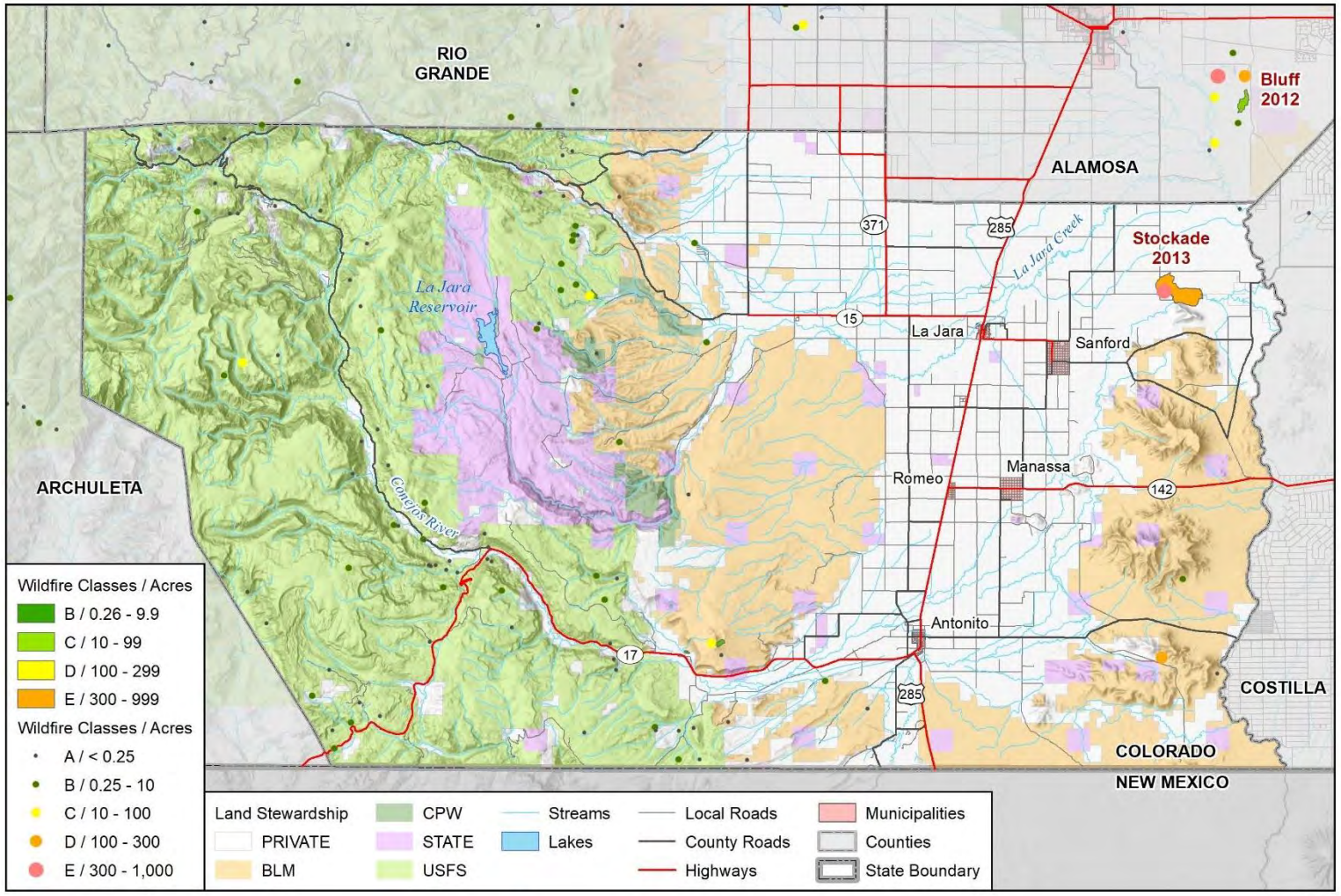


Figure by WSP, Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

Conejos County has one disaster declaration due to wildfires. This disaster declaration was declared in 2002 for the entire State of Colorado. The most significant wildfire to impact Conejos County was the Stockade Fire, which occurred in 2013 and burned around 925 acres in the County. According to the previous Conejos County HMP, the most significant wildfire hazard areas include the Elk Ridge Estate and Blacktail Valley subdivisions.

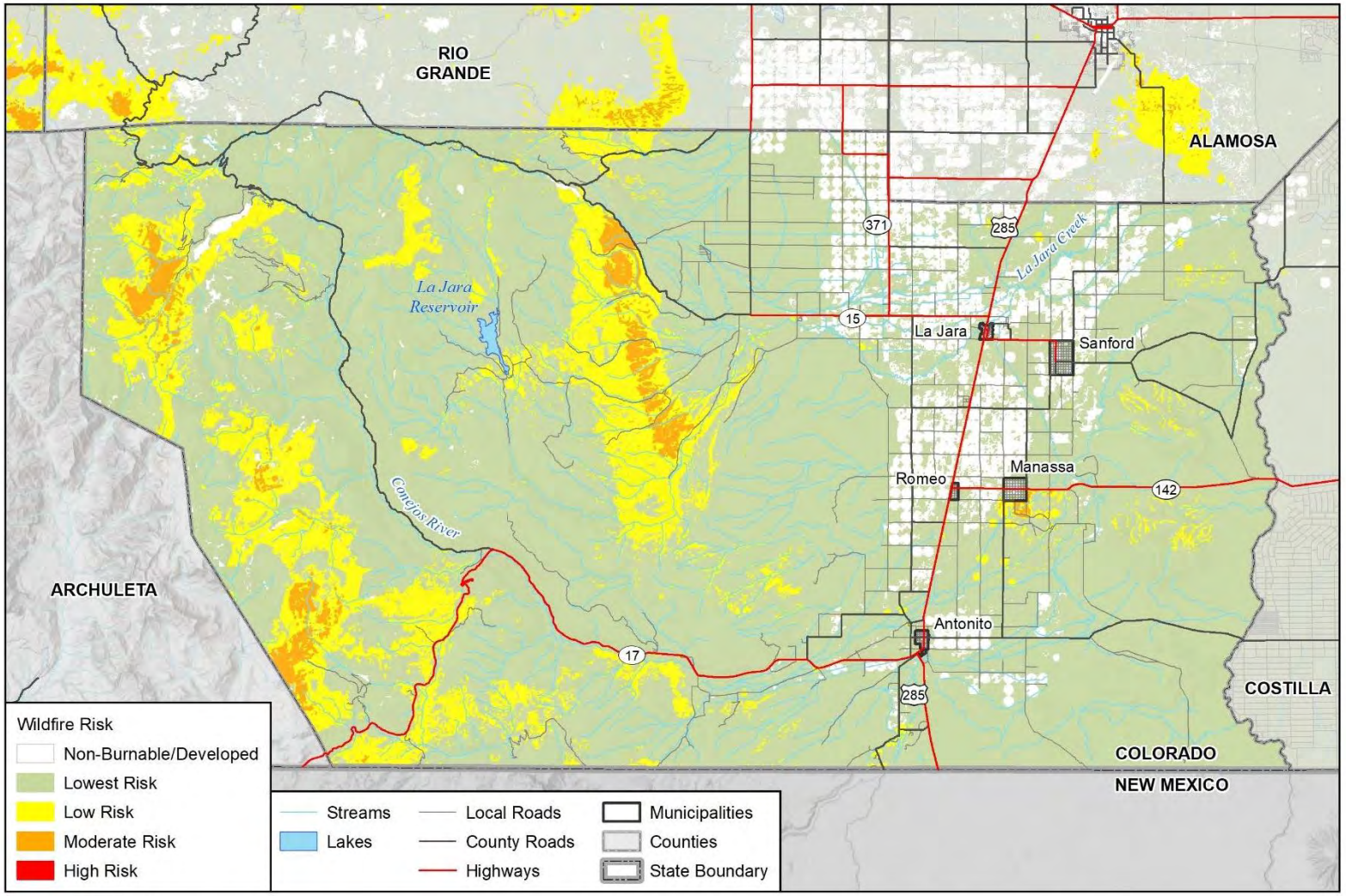
Figure B-13 below displays the history of wildfires in Conejos County. Figure B-14 displays wildfire risk in the County. The two areas most likely to experience wildfire based on this map is the western portion of the County along the mountain range and along the mountain range in the middle of the County. Figure B-15 and Figure B-16 display the wildland urban interface (WUI) and the WUI risk, which indicates the most vulnerable areas for human infrastructure to wildfire are in the Cities of Antonito, Manassa, and Sanford.

Figure B-13 Conejos County Wildfire History Map (1950-2022)



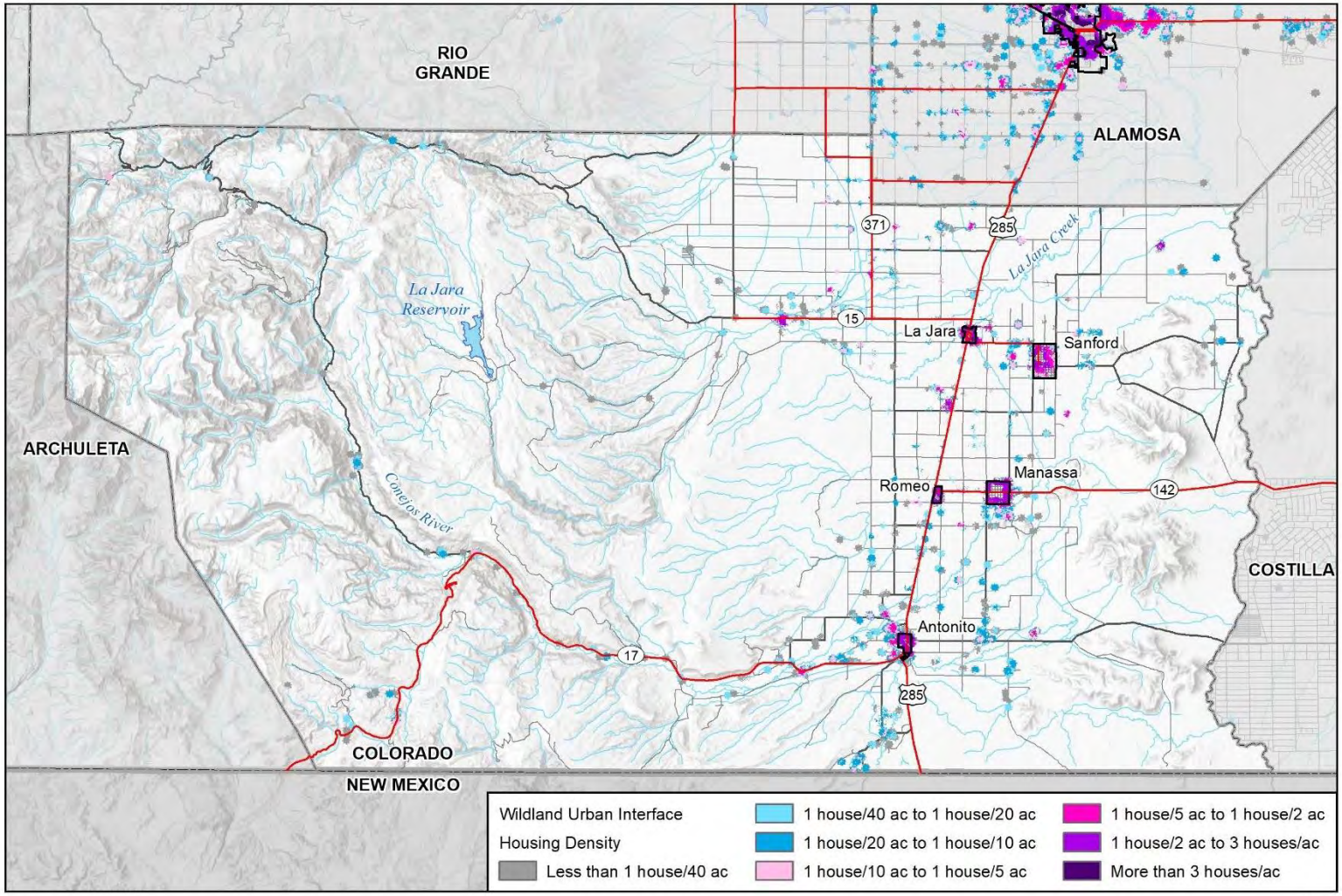
Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, National Interagency Fire Center (NIFC),
USGS: BLM, FS, FWS, NPS

Figure B-14 Conejos County Wildfire Risk Map



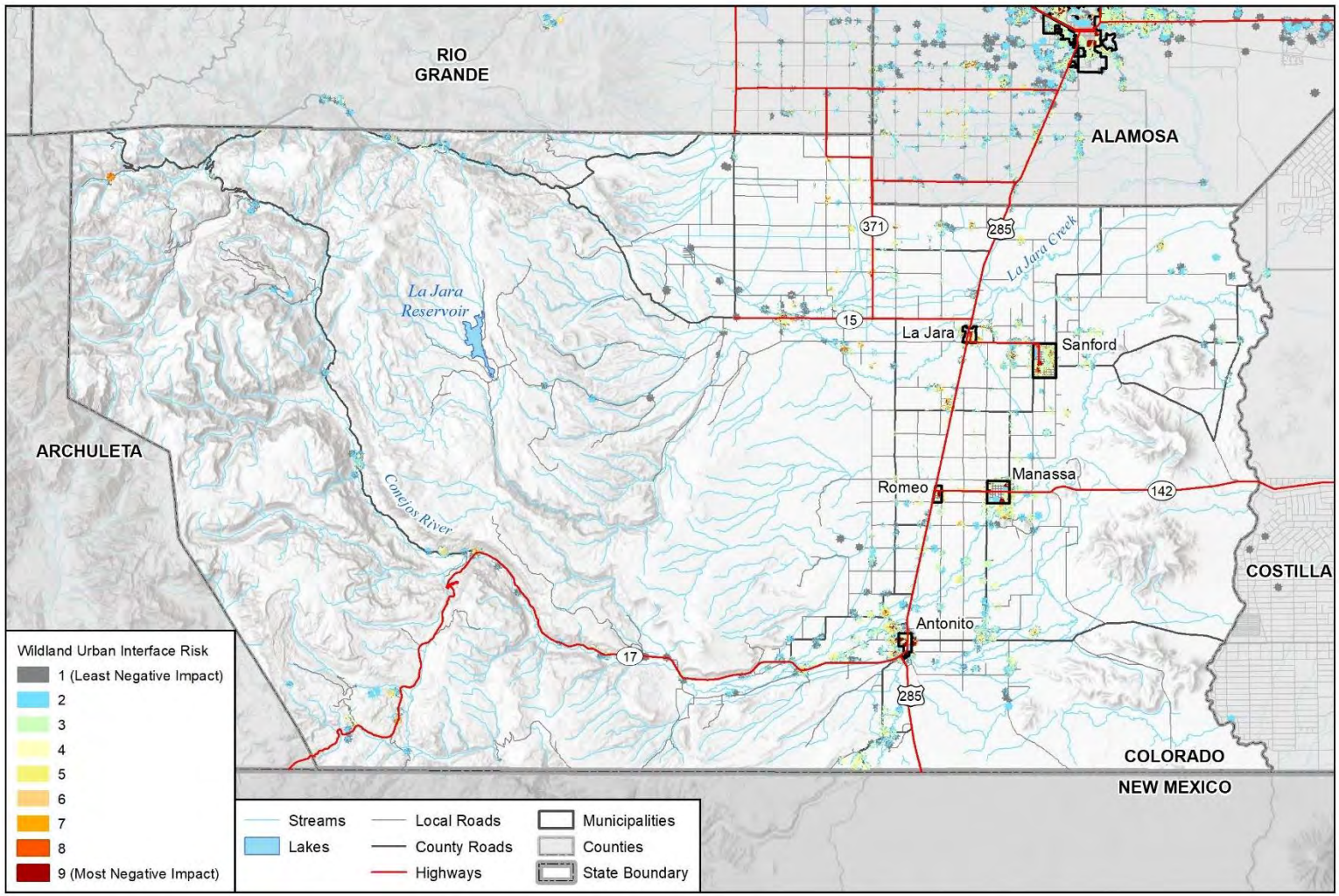
Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

Figure B-15 Conejos County Wildland Urban Interface



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

Figure B-16 Conejos County Wildland Urban Interface Risk



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

High Winds and Tornadoes

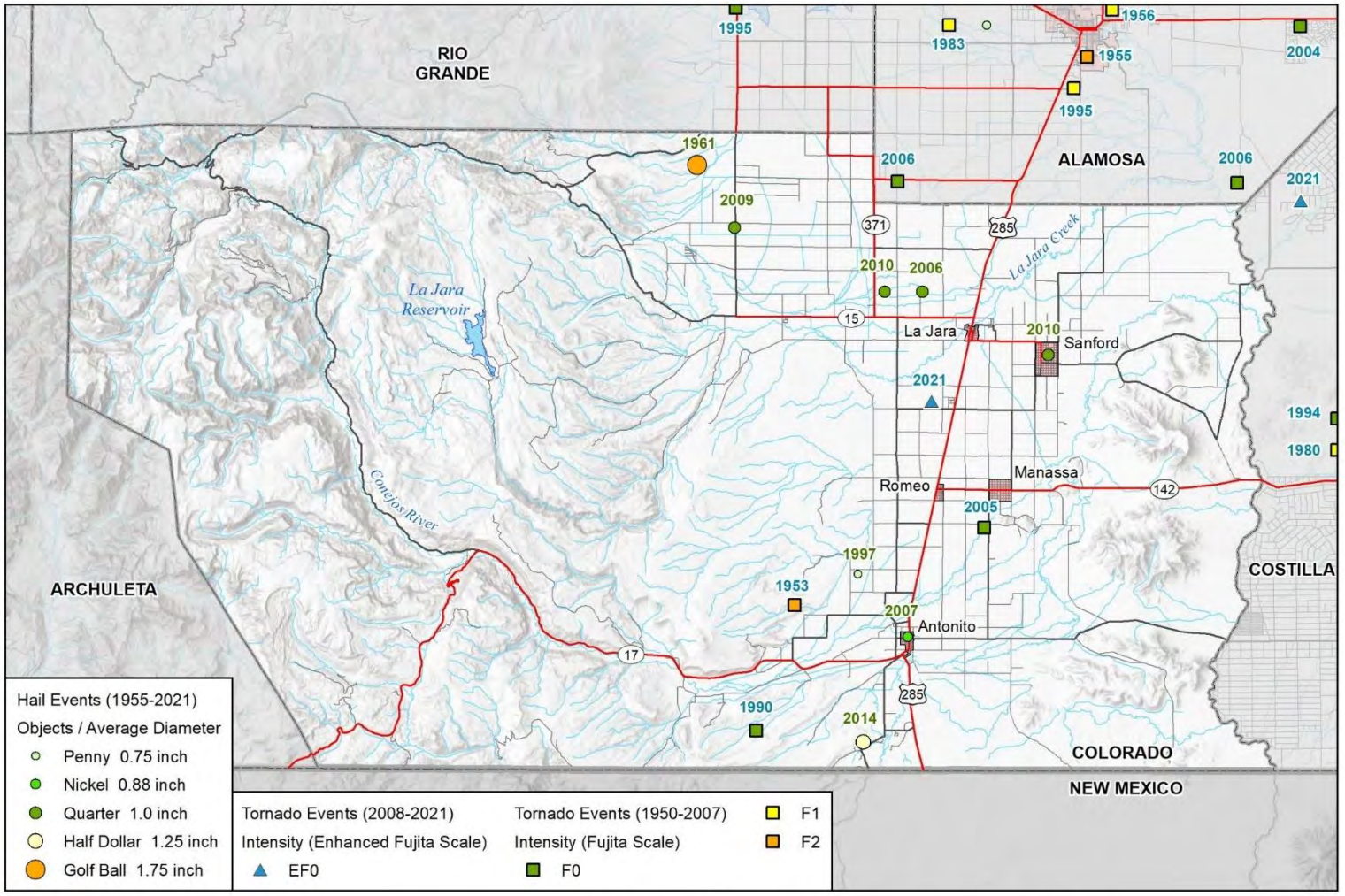
According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 72 years, from 1950-2022, there have been 103 high wind events, 0 thunderstorm wind events, and 5 tornado events in Conejos County. While high wind events are recorded on a zonal scale and therefore do not include information on nearest impacted city, some tornado events do. The most impacted city by tornado events in the County is the Town of Manassa (2) followed by the Town of Bountiful (1). No injuries or fatalities were recorded in the County.

The highest windspeed recorded in Conejos County reached 104 mph and the strongest tornado was an F2, which occurred on June 17th, 1953. In total, $1,075,250 in property damages were recorded in the County, $1,050,000 from high wind and $25,250 from two tornado events. It is difficult to determine the exact location that high wind damage occurred in the County due to the zonal nature of the data. The most damaging tornado event in the County occurred on July 20th, 1990, when an F0 tornado caused $25,000 of damages.

The U.S. Department of Agriculture (USDA) Risk Managemen[t] Agency (RMA) records insured crop losses between 2007 and 2021. In total, 3,249.59 acres were lost to high winds and tornadoes and $518,171 indemnity payments made to farmers in Conejos County.

The figure below displays historic wind and tornado events in Conejos County. Vulnerability to winds and tornadoes is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of wind risk related to Conejos County and the Region.

Figure B-17 Conejos County Historic High Wind and Tornado Events (1950-2021)



Map compiled 9/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, NOAA, National Weather Service SVRGIS 2021

Cyber Attack

All servers, networks, and users are vulnerable to cyber-attacks in the San Luis Valley Region. The Privacy Rights Clearinghouse lists 172 data breaches against systems located in Colorado, totaling over 5,812,743 impacted records; however, it is difficult to know how many of those affected residents in Conejos County. Many small cyber-crimes also go unreported, so the true number of impacted residents in the community is likely much larger than the database estimates.

Although the Privacy Rights Clearinghouse database did not report a specific event impacting Conejos County, the HMPC noted that the County has experienced ransomware attacks and warnings are issued nearly daily on some sort of cyber incident.

The San Luis Valley HMPC also noted that hospitals and elder populations have been popular targets for cyber-attacks across the region.

Vulnerability to cyber-attacks is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of cyber-attack risk related to Conejos County and the Region.

Hazardous Materials Incidents

Hazardous materials vulnerability is significant within the San Luis Valley for transportation accidents due to the highways and railroad that passes through the County and all municipalities. Both Risk Management Plan and Tier II facilities are listed in the San Luis Valley's Multi Hazard Mitigation Plan in Table 4-75 and Table 4-74. According to San Luis Valley's Multi HMP, there have been 137 hazardous materials incidents in the project area from 1990 to 2021 with 15 of them taking place in Conejos County. There are also multiple pipelines transporting hazardous materials across the counties in the study area as well.

Pandemic

Vulnerability for pandemic does not vary from that in the Region.

B.7. Mitigation Capabilities Assessment

As part of the regional plan development, the Region and participating jurisdictions developed a mitigation capability assessment. Capabilities are those plans, policies and procedures that are currently in place that contribute to reducing hazard losses. Combining the risk assessment with the mitigation capability assessment results in "net vulnerability" to disasters and more accurately focuses the goals, objectives, and proposed actions of this plan. The CPT used a two-step approach to conduct this assessment. First, an inventory of common mitigation activities was made through the use of a matrix. The purpose of this effort was to identify policies and programs that were either in place or could be undertaken, if appropriate. Second, the CPT conducted an inventory and review of existing policies, regulations, plans, projects, and programs to determine if they contribute to reducing hazard related losses.

B.7.1. Conejos County Regulatory Mitigation Capabilities

Table B-13 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the San Luis Valley and each participating jurisdiction. Excerpts from applicable policies, regulations, plans and programs descriptions follow to provide more detail on existing mitigation capabilities.

Conejos County and its jurisdictions, except for the Town of La Jara, have no adopted building codes as specified in Table B-13. The Town of La Jara has adopted the 2012 IRC without modifications. The county and communities will be evaluating codes in 2023 through a process being led by Colorado Counties Inc.

Table B-13 Conejos County and Jurisdictions Regulatory Mitigation Capabilities

Planning & Regulatory Tools (ordinances, codes, plans)	Conejos County	Town of Antonito	Town of La Jara	Town of Manassa	Town of Romeo	Town of Sanford
Comprehensive, Master, or General Plan	No	No	No	No	No	No
Emergency Operations Plan	Yes	No	No	No	No	No
Economic Development Plan	Yes	No	No	No	No	No
Capital Improvement Program or Plan (CIP)	No	No	No	No	No	No
Community Wildfire Protection Plan (CWPP)	Yes	No	No	No	No	No
Building Code	No	No	Yes	No	No	No
Building Code Year	No	No	2012 IBC and IRC	No	No	No
Floodplain Ordinance	Yes	Yes	Yes	No	No	No
Zoning Ordinance	No	No	Yes	No	No	No
Subdivision Ordinance	No	No	Yes	No	No	No
Stormwater Ordinance	No	No	No	No	No	No
Site Plan Review Requirements	No	No	No	No	No	No
National Flood Insurance Program (NFIP) Participant	Yes	Yes (NSFHA)	Yes (NSFHA)	Yes	NA – not mapped	NA- not mapped
Community Rating System (CRS) Participant	No	No	No	No	No	No
Growth Management Ordinance	No	No	Yes	No	No	No
Floodplain Management Plan	No	No	No	No	No	No
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	No	No	No	No	No	No
BCEGS Rating	No	No	No	No	No	No
Erosion/Sediment Control Program	No	No	Yes	No	No	No
Flood Insurance Study	No	No	No	No	No	No
Floodplain Elevation Certificates	Yes	No	No	No	No	No
Other Hazard-Specific Ordinance or Plan (Steep Slope, Etc.)	No	No	No	No	No	No

B.7.2. Conejos County Administrative and Technical Mitigation Capabilities

Table B-14 identifies the County and Town personnel responsible for activities related to mitigation and loss prevention in Conejos County.

Table B-14 Conejos County Jurisdictions Administrative/Technical Mitigation Capabilities

Administrative/Technical Resources	Conejos County	Town of Antonito	Town of La Jara	Town of Manassa	Town of Romeo	Town of Sanford
Planner/Engineer (with knowledge of development practices)	Yes	No	No	No	No	No
Engineer/Professional (trained in construction practices)	Yes	No	No	No	No	No
Planner/Engineer/Scientist (with understanding of natural hazards)	Yes	No	No	No	No	No
GIS Capability	No	No	No	No	No	No
Full-Time Building Official	Yes	No	Yes	No	No	No
Floodplain Administrator	Yes	Yes	No	Yes	No	No
Emergency Manager	Yes	No	Yes	No	No	No
Grant Writing	Yes	No	No	No	No	No
Warning Systems / Services (general)	Yes	Yes	Yes	Yes	Yes	Yes
- Sirens	No	No	No	No	No	No
- Reverse 911	Yes	Yes	Yes	Yes	Yes	Yes
- IPAWS/Wireless Emergency Alerts	Yes	Yes	Yes	Yes	Yes	Yes
- Opt-In Notifications (CodeRed, Everbridge, etc.)	Yes	Yes	Yes	Yes	Yes	Yes
- Other warning systems	Social Media	Social Media	Social Media	Social Media	Social Media	Social Media
Transportation Planner	No	No	No	No	No	No
Resiliency Planner	No	No	No	No	No	No
Other?	-	-	-	-	-	

B.7.3. Conejos County Financial Capabilities

Table B-15 identifies the County and Town financial tools or resources that the jurisdictions have access or are eligible to use and could potentially be used to help fund mitigation activities.

Table B-15 Conejos County Jurisdictions Financial Capabilities

Financial Resources	Conejos County	Town of Antonito	Town of La Jara	Town of Manassa	Town of Romeo	Town of Sanford
Levy for Specific Purposes with Voter Approval	Yes	No	Yes	No	No	No
Utilities Fees (Water, Sewer, Gas, or Electric Services)	Yes	No	No	No	No	No

Financial Resources	Conejos County	Town of Antonito	Town of La Jara	Town of Manassa	Town of Romeo	Town of Sanford
Impact Fees for New System Development	No	No	No	No	No	No
Incur Debt through General Obligation Bonds	Yes	No	No	No	No	No
Incur Debt through Special Tax Bonds	Yes	No	No	No	No	No
Withhold Spending in Hazard-Prone Areas	Yes	No	No	No	No	No
Stormwater Service Fees	Yes	No	No	No	No	No
Capital Improvement Project Funding	Yes	No	No	No	No	No
Community Development Block Grants (CDBG)	Yes	No	No	No	No	No
Other?	-	-	-	-	-	

B.7.4. Conejos County Education and Outreach Capabilities

Table B-16 shows the mitigation education and outreach capabilities the County and jurisdictions have in place now. Additional information shared by the CPT is listed after the table.

Table B-16 Conejos County Jurisdiction Education and Outreach Capabilities

Education & Outreach	Conejos County	Town of Antonito	Town of La Jara	Town of Manassa	Town of Romeo	Town of Sanford
Public Education/ Outreach Program	Yes	No	No	No	No	No
Local Citizen Groups That Communicate Hazard Risks	No	No	No	No	No	No
Firewise	No	No	No	No	No	No
StormReady	No	No	No	No	No	No
Other?	-	-	-	-	-	-

B.7.5. Opportunities for Enhancement

Based on the capabilities assessment, Conejos County has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the County to expand or improve on their policies, programs and fiscal capabilities and further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Additional training opportunities will help to inform County and Town staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train staff on mitigation and the hazards that pose a risk to the Conejos County will lead to more informed staff members who can better communicate this information to the public.

Other opportunities include improved cross-jurisdictional communication on evacuation and awareness to mitigate life safety impacts during dam incidents, floods, or wildfires including the development of

brochures and using existing communication capabilities through social media such as Facebook. Other specific opportunities for improvement include:

- Update of CWPPS
- Become StormReady
- Adoption of building codes for County and municipalities

B.8. Mitigation Strategy

This section describes the mitigation strategy and mitigation action plan for Conejos County. See Chapter 5 of the base plan for more details on the process used to develop the mitigation strategy.

B.8.1. Goals

During the creation of the 2022 Regional Plan, the Conejos County planning team decided to revise their goals slightly from their previous iteration. The adopted goals are as follows:

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

B.8.2. Progress of 2018 Actions

During the 2022/2023 planning process the Conejos County Planning Team reviewed all the mitigation actions from the 2016 plan. Of their 31 mitigation actions from 2016, 25 of the actions are continuing or are implemented annually, demonstrating ongoing progress and building the community's resiliency to disasters. Six (6) were noted as being completed (Table B-17).

Table B-17 Completed and Deleted Actions

2018 ID	Mitigation Action	Hazards Mitigated	Jurisdiction	Priority	Status/Implementation Notes
Conejos – 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.	Wildland Fires	Conejos County Sheriff/ Conejos County OEM/Fire Protection Districts	High	Completed. 2021.
Conejos – 2	Conduct study of existing burn permit laws and identify opportunities for improving enforcement.	Wildland Fires	Conejos County Sheriff/OEM	Medium	Completed. 2021
Conejos – 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.	All Hazards	Conejos County Public Health	High	Completed. 2020

2018 ID	Mitigation Action	Hazards Mitigated	Jurisdiction	Priority	Status/Implementation Notes
Conejos – 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.	All Hazards	Conejos County OEM	Medium	Completed. 2020
Conejos – 10	Participate in Emergency Action Plan updates and exercises for dams that could potentially affect people and property in Conejos County.	Dam Failure	Conejos County OEM	Medium	Completed. 2018
Conejos – 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.	Flood, Hail, Lightning, Tornado, Severe Winter Storm	Conejos County OEM	High	Completed. 2018

B.8.3. Mitigation Action Plan

As a part of the 2022 regional planning process, the CPT reviewed the list hazard mitigation actions or projects specific to Conejos County and its jurisdictions from the previous HMP and brainstormed ideas for new actions. The process used to identify, develop, and prioritize these actions is described in Chapter 5 of the base plan. In lieu of developing new actions, most of the municipalities chose to focus on the actions previously identified that are either in progress or still need to be completed.

The County Planning Team identified and prioritized the following mitigation actions based on risk assessments, goals, and objectives. Background information as well as information on how the action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and timeline also are described. Per the DMA requirement, actions have been identified that address reducing losses to existing development as well as future development. Those that reduce losses to future development are indicated by an asterisk (*) in the Action Identification (ID) column in Table B-18.

Table B-18 Conejos County Mitigation Action Plan

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
CON.1	Goals: 1	Facilitate coordination between Everbridge notification system and public-school safety plans to improve communication in winter storms and other events.	Dam Incident, Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Hazardous Materials	Conejos County	Conejos County OEM and school districts	2023	$1,000; Staff time, existing budget	Medium	Continue – In Progress
CON.2	Goals: 1, 2	Identify areas for snow fence installation.	Severe Winter Storm	Conejos County	Conejos County Road & Bridge	2024	$5,000; Staff time, existing budget	High	Continue – In Progress
CON.3	Goals: 1	Identify or construct at least one safe shelter within each community that is accessible to the public (perhaps in a public school).	Tornado, Windstorm, Severe Winter Storm	Conejos County	Conejos County OEM	2024	$150,000; FEMA HMA, BRIC	Medium	Continue – In Progress
CON.4	Goals: 1, 2	Identify subdivisions at risk to wildfire and areas that could become isolated in a flood and provide preparedness information to local residents.	Flood, Wildland Fires	Conejos County	Conejos County OEM	Annual Implementation	< $10,000; Staff time, existing budget	Medium	Continue – In Progress. All of Conejos County now covered by CWPPs. CSFS COWRA can also identify WUI communities. Need continual updates as new

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
									developments occur.
CON.5	Goals: 1, 2, 3	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices.	Flood	Conejos County	Conejos County OEM	2024	$10,000; existing county budgets, grant funding	Medium	Continue – In Progress.
CON.6	Goals: 1, 2	Seek updated FEMA digital flood maps (DFIRMs) from FEMA and the Colorado Water Conservation Board.	Flood	Conejos County	Conejos County OEM	2023	$1,000; existing county budgets, grant funding	High	Continue – In Progress.
CON.7	Goals: 1, 2, 3	Improve education and awareness of fuels reduction techniques in wildland-urban interface areas.	Wildland Fires	Conejos County	Local Fire Districts/Colorado State Forest Service	Annual Implementation	$10,000 - $100,000; CSFS grants, staff time	High	Continue In-Progress. Conejos County had T3 Funds to help with this.
CON.8	Goals: 1, 2, 3	Minimize new development in dam inundation zones and educate public on relevant information about dam structures and warning/ evacuation plans for	Flood	Town of Antonito	Town of Antonito/Conejos County OEM	2024	$5,000; Staff time, existing budget	Medium	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		downstream communities.							
CON.9	Goals: 1	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Tornado, Windstorm, Severe Winter Storm	Town of Antonito	Town of Antonito/Conejos County OEM	2024	$100,000; FEMA HMA, BRIC	Medium	Continue – In Progress
CON.10	Goals: 1, 2, 3	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Town of Antonito	Town of Antonito	Existing Codes	N/A	Medium	Continue – In Progress
CON.11	Goals: 1, 2, 3	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.	Wildland Fires	Town of Antonito	Town of Antonito/ South Conejos County FPD/ Conejos County OEM/Colorado State Forest Service	1-5 Years	< $10,000; CSFS grants, staff time, existing budget	Medium	Continue – Not Started.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
CON.12	Goals: 1, 2	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain/stormwater management practices.	Flood	Town of Antonito	Town of Antonito	Annual Implementation	Little to no cost; staff time	Medium	Continue – In Progress
CON.13	Goals: 1	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Tornado, Windstorm, Severe Winter Storm	Town of La Jara	Town of La Jara/Conejos County OEM	2024	$50,000; FEMA HMA, BRIC	Medium	Continue – In Progress
CON.14	Goals: 1, 2	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices.	Flood	Town of La Jara	Town of La Jara	Annual Implementation	N/A	Medium	Continue – In Progress
CON.15	Goals: 2, 3	Identify, evaluate, and implement mitigation opportunities for reducing the vulnerability of the Town's municipal	Lightning, Flood, Severe Winter Storm	Town of La Jara	Town of La Jara	Ongoing (Applying for grants)	$1,000,000; FEMA HMA, BRIC	Medium	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		water system from natural hazards.							
CON.16	Goals: 1	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Tornado, Windstorm, Severe Winter Storm	Town of Manassa	Town of Manassa/Conejos County OEM	2024	$50,000; FEMA HMA, BRIC	Medium	Continue – In Progress
CON.17	Goals: 1, 2, 3	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Town of Manassa	Town of Manassa	2027	$10,000; Staff time, existing budget	Medium	Continue – In Progress
CON.18	Goals: 1, 2	Promote flood insurance and continue to participate in the NFIP by implementing and improving upon effective floodplain and stormwater management practices.	Flood	Town of Manassa	Town of Manassa	Annual Implementation	N/A	Medium	Continue – In Progress
CON.19	Goals: 2	Provide backup power to Town Hall and designated shelter facilities, by fixed generator or pre-wiring buildings so that they can accept	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and	Town of Manassa	Town of Manassa	2024	$50,000; FEMA HMA, BRIC	Medium	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		portable generators when needed.	Tornadoes, Wildland Fires						
CON.20	Goals: 2	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.	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Town of Romeo	Town of Romeo/Conejos County OEM	2024	$50,000; FEMA HMA, BRIC	Medium	Continue – In Progress
CON.21	Goals: 1	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Tornado, Windstorm, Severe Winter Storm	Town of Romeo	Town of Romeo/Conejos County OEM	2025	$50,000; FEMA HMA, BRIC	Medium	Continue – In Progress
CON.22	Goals: 1, 2, 3	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Town of Romeo	Town of Romeo	2027	$10,000; Staff time, existing budget	Medium	Continue – In Progress
CON.23	Goals: 1, 2	Provide guidance and educational materials to property owners in the Sanford area to enhance local wildfire mitigation efforts, including fuel reduction, defensible-	Wildland Fires	Town of Sanford	Town of Sanford/ South Conejos County FPD/ Conejos County OEM/ Colorado State Forest Service	1-5 years	< $10,000; CSFS grants, staff time, existing budget	Medium	Continue – Not Started.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		spacing, weed abatement, brush management, open-burn coordination, and use of fire-resistant building materials.							
CON.24	Goals: 1	Identify or construct at least one safe shelter that is accessible to the public (e.g., public school).	Tornado, Windstorm, Severe Winter Storm	Town of Sanford	Town of Sanford/Conejos County OEM	1-5 years	$50,000; FEMA HMA, BRIC	Medium	Continue – In Progress
CON.25	Goals: 1, 2, 3	Consider adopting building codes that conform to standards of the International Code Council (ICC).	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Town of Sanford	Town of Sanford	1-5 years	$10,000; Staff time, existing budget	Medium	Continue – In Progress
CON.26	Goals: 2	Improve power redundancy electric and natural gas for the region – bordering public lands	Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Conejos County	Land Use/Zoning	1-5 Years	$10,000-$100,000; FEMA HMA, BRIC	High	New in 2022
CON.27	Goals: 2	Retrofit at least one public/private building with generator hook up switches	Flood, Hail, Lightning, Severe Winter Weather, High Winds and	Conejos County	OEM	1-5 Years	$10,000-$100,000; FEMA HMA, BRIC	Low	New in 2022

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
			Tornadoes, Wildland Fires						
CON.28	Goals: 2	Retrofit all county buildings with generator hook up switches. BOCC and Town boards, schools, and medical facilities	Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Conejos County	OEM	1-5 Years	$10,000-$100,000; FEMA HMA, BRIC	Low	New in 2022
CON.29	Goals: 2, 3	Obtain solar power capabilities for the above projects (CON. 27 & 28) that are not grid-tied so as to provide additional resilience	Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Conejos County	OEM	1-5 Years	$500,000; FEMA HMA, BRIC	Low	New in 2022
CON.30	Goals: 1	Develop capability to reach all AFN populations in Conejos County within 30 mins of All Emergency Incidents	Avalanche, Dam Incident, Drought, Earthquake, Flood, Hail, Landslide/Debris Flow Rockfall, Lightning, Severe Winter Weather, Wildland Fires, High Winds and Tornadoes, Cyber Attack, Hazardous Materials	Conejos County	OEM	1-5 Years	$50,000; Staff time, grant funding	High	New in 2022

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
			Incidents, Pandemic						
CON.31	Goals: 2, 3	Obtain mitigation staff positions to work on the above plans (2-3 years) and build staffing capabilities	Avalanche, Dam Incident, Drought, Earthquake, Flood, Hail, Landslide/Debris Flow Rockfall, Lightning, Severe Winter Weather, Wildland Fires, High Winds and Tornadoes, Cyber Attack, Hazardous Materials Incidents, Pandemic	Conejos County	OEM	2026	$175,000; Existing budget	Low	New in 2022
CON.32	Goals: 2	Retrofit water supply system in Conejos County and incorporated towns to be more drought resilient	Drought	Conejos County, Towns of Antonito La Jara Manassa Romeo Sanford	OEM, town administrators and public works staff in incorporated towns	5-10 years	$2,000,000; CWCB and State Water Plan funding	Low	New in 2022
CON.33	Goals: 2, 3	Develop a drought emergency and mitigation plan. Agreements for secondary water sources that may be	Drought	Conejos County Towns of Antonito La Jara Manassa Romeo Sanford	OEM & Conejos Water Conservation District, town administrators and public works staff in	15 to 25 Years	$75,000 for initial plan; CWCB	Low	New in 2022

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		used during drought conditions			incorporated towns				
CON.34	Goals: 3	Encourage the purchase crop/livestock insurance	Drought, Hail, Lightning, High Winds and Tornadoes, Severe Winter Weather	Conejos County	CSU Extension	Annual Implementation	$10,000; Staff time, existing budget	Low	New in 2022
CON.35	Goals: 2, 3	Update floodplain maps to enable more effective floodplain management	Flood	Conejos County	Land Use & OEM; CWCB	2026	$100,000 CWCB RiskMap	Low	New in 2022
CON.36	Goals: 2, 3	Stabilize erosion hazard areas from flooding and landslide	Flood, Landslide/Debris Flow Rockfall	Conejos County	Road & Bridge, OEM	Annual Implementation	$250,000; CDOT, FEMA HMA, BRIC	Low	New in 2022
CON.37	Goals: 1	Increase awareness of erosion hazards	Flood, Landslide/Debris Flow Rockfall	Conejos County	OEM	Annual Implementation	$10,000; Staff time, existing budget	Low	New in 2022

B.9. Plan Implementation and Maintenance

Moving forward the Conejos County HMPC will use the mitigation action table in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 6 of the base plan.

B.9.1. Incorporation into Existing Planning Mechanisms

As described in the capability assessment, the County already implements policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. Where applicable, these existing mechanisms could include:

- Conejos County Emergency Operations Plan
- Conejos County Re-entry Plan
- Conejos County Recovery Plan
- Central Conejos County FPD CWPP (2009)
- NE Conejos County FPD CWPP (2009)
- NW Conejos County FPD CWPP (2009)
- South Conejos County FPD CWPP (2009)
- West Conejos County CWPP (2019)
- 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 process for incorporation of the Regional Hazard Mitigation Plan into other planning mechanisms can be as simple as cross-referencing the Hazard Mitigation Plan where applicable. Integrated planning is a key to building community resiliency.

Annex C Costilla County

Annex C. Costilla County

C.1. Mitigation Planning and County Planning Team

Costilla County updated this annex during the development of the 2023-2028 San Luis Valley Regional Hazard Mitigation Plan. This County Annex builds upon previous version of the Costilla County Hazard Mitigation Plan completed in 2018. As part of the regional planning process the County established a County Planning Team (CPT) to develop the mitigation plan and identify potential mitigation projects. The following jurisdictions participated in the DMA planning process for the County.

- Costilla County
- Town of San Luis
- Town of Blanca

More details on the planning process followed and how the counties, municipalities and stakeholders participated can be referenced in Chapter 3 of the base plan. Details on which local government departments participated and who represented them are listed in the following table.

Table C-1 Costilla County List of Participants

Name	Jurisdiction	Title
Amber Maestas	Costilla County	Public Health
Ben Doon	Costilla County	County Administrator
Christopher Rodriguez	Costilla County	Emergency Manager
Dan Quintana	Costilla County	Ambulance District
Danny Sanchez	Costilla County	County Sheriff
Gary Vigil	Costilla County	County Coroner
Jeremy Brisch	Costilla County	Superintendent, Road & Bridge
Julie Albert	Costilla County	CFO
Kathy Christensen	Costilla County	Ambulance District
Lucas Casias	Costilla County	GIS
Nicolas Sarmiento	Costilla County	County Attorney
Paul Wetz	Costilla County	Director, Public Health
Sherri Vigil	Costilla County	Ambulance District
Steven Romero	Costilla County	Board Chair
Tara Medina	Costilla County	Land Use Administrator
Theldon Smith	Costilla County	Fire Chief
Tommy Vigil	Costilla County	Social Services
Rayna Sanchez	Town of Blanca	Town Clerk
Ricky Rodriguez	Town of Blanca	Police Department
Susan Sanderford	Town of San Luis	Town Manager
Toby Melster	Centennial School District	Superintendent
Kevin Jones	Sierra Grande School District	Superintendent

C.2. Geography and Climate

Costilla County spans 1,230 square miles, of which 304 square miles is water. Located in southern Colorado, the New Mexico border creates the County's southern boundary, the Sangre de Cristo Mountains surround the County to the East, and the Counties of Conejos and Alamosa border Costilla to the East and Northeast.

The San Isabel National Forest, one of eleven national forests in the state, traverses through the County, as does Costilla Creek, the County's namesake.

Costilla County has two incorporated towns and several unincorporated communities. Fort Garland, a census-designated place, is one of the County's population hubs with a population comparable to the largest town, the Town of San Luis, but much larger than the Town of Blanca. As of 2020, the ACS 5-Year Estimates approximates that 71.5% of the County's population lives in unincorporated communities.

With summer highs in the 70s and winter lows around 10s, Costilla County generally has a moderate to cool climate. Costilla County averages 12 inches of rain annually, 40% of which generally falls in Autumn. Significant snowfall occurs during eight months of the year, averaging 56 inches annually, with the most snowfall occurring in March.

C.3. Population Trends

Costilla County experienced a gradual population gain totaling 6.4% between 2015 and 2020. This increase was due largely to increases in the population of the unincorporated County, which makes up roughly 68% of the County's total population on average.

While the incorporated towns of San Luis and Blanca each experienced a nearly 16% population loss between 2019 to 2020, the population of unincorporated Costilla County increased by 10.7%.

Table C-2 provides a summary of the population change in the County and its municipalities from 2015 to 2020.

Table C-2 Population Estimates for Communities 2015-2020

	2015	2016	2017	2018	2019	2020
Costilla County total	3,581	3,590	3,628	3,687	3,745	3,810
Town of San Luis	642	678	659	741	790	665
Town of Blanca	478	471	492	446	498	420
Unincorporated Costilla County	2,461	2,441	2,477	2,500	2,457	2,725

Source: ACS 5-Year Estimates

Of all counties in the San Luis Valley planning area, Costilla County has the largest percentage of population over the age of 65. As a group, the elderly are more likely to lack the physical and economic resources necessary to respond to hazard events and are more likely to suffer health-related consequences. They are more likely to be vision, hearing, or mobility impaired, and more likely to experience mental impairment or dementia. There are no assisted living facilities in the County, and elderly residents living in their own homes may have more difficulty evacuating and could be stranded in dangerous situations. This population group is more likely to need special medical attention, which may not be readily available during natural disasters due to isolation caused by the event. Specific planning attention for the elderly is an important consideration given the current aging of the national population.

Select Census demographic and social characteristics for Costilla County are shown in Table C-3.

Table C-3 Costilla County Demographic Profile

Characteristic	% of Total Population
Gender/ Age	
Male	52.3%

Characteristic	% of Total Population
Female	47.7%
Under 5 Years	3.8%
65 Years and Over	26.3%
Race/Ethnicity	
White	33.6%
American Indian/Alaska Native	0.2%
Asian	1.1%
Black or African American	0.3%
More Than One Race	3.4
Hispanic or Latino of Any Race[1]	61.4%
Education (25+ Years)	
High School Graduate or Higher	84.8%
Bachelor's Degree or Higher	23.9%

Source: U.S. Census Bureau, 2020 5-Year American Community Survey

1 The U.S. Census Bureau considers the Hispanic/Latino designation an ethnicity, not a race. The population self-identified as "Hispanic/Latino" is also represented within the categories in the "Race" demographic.

C.4. Development Trends

Residential and commercial growth in Costilla County has been gradual. The largest town in the County, the Town of Blanca, has decreased in population. However, the Town has opened a sawmill and hopes to build apartments to aid in the growth of the County. Growth in Blanca maybe limited as there are several areas that are too low for sewer services and may be prone to flood.

In addition to having a growing percentage of the population that is 65 and over, Costilla County also has high percentages of the population who are over 65 and living alone (19.3%) and households of any age that do not have access to the internet (24.9%), according to the 2020 ACS 5-Year Estimates. Those 65 and over may have a harder time preparing for and responding to emergency events. Crucial information in Costilla County is increasingly being distributed through Facebook or Twitter and is less likely to reach those without internet access. Those at the intersection of these demographics are especially vulnerable in hazard events.

C.5. Economy

Table C-4 below provides a brief overview of some economic characteristics of Costilla County. The following information is provided by the U.S. Census Bureau American Community Survey (ACS) 5-years estimates from 2016-2020.

Table C-4 Costilla County Economic Profile

	Costilla County
Families Below Poverty Level	20.6%
Individuals Below Poverty Level	26.6%
Median Home Value	$123,600
Median Household Income	$34,732
Per Capita Income	$21,893
Population > 16 Years Old in Labor Force	44.5%
Population Employed	40.3%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

Table C-5 shows the breakdown of employment in Costilla County by the industry sector. According to the ACS, the leading employment sectors in the county are the educational services, and health care and social assistance, retail trade, agriculture, forestry, fishing and hunting, and mining sectors, and transportation and warehousing, and utilities sectors.

Table C-5 Costilla County Occupations and Industries

Industry	Number Employed	Percent of Labor Force
Educational services, and health care and social assistance	292	22.1%
Retail trade	177	13.4%
Agriculture, forestry, fishing and hunting, and mining	166	12.5%
Transportation and warehousing, and utilities	144	10.9%
Public administration	114	8.6%
Construction	108	8.2%
Professional, scientific, and management, and administrative and waste management services	70	5.3%
Arts, entertainment, and recreation, and accommodation and food services	69	5.2%
Wholesale trade	46	3.5%
Other services, except public administration	44	3.3%
Manufacturing	43	3.2%
Finance and insurance, and real estate and rental and leasing	30	2.3%
Information	21	1.6%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

C.6. Hazard Identification and Risk Assessment

C.6.1. Identified Hazards

The CPT reviewed significant hazards for inclusion in the hazard mitigation plan. For the sake of consistency, the list of hazards for consideration began with the list of hazards found in San Luis Valley's Hazard Mitigation Plan, updated in 2018. In the 2022 update the CPT decided to add the following hazards: cyber-attack, hazardous materials, and pandemic/epidemic. Table C-6 provides a summary of the overall hazard significance for the hazards evaluated in this plan, showing variability by jurisdiction in Costilla County below.

Table C-6 Costilla County Overall Hazard Significance* Summary Table

Hazard	Costilla County	Blanca	San Luis
Avalanche	Medium	Low	Low
Cyber Attack	Medium	Medium	Medium
Dam Failure	Medium	Medium	Medium
Drought	High	High	High
Earthquake	Low	Low	Low
Flood (Flash Flood & Levee Failure)	High	Low	High
Hazmat	Medium	Medium	Medium
Hailstorm	Medium	Medium	Medium
Landslide	Low	Low	Low
Lightning	Low	Low	Low
Pandemic	Medium	Medium	Medium

Hazard	Costilla County	Blanca	San Luis
Severe Winter Storm	High	High	High
Tornado/High Winds	Medium	Medium	Medium
Wildland Fires	High	Medium	Medium

*Significance based on a combination of Geographic Extent, Potential Magnitude/Severity and Probability as defined below.

Geographic Extent Negligible: Less than 10 percent of planning area or isolated single-point occurrences Limited: 10 to 25 percent of the planning area or limited single-point occurrences Significant: 25 to 75 percent of planning area or frequent single-point occurrences Extensive: 75 to 100 percent of planning area or consistent single-point occurrences Potential Magnitude/Severity Negligible: Less than 10 percent of property is severely damaged, facilities and services are unavailable for less than 24 hours, injuries and illnesses are treatable with first aid or within the response capability of the jurisdiction. Limited: 10 to 25 percent of property is severely damaged, facilities and services are unavailable between 1 and 7 days, injuries and illnesses require sophisticated medical support that does not strain the response capability of the jurisdiction, or results in very few permanent disabilities. Critical: 25 to 50 percent of property is severely damaged, facilities and services are unavailable or severely hindered for 1 to 2 weeks, injuries and illnesses overwhelm medical support for a brief period of time or result in many permanent disabilities and a few deaths. Overwhelmed for an extended period of time or many deaths occur. Catastrophic: More than 50 percent of property is severely damaged, facilities and services are unavailable or hindered for more than 2 weeks, the medical response system is overwhelmed for an extended period of time, or many deaths occur.	Probability of Future Occurrences Unlikely: Less than 1 percent probability of occurrence in the next year or has a recurrence interval of greater than every 100 years. Occasional: Between a 1 and 10 percent probability of occurrence in the next year or has a recurrence interval of 11 to 100 years. Likely: Between 10 and 90 percent probability of occurrence in the next year, or has a recurrence interval of 1 to 10 years Highly Likely: Between 90 and 100 percent probability of occurrence in the next year or has a recurrence interval of less than 1 year. **Overall Significance** Low: Two or more of the criteria fall in the lower classifications or the event has a minimal impact on the planning area. This rating is also sometimes used for hazards with a minimal or unknown record of occurrences/impacts or for hazards with minimal mitigation potential. Medium: The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is also sometimes utilized for hazards with a high impact rating but an extremely low occurrence rating. High: The criteria consistently fall along the high ranges of the classification and the event exerts significant and frequent impacts on the planning area. This rating is also sometimes utilized for hazards with a high psychological impact or for hazards that the jurisdiction identifies as particularly relevant.

C.6.2. Building Inventory and Assets

Critical Facilities, Infrastructure, and Other Important Community Assets

A critical facility is defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA organizes critical facilities into seven lifeline categories as shown in Figure A-1 and Table C-7 for Costilla County below.

Table C-7 Costilla County Facilities by Jurisdiction

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Total
Blanca	2	-	-	-	-	4	1	**7**
Ft. Garland	-	-	-	-	-	1	1	**2**
San Luis	-	-	-	1	2	7	3	**13**
Unincorporated	18	2	1	3	1	4	38	**67**
Total	**20**	**2**	**1**	**4**	**3**	**16**	**43**	**89**

Source: CDPHE, CEPC, HIFLD, NBI, WSP GIS Analysis

Natural, Historic, and Cultural Assets

Costilla County has numerous sites of archeological or historic significance. Archeological sites are not identified to preserve their artifacts from disturbance. The following historic sites are listed on a National or State Historic Register.

- Fort Garland (National Register 02/26/1970; State Register 12/11/1996, 5CT46).
- The Barlow and Sanderson Stagecoach (State Register 06/14/1995, 5CT46.1).
- San Acacio-San Luis Southern Railway Depot (State Register 12/09/1998, 5CC22).
- Plaza de San Luis de la Culebra Historic District (National Register, 1978).
- San Luis Bridge (National Register, 1978).

According to the National Historic Preservation Act (NHPA), 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 NHPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

A list of additional historic resources is available from the Colorado Historical Society.

Fort Garland

Built in 1858, Fort Garland is a compound of buildings representing Territorial Adobe architecture. The Colorado Historical Society operates Fort Garland as a museum.

The Barlow and Sanderson Stagecoach

The Barlow and Sanderson Stagecoach, a rare example of an Abbot-Downing mud wagon built around 1871, is located in the Fort Garland compound.

San Acacio-San Luis Southern Railway Depot

Built in 1910, the two-story San Acacio-San Luis Southern Railway Depot is the largest depot constructed by the San Luis Southern Railway.

Plaza de San Luis de la Culebra Historic District
Constructed in the early 1850's as Colorado's first settlement, this historic district is a well-preserved example of Spanish town building.

San Luis Bridge
Built over Culebra Creek in 1911, the San Luis Bridge is one of the earliest unaltered bridges of its type in Colorado.

C.6.3. Vulnerability to Specific Hazards

This section details vulnerability to specific hazards, where quantifiable, only where it differs from that of the Region as a whole. The results of detailed GIS analyses used to estimate potential for future losses are presented here, in addition to maps of hazard areas and details by jurisdiction and building type. For a discussion of the methodology used to develop the loss estimates refer to Chapter 4 of the base plan. In many cases Chapter 4 contains information that differentiates the risk by county thus the information is not duplicated here. For most of the weather-related hazards the risk does not vary significantly enough from the rest of the Region and thus the reader should refer to Chapter 4. Only unique issues or vulnerabilities are discussed, where applicable.

- Avalanche
- Dam Incident
- Drought
- Earthquake
- Flood
- Hailstorm
- Severe Winter Weather
- Wildland Fires
- High Winds and Tornadoes
- Cyber Attack
- Hazardous Materials Incidents
- Pandemic

Avalanche

The avalanche risk is rated medium for Costilla County due to isolated impacts primarily in backcountry areas of the Sangre de Cristo Mountains in the eastern portion of the County.

Dam Incident

There are two high and one significant hazard dams located in Costilla County which create a considerable risk to lives and properties in Costilla County in the event of a significant dam incident. Table C-8 details the high and significant hazard dams located within Costilla County.

Table C-8 High and Significant Hazard Dams in Costilla County

Dam Name	Owner	River	Hazard Class	Nearest Downstream Community	Distance to Nearest Downstream Community (Miles)	EAP
Mountain Home	Tracy Kester	Trinchera Creek	High	Arroya Hondo, NM	93	Y

Dam Name	Owner	River	Hazard Class	Nearest Downstream Community	Distance to Nearest Downstream Community (Miles)	EAP
Sanchez	Sanchez Ditch and Reservoir Co.	Ventero Creek	High	San Luis	7	Y
Smith	Trinchera Irrigation Co.	Trinchera Creek	Significant	Arroya Hondo, NM	88	Y

Source: National Inventory of Dams

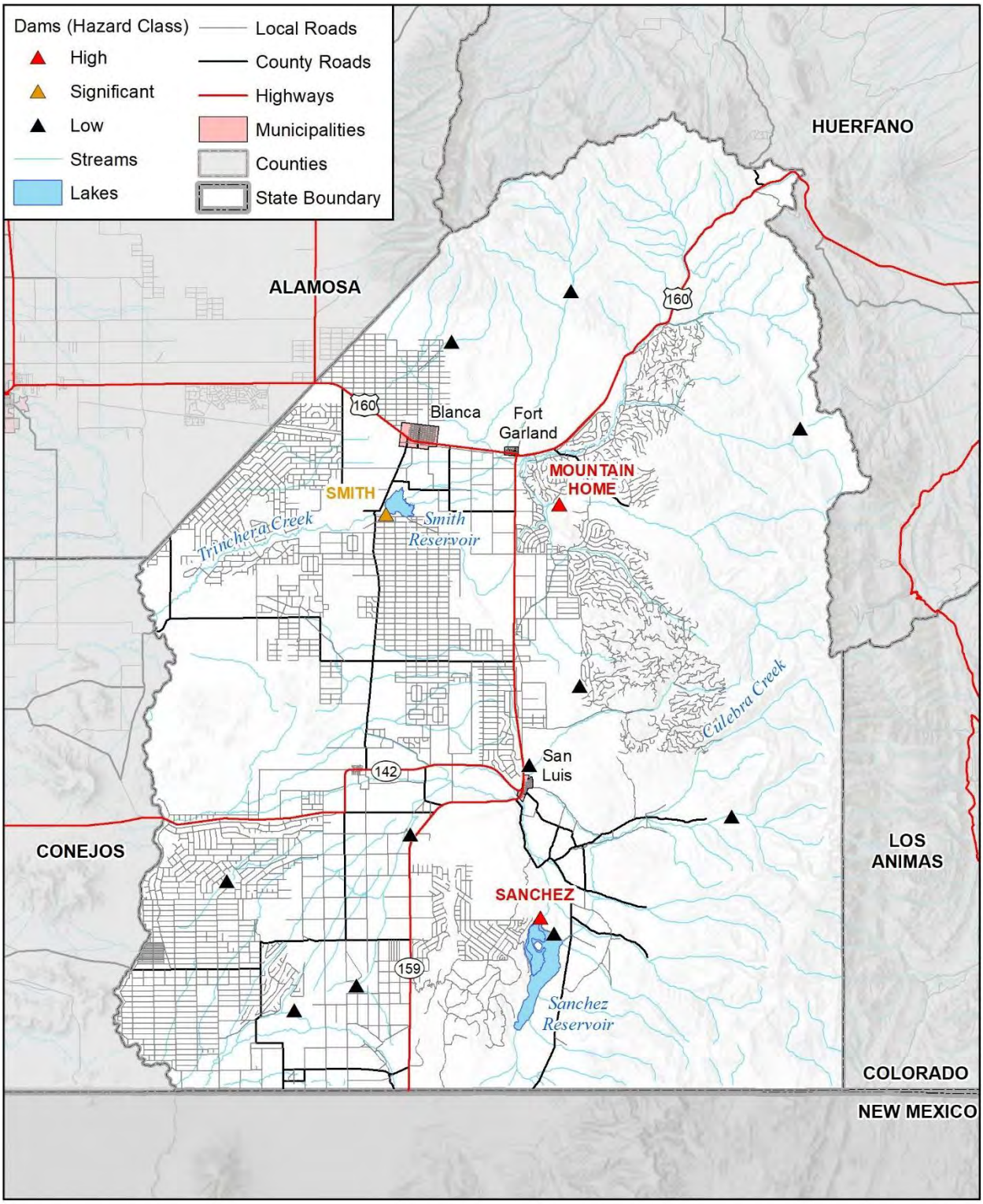
The High and significant hazard dams listed above, as well as some located upstream of Costilla County present some risk for property damage, injury, or loss of life in a significant dam incident. Table C-9 below shows the number of structures exposed to dam inundation from each upstream dam, and Figure C-1 illustrates the locations of high and significant hazard dams in the county.

Table C-9 Structures at Risk to Dam Inundation by Jurisdiction

Dam Name (Hazard Class)	Jurisdiction	Structure Count
Continental (High) (Upstream – Hinsdale County)	Costilla County	1
	Total	1
Mountain Home (High)	Costilla County	124
	Total	124
Rio Grande (Significant) (Upstream – Hinsdale County)	Costilla County	2
	Total	2
Sanchez – Main Dam (High)	San Luis	121
	Costilla County	210
	Total	331
Santa Maria (High) (Upstream – Mineral County)	Costilla County	1
	Total	1
Terrace (High) (Upstream – Conejos County)	Costilla County	2
	Total	2

Source: Microsoft Footprints 2021, DWR Dam Safety Program, WSP GIS Analysis

Figure C-1 Costilla County Dams



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, DWR Dam Safety

0 5 10 Miles

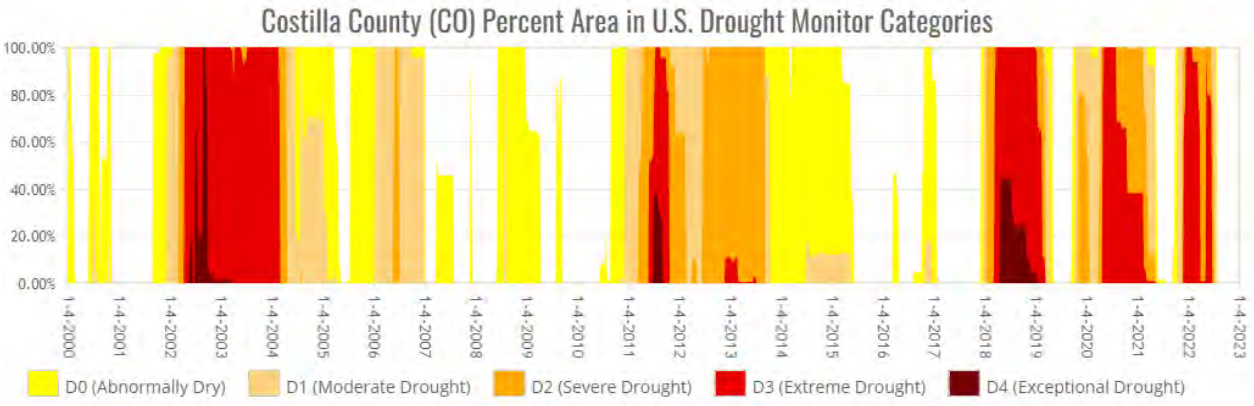
N

Drought

Drought was rated as a hazard of high concern in all counties in the planning area. Between 2012 and 2021, Costilla County experienced 24 USDA emergency drought declarations, three of which were unique to the region. Costilla County did not record any RMA indemnity payments between 2007 and 2021.

The U.S. Drought Monitor (USDM) is a national data set released weekly, showing the severity of drought in locations across the nation. A timeseries showing the severity of drought in Costilla County between 2000 and 2022 is shown below.

Figure C-2 USDM Drought Timeseries for Costilla County



Source: USDM; www.drought.gov

The National Drought Mitigation Center developed the Drought Impact Reporter in response to the need for a national drought impact database for the United States. Information comes from the public who visit the website and submit a drought-related impact for their region, members of the media, and members of relevant government agencies. Costilla County had 42 reported impacts between 2013-2022, .

Earthquake

There are several known fault systems throughout the San Luis Valley, and the likelihood for seismic activity is fairly uniform throughout the region's counties. However, the potential severity of shaking and impacts to casualties and damage is not uniform. Out of all the counties in the San Luis Valley, Costilla County has the most well documented history of past earthquake events. Costilla County is also the closest in proximity to an area of high seismic activity in neighboring Las Animas County and it felt shaking during the 2011 Trinidad earthquake. Costilla County is also likely to experience the highest peak ground acceleration in the region in the event of an earthquake, according to data from Colorado Geological Survey.

Despite these factors, Costilla County is projected to experience the second lowest level of damage and casualty impacts. According to a Hazus analysis conducted, a 2,500-year probabilistic earthquake ground shaking could result in $81.1 million in total economic losses in the county. An estimated total of 485 buildings will experience at least moderate damage, and there would be an estimated 8 injuries in this event scenario. Only Mineral County is projected to have lower impacts.

Refer to Chapter 4 for a discussion of the earthquake risk relative to Costilla County and the wider Region.

Flood

A flood, as defined by the National Flood Insurance Program (NFIP), is a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of waters, unusual and rapid accumulation, or runoff of surface waters from any source, or a mudflow. Floods can be slow or fast rising, but generally develop over a period of many hours or days. Flooding events occurring within the San Luis Valley are generally attributed to three factors (1) winter thaws and spring break up within the project areas watersheds (sometimes with associated ice jams), (2) rapid snow melt and or heavy rains in higher elevations, and (3) spring or summer deluges that result in flash flooding. Figure C-3, Figure C-4, Figure C-5, and Figure C-6 shows the extent of the 1% annual chance floodplains throughout Costilla County.

Figure C-3 Costilla County Flood Hazards & Structures

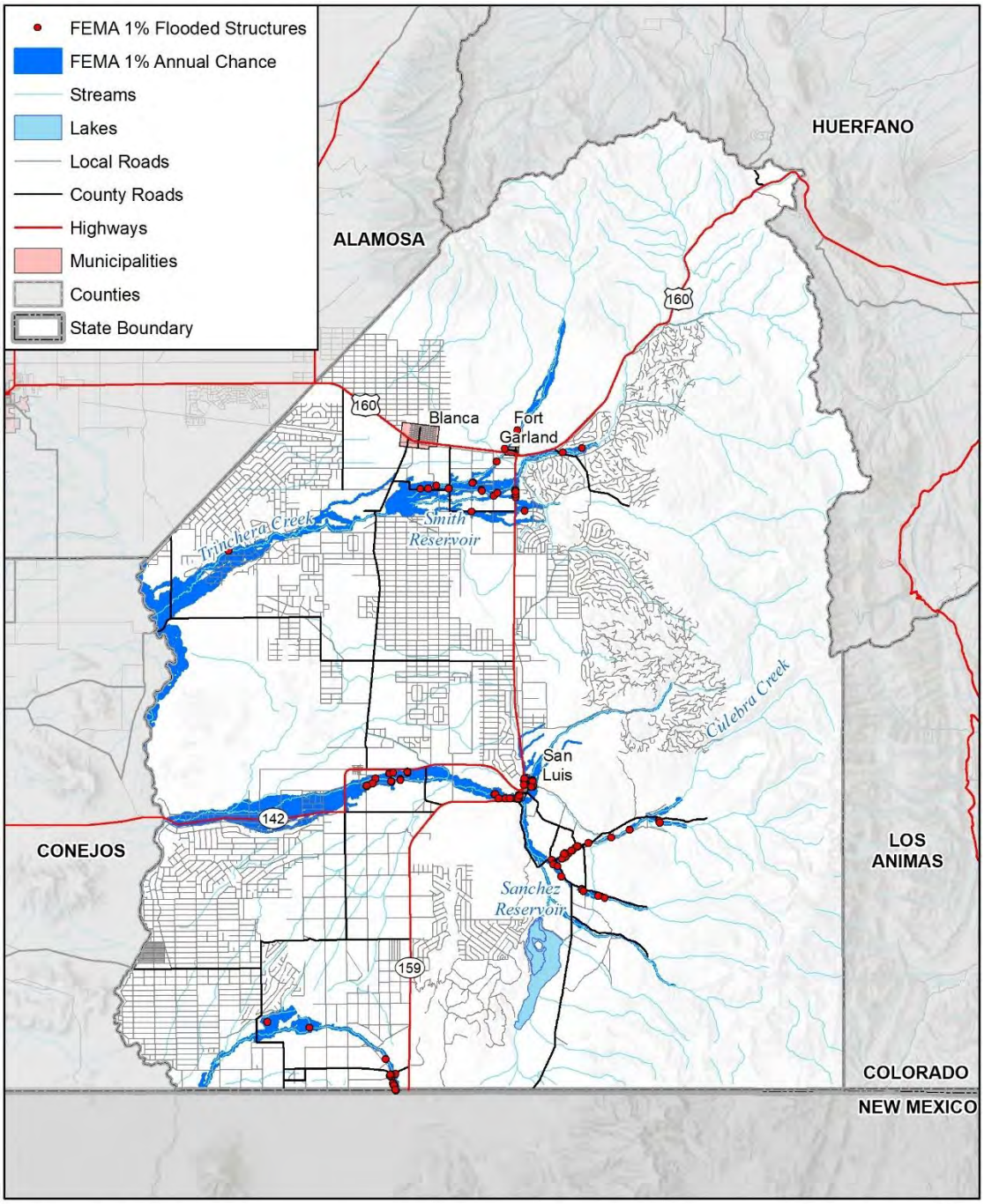
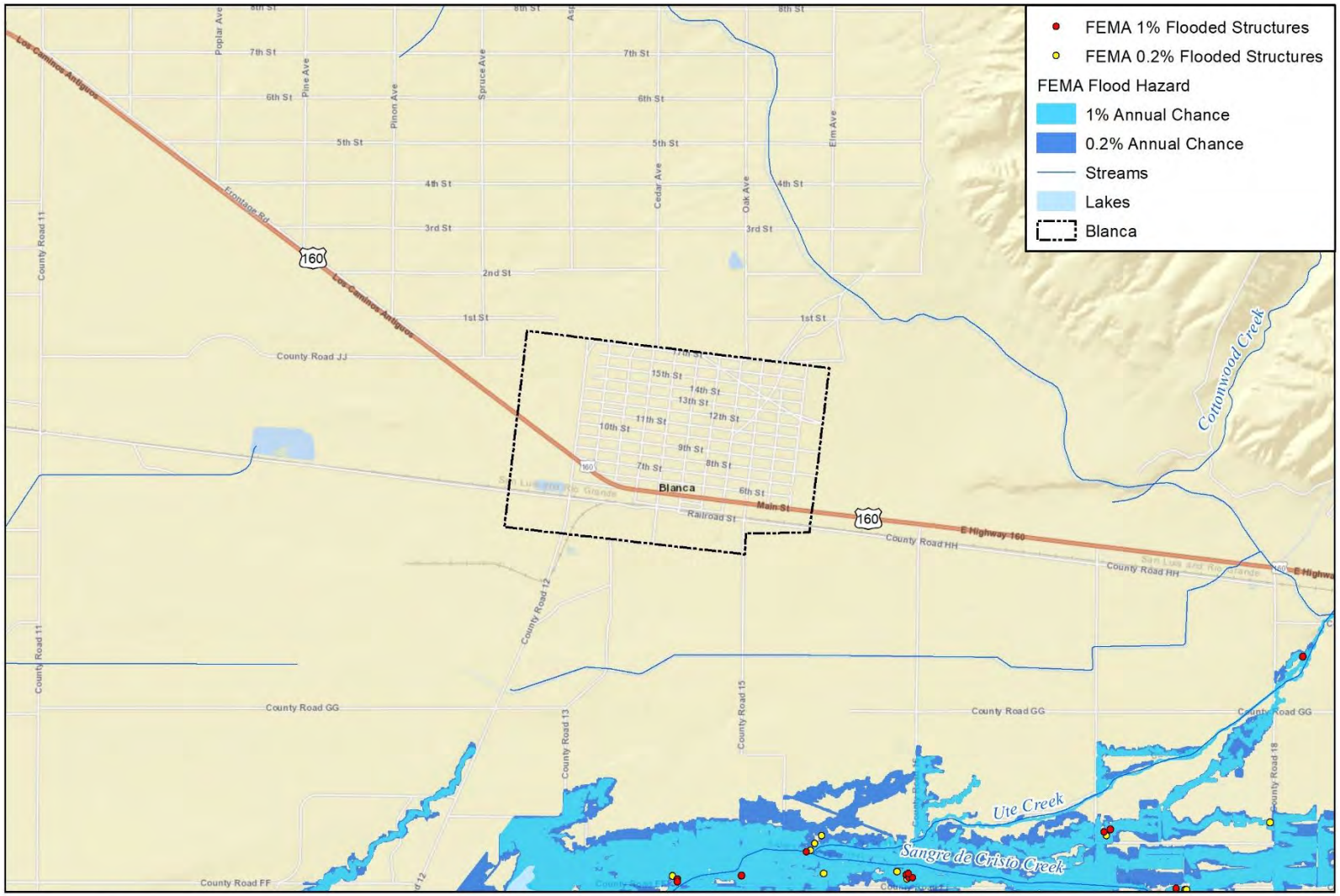
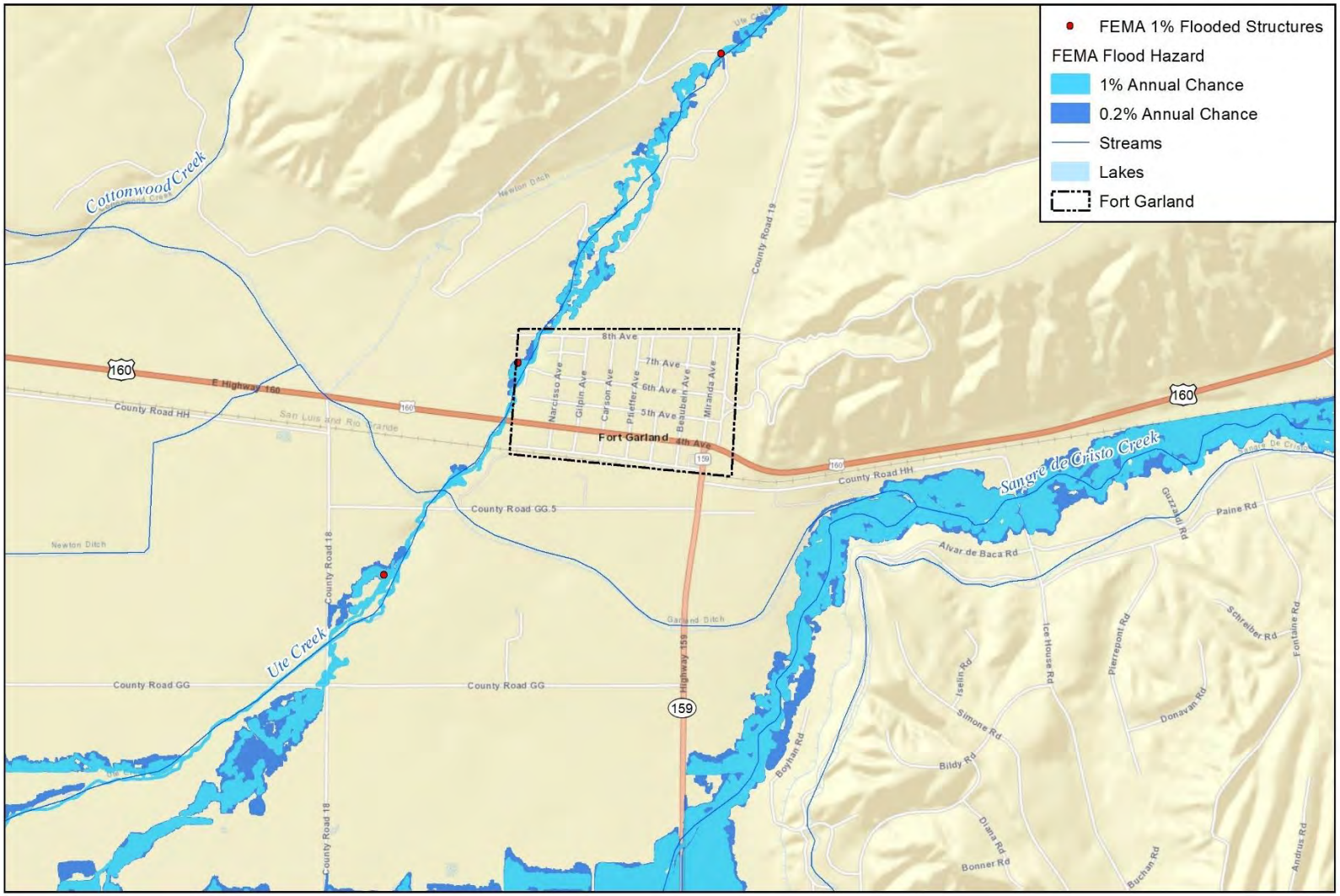


Figure C-4 Blanca Flood Hazards



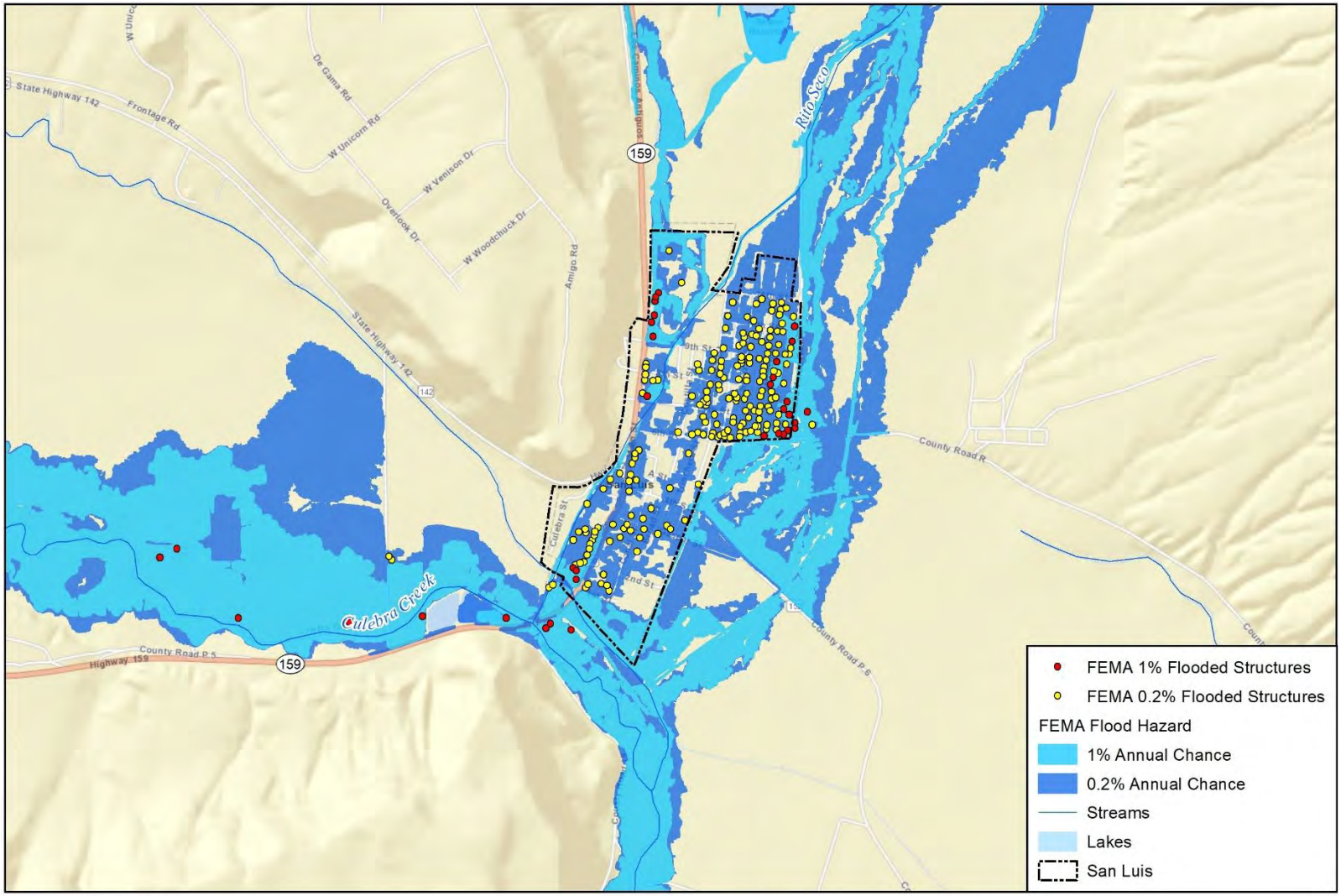
Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Draft FEMA Flood Hazards for Costila County

Figure C-5 Fort Garland (Census Designated Place) Flood Hazards



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Draft FEMA Flood Hazards for Costila County

Figure C-6 San Luis Flood Hazards and Structures



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Draft FEMA Flood Hazards for Costila County

Structure Vulnerability Analyses and National Flood Insurance Program Statistics

An analysis of structures in the floodplain and NFIP claims data for the County and its municipalities can be found in the Base Plan under the Flooding Hazard Profile under the vulnerability assessment, people and property subsections.

Repetitive Loss Structures

There are no reported Repetitive Loss properties as of 2022 within the San Luis Valley.

Hail

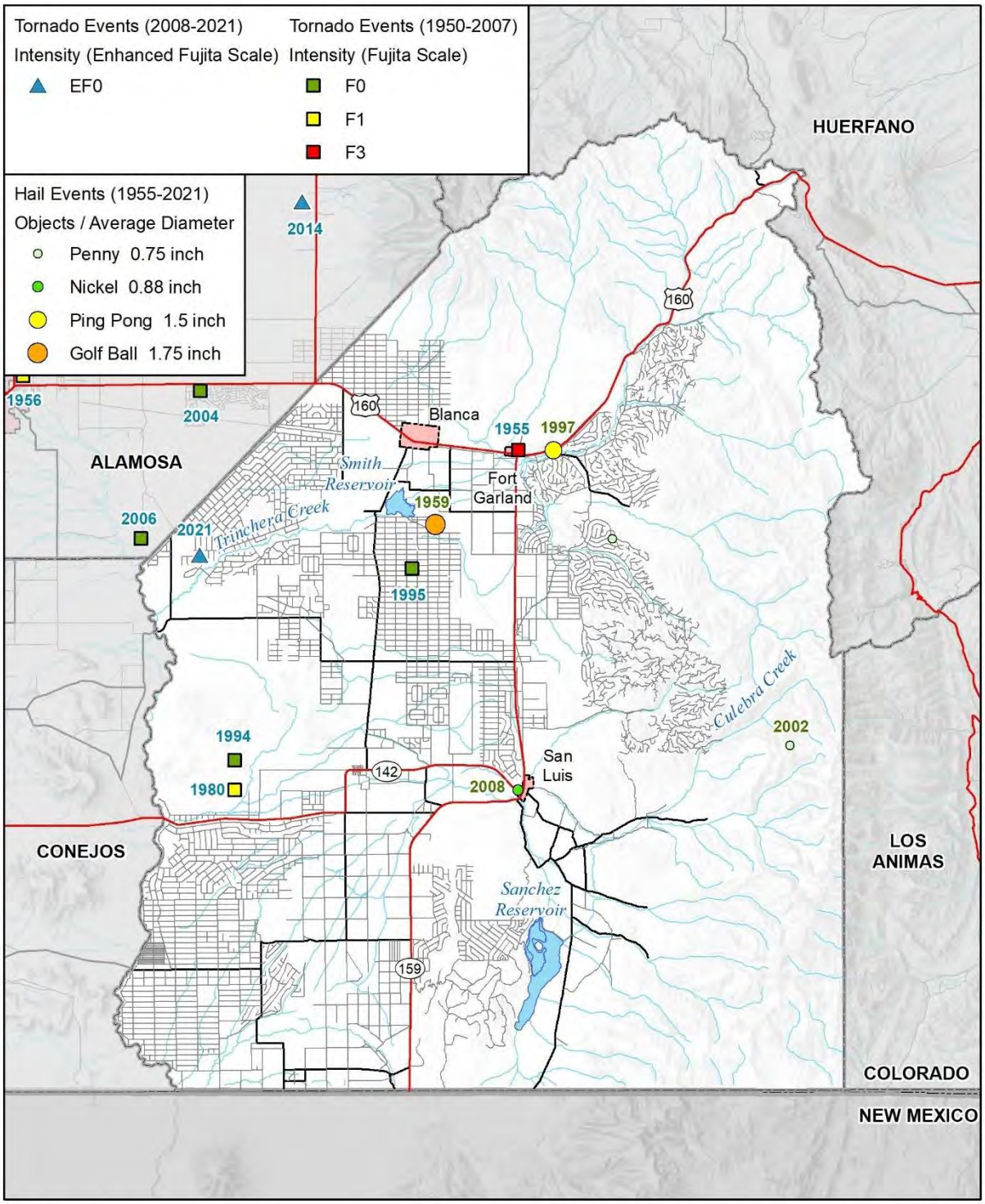
According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 67 years, from 1955-2022, there have been 6 hail events, none of which resulted in injuries or casualties, in Costilla County. Most of the events took place in the Town of San Luis (3) followed by the Town of Ft. Garland (2). One documented hail event in the County did not contain information on the nearest impacted town. The largest hailstone recorded in Costilla County was 1.75 inches on May 14, 1959.

The NCEI reported a total of $455,000 in property damages and $250,000 in crop damages due to hail in the County. $5,000 of the property damages occurred on June 30th, 1995, in the town of San Luis, when hail collected on Highway 159 and caused vehicles to slide into each other. All other losses from hail occurred on August 7th, 1996, in the town of San Luis, when a hailstorm producing stones as large as 0.75 inches in diameter caused extensive crop and property damage in the county.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 11,711.02 acres were lost to hail and $2,615,557 indemnity payments made to farmers in Costilla County.

The figure below displays historic hail events in Costilla County. Vulnerability to hail is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of hail risk related to Costilla County and the Region.

Figure C-7 Costilla County Historic Hail and Weather Events (1950-2021)

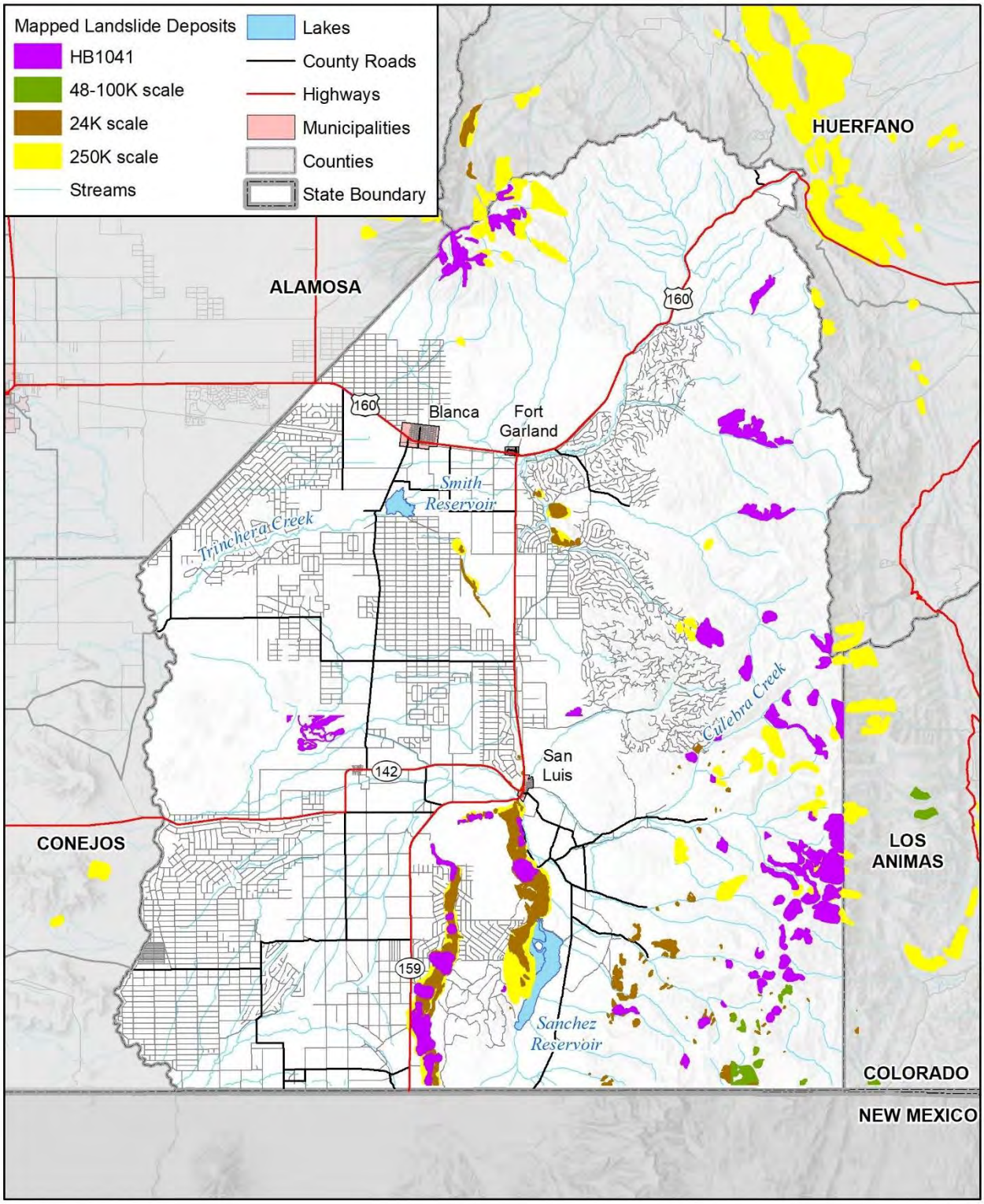


Landslide/Debris Flow/Rockfall

Costilla County's vulnerability to landslides is largely confined to the eastern edges of the county. There are extensive rural subdivisions in these areas which are currently undeveloped but may become developed in future years. There are also some backcountry recreational areas and roads and highways in this area, where travelers or recreationists may be involved in an incident. According to GIS analysis conducted for this plan update, there are an estimated 59 structures throughout Costilla County at risk to landslides, valued at $10.9 million. An estimated 129 people reside in areas at risk to landslide throughout the county as well. Figure C-8 below illustrates the extent of mapped landslide deposits in the county.

One significant past event was noted in Costilla County in the NCEI database. A massive mud and debris slide occurred near the summit of La Veta Pass across Highway 160 in Costilla County on July 28, 2008. The slide was 300-feet wide and up to 6 feet deep. This major east-west highway was closed for four hours, impacting transportation and commerce in Costilla County.

Figure C-8 Mapped Landslide Deposits in Costilla County



Map compiled 9/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Geological Survey

Lightning

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there have been no damaging lightning events in Costilla County. However, damaging lightning events are still possible in the future.

Despite no documented historic lightning events, all exterior infrastructure and property are equally vulnerable to damages from lightning across the region. Vulnerability to lightning is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of lightning risk related to Costilla County and the Region.

Severe Winter Weather

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there have been a total of 649 winter weather related events in Costilla County. Table C-10 summarizes these events. It is important to note that all winter weather related events are recorded on a zonal scale and therefore do not include information on the nearest impacted city. Additionally, due to the nature of the zonal nature of these events, it is possible that some events and losses were duplicated in the datasets.

In total, $5,000,000 in property losses were recorded in the County due to blizzard events. Additionally, six injuries and seven fatalities were documented in the County. The most destructive blizzard event occurred on April 11th, 2001, when a blizzard caused an estimated $400,000,000 in damages to downed power lines and vehicles traveling on the highway. Winds were estimated to reach up to 80 mph and snow accumulated up to 10 feet in some locations.

Additionally, five fatalities and two injuries were reported in the County on October 24th, 1997. The NCEI dataset did not provide details on these events.

The U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) reported 1,690.8 net acres lost to cold weather-related events and $213,372 indemnity payments made to farmers in Costilla County between 2007 and 2021.

Vulnerability to severe winter weather is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of severe winter weather related to Costilla County and the Region.

Table C-10 Summary of Winter Weather Events in Costilla County

	Total Events	Days with Events	Property	Injury	Fatality
Blizzard	11	4	$5,000,000	2	5
Heavy Snow	174	92	$0	4	2
Winter Storm	431	152	$0	0	0
Winter Weather	33	13	$0	0	0
Total	**649**	**261**	**$5,000,000**	**6**	**7**

Source: NCEI

Wildland Fires

The most comprehensive fire data was available from the United States Department of Agriculture (USDA) Research Data Archive from 1992 to 2018. The dataset reported 3 fires of any size over the 26-year period in Costilla County for a total of 121,815.10 acres burned.

The dataset provides information on fire size based on wildfire classes. The table below summarizes the number of wildfire events in the County based on class size. In Costilla County, the most frequently occurring type of wildfire is a class G (5,000 acres or more).

Table C-11 Costilla County Wildfires by Class

Class	# of Events
Class A – one-fourth acre or less;	1
Class B – more than one-fourth acre, but less than 10 acres;	0
Class C – 10 acres or more, but less than 100 acres;	0
Class D – 100 acres or more, but less than 300 acres;	0
Class E – 300 acres or more, but less than 1,000 acres;	0
Class F – 1,000 acres or more, but less than 5,000 acres;	0
Class G – 5,000 acres or more.	2

Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

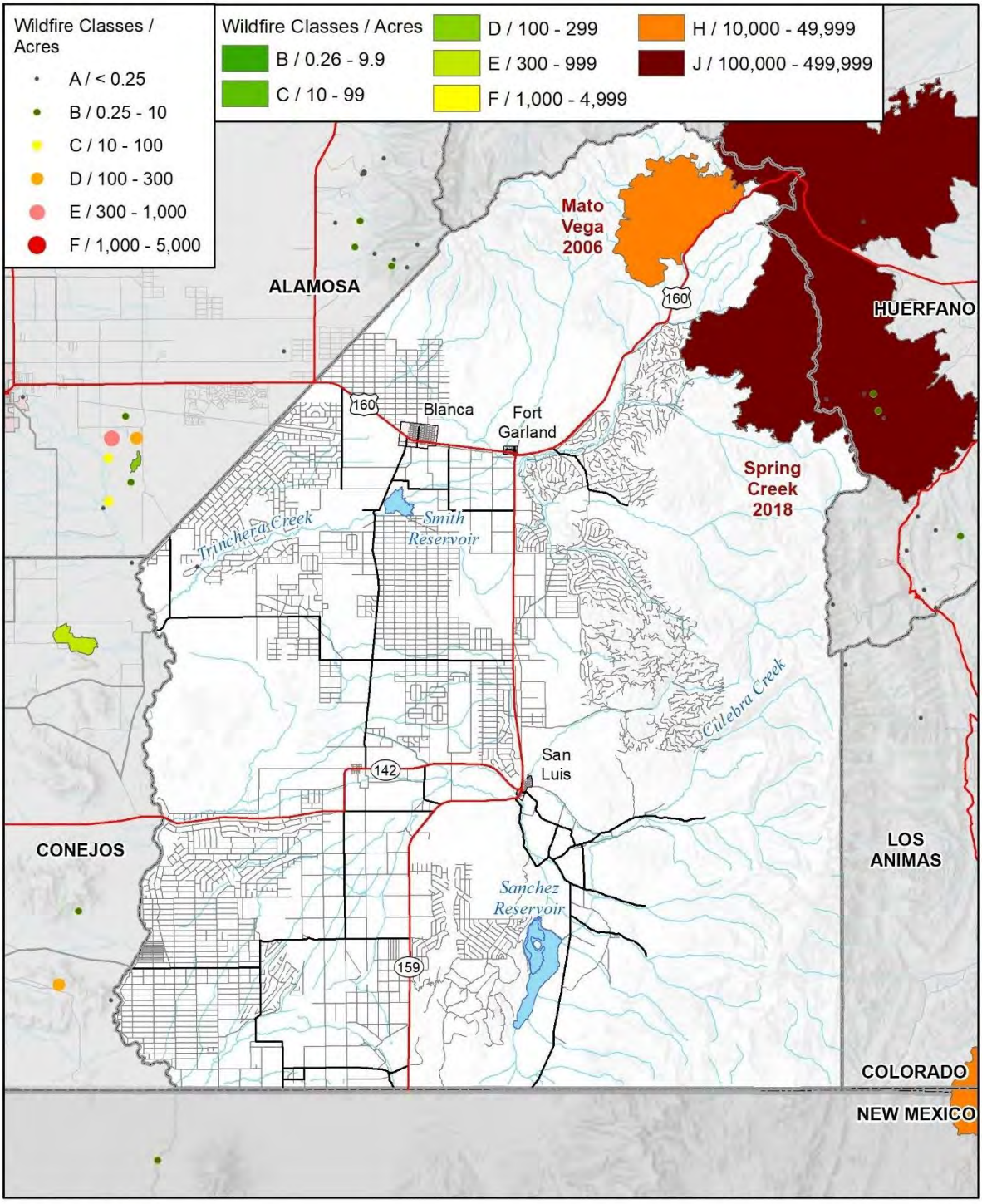
Costilla County is unique in the sense that all other counties in the San Luis Valley Region experience trends of low magnitude, high frequency wildfires. However, Costilla County historically has not experienced frequent wildfire events, but the wildfire events that have occurred have been of extreme magnitude and severity, causing the greatest total acres burned in any County in the Region.

The USDA dataset reported on three fires that have occurred in the County. The first wildfire to impact the County was the Mato Vega Fire, which occurred in 2006 and was a Class G wildfire. This fire burned 13,820 acres before it was extinguished and was ignited naturally. The second fire to occur in the County was the Blanca Fire in 2011. This fire was a Class A fire and burned 0.1 acres in the County. The cause of the fire is unknown. Finally, the most significant fire to occur in Costilla County was the Spring Creek Fire in 2018. This Class G fire burned 107,995 acres and was found to be human caused.

Costilla County has had three disaster declarations due to wildfires. The first disaster declaration was declared in 2002 for the entire State of Colorado. Costilla County received a second declaration in 2006 due to the Mato Vega fire, and again in 2018 for the Spring Creek Fire. According to the 2008 Costilla County CWPP, the WUI areas in the county include Blanca, Fort Garland, Mesita, San Acacio, and Vallejos Creek with low wildfire hazard ratings, Mountain Lake Ranch with moderate hazard rating, Forbes Park, Forbes Wagon Creek Ranch, Sangre de Cristo Ranches, and San Perdo Mesa with high hazard ratings, and North San Luis Valley Ranches with extreme hazard ratings.

Figure C-9 below displays the history of wildfires in Costilla County. Figure C-10 displays wildfire risk in the County. The area most likely to experience wildfire based on this map is the northern portion of the County. Figure C-11 and Figure C-12 display the wildland urban interface (WUI) and the WUI risk, which indicates the most vulnerable areas for human infrastructure to wildfire are in the Cities of Blanca, Fort Garland, and San Luis.

Figure C-9 Costilla County Wildfire History (1950-2022)



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, National Interagency Fire Center (NIFC),
USGS: BLM, FS, FWS, NPS

Figure C-10 Costilla County Wildfire Risk

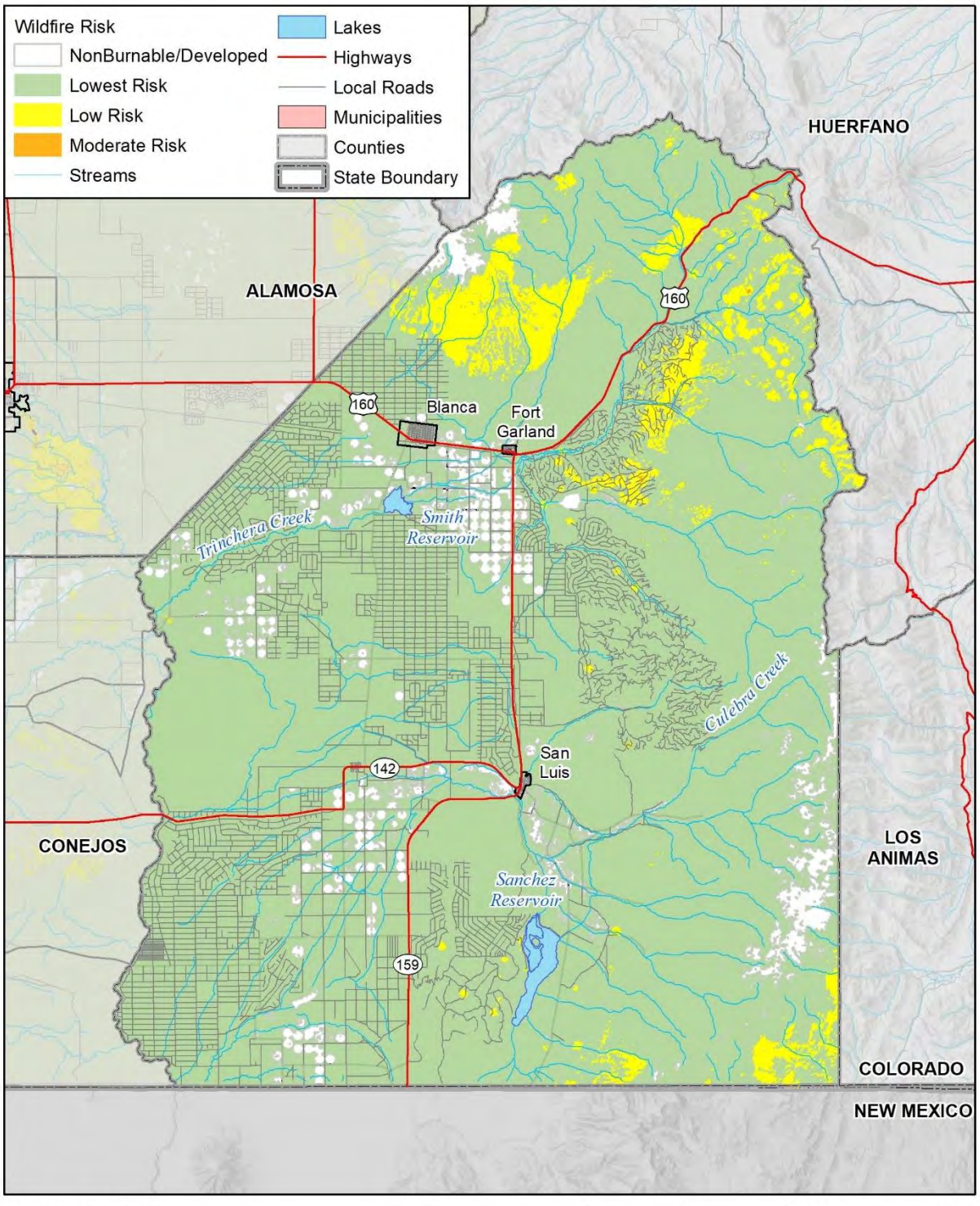


Figure C-11 Costilla County Wildland Urban Interface

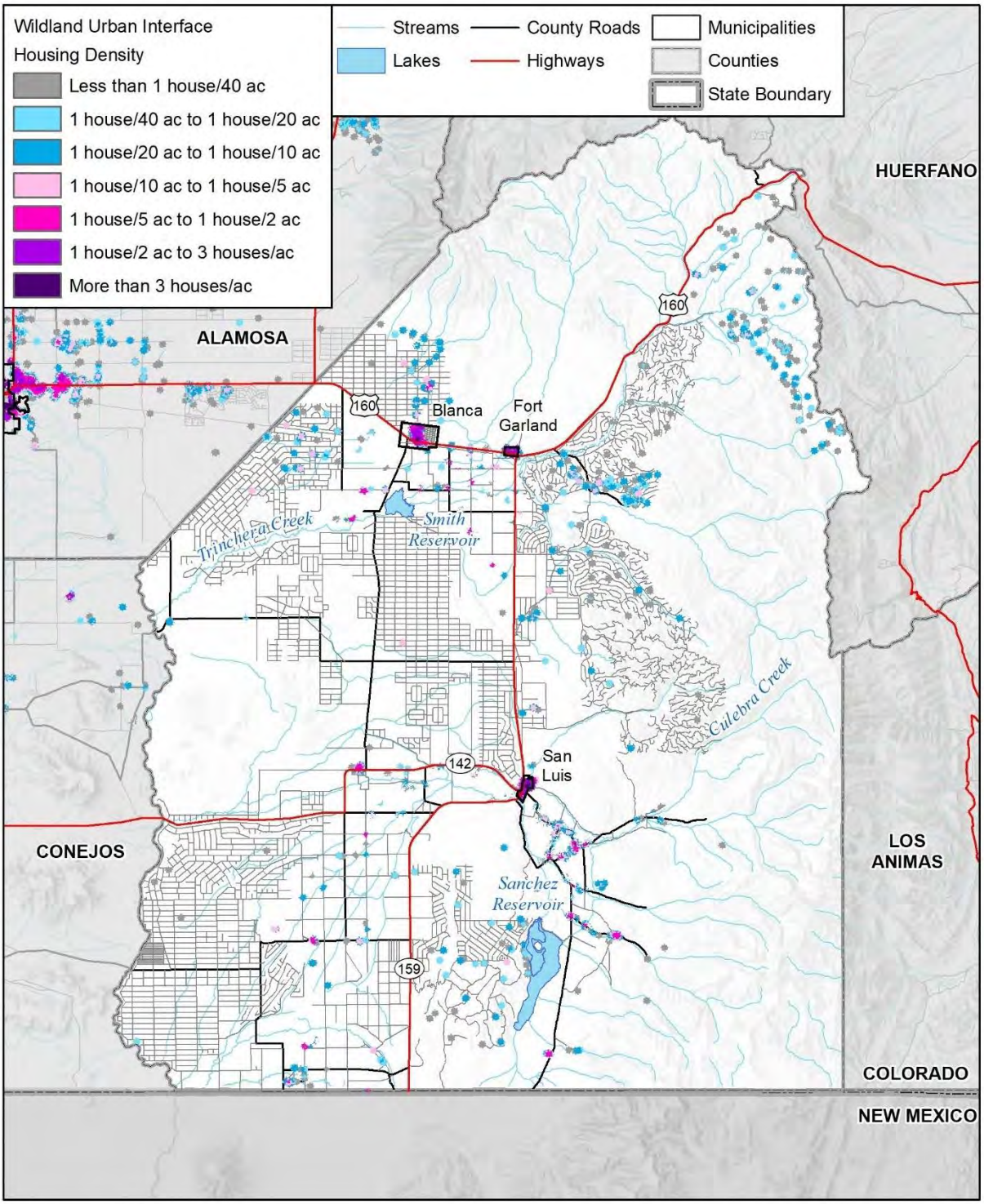
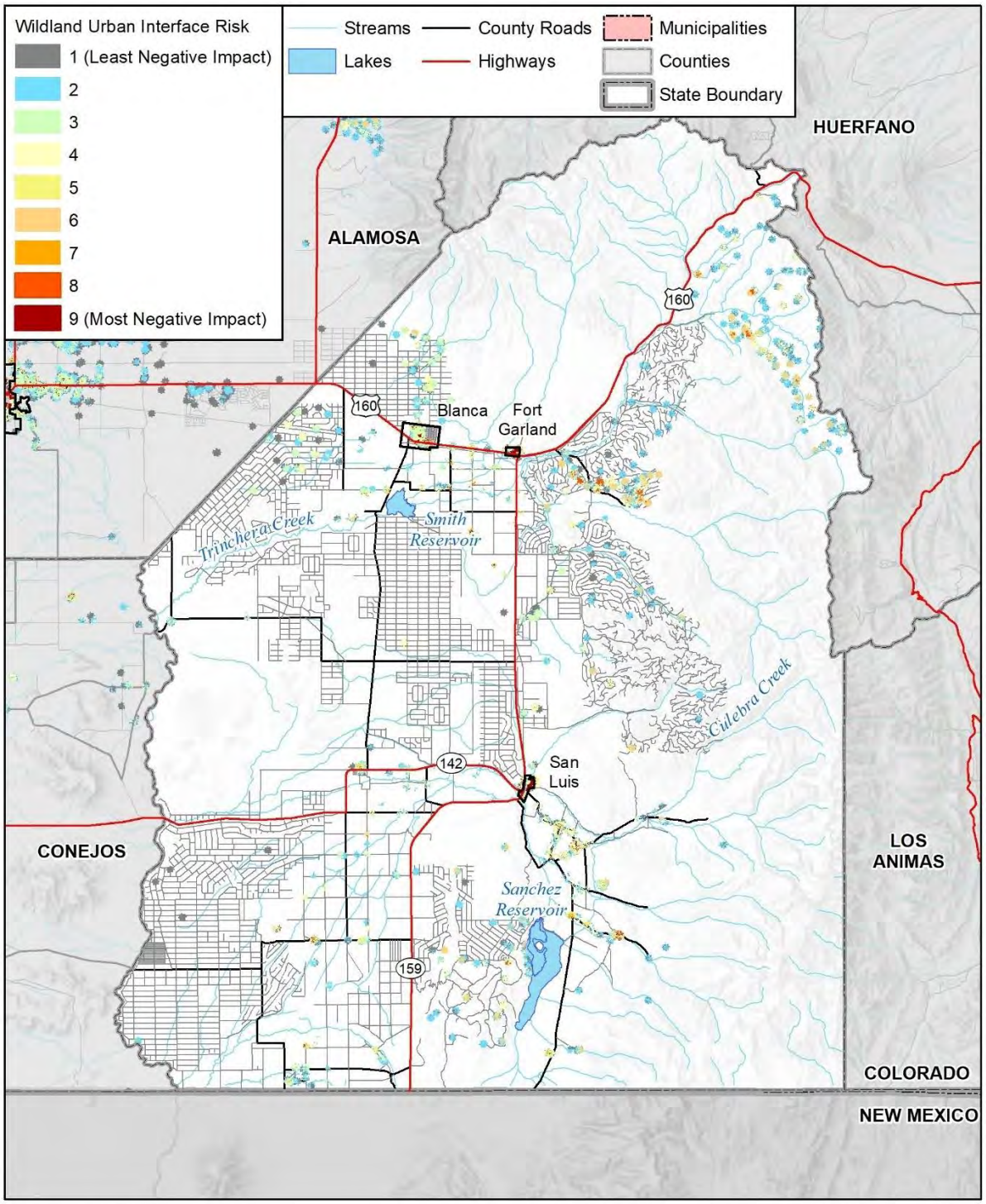


Figure C-12 Costilla County Wildland Urban Interface Risk



High Winds and Tornadoes

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 72 years, from 1950-2022, there have been 309 high wind events, 0 thunderstorm wind events, and 7 tornado events in Costilla County. While high wind events are recorded on a zonal scale and therefore do not include information on the nearest impacted city, some tornado events do. The most impacted city by tornado events in the County is the Town of Blanca (2) followed by the Towns of San Acacio and Ft. Garland (1).

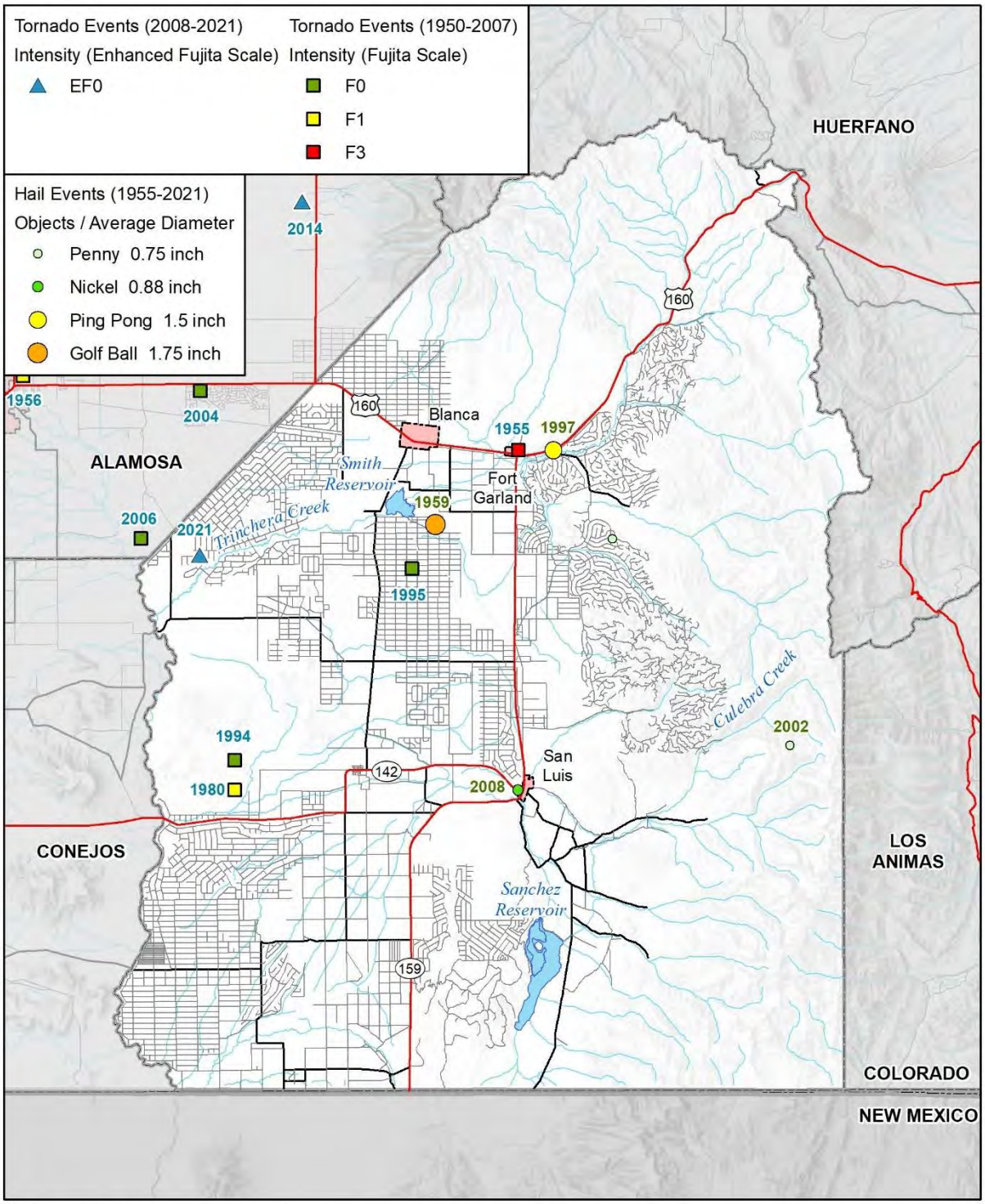
In total, nine injuries and one fatality were documented in the County, all due to high wind. The fatality occurred on February 5th, 1999, when a gust of wind reaching an estimated 70 mph flipped a semi-trailer hauling half a mobile home. Due to high winds being recorded on a zonal scale, it is uncertain if the nine injuries all occurred within the boundaries of Costilla County, as they might have occurred in a nearby city outside of the County.

The highest windspeed recorded in Costilla County reached 108 mph and the strongest tornado was an F3, which occurred on July 31st, 1955. In total, $1,995,000 in property damages were recorded in the County, $1,990,000 from high wind and $5,000 from two tornado events. It is difficult to determine the exact location that high wind damage occurred in the County due to the zonal nature of the data. The most damaging tornado events in the County occurred on July 31st, 1955, and July 12th, 1970, both of which resulted in $2,500 in estimated property damages.

The U.S. Department of agriculture (USDA) Risk Management Agency (RMA) records insured crop losses between 2007 and 2021. In total, 6,892.68 acres were lost to high winds and tornadoes and $936,233 indemnity payments made to farmers in Conejos County.

The figure below displays historic wind and tornado events in Costilla County. Vulnerability to winds and tornadoes is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of wind risk related to Costilla County and the Region.

Figure C-13 Costilla County Historic Wind and Tornado Events (1950-2021)



Map compiled 9/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, NOAA, National Weather Service SVRGIS 2021

Cyber Attack

All servers, networks, and users are vulnerable to cyber-attacks in the San Luis Valley Region. The Privacy Rights Clearinghouse lists 172 data breaches against systems located in Colorado, totaling over 5,812,743 impacted records; however, it is difficult to know how many of those affected residents in Costilla County. Many small cyber-crimes also go unreported, so the true number of impacted residents in the community is likely much larger than the database estimates.

The database did not report any events that impacted Costilla County in particular. However, the San Luis Valley HMPC also noted that hospitals and elder populations have been popular targets for cyber-attacks across the region.

Vulnerability to cyber-attacks is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of cyber-attack risk related to Costilla County and the Region.

Hazardous Materials Incidents

Costilla County has three Tier II facilities. Potential for hazardous materials spills exist on Highway 160, a CDOT-designated hazardous materials route, which traverses across the northern section of the unincorporated County and through the Town of Blanca,

Pandemic

Vulnerability for pandemic does not vary from that in the Region.

C.7. Mitigation Capabilities Assessment

As part of the regional plan development, the Region and participating jurisdictions developed a mitigation capability assessment. Capabilities are those plans, policies and procedures that are currently in place that contribute to reducing hazard losses. Combining the risk assessment with the mitigation capability assessment results in "net vulnerability" to disasters and more accurately focuses the goals, objectives, and proposed actions of this plan. The CPT used a two-step approach to conduct this assessment. First, an inventory of common mitigation activities was made through the use of a matrix. The purpose of this effort was to identify policies and programs that were either in place or could be undertaken, if appropriate. Second, the CPT conducted an inventory and review of existing policies, regulations, plans, projects, and programs to determine if they contribute to reducing hazard related losses.

C.7.1. Costilla County Regulatory Mitigation Capabilities

Table C-12 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the San Luis Valley and each participating jurisdiction. Excerpts from applicable policies, regulations, plans, and programs descriptions follow to provide more detail on existing mitigation capabilities.

Costilla County and its communities do not have any adopted building codes as specified in Table C-12. The County and communities will be evaluating codes in 2023 through a process being led by Colorado Counties Inc.

Table C-12 Costilla County and Jurisdictions Regulatory Mitigation Capabilities

Planning & Regulatory Tools (ordinances, codes, plans)	Costilla County	Town of San Luis	Town of Blanca
Comprehensive, Master, or General Plan	Yes (1999)	Yes (2008)	No

Planning & Regulatory Tools (ordinances, codes, plans)	Costilla County	Town of San Luis	Town of Blanca
Emergency Operations Plan	Yes	No	No
Economic Development Plan	No	No	No
Capital Improvement Program or Plan (CIP)	Yes	No	No
Community Wildfire Protection Plan (CWPP)	Yes (2008)	No	No
Building Code	No	No	No
Building Code Year	No	No	No
Floodplain Ordinance	Yes	Yes	No
Zoning Ordinance	Yes	Yes	Yes
Subdivision Ordinance	Yes	Yes	Yes
Stormwater Ordinance	No	No	No
Site Plan Review Requirements	Yes	Yes	No
National Flood Insurance Program (NFIP) Participant	Yes	Yes	NSFHA
Community Rating System (CRS) Participant	No	No	No
Growth Management Ordinance	No	No	No
Floodplain Management Plan	No	No	No
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	No	No	No
BCEGS Rating	-	-	-
Erosion/Sediment Control Program	Yes	No	No
Flood Insurance Study	Yes	Yes	Yes
Floodplain Elevation Certificates	Yes	No	No
Other Hazard-Specific Ordinance or Plan (Steep Slope, Etc.)	-	-	-

C.7.2. Costilla County Administrative and Technical Mitigation Capabilities

Table C-13 identifies the County and Town personnel responsible for activities related to mitigation and loss prevention in Costilla County.

Table C-13 Costilla County Jurisdictions Administrative/Technical Mitigation Capabilities

Administrative/Technical Resources	Costilla County	Town of San Luis	Town of Blanca
Planner/Engineer (with knowledge of development practices)	Yes	No	No
Engineer/Professional (trained in construction practices)	Yes	No	No
Planner/Engineer/Scientist (with understanding of natural hazards)	Yes	No	No
GIS Capability	Yes	No	No
Full-Time Building Official	No	No	No
Floodplain Administrator	Yes	No	No
Emergency Manager	Yes	No	No
Grant Writing	Yes	No	No
Warning Systems / Services (general)	Yes	Yes	Yes

Administrative/Technical Resources	Costilla County	Town of San Luis	Town of Blanca
- Sirens	No	No	No
- Reverse 911	Yes	Yes	Yes
- IPAWS/Wireless Emergency Alerts	Yes	Yes	Yes
- Opt-In Notifications (CodeRed, Everbridge, etc.)	No	No	No
- Other warning systems	Social Media	Social Media	Social Media
Transportation Planner	No	No	No
Resiliency Planner	No	No	No
Other?	-	-	-

C.7.3. Costilla County Financial Capabilities

Table C-14 identifies the County and Town financial tools or resources that the jurisdictions have access or are eligible to use and could potentially be used to help fund mitigation activities.

Table C-14 Costilla County Jurisdictions Financial Capabilities

Financial Resources	Costilla County	Town of San Luis	Town of Blanca
Levy for Specific Purposes with Voter Approval	Yes	No	No
Utilities Fees (Water, Sewer, Gas, or Electric Services)	Yes	No	No
Impact Fees for New System Development	No	No	No
Incur Debt through General Obligation Bonds	Yes	No	No
Incur Debt through Special Tax Bonds	Yes	No	No
Withhold Spending in Hazard-Prone Areas	Yes	No	No
Stormwater Service Fees	Yes	No	No
Capital Improvement Project Funding	Yes	Yes	Yes
Community Development Block Grants (CDBG)	Yes	Yes	Yes
Other?	-	-	-

C.7.4. Costilla County Education and Outreach Capabilities

Table C-15 shows the mitigation education and outreach capabilities the County and jurisdictions have in place now.

Table C-15 Costilla County Education and Outreach Capabilities

Education & Outreach	Costilla County	Town of San Luis	Town of Blanca
Public Education /Outreach Program	Yes	No	No

Education & Outreach	Costilla County	Town of San Luis	Town of Blanca
Local Citizen Groups That Communicate Hazard Risks	No	No	No
Firewise	No	No	No
StormReady	No	No	No
Other?	-	-	-

C.7.5. Opportunities for Enhancement

Based on the capabilities assessment, Costilla County has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the County to expand or improve on their policies, programs and fiscal capabilities and further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Additional training opportunities will help to inform County and Town staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train staff on mitigation and the hazards that pose a risk to the Costilla County will lead to more informed staff members who can better communicate this information to the public.

Other opportunities include improved cross-jurisdictional communication on evacuation and awareness to mitigate life safety impacts during dam incidents, floods, or wildfires including the development of brochures and using existing communication capabilities through social media such as Facebook. Other specific opportunities for improvement include:

- Update of CWPP
- Become StormReady
- Adopt a building code

C.8. Mitigation Strategy

This section describes the mitigation strategy and mitigation action plan for Costilla County. See Chapter 5 of the base plan for more details on the process used to develop the mitigation strategy.

C.8.1. Goals

During the creation of the 2022 Regional Plan, the Costilla County planning team decided to revise their goals slightly from their previous iteration. Costilla County is the only county in the region whose goals differ from the other county participants. The adopted goals are as follows:

- Goal 1: Enhance the safety of residents and businesses by protecting new and existing development from the effects of hazards.
- Goal 2: Protect new and existing public and private infrastructure and critical facilities from the effects of hazards.
- Goal 3: Ensure hazard awareness and risk reduction principles are institutionalized into the jurisdictions' daily activities, processes, and functions by incorporating it into policy documents and initiatives.
- Goal 4: Enhance community-wide understanding and awareness of community hazards.
- Goal 5: Publicize mitigation activities to reduce the area's vulnerability to hazards.
- Goal 6: Limit or discourage development in geologic hazard and wildfire prone areas.

C.8.2. Progress of 2018 Actions

During the 2022 planning process the Costilla County Planning Team reviewed all the mitigation actions from the 2018 plan. Of their 36 mitigation actions from 2018, 35 of the actions are continuing or are implemented annually, demonstrating ongoing progress and building the community's resiliency to disasters. One (1) action was noted as being completed since 2018 (Table C-16).

Table C-16 Completed and Deleted Actions

2018 ID	Mitigation Action	Hazards Mitigated	Jurisdiction	Priority	Status/Implementation Notes
Costilla – 8	Identify locations for potential burial of utility lines.	All Hazards	Costilla County	Low	Complete - All new residence must have underground utility lines this is ordered in County Land Use Code

In addition to the complete actions listed above, the CPT noted the following mitigation success story:

- Costilla County has received a State Forest Service grant for fire mitigation and evacuation routes. The County has mitigated over 20 miles of road since 2014.

C.8.3. Mitigation Action Plan

As a part of the 2022 regional planning process, the CPT reviewed the list hazard mitigation actions or projects specific to Costilla County and its jurisdictions from the previous HMP and brainstormed ideas for new actions. The process used to identify, develop, and prioritize these actions is described in Chapter 5 of the base plan. In lieu of developing new actions, most of the municipalities chose to focus on the actions previously identified that are either in progress or still need to be completed.

The County Planning Team identified and prioritized the following mitigation actions based on risk assessments, goals, and objectives. Background information as well as information on how the action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and timeline also are described. Per the DMA requirement, actions have been identified that address reducing losses to existing development as well as future development. Those that reduce losses to future development are indicated by an asterisk (*) in the Action Identification (ID) column in Table C-17.

Table C-17 Costilla County Mitigation Action Plan

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
COS.1	Goals: 3, 4, 5	Obtain official recognition of the Mitigation Advisory Committee by the Costilla County jurisdictions in order to help institutionalize and develop an ongoing mitigation program. After the passage of the Disaster Mitigation Act of 2000 (DMA2K), local governments are required to develop and to adopt all hazards mitigation plans to be eligible for certain types of future disaster assistance including funds for mitigation activities. Nationwide, many jurisdictions have formed committees, councils or citizen groups to assist in developing and implementing plans. In the case of multi-jurisdictional plans,	All	Costilla County	MAC	Ongoing	Little to no cost	High	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		"mitigation advisory committees" are often formed and are comprised of local officials and residents from the participating jurisdictions. One way to assure the effectiveness of such committees is to bestow official status to them.							
COS.2	Goals: 1	Keep schools open and examine the feasibility of designating schools and other public buildings as heating/cooling centers and emergency shelters. In addition to serving faculty, staff and students, schools can serve the broader community. During periods of severe winter weather, schools can serve as safe locations from extreme cold, snow and wind. The Towns of Blanca and San Luis, and Costilla County, can discuss with respective school districts how to	All	Costilla County	Costilla County/EM/School Districts	2025	< $10,000; Costilla County Road and Bridge, Costilla County Emergency Management, Town of San Luis, Town of Blanca and school districts.	High	Continue - In progress. Partially complete. Both new schools have AC. The Blanca/Fort Garland Community Center is used as an emergency shelter. Would need to develop Intergovernmental agreement between all entities to complete, deadline in 2025.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		overcome the difficulties involved in keeping schools open during such weather conditions. They can also discuss the feasibility of designating schools as heating centers and emergency shelters. In addition, the two towns and the county can examine the feasibility of designating county buildings, churches and other public buildings as heating centers and emergency shelters.							
COS.3	Goals: 1	Coordinate among responsible agencies in order to keep roads open. During severe winter storms the Road & Bridge together with Emergency Management will conduct operations to keep county roads open to prevent citizens in the communities and unincorporated Costilla County from being	All	Costilla County	EM/Road & Bridge/CDOT/Town of Blanca/Town of San Luis	Ongoing Issue	$10,000-$100,000; Costilla County Road & Bridge, Costilla County Emergency Management Office, and CDOT	High	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		stranded. This will also help emergency vehicles to assist citizens with subdivisions.							
COS.4	Goals: 1, 3, 4, 5	Inform affected masses by sending out information packet so remote areas can be notified, contacting schools finding out who needs absolute medical attention in remote areas identifying all possible agencies to help notify all community members of the hazard and determining where space is available to safely store animals. Planning efforts must be made to identify specific geographic risk areas and locations where special need populations exist and other individuals needing medical attention. Work with animal clinics in the San Luis Valley to assist in finding areas to store animals.	All	Costilla County	Public Health/EPR	2025	< $10,000; Costilla County, Homeland Security, Emergency Management	Medium	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
COS.5	Goals: 1, 3, 4, 5	Develop "hazard information centers" on the Costilla County jurisdictions websites and in public libraries where individuals can find hazard and mitigation information. As the Internet continues to become "the information super highway", more local governments around the country are using it as a primary means of official communication with community residents through the development and administration of websites. Today, many residents pay their water and power bills online, register to vote and even obtain driver's licenses over the Internet. Use of local government websites to educate community residents about natural hazards and mitigation	All	Costilla County	Comm Dept/MAC/Adm.	2023	Little to no cost; Local government annual budgets for information technology	Medium	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		opportunities is growing nationwide.							
COS.6	Goals: 1, 2, 6	Investigate all critical facilities to evaluate their resistance to wind, fire, landslide, and flood hazards. This study will examine all critical facilities within the County jurisdictions and make recommendations as to ways in which the facilities can be strengthened or hardened. In the event of an emergency, critical facilities must remain functional to the fullest extent possible. Critical facilities include buildings and infrastructure that are fundamental to the ongoing operation of community systems. They include police, fire, hospitals, EMS, nursing homes, electric systems, domestic water systems, wastewater systems, and communications systems. The county and two towns can	Wind, Wildland Fires, landslide, and flood hazards.	Costilla County, Blanca, San Luis	EM/MAC local facilities management agencies and local emergency management agencies	2026	$10,000 - $100,000; FEMA, DHSEM	Low	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		create a list of critical facilities in Costilla County and work with SLV-GIS/GPS Authority to map all of them. Through GIS analysis those critical facilities that are in hazard risk zones can be identified and specific mitigation needs can be evaluated.							
COS.7	Goals: 3, 4, 5	Identify all agencies responsible for notifying community members of wildfire hazards and coordinate the implementation of evacuation plans among these agencies. Local, state and federal agencies have responsibility for responding to wildfire hazards. These agencies include local fire districts, ICC, the Sheriff's Department, Ambulance, Colorado State Forest Service, and U.S. Forest Service. Reverse 911, and Animal Rescue. Coordinate with	Wildland Fires	Costilla County	Emergency Manager	2026	$10,000-$100,000; Costilla County Government, Colorado State Forest Service, U.S. Forest Service.	Medium	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		local farmers and ranchers to organize animal evacuations.							
COS.8	Goals: 3, 4, 5, 6	Initiate wildfire pre-hazard awareness program, which can utilize GIS mapping. GIS can help to develop, analyze and disseminate the most current information about wildfire risks in Costilla County. With this information, specific measures can be taken to mitigate the impact of wildfire on lives and property. When communities work with wildfire experts to identify high-risk areas and develop the most appropriate outreach measures to communicate the risks, they enhance local capabilities to plan and respond effectively to their wildfire risks.	Wildland Fires	Costilla County	Emergency Manager CSFS, WUI-ID	2027	$10,000 - $100,000; Costilla County, Colorado State Forest Service (CSFS), US Forest Service	Medium	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
COS.9	Goals: 3, 4, 5, 6	Investigate Colorado State Forest Service's assistance programs, publicize these programs and utilize existing wildfire maps to prioritize project areas in the County. Educate local residents in priority areas to reduce wildfire hazards. State and federal forestry agencies offer numerous community-based programs that are designed to encourage local identification and recognition of wildfire risks and options to mitigate those risks. The interchange of information and eventual design of a locally based plan offers the best protection from wildfire risks.	Wildland Fires	Costilla County	EM/CSFS	Annual Implementation	Little to no cost; Costilla County, CSFS, U.S. Forest Service	Medium	Continue In-Progress. Need to continue with new residents in WUI.
COS.10	Goals: 3, 4, 5, 6	Increase community/jurisdiction's wildfire mitigation & prevention activities and	Wildland Fires	Costilla County	EM/HOA'S	Annual Implementation	< $10,000; Costilla County, CSFS,	Medium	Continue In-Progress. Forbes is the only Firewise

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		participation in the FireWise and associate programs. Many wildfire mitigations measures have proven to be effective in overall wildfire prevention, enhancement of firefighting efforts and reduction of fire related losses such as provision of defensible space, installation of dry hydrants, use non-flammable roofing materials, implementation of fuel breaks and fuel reduction measures.					U.S. Forest Service		community in county.
COS.11	Goals: 1, 2	Contact Natural Resources Conservation Service regarding opportunities for technical assistance and financial assistance for drought preparedness and response.	Drought	Costilla County	Costilla County/ MAC/ Emergency Manager	Ongoing	Little to no cost; NRCS	High	Continue – In Progress
COS.12	Goals: 1, 2	Initiate appropriate drought preparation actions as specified in the Costilla County Drought Preparedness	Drought	Costilla County, Blanca, San Luis	Costilla County/Emergency Manager	Ongoing	> $100,000; NRCS	High	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		Action Guide. The Costilla County Drought Preparedness Action Guide identified indices that are useful for predicting the likelihood of drought conditions in Costilla County. These indices include MEI, NAO, SNOTEL Snow Water Equivalent, NRCS streamflow forecast, and NOAA precipitation data at Blanca and San Luis. Between January 1 and February 15 of each year, data pertinent to these indices becomes available on the Internet. By reviewing the data available on the Internet for these indices, the Costilla County Emergency Manager can initiate appropriate drought preparation actions. Threshold values for the indices to trigger a drought mitigation response and the corresponding drought mitigation actions are specified in the Costilla							

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		County Drought Preparedness Action Guide. The mitigation actions begin in March and should be executed throughout the spring and summer as conditions dictate. This includes raising public awareness of drought conditions and measures that property owners can take to mitigate losses and conserve water.							
COS.13	Goals: 1, 2, 3	Initiate appropriate snowmelt flooding preparation actions as specified in the Costilla County Snowmelt Flooding Preparedness Action Guide. On February 15 of each year, utilizing information for the indices identified in the Costilla County Snowmelt Flooding Preparedness Action Guide and in coordination with the SLV-GIS/GPS Authority,	Flood	Costilla County	Emergency Manager	Annual Implementation	$10,000 - $100,000; Costilla County, Town of San Luis, CWCB, FEMA	Medium	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		the Costilla County Emergency Manager will initiate appropriate snowmelt flooding preparation actions for unincorporated portions of the county and the Town of San Luis, as specified in the Costilla County Snowmelt Flooding Preparedness Action Guide. This includes raising public awareness of the potential for spring runoff flooding and measures that property owners can take to mitigate losses.							
COS.14	Goals: 1, 2, 3	Pursue opportunities for funding and technical assistance to develop watershed flood hazard reduction plans. The Town of San Luis and Costilla County periodically experience flooding problems that can endanger buildings, infrastructure, and human life. Within the	Flood	Costilla County	FM/EM	2025	$10,000 - $100,000; USACE, CWCB, FEMA	Medium	Continue – In Progress. State tentatively doing data development study of Floodplains for Costilla County

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		floodplains in Costilla County are locations with more severe flooding hazards. The Town of San Luis and Costilla County staff can discuss with the USACE, the CWCB and FEMA the possibility of funding and/or technical assistance for watershed flood hazard reduction plans. Within each of the county's watersheds, such a plan will identify specific flooding problems and potential flood hazard reduction studies for those problems.							
COS.15	Goals: 2, 3	Identify specific locations where Road and Bridge maintenance equipment can be used to reduce localized flooding problems by improving and maintaining storm water infrastructure throughout the area. Many times, local stormwater channels and associated	Flood	Costilla County	MAC/EM/Road & Bridge	2027	EPA, USACE, FEMA	Medium	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		infrastructure such as bridges and culverts are not identified on FEMA Flood Insurance Rates Maps (FIRM's). Consequently, stormwater hazards are often overlooked as natural hazards although they can cause significant problems during times of high water. Many jurisdictions do not regulate stormwater runoff, thereby, increasing flood damage potential during an event.							
COS.16	Goals: 2, 3, 4	Review the Costilla County jurisdictions' floodplain ordinances that are outdated. Revise each year to ensure ongoing compliance with NFIP standards. The Town of San Luis and Costilla County's floodplain ordinances currently limit the definition of	Flood	Costilla County	FM/EM	2023-2028	Staff Time	Medium	Continue – In Progress. State tentatively doing data development study of Floodplains for Costilla County

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		"substantial damage" and "substantial improvement" to one-time damage repairs or improvements. Jurisdictions can reduce flood damage by counting improvement and repair projects cumulatively, so that buildings will be brought into compliance with flood protection standards earlier in their life cycle. This will require the Costilla County jurisdictions to maintain a permit history so when cumulative repairs or improvements equal 50% of the building value, the building must be brought up to current codes for floodplain development.							
COS.17	Goals: 1, 2, 3, 4	Assess Dams and Reservoirs for risk of dam failure flooding. Routinely clearing trees/brush, rubbish hanging in the creeks adjacent to dams to	Dam Failure	Costilla County	Costilla County, EM, Division of Water Resources, Reservoir Owners,	Ongoing	Costilla County, Reservoir Owners,	Low	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		reduce the risk of such events. Use data from the Division of Water Resources dam field inspectors to determine the safety of the dams in Costilla County							
COS.18	Goals: 1, 2, 3, 4	Coordinate among all agencies to ensure rapid and comprehensive dissemination the necessary information and of response operations. Currently a variety of agencies and public officials respond separately to severe winter storms and cold weather. Coordination of these various agencies will increase the likelihood of appropriate preparations for the citizens of the county. The agencies and officials include Fire Chief, CDOT, Sheriff's Department, Ambulance, Reverse 911, County Road and Bridge, Electric	Severe Winter Storm	Costilla County	Costilla County/Emergency Manager	2027	Costilla County	High	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		Company, Costilla County school districts, Colorado Division of Emergency Management, Costilla County Department of Public Health and the Red Cross. As part of this coordination effort, the county can produce and distribute family and traveler emergency preparedness information relating to severe winter weather hazards. During periods of extreme cold the county can also organize outreach to vulnerable populations in remote portions of the county.							
COS.19	Goals: 1, 2, 3, 4, 5	Costilla County will become a StormReady Community. Investigate current tornado detection and warning capabilities, including the suitability of radar coverage to provide adequate information and warning to the citizens of Costilla	Tornado and High Winds	Costilla County	EM	Annual Implementation	National Weather Service, Costilla County EM	Low	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		County. Investigate the status of communications between the county and the National Weather Service. Investigate the need to make building codes more stringent to deal with tornadoes and high winds.							
COS.20	Goals: 3, 4, 5	Utilize the media and the schools for public information dissemination. Investigate the availability of information regarding tornado risks in Costilla County, and information regarding the potential impacts of tornadoes to structures within the county.	Tornado and High Winds	Costilla County	National Weather Service, Costilla County Emergency Manager	Annual Implementation	National Weather Service, Colorado Division of Emergency Management, Costilla County	Low	Continue – In Progress
COS.21	Goals: 2, 3, 4	Identify locations for potential tree limb removal. During severe winter weather, severe thunderstorms and hailstorms, tornadoes, the risk of damage to infrastructure, property	Severe Winter Storm	Costilla County	Emergency Management, Planning and Zoning	Annual Implementation	Costilla County, Utility Companies	Low	Continue – In Progress. Lead Agency is Excel Energy.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		and people from falling tree limbs is greatly increased. Routinely clearing tree limbs hanging in the right-of-way can reduce the risk of such events. Nationwide, falling trees and swinging tree limbs are the greatest source of power outages. In addition, tree limbs entangled in the frayed and sparking electrical wire create the perfect conditions for an uncontrolled fire.							
COS.22	Goals: 1, 2, 3, 4, 5	Investigate the utilization of emergency management mitigation measures to address severe thunderstorm and hailstorm hazards in Costilla County. Costilla County, with the assistance of appropriate outside agencies, should review the suitability of radar coverage to provide adequate information	Severe Thunderstorms and Hailstorms	Costilla County	Emergency Manager	Annual Implementation	National Weather Service, FEMA, Colorado Division of Emergency Management, Costilla County	Low	Continue – In Progress. Meet yearly with National Weather Service,

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		and warning to the citizens of Costilla County. The status of communications between the county and the National Weather Service should be investigated. Emergency management officials must also examine the need for most vulnerable structures such as mobile homes is important too. Targeted training could address issues such as the latest severe thunderstorm/hailstorm construction codes, wind-proofing methods, group shelters and safe rooms.							
COS.23	Goals: 1, 2, 3, 4, 6	Investigate the utilization of emergency management mitigation measures to address seismic hazards in Costilla County, including seismic hazard mapping (GIS), infrastructure hardening and bridge	Earthquake	Costilla County	EM/Road & Bridge	2028	CDOT, Colorado Geological Survey	Low	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		strengthening. Seismic maps of earthquake hazards can be assembled utilizing data available from the U.S. Geologic Survey, the Colorado Geologic Survey and SLV-GIS/GPS. These maps can be used to determine where infrastructure and infrastructure corridors are threatened by earthquake hazards. Locations where there is the need/potential for hardening of critical lifeline systems, i.e., critical public services such as utilities, roads, and bridges to meet "Seismic Design Guidelines and Standards for Lifelines," or equivalent standards, can substantially reduce earthquake impacts. CDOT and Costilla County Road and Bridge can review construction							

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		plans for all bridges at risk to determine their susceptibility to collapse. Problem bridges can be retrofitted.							
COS.24	Goals: 3, 4, 5, 6	Utilize the media and schools for public information promulgation about seismic risks. Information regarding seismic risk in the Costilla County jurisdictions is available from the USGS, the CGS and the SLV GIS/GPS Authority. This information includes mapping of risk zones, and descriptions of potential impacts of earthquake events. The county Emergency Manager can provide schools and the media with this information and request their assistance in disseminating it to the community.	Earthquake	Costilla County	EM	2028	USGS, CGS	Low	Continue – In Progress

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
COS.25	Goals: 2, 3, 4, 5	Identify and plan for use of a backup water supply for public water systems should the primary water supply become contaminated or comprised. Investigate current water supply contamination detection and warning capabilities to provide adequate information and warning to the citizens of Costilla County. Investigate the status of communications between the county and the water districts in each jurisdiction.	Drought, Water Supply Contamination	Costilla County, Town of Blanca	Emergency Management, Public Health, Costilla County and Water Districts. Town of Blanca Administration	2027	Costilla County, EM, CDPHE	Medium	Continue – In Progress
COS.26	Goals: 1, 2	Identify appropriate protection measures for groundwater and public drinking systems. Investigate current water supply contamination detection capabilities to provide adequate information and warning to the citizens of Costilla	Drought, Water Supply Contamination	Costilla County, Town of Blanca	Emergency Management, Public Health, Costilla County and Water Districts. Town of Blanca Administration	Ongoing – Monthly Implementation	Costilla County, EM, CDPHE	Medium	Continue – In Progress. Water and sanitation does monthly testing of H2O district.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		County. Investigate the status of communications between the county and the water districts in each jurisdiction.							
COS.27	Goals: 3, 4, 5	Implement training and public outreach to residents, local officials, and contractors on hazard response and hazard mitigation initiatives for the Town of San Luis.	All	Town of San Luis	Costilla County, Town of San Luis, Public Health, Emergency Manager	2028	Town of San Luis	Medium	Continue – In Progress
COS.28	Goals: 3, 4, 5	Coordinate among all agencies to ensure rapid and comprehensive dissemination the necessary information and of response operations.	Severe Winter Storms	Town of San Luis	Town of San Luis/Costilla County/Emergency Manger	2028	Town of San Luis	High	Continue – In Progress
COS.29	Goals: 2	Review the Town of San Luis' floodplain ordinances that are outdated. Revise each year to ensure ongoing compliance with NFIP standards.	Flood	Town of San Luis	Costilla County/Town of San Luis/EM	Annual Implementation, updated maps targeted for 2025	Staff Time, State funding	Medium	Continue – In Progress. State potentially updating floodplain maps for Costilla County by 2025.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
COS.30	Goals: 1, 2	Development Water Supply Protection Plan for the wells serving the Costilla County/San Luis Water District.	Drought, Water Supply Contamination	Town of San Luis	Costilla County/Town of San Luis/Public Health	2028	Town of San Luis	Low	Continue – In Progress
COS.31	Goals: 1, 2	Expand and enhance procedures for testing and sampling the water supply and warning system should any test reveal contamination.	Drought, Water Supply Contamination	Town of San Luis	Costilla County/Town of San Luis/Public Health, San Luis Water and Sanitation district	Monthly implementation	<$10,000	Low	Continue – In Progress. Monthly testing conducted by water and sanitation district.
COS.32	Goals: 3, 4, 5, 6	Identify all agencies responsible for notifying community members of wildfire hazards and coordinate the implementation of evacuation plans among these agencies.	Wildfire	Town of Blanca	Emergency Manager	2028	<$10,000	Medium	Continue – In Progress
COS.33	Goals: 3, 4, 5, 6	Initiate wildfire pre-hazard awareness program, which can utilize GIS mapping.	Wildland Fires	Town of Blanca	Emergency Manager	1-5 years	< $10,000	Medium	Continue - Not Started. After initial education push efforts will need to continue on a yearly basis.
COS.34	Goals: 1, 2	Expand and enhance procedures for testing and sampling the water supply and warning system should any test reveal contamination.	Drought, Water Supply Contamination	Town of Blanca	Costilla County, Town of Blanca, Public Health	Monthly Implementation	Town of Blanca	Low	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
COS.35	Goals: 3, 4, 5	Implement training and public outreach to residents, local officials, and contractors on hazard response and hazard mitigation initiatives for the Town of Blanca.	All	Town of Blanca	Costilla County, Town of Blanca, Public Health, Emergency Manager	2028	Town of Blanca	Medium	Continue – In Progress
COS.36	Goals: 2	Enhance power grid resiliency through coordination with local utility providers and partnerships on mitigation where possible.	Earthquake, flooding, hailstorm, high winds and tornadoes, lightning, severe winter storm, wildland fires, cyber attack	Costilla County	Land Use/Zoning, Utility providers, Xcel, PUC	2027-2028	>$100,000	High	New in 2022, Study currently being done by PUC
COS.37	Goals: 2	Project to reinforce tailing ponds for the former Battle Mountain Gold Mine North of San Luis.	Dam Failure	Costilla County	Lead County Attorney, EM, Public Health, Costilla County	5+ years	Funding from Battle Mountain Gold Mine	High	New in 2022
COS.38	Goals: 2	Sanchez Dam foundation seepage mitigation project. A mitigation project is needed to minimize seepage	Dam Failure, Drought	Costilla County	Sanchez Ditch & Reservoir Company (Dam owner), State of Colorado DWR Division of Dam Safety	3 years	$10,000,000; FEMA High Hazard Potential Dam (HHPD) grants	High	New in 2022

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		flows into the abutment, likely involving an engineered multi-line grout curtain or secant piles through the dam's right abutment and foundation, along with construction of a weighted-filter berm on the downstream toe of the dam to prevent movement of soil by any remaining seepage.							

C.9. Plan Implementation and Maintenance

Moving forward the Costilla County HMPC will use the mitigation action table in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 6 of the base plan.

C.9.1. Incorporation into Existing Planning Mechanisms

As described in the capability assessment, the County already implements policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. Where applicable, these existing mechanisms could include:

- Costilla County Comprehensive Plan
- Costilla County Trails, Recreation, and Open Space Master Plan
- Costilla County Fire Protection District Draft CWPP (2008)
- Forbes Park Landowners Association CWPP (rev. 2021)
- Forbes Wagon Creek Ranches CWPP (2007)
- 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 process for incorporation of the Regional Hazard Mitigation Plan into other planning mechanisms can be as simple as cross-referencing the Hazard Mitigation Plan where applicable. Integrated planning is a key to building community resiliency.

Annex D Mineral County

Annex D. Mineral County

D.1. Mitigation Planning and County Planning Team

Mineral County updated this annex during the development of the 2023-2028 San Luis Valley Regional Hazard Mitigation Plan. This County Annex builds upon the previous version of the Mineral County Hazard Mitigation Plan completed in 2018. As part of the regional planning process, the County established a County Planning Team (CPT) to develop the mitigation plan and identify potential mitigation projects. The following jurisdictions participated in the DMA planning process for the County:

- Mineral County
- City of Creede

More details on the planning process followed and how the counties, municipalities and stakeholders participated can be referenced in Chapter 3 of the base plan. Details on which local government departments participated and who represented them are listed in the following table.

Table D-1 Mineral County List of Participants

Name	Jurisdiction	Title
Eryn Wintz	Mineral County	County Clerk
Joni Adelman	Mineral County	Public Health
Tara Hardy	Mineral County	Public Health
Terry Wetherill	Mineral County	Emergency Management Coordinator
Scott Johnson	City of Creede	Director

D.2. Geography and Climate

Mineral County is nestled in the heart of the San Juan Mountains on the western side of the San Luis Valley planning area. It is bordered by the Counties of Rio Grande and Saguache to the east and northeast, as well as Archuleta to the south and Hinsdale to the West. The highest point in the County is Phoenix Peak, which culminates in a 13,902-foot summit.

The Town of Creede is the only incorporated town in Mineral County. According to the 2020 ACS 5-Year Estimates, about 55% of the County's residents live in the Town. Historically, the Town of Creede built its economy through silver mining, and today it is sustained through tourism and recreation.

Summer highs in Mineral reach about 74°F, while winter lows routinely drop to -20 to - 30 degrees F. On average, Mineral County experiences 284 days of sunshine annually, as well as 259 days in which the nighttime low falls below freezing. While the County receives a comfortable 18 inches of rain annually, Mineral averages 175 inches of snow per year.

D.3. Population Trends

The population of Mineral County increased by 16.4% between 2015 and 2020. Table D-2 provides a summary of the population change in the County and its municipalities from 2015 to 2020.

Table D-2 Population Estimates for Communities 2015-2020

	2015	2016	2017	2018	2019	2020
Mineral County total	733	793	834	823	824	853
Town of Creede*	--	--	--	--	--	381
Unincorporated Mineral County	--	--	--	--	--	

Source: ACS 5-Year Estimates

* Population information for the Town of Creede is unavailable for the years between 2015 and 2019; 2020 population from the Decennial Census

According to the Decennial Census, 98.0% of the population of Mineral over the age of 25 have obtained high school degrees or higher, well above the 92.1% for Colorado as a whole. Similarly, 54.1% of the population of Mineral have obtained a bachelor's degree or higher, which is significantly higher than the 41.6% for the population of Colorado. Select Census demographic and social characteristics for Mineral County are shown in Table D-3.

Table D-3 Mineral County Demographic Profile

Characteristic	% of Total Population
Gender/ Age	
Male	46.7%
Female	53.3%
Under 5 Years	2.1%
65 Years and Over	20.2%
Race/Ethnicity	
White	82.4%
American Indian/Alaska Native	0.1%
Asian	5.5%
Black or African American	1.2%
More Than One Race	6.8%
Hispanic or Latino of Any Race[1]	4.0%
Education (25+ Years)	
High School Graduate or Higher	98.0%
Bachelor's Degree or Higher	54.1%

Source: U.S. Census Bureau, 2020 5-Year American Community Survey

1 The U.S. Census Bureau considers the Hispanic/Latino designation an ethnicity, not a race. The population self-identified as "Hispanic/Latino" is also represented within the categories in the "Race" demographic.

D.4. Development Trends

With the addition of approximately 120 residents between 2015 and 2020, Mineral County has experienced the largest population growth by percentage of any county in the San Luis Planning area.

D.5. Economy

Table D-4 below provides a brief overview of some economic characteristics of Mineral County. The following information is provided by the U.S. Census Bureau American Community Survey (ACS) 5-years estimates from 2016-2020.

Table D-4 Mineral County Economic Profile

	Mineral County
Families Below Poverty Level	6.7%
Individuals Below Poverty Level	14.9%
Median Home Value	$123,600
Median Household Income	$53,571
Per Capita Income	$30,908
Population > 16 Years Old in Labor Force	66.0%
Population Employed	61.4%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

Table D-5 shows the breakdown of employment in Mineral County by the industry sector. According to the ACS, the leading employment sectors in the county are the arts, entertainment, and recreation, and accommodation and food services, educational services, and health care and social assistance, construction, and other service sectors.

Table D-5 Mineral County Occupations and Industries

Industry	Number Employed	Percent of Labor Force
Arts, entertainment, and recreation, and accommodation and food services	107	23.5%
Educational services, and health care and social assistance	93	20.4%
Construction	56	12.3%
Other services, except public administration	53	11.6%
Public administration	48	10.5%
Retail trade	31	6.8%
Finance and insurance, and real estate and rental and leasing	20	4.4%
Agriculture, forestry, fishing and hunting, and mining	17	3.7%
Professional, scientific, and management, and administrative and waste management services	13	2.9%
Information	9	2.0%
Transportation and warehousing, and utilities	8	1.8%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

D.6. Hazard Identification and Risk Assessment

D.6.1. Identified Hazards

The CPT reviewed significant hazards for inclusion in the hazard mitigation plan. For the sake of consistency, the list of hazards for consideration began with the list of hazards found in San Luis Valley's Hazard Mitigation Plan, updated in 2018. In the 2022 update the CPT decided to add the following hazards: cyber-attack, hazardous materials, and pandemic/epidemic. Mineral County's Table Overall Hazard Significance* Summary Table provides a summary of the overall hazard significance for the hazards evaluated in this plan, showing variability by jurisdiction in Table D-6 below.

Table D-6 Mineral County Overall Hazard Significance* Summary Table

Hazard	Mineral County	Creede
Avalanche	Medium	Low
Cyber Attack	Medium	Medium
Dam Failure	Medium	Medium
Drought	High	Low
Earthquake	Low	Low
Flood (Flash Flood & Levee Failure)	Low	Low
Hazmat	Medium	Medium
Hailstorm	Medium	Low
Landslide	Medium	High
Lightning	Medium	Low
Pandemic	Medium	Medium
Severe Winter Storm	High	High
Tornado/High Winds	Medium	Medium
Wildland Fires	High	Medium

*Significance based on a combination of Geographic Extent, Potential Magnitude/Severity and Probability as defined below.

Geographic Extent Negligible: Less than 10 percent of planning area or isolated single-point occurrences Limited: 10 to 25 percent of the planning area or limited single-point occurrences Significant: 25 to 75 percent of planning area or frequent single-point occurrences Extensive: 75 to 100 percent of planning area or consistent single-point occurrences Potential Magnitude/Severity Negligible: Less than 10 percent of property is severely damaged, facilities and services are unavailable for less than 24 hours, injuries and illnesses are treatable with first aid or within the response capability of the jurisdiction. Limited: 10 to 25 percent of property is severely damaged, facilities and services are unavailable between 1 and 7 days, injuries and illnesses require sophisticated medical support that does not strain the response capability of the jurisdiction, or results in very few permanent disabilities. Critical: 25 to 50 percent of property is severely damaged, facilities and services are unavailable or severely hindered for 1 to 2 weeks, injuries and illnesses overwhelm medical support for a brief period of time or result in many permanent disabilities and a few deaths.	Probability of Future Occurrences Unlikely: Less than 1 percent probability of occurrence in the next year or has a recurrence interval of greater than every 100 years. Occasional: Between a 1 and 10 percent probability of occurrence in the next year or has a recurrence interval of 11 to 100 years. Likely: Between 10 and 90 percent probability of occurrence in the next year, or has a recurrence interval of 1 to 10 years Highly Likely: Between 90 and 100 percent probability of occurrence in the next year or has a recurrence interval of less than 1 year. **Overall Significance** Low: Two or more of the criteria fall in the lower classifications or the event has a minimal impact on the planning area. This rating is also sometimes used for hazards with a minimal or unknown record of occurrences/impacts or for hazards with minimal mitigation potential. Medium: The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is also sometimes utilized for hazards with a high impact rating but an extremely low occurrence rating. High: The criteria consistently fall along the high ranges of the classification and the event exerts significant and frequent impacts on the planning area. This rating is also sometimes utilized for hazards with a high psychological impact or for hazards that the jurisdiction identifies as particularly relevant.

overwhelmed for an extended period of time or many deaths occur. Catastrophic: More than 50 percent of property is severely damaged, facilities and services are unavailable or hindered for more than 2 weeks, the medical response system is overwhelmed for an extended period of time, or many deaths occur.	

D.6.2. Building Inventory and Assets

Critical Facilities, Infrastructure, and Other Important Community Assets

A critical facility is defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA organizes critical facilities into seven lifeline categories as shown in Figure A-1 FEMA Lifeline Categories and Table D-7 for Mineral County below. For Energy, the HMPC noted that both SLV Rural Electric Cooperative and Amerigas Propane provider are priority service providers.

Table D-7 Mineral County Critical Facilities by Jurisdiction

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Total
Creede	1	-	1	-	1	4	4	**11**
Unincorporated	18	1	-	2	-	3	23	**47**
Total	**19**	**1**	**1**	**2**	**1**	**7**	**27**	**58**

Source: CDPHE, CEPC, HIFLD, NBI, WSP GIS Analysis

Historic and Cultural Assets

National and state historic inventories were reviewed to identify historic and cultural assets in Mineral 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 D-8 lists the properties in Mineral 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 D-8 Historic Properties and Districts on State and National Registers

Property Name	Location	Date Listed
Creede Federal Fish Hatchery	1984 Forest Road 801A (Creede)	9-11-1996
Rio Grande Depot (Creede Museum)	201 Wall St. (Creede)	11-9-1994
Sevenmile Bridge*	6 miles SW of Creede	7-11-1985
Creede Fire Department Underground Firehouse	1201 N. Main St., Creede, CO	Early 1980's
Wheeler National Monument	NE of Creede	1908
Wagon Wheel Gap Railroad Station*	SE of Creede	9-27-1976

Asterisk indicates properties on both the State and National Registers

Source: Directory of Colorado State Register Properties

According to the National Historic Preservation Act (NHPA), 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 NHPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

D.6.3. Vulnerability to Specific Hazards

This section details vulnerability to specific hazards, where quantifiable, only where it differs from that of the Region as a whole. The results of detailed GIS analyses used to estimate potential for future losses are presented here, in addition to maps of hazard areas and details by jurisdiction and building type. For a discussion of the methodology used to develop the loss estimates refer to Chapter 4 of the base plan. In many cases Chapter 4 contains information that differentiates the risk by county thus the information is not duplicated here. For most of the weather-related hazards the risk does not vary significantly enough from the rest of the Region and thus the reader should refer to Chapter 4. Only unique issues or vulnerabilities are discussed, where applicable.

- Avalanche
- Dam Incident
- Drought
- Earthquake
- Flood
- Hailstorm
- Severe Winter Weather
- Wildland Fires
- High Winds and Tornadoes
- Cyber Attack
- Hazardous Materials Incidents
- Pandemic

Avalanche

The avalanche risk is rated Medium for Mineral County due to hazards along the Highway 160 corridor and backcountry areas of the San Juan Mountains. Members of the CPT noted the following relative to avalanches in the study area:

- Wolf Creek Ski Area
- Lost Mine Creek drainage between Campo Mollino and Park Creek
- East Willow Creek has on average 23 avalanche shoots per year
- Wolf Creek Pass in the Gibbs Creek drainage basin

Dam Incident

There are several high and significant hazard dams located in Mineral County which create a considerable risk to lives and properties in Mineral County in the event of a significant dam incident. Table D-9 details the high and significant hazard dams located within Mineral County.

Table D-9 High and Significant Hazard Dams in Mineral County

Dam Name	Owner	River	Hazard Class	Nearest Downstream Community	Distance to Nearest Downstream Community (Miles)	EAP
Alberta Park	Colorado Parks and Wildlife	Pass Creek	High	South Fork	17	Y
Big Meadows – #1 and #2	Colorado Parks and Wildlife	S Fork Rio Grande	High	South Fork	12	Y
Bristol Head #2	Justin Rhoads	Seepage Creek	Significant	South Fork	30	Y
Broadacre Lake	La Soleil, L.L.C.	Shallow Creek	Significant	South Fork	20	Y
Humphreys	Ruth Brown	Goose Creek	High	South Fork	18	Y
Metroz Park	Metroz Park and Lake Co.	Decker Creek	High	South Fork	8	Y
Santa Maria	Santa Maria Reservoir Co.	Boulder Creek	High	South Fork	41	Y
Shaw – North Dam	San Luis Valley Water Conservancy District	Kitty Creek	Significant	South Fork	13	Y
Shaw – South Dam	San Luis Valley Water Conservancy District	Kitty Creek	Significant	South Fork	15	Y
Upstream Dams						
Continental	Santa Maria Reservoir Co.	North Clear Creek	High	South Fork	50	Y
Rito Hondo	Colorado Parks and Wildlife	Rito Hondo	High	South Fork	48	Y

Source: National Inventory of Dams

The High and significant hazard dams listed above, as well as some located upstream of Mineral County present some risk for property damage, injury, or loss of life in a significant dam incident. Table D-10 below shows the number of structures exposed to dam inundation from each upstream dam, and Figure D-1 illustrates the locations of high and significant hazard dams in the county.

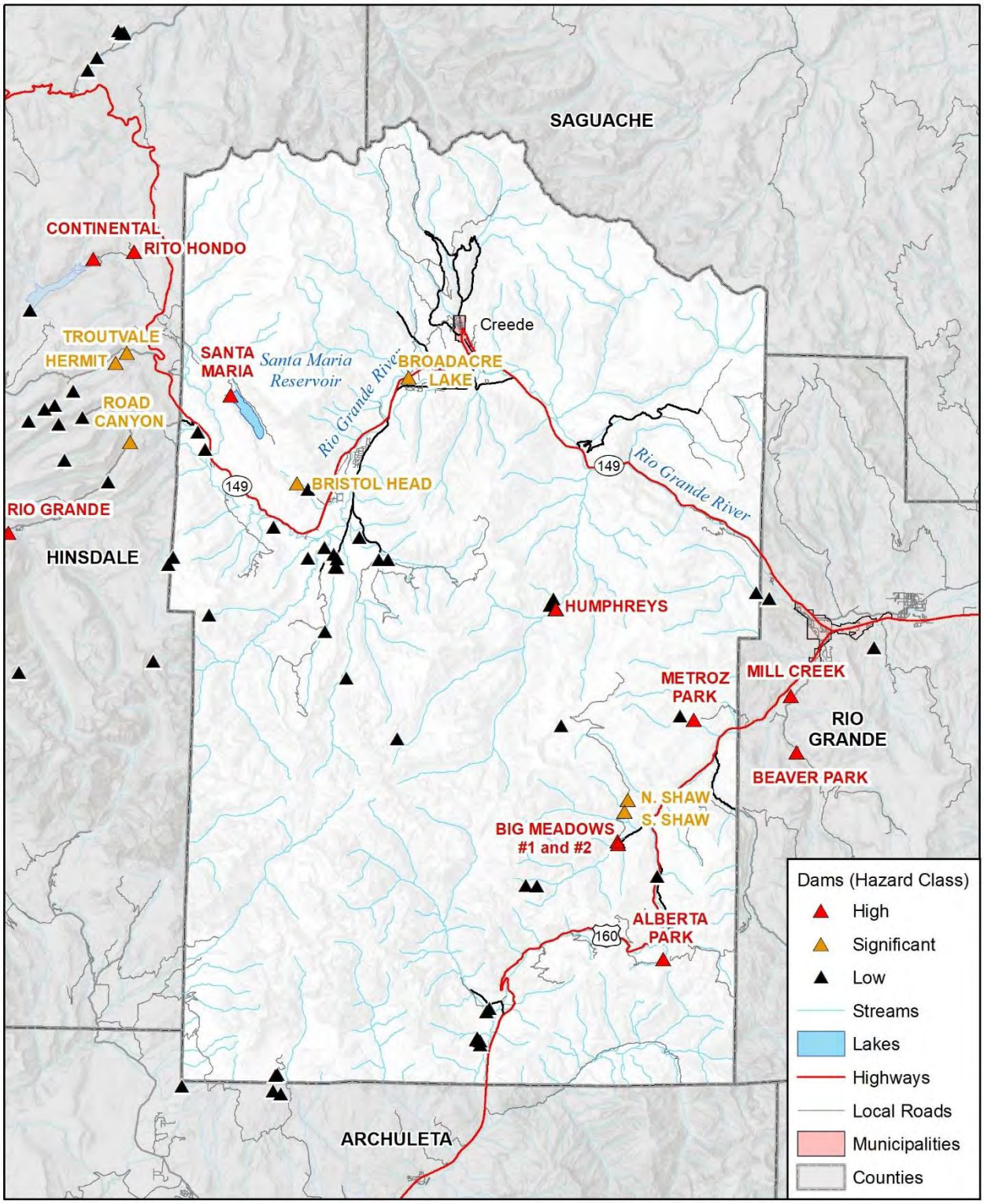
Table D-10 Structures at Risk to Dam Inundation by Jurisdiction

Dam Name (Hazard Class)	Jurisdiction	Structure Count
Alberta Park (High)	Mineral County	22
	Total	22
Big Meadows – Main Dam (High)	Mineral County	30
	Total	30
Big Meadows – North Dike (High)	Mineral County	46
	Total	46
Continental	Mineral County	445
	Total	445
Humphreys – Main Dam (High)	Mineral County	57
	Total	57

Dam Name (Hazard Class)	Jurisdiction	Structure Count
Humphreys – Spillway Dam (High	Mineral County	8
	Total	8
Metroz Park Lower (High)	Mineral County	2
	Total	2
Rio Grande (Significant)	Mineral County	502
	Total	502
Road Canyon #1 (High)	Mineral County	1
	Total	1
Santa Maria (High)	Mineral County	472
	Total	472

Source: Microsoft Footprints 2021, DWR Dam Safety Program, WSP GIS Analysis

Figure D-1 Mineral County Dams



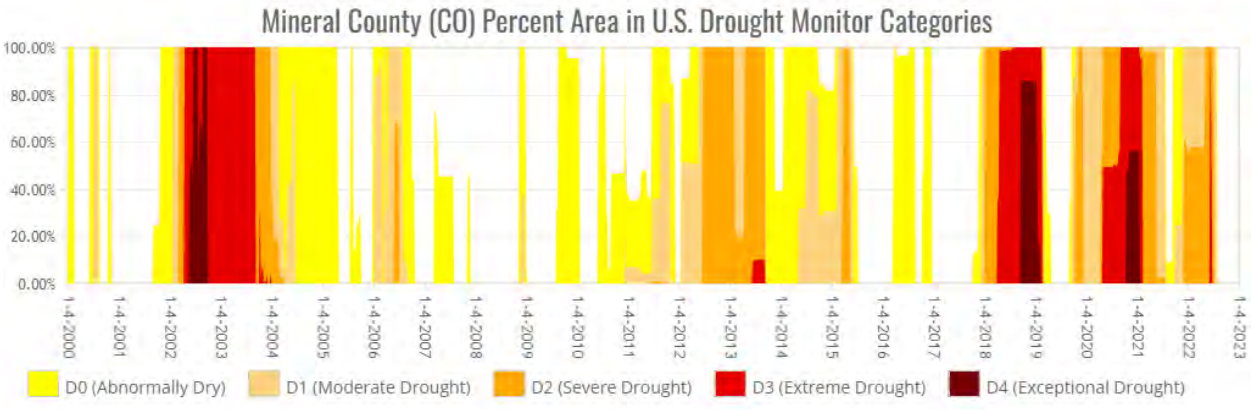
Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, DWR Dam Safety

Drought

Drought was rated as a hazard of high concern in all counties in the planning area. Between 2012 and 2021, Mineral County experienced 11 USDA emergency drought declarations. Mineral County did not record any RMA indemnity payments between 2007 and 2021.

The U.S. Drought Monitor (USDM) is a national data set released weekly, showing the severity of drought in locations across the nation. A time series showing the severity of drought in Mineral County between 2000 and 2022 is shown below.

Figure D-2 USDM Drought Time Series for Mineral County



Source: USDM; www.drought.gov

The National Drought Mitigation Center developed the Drought Impact Reporter in response to the need for a national drought impact database for the United States. Information comes from the public who visit the website and submit a drought-related impact for their region, members of the media, and members of relevant government agencies. Mineral County had 45 reported impacts between 2013-2022.

Earthquake

There are several known fault systems throughout the San Luis Valley, and the likelihood for seismic activity is fairly uniform throughout the region's counties. However, the potential severity of shaking and impacts to casualties and damage is not uniform. Out of all the counties in the San Luis Valley, Mineral County is the furthest removed from major fault systems and is the county with the lowest expected level of impact. According to a Hazus analysis conducted, a 2,500-year probabilistic earthquake ground shaking could result in $19.2 million in total economic losses in the county, an estimated total of 90 buildings with at least moderate damage, and there no projected injuries or deaths in this event scenario. This model suggests that Mineral County has the lowest level of vulnerability to earthquake out of the San Luis Valley Region.

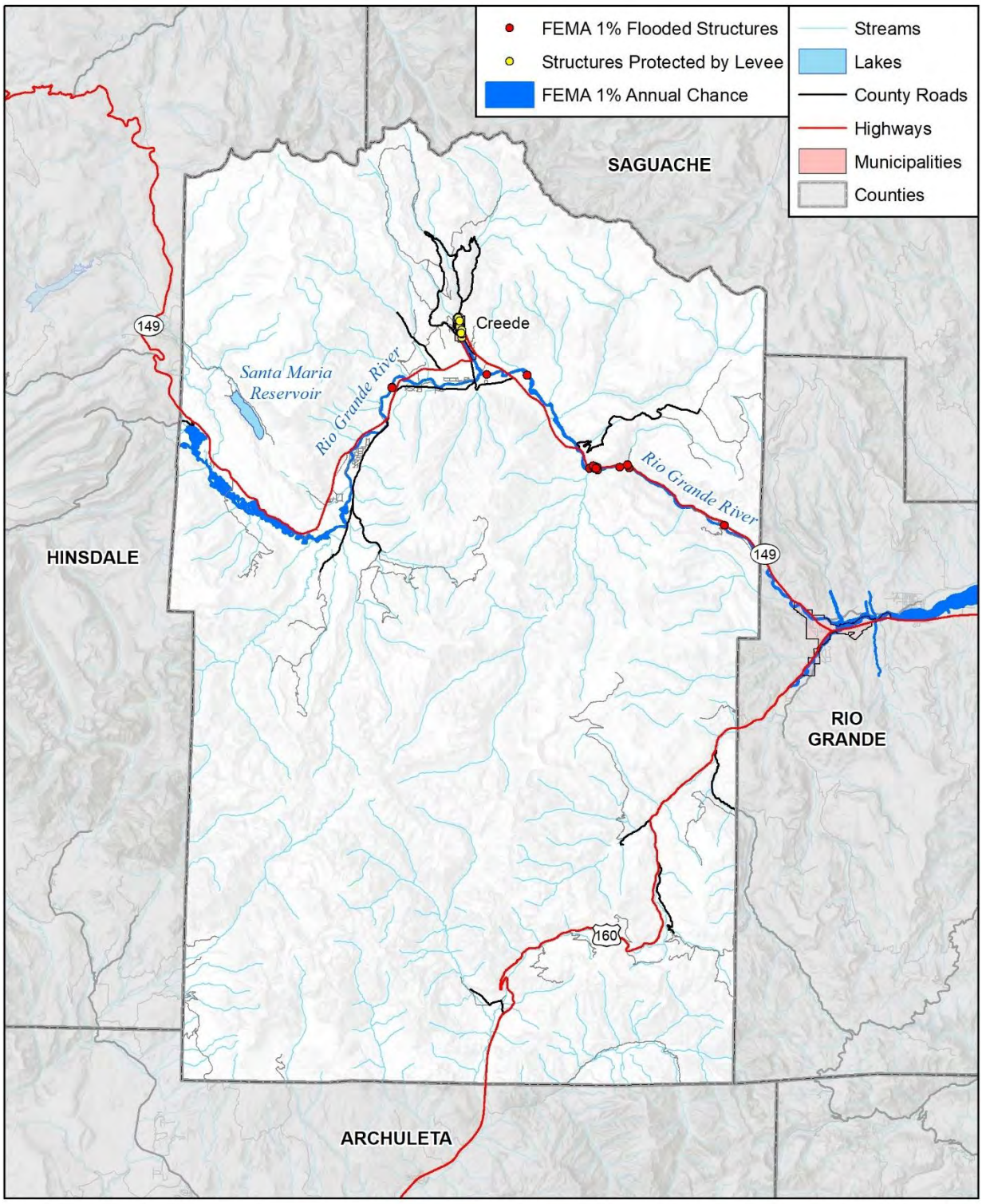
Refer to Chapter 4 for a discussion of the earthquake risk relative to Mineral County and the wider Region.

Flood

A flood, as defined by the National Flood Insurance Program (NFIP), is a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of waters, unusual and rapid accumulation, or runoff of surface waters from any source, or a mudflow. Floods can be slow or fast rising, but generally develop over a period of many hours or days. Flooding events occurring within the San Luis Valley are generally attributed to three factors (1) winter thaws and spring break up within the project areas watersheds (sometimes with associated ice jams),

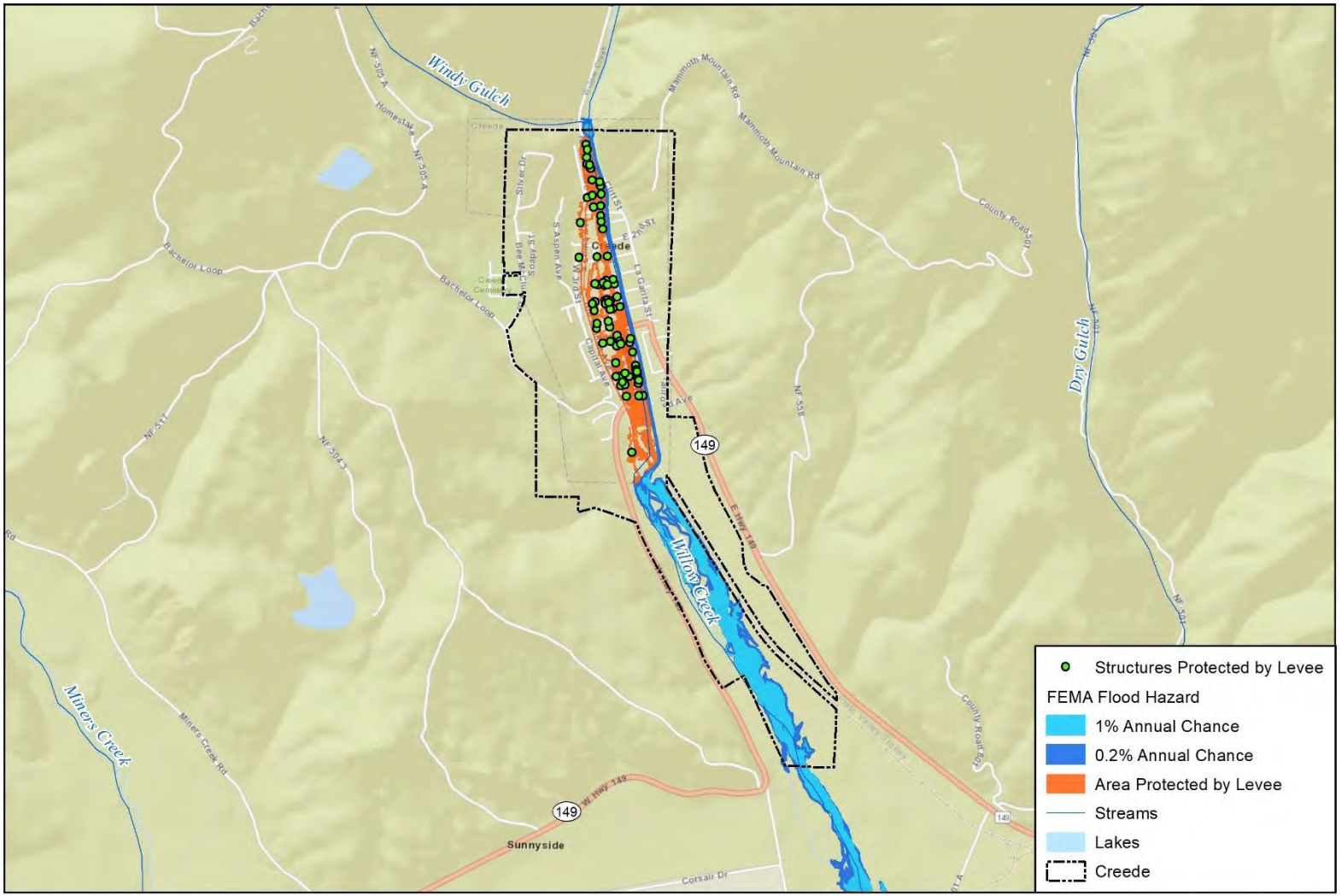
(2) rapid snow melt and or heavy rains in higher elevations, and (3) spring or summer deluges that result in flash flooding. The figures below illustrate the location of the structures protected by levee in the town of Creede located Mineral County, and the wider flood risk throughout the county.

Figure D-3 Mineral County Flood Hazards



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Draft FEMA Flood Hazards for Mineral County,
Rio Grande FEMA NFHL Effective Data 9/2/2011

Figure D-4 Creede Flood Hazards and Structures



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Draft FEMA Flood Hazards for Mineral County

Parcel Level Analyses

Property analysis for the San Luis Valley can be found in the 2022 San Luis Valley Regional Multi Hazard Mitigation Plan under the Flooding Hazard Profile under the vulnerability assessment, people, and property subsections.

National Flood Insurance Program

NFIP data for Mineral County and its municipalities can be found in the vulnerability assessment section of the 2022 San Luis Valley Regional Multi Hazard Mitigation Plan.

Repetitive Loss Structures

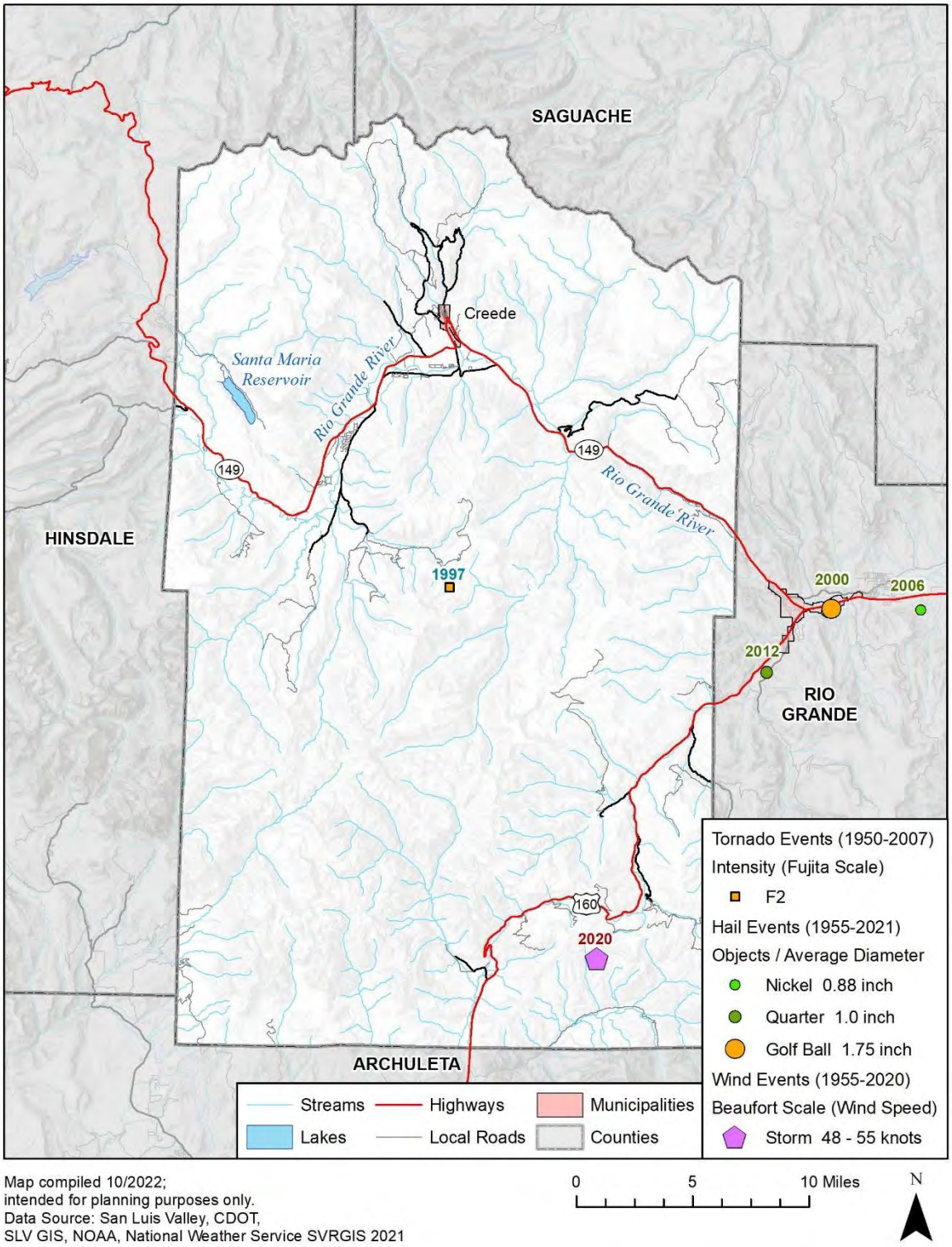
There are no reported Repetitive Loss properties currently noted within the San Luis Valley.

Hail

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 67 years, from 1955-2022, there have been no hail events recorded in Mineral County. The U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) also reported no losses due to hail in the county. However, the NOAA did report three hail events in the County, with no property losses or injuries associated with the events. These events can be seen in the figure below.

Despite no documented damages from historic hail events, all exterior infrastructure and property are equally vulnerable to damages from hail across the region. Refer to Chapter 4 for a discussion of hail risk related to Mineral County and the Region.

Figure D-5 Mineral County Historic Hail and Weather Events (1950-2021)

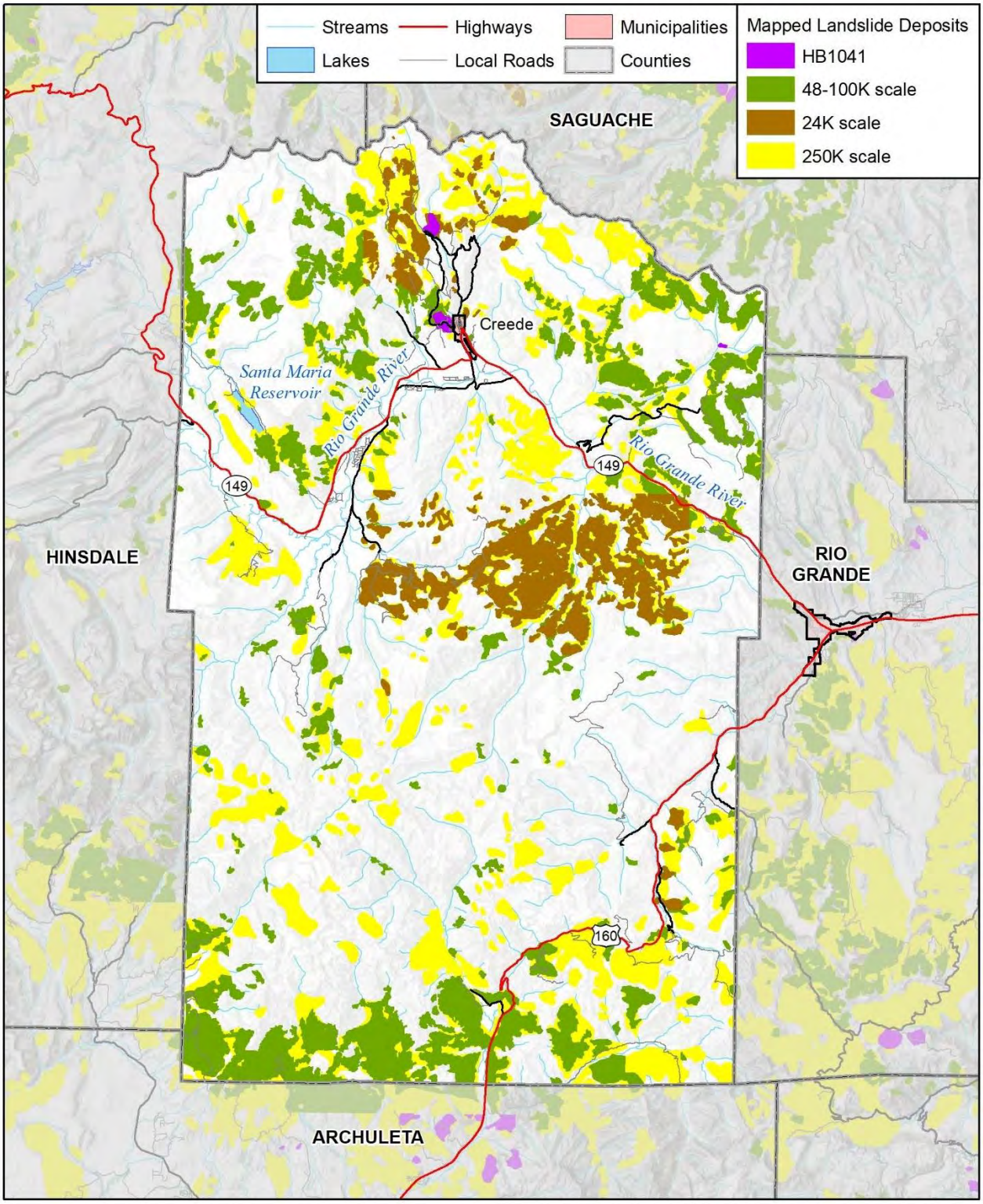


Landslide/Debris Flow/Rockfall

Mineral County is almost completely comprised of more mountainous terrain with steep slopes susceptible to landslides and rockfall. Highway 160 through Mineral County over Wolf Creek Pass is a heavily trafficked route across the region, and is a common location for rockfall. Colorado State Highway 149 from South Fork to Creede to Lake City is also vulnerable for rock-falls. In the hard stone rock that makes up the areas around Wolf Creek Pass and throughout Mineral County a common cause for rockfall is a process called ice-jacking, where fractures in the rock face fill with water or runoff which then goes through the freeze-thaw cycle. This causes the fracture to expand and contract repeatedly until the rock separates and falls. This leads to an annual occurrence of rockfalls on Highways 149 and 160 in the spring, resulting in frequent vehicle collisions and temporary closures of the roadway, which impacts transportation and commerce in the county.

Many roads and highways in the county are along slopes susceptible to landslide where travelers or recreationists may be involved in an incident. According to data from Colorado Geological Survey, previous landslides have also encroached significantly on the town of Creede. Figure D-6 below illustrates the extent of mapped landslide deposits in the county. Mineral County has the greatest extent of mapped landslide deposits out of all counties in the region.

Figure D-6 Mapped Landslide Deposits in Mineral County



Lightning

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there has been 1 damaging lightning event in Mineral County. No monetary losses were recorded in the County, but one death was recorded.

On July 28th, 2008, a lightning event caused the death of a shepherd and a mule at the headwaters of Oso Creek near the Continental Divide and City of Creede.

Vulnerability to lightning is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of lightning risk related to Mineral County and the Region.

Severe Winter Weather

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there have been a total of 513 winter weather related events in Mineral County. Table D-11 summarizes these events. It is important to note that all winter weather related events are recorded on a zonal scale and therefore do not include information on nearest impacted city. Additionally, due to the nature of the zonal nature of these events, it is possible that some events and losses were duplicated in the datasets.

In total, $170,000 in property losses were recorded in the County due to blizzard and winter storm events. Additionally, two fatalities were documented in the County, but no injuries. The NCEI provided details on the deaths which occurred in the County; on November 27th, 1997, a 92-year-old woman accidently locked herself out of her home and then slipped in the snow and froze. The second fatality occurred on April 2nd, 1998, due to a traffic-related accident caused by the winter storm. The most destructive blizzard event occurred on October 24th, 1997, when a blizzard caused $100,000 in damages.

In addition to the two deaths recorded by the NCEI, the HMPC noted an event in March of 2010 when two community leaders died while clearing snow from a roof near the City of Creede. The men were knocked to the ground and covered as the snow avalanched from the roof.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been no insured crop losses in Mineral County from 2007-2021.

Vulnerability to severe winter weather is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of severe winter weather related to Mineral County and the Region.

Table D-11 Summary of Winter Weather Events in Mineral County

	Total Events	Days with Events	Property	Injury	Fatality
Blizzard	7	4	$100,000	0	0
Heavy Snow	154	110	$0	0	3*
Winter Storm	334	199	$70,000	0	1
Winter Weather	18	16	$0	0	0
Total	**513**	**329**	**$170,000**	**0**	4*

Source: NCEI, HMPC*

Wildland Fires

The most comprehensive fire data was available from the United States Department of Agriculture (USDA) Research Data Archive from 1992 to 2018. The dataset reported 84 fires of any size over the 26-year period in Mineral County for a total of 60,276.27 acres burned.

The dataset provides information on fire size based on wildfire classes. The table below summarizes the number of wildfire events in the County based on class size. In Mineral County, the most frequently occurring type of wildfire is a class A (one-fourth acre or less).

Table D-12 Wildfires by Class

Class	# of Events
Class A - one-fourth acre or less;	65
Class B - more than one-fourth acre, but less than 10 acres;	12
Class C - 10 acres or more, but less than 100 acres;	4
Class D - 100 acres or more, but less than 300 acres;	1
Class E - 300 acres or more, but less than 1,000 acres;	0
Class F - 1,000 acres or more, but less than 5,000 acres;	1
Class G - 5,000 acres or more.	1

Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

The figure below displays the frequency of wildfire events in the County by year. Mineral County experienced the greatest frequency of wildfire events in 2013 (11 events) and 2018 (10 events).

Figure D-7 Mineral County Wildfires by Year

Figure by WSP, Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

Most of the wildfires that have occurred in Mineral County have been caused naturally (79.01%). The figure below displays wildfire events in Mineral County by ignition types.

Figure D-8 Mineral County Wildfire Cause of Ignition

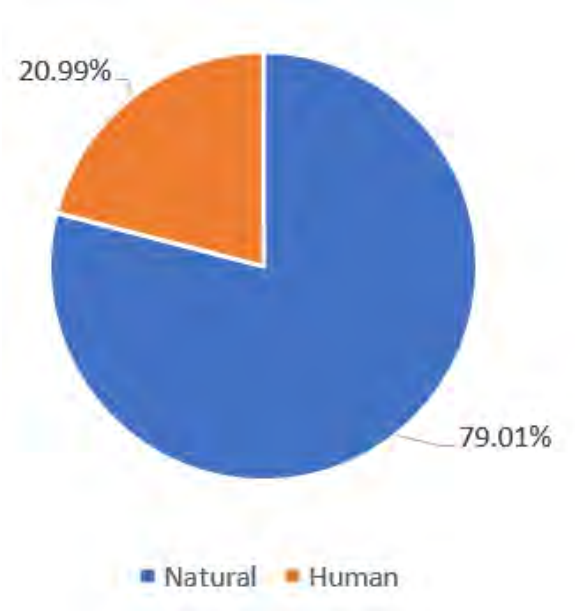


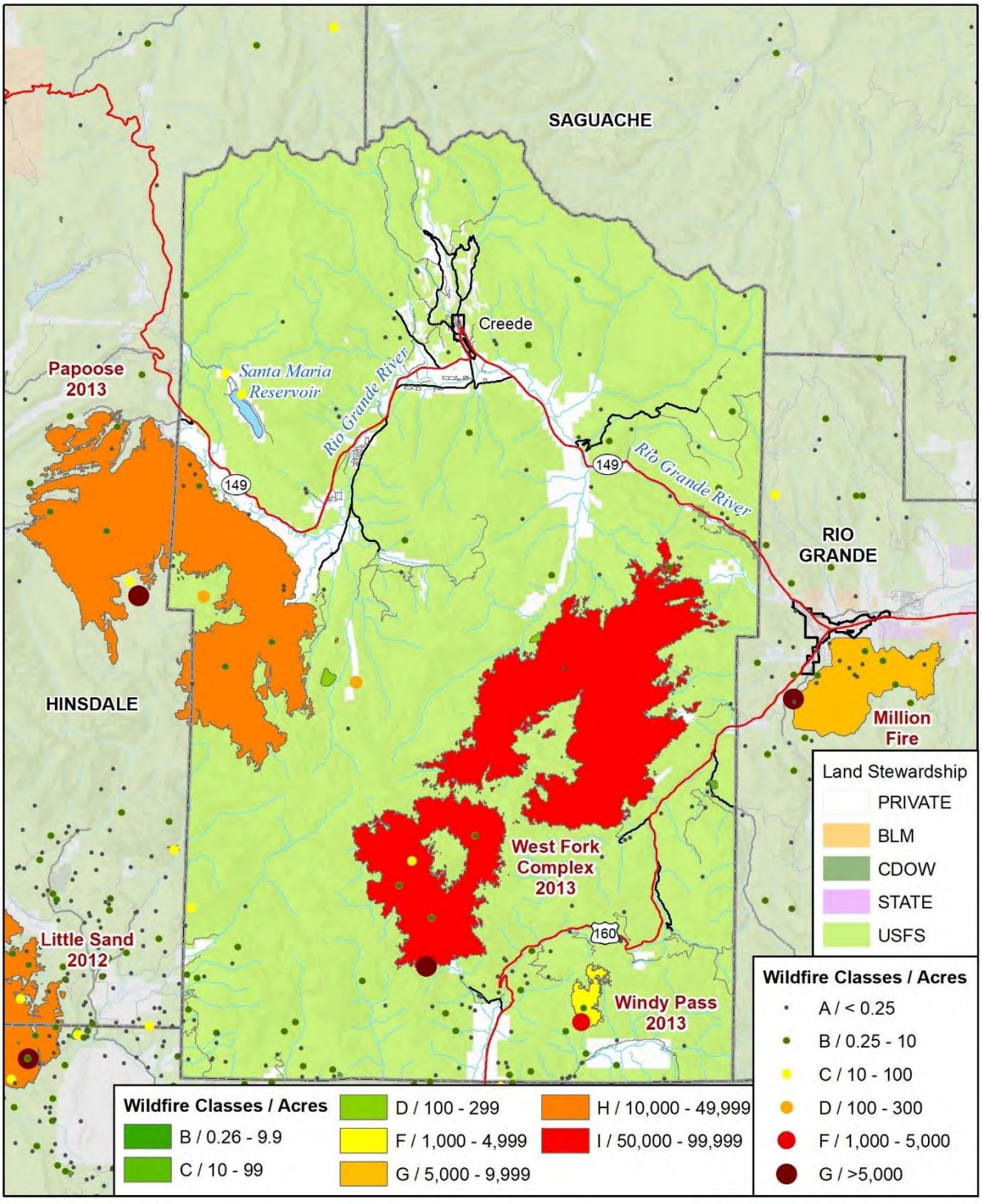
Figure by WSP, Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

Mineral County has two disaster declarations due to wildfires. The first disaster declaration was declared in 2002 for the entire State of Colorado. The second was declared in 2013 due to the West Fork Fire Complex. The most significant wildfire to impact Mineral County was the West Fork Fire Complex, which occurred in 2013 and burned around 110,405 acres in between Mineral and Hinsdale Counties, and cost $31,433,000 to contain.

According to the 2009 Mineral County CWPP, the WUI communities within Mineral County include Bristol Head Acres, Creed Haven, and Eagle Nest Park with low wildfire hazard ratings, Bachelor Loop, Bristol View Acres, Kid Peak Estates, Rio Grande Haciendas, Spring Creek Ranch, and Goose Creek with moderate hazard ratings, and Big River Ranch, Blue Creek Summer Homes, Cade Ranch, Lost Valley of San Juans, Lucky 7, Metroz Lake, Spar City, and Wolf Creek Village with high hazard ratings.

Figure D-9 below displays the history of wildfires in Mineral County. Figure D-10 displays wildfire risk in the County. The area most likely to experience wildfire based on this map is the southern portion of the County. Figure D-11 and Figure D-12 display the wildland urban interface (WUI) and the WUI risk, which indicates the most vulnerable areas for human infrastructure to wildfire are in the City of Creede and along Highway 149.

Figure D-9 Mineral County Wildfire History (1950-2022)



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, National Interagency Fire Center (NIFC),
USGS: BLM, FS, FWS, NPS

Figure D-10 Mineral County Wildfire Risk

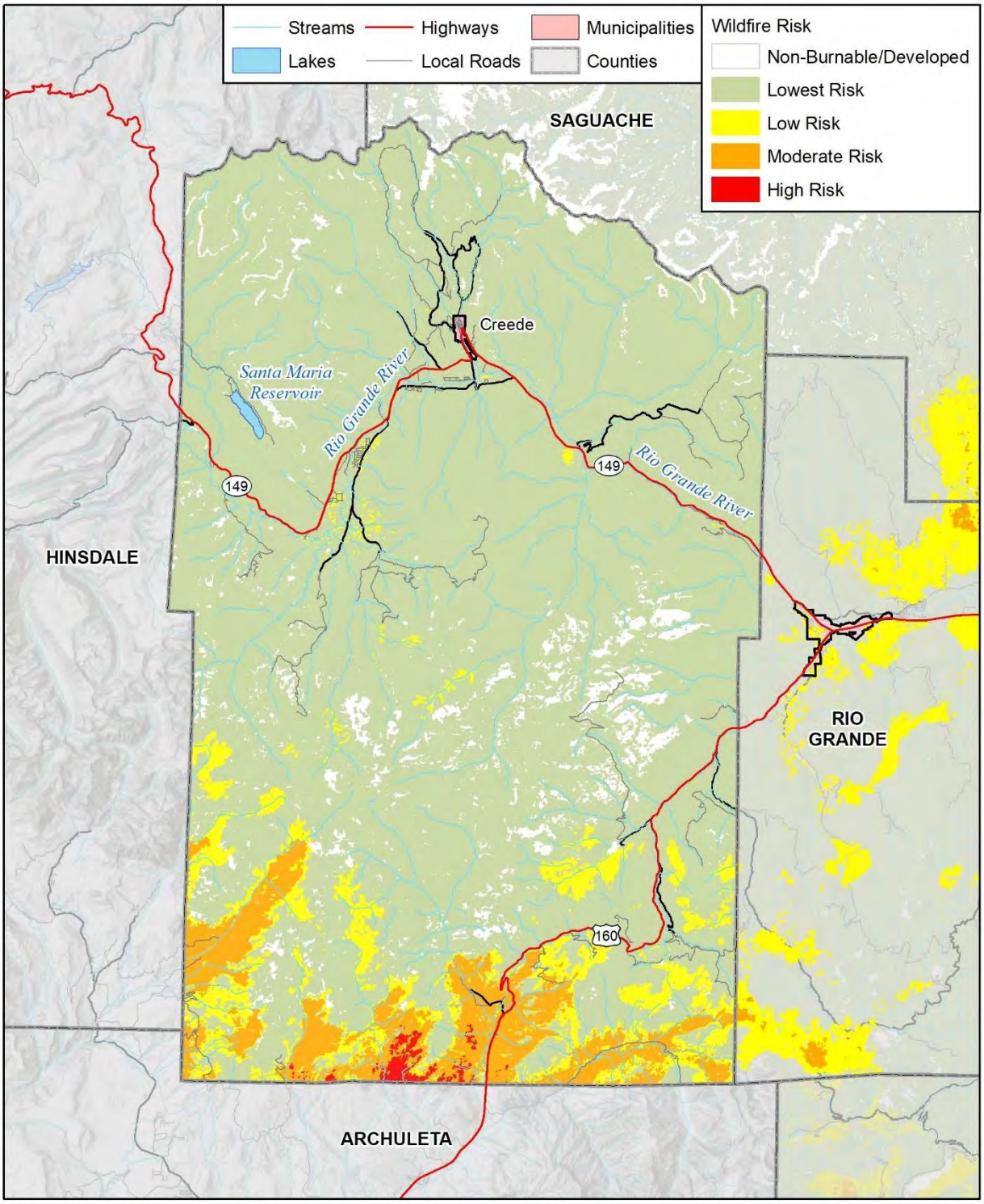
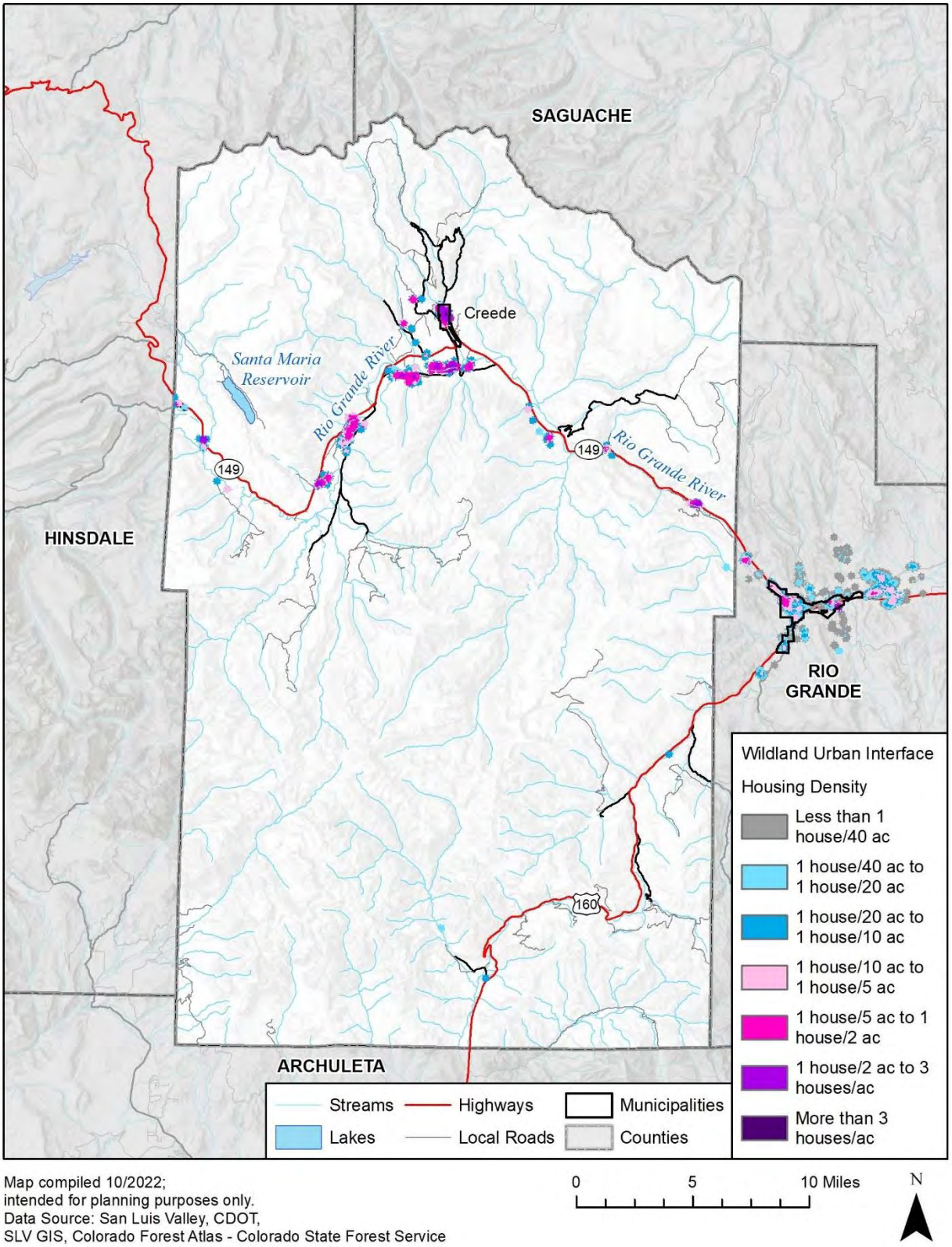
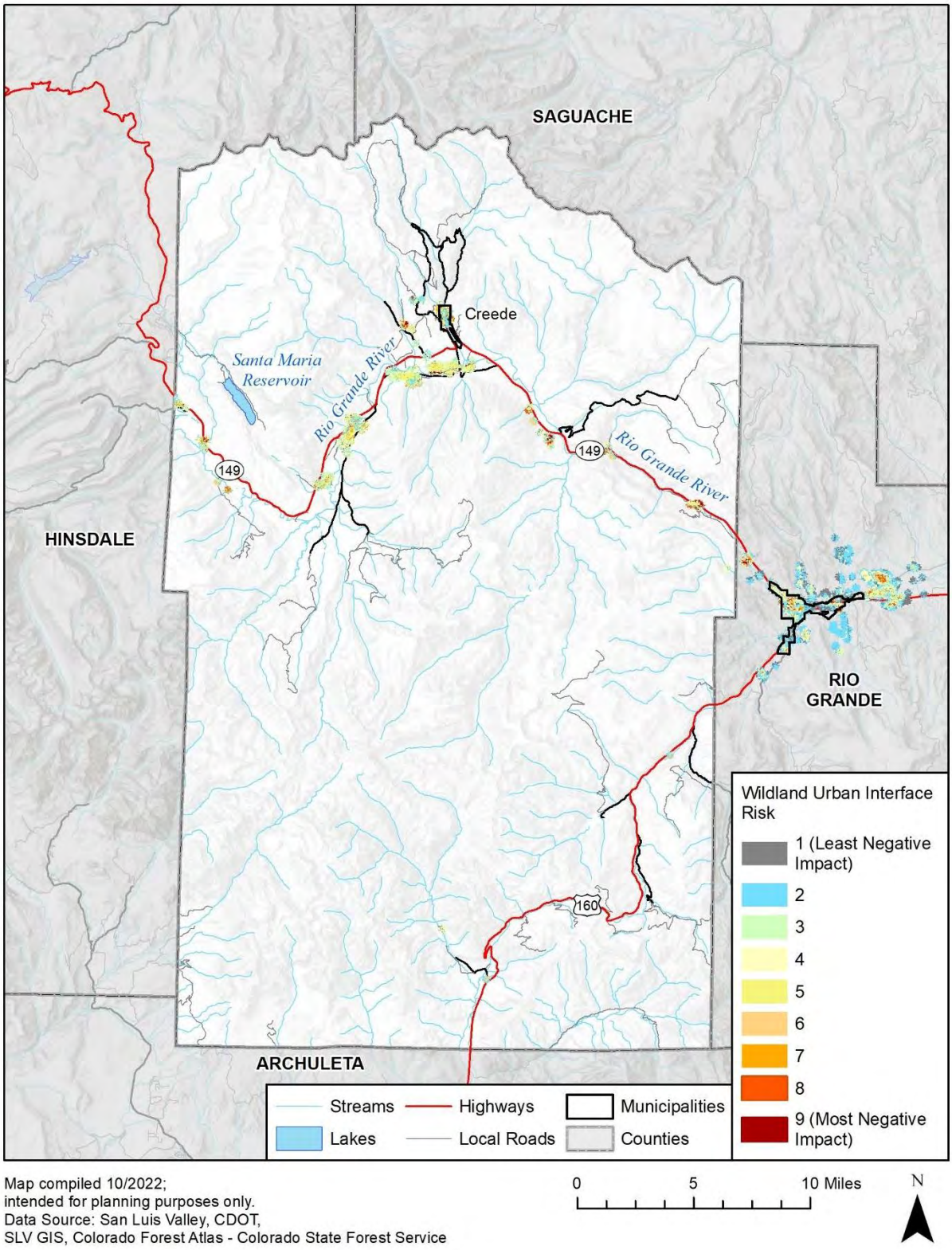


Figure D-11 Mineral County Wildland Urban Interface



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

Figure D-12 Mineral County Wildland Urban Interface Risk



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

High Winds and Tornadoes

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 72 years, from 1950-2022, there have been 66 high wind events, 1 thunderstorm wind events, and 1 tornado event in Mineral County. While high wind events are recorded on a zonal scale and therefore do not include information on the nearest impacted city, some thunderstorm wind events and tornado events do. The only documented thunderstorm wind event occurred near Wagon Wheel Gap and the only tornado event recorded occurred in the National Forest outside of Creede. No injuries or deaths were recorded in the County due to wind or tornado events.

The highest windspeed recorded in Mineral County reached 104 mph and the strongest tornado was an F2, which occurred on October 10th, 1997. In total, $30,000 in property damages were recorded in the County, $20,000 from high wind and $10,000 from the tornado event. It is difficult to determine the exact location that high wind damage occurred in the County due to the zonal nature of the data. The October 10th tornado caused $10,000 in property damages when a horse trailer was destroyed near the City of Creede.

The U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) records insured crop losses between 2007 and 2021. No records of crop losses were reported in Mineral County due to wind or tornado events.

Figure D-5 displays historic wind and tornado events in the County. Vulnerability to winds and tornadoes is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of wind risk related to Mineral County and the Region.

Cyber Attack

All servers, networks, and users are vulnerable to cyber-attacks in the San Luis Valley Region. The Privacy Rights Clearinghouse lists 172 data breaches against systems located in Colorado, totaling over 5,812,743 impacted records; however, it is difficult to know how many of those affected residents in Mineral County. Many small cyber-crimes also go unreported, so the true number of impacted residents in the community is likely much larger than the database estimates.

The database did not report any events that impacted Mineral County specifically. However, the San Luis Valley HMPC also noted that hospitals and elder populations have been popular targets for cyber-attacks across the region.

Vulnerability to cyber-attacks is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of cyber-attack risk related to Mineral County and the Region.

Hazardous Materials Incidents

Hazardous materials vulnerability is significant within the San Luis Valley for transportation accidents due to the highways and railroad that passes through the County and all municipalities. Both Risk Management Plan and Tier II facilities are listed in the Base Plan in Table 4-74 and Table 4-75. According to San Luis Valley's Multi HMP, there have been 137 hazardous materials incidents in the project area from 1990 to 2021 with 26 of them taking place in Mineral County. There are also multiple pipelines transporting hazardous materials across the counties in the study area as well.

Pandemic

Vulnerability for pandemic does not vary from that in the Region.

D.7. Mitigation Capabilities Assessment

As part of the regional plan development, the Region and participating jurisdictions developed a mitigation capability assessment. Capabilities are those plans, policies and procedures that are currently in place that contribute to reducing hazard losses. Combining the risk assessment with the mitigation capability assessment results in "net vulnerability" to disasters and more accurately focuses the goals, objectives, and proposed actions of this plan. The CPT used a two-step approach to conduct this assessment. First, an inventory of common mitigation activities was made through the use of a matrix. The purpose of this effort was to identify policies and programs that were either in place or could be undertaken, if appropriate. Second, the CPT conducted an inventory and review of existing policies, regulations, plans, projects, and programs to determine if they contribute to reducing hazard related losses.

D.7.1. Mineral County Regulatory Mitigation Capabilities

Table D-13 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the San Luis Valley and each participating jurisdiction. Excerpts from applicable policies, regulations, plans, and programs descriptions follow to provide more detail on existing mitigation capabilities.

Mineral County does not have adopted building codes as specified in Table D-13. The City of Creede has adopted the 2015 IBC without modifications. The county and communities will be evaluating codes in 2023 through a process being led by Colorado Counties Inc.

Table D-13 Mineral County and Jurisdictions Regulatory Mitigation Capabilities

Planning & Regulatory Tools (ordinances, codes, plans)	Mineral County	City of Creede
Comprehensive, Master, or General Plan	Yes (2000)	Yes (2000)
Emergency Operations Plan	Yes	Yes
Economic Development Plan	No	No
Capital Improvement Program or Plan (CIP)	No	No
Community Wildfire Protection Plan (CWPP)	Yes (2009)	Yes (2009)
Building Code	No	Yes
Building Code Year	No	2015 IBC
Floodplain Ordinance	Yes	Yes
Zoning Ordinance	Yes	Yes
Subdivision Ordinance	Yes	Yes
Stormwater Ordinance	No	Yes
Site Plan Review Requirements	No	No
National Flood Insurance Program (NFIP) Participant	Yes	Yes
Community Rating System (CRS) Participant	No	No
Growth Management Ordinance	No	Yes
Floodplain Management Plan	No	No
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	No	No
BCEGS Rating	-	-
Erosion/Sediment Control Program	No	Yes
Flood Insurance Study	No	No
Floodplain Elevation Certificates	Yes	Yes
Other Hazard-Specific Ordinance or Plan (Steep Slope, Etc.)	-	-

D.7.2. Mineral County Administrative and Technical Mitigation Capabilities

Table D-14 identifies the County and Town personnel responsible for activities related to mitigation and loss prevention in Mineral County.

Table D-14 Mineral County Jurisdictions Administrative/Technical Mitigation Capabilities

Administrative/Technical Resources	Mineral County	City of Creede
Planner/Engineer (with knowledge of development practices)	Yes	Yes
Engineer/Professional (trained in construction practices)	Yes	Yes
Planner/Engineer/Scientist (with understanding of natural hazards)	Yes	Yes
GIS Capability	No	Yes
Full-Time Building Official	Yes	Yes
Floodplain Administrator	Yes	Yes
Emergency Manager	Yes	No
Grant Writing	Yes	No
Warning Systems / Services (general)	Yes	Yes
- Sirens	No	No
- Reverse 911	Yes	Yes
- IPAWS/Wireless Emergency Alerts	Yes	Yes
- Opt-In Notifications (CodeRed, Everbridge, etc.)	Yes	Yes
- Other warning systems	Social Media	Social Media
Transportation Planner	No	No
Resiliency Planner	No	No
Other?	-	-

D.7.3. Mineral County Financial Capabilities

Table D-15 identifies the County and Town financial tools or resources that the jurisdictions have access or are eligible to use and could potentially be used to help fund mitigation activities.

Table D-15 Mineral County Jurisdictions Financial Capabilities

Financial Resources	Mineral County	City of Creede
Levy for Specific Purposes with Voter Approval	Yes	Yes
Utilities Fees (Water, Sewer, Gas, or Electric Services)	Yes	Yes
Impact Fees for New System Development	No	No
Incur Debt through General Obligation Bonds	Yes	Yes
Incur Debt through Special Tax Bonds	Yes	Yes

Financial Resources	Mineral County	City of Creede
Withhold Spending in Hazard-Prone Areas	Yes	Yes
Stormwater Service Fees	Yes	Yes
Capital Improvement Project Funding	Yes	Yes
Community Development Block Grants (CDBG)	Yes	No
Other?	-	-

D.7.4. Mineral County Education and Outreach Capabilities

Table D-16 shows the mitigation education and outreach capabilities the County and jurisdictions have in place now.

Table D-16 Mineral County Education and Outreach Capabilities

Education & Outreach	Mineral County	City of Creede
Public Education /Outreach Program	Yes	Yes
Local Citizen Groups That Communicate Hazard Risks	No	No
Firewise	No	No
StormReady	No	No
Other?	-	-

D.7.5. Opportunities for Enhancement

Based on the capabilities assessment, Mineral County has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the County to expand or improve on their policies, programs and fiscal capabilities and further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Additional training opportunities will help to inform County and Town staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train staff on mitigation and the hazards that pose a risk to the Mineral County will lead to more informed staff members who can better communicate this information to the public.

Other opportunities include improved cross-jurisdictional communication on evacuation and awareness to mitigate life safety impacts during dam incidents, floods, or wildfires including the development of brochures and using existing communication capabilities through social media such as Facebook. Other specific opportunities for improvement include:

- Update of CWPP
- Adopt a building code

D.8. Mitigation Strategy

This section describes the mitigation strategy and mitigation action plan for Mineral County. See Chapter 5 of the base plan for more details on the process used to develop the mitigation strategy.

D.8.1. Goals

During the creation of the 2022 Regional Plan, the Mineral County planning team decided to revise their goals slightly from their previous iteration. The adopted goals are as follows:

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

D.8.2. Progress of 2018 Actions

During the 2022 planning process the Mineral County Planning Team reviewed all the mitigation actions from the 2018 plan. Of their 11 mitigation actions from 2018, 9 of the actions are continuing and progress has begun on them, demonstrating ongoing progress and building the community's resiliency to disasters. No actions have been noted as deleted since 2018, however two (2) actions were completed and are detailed below (Table D-17).

Table D-17 Completed and Deleted Actions

2018 ID	Mitigation Action	Hazards Mitigated	Jurisdiction	Priority	Status/Implementation Notes
Mineral County – 7	Provide information on county website regarding natural hazards and actions that residents and businesses can implement to reduce risk.	All Hazards	Mineral County	Medium	Completed. Mineral County Emergency Management has a website with data. SLVemergency.org is also being updated with this data.
Mineral County – 9	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.	Severe Weather Hazards	Mineral County	High	Completed. Doppler Radar has been installed in Alamosa covering the San Luis Valley Region

D.8.3. Mitigation Action Plan

As a part of the 2022 regional planning process, the CPT reviewed the list hazard mitigation actions or projects specific to Mineral County and its jurisdictions from the previous HMP and brainstormed ideas for new actions. The process used to identify, develop, and prioritize these actions is described in Chapter 5 of the base plan. While some new actions were identified in 2022, the jurisdictions also chose to focus on the actions previously identified that are either in progress or still need to be completed.

The County Planning Team identified and prioritized the following mitigation actions based on risk assessments, goals, and objectives. Background information as well as information on how the action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and timeline also are described. Per the DMA requirement, actions have been

identified that address reducing losses to existing development as well as future development. Those that reduce losses to future development are indicated by an asterisk (*) in the Action Identification (ID) column in the table below.

Table D-18 Mineral County Mitigation Action Plan

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/Implementation Notes
M.1*	Goals: 2, 3	Work with FEMA to update floodplain maps.	Flood	Mineral County, Creede	Mineral County OEM, CWCB, FEMA	1-5 years	$10,000-100,00 FEMA RiskMAP	High	Continue – In Progress. This project should be completed within the next 6 months.
M.2	Goals: 1	Continue to expand capacity of existing local warning systems to reach the population at various times of the day and evaluate EverBridge and other systems for use in Mineral County.	Avalanche, Dam Incident, Flood, Hail, Lightning, Severe Winter Weather, Wildland Fires, High Winds and Tornadoes, Cyber Attack, Hazardous Materials Incidents	Mineral County	Mineral County OEM	1-5 years	$10,000-100,000; FEMA HMA, Existing budget	High	Continue – In Progress. An app has been purchased for this but has not yet been fully instituted.
M.3	Goals: 1	Partner with recreation entities and retailers to promote safety and increase public awareness of natural hazards outdoors and in the backcountry.	Severe Weather Hazards	Mineral County	Mineral County OEM	Annual Implementation	Little to no cost	Medium	Continue – In Progress.
M.4	Goals: 1	Promote the sale of the CORSAR (Colorado Outdoor Recreation Search and Rescue) card.	Avalanche, Winter Storm	Mineral County	Mineral County OEM	Annual Implementation	Little to no cost	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/Implementation Notes
M.5	Goals: 2, 3	Identify one additional high-capacity source of water for fighting wildfire, including procedures for emergency access.	Wildland Fires	Mineral County	Mineral County OEM	1-5 years	$10,000-100,000; CSFS grants, existing budgets	High	Continue – In Progress.
M.6	Goals: 1, 2	Reduce fuels and create defensible space within existing subdivisions.	Wildland Fires	Mineral County	Mineral County OEM	1-5 years	$10,000-100,000; Forest Restoration & Wildfire Risk Mitigation grants (CSFS)	High	Continue – In Progress. Still important and still not done for all neighborhoods.
M.7	Goals: 1	Identify appropriate facility for public shelter and seek funding assistance to purchase generator for the facility.	Flood, Wildland Fires, Winter Storm	Mineral County, City of Creede	Mineral County OEM	1-5 years	$10,000-$100,000; FEMA HMA, BRIC	High	Continue In-Progress. Facility has been identified, need to continue working on funding.
M.8*	Goals: 2, 3	Evaluate benefits of participating in Colorado Certified Burner program endorsed by the Colorado Division of Fire Prevention and Control to increase awareness of wildfire red flag warnings.	Wildland Fires	Mineral County	Mineral County Sheriff; Fire Protection Districts	1-5 years	Little to no cost	Low	Continue Not Started
M.9	Goals: 2, 3	Assess repair, improvements, and maintenance needs for the Willow Creek Funnel (Flume) and	Flood, Landslide/	City of Creede	City of Creede	1-5 years	More than $1,000,000; CWCB,	High	Continue In-Progress. Initial work has been

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/Implementation Notes
		identify potential partners and funding sources.	Debris Flow		Public Works		FEMA HMA		completed but upper 1/3 of Flume still needs work.
M.10	Goals: 2, 3	Consider developing a local drought management plan according to CWCB guidelines to reduce impacts from and build resilience to drought.	Drought	City of Creede	City of Creede Public Works	1-5 years	$50,000 CWCB	Low	New in 2022
M.11	Goals: 1, 2, 3	Adopt new flood hazard maps when completed and use for floodplain management and flood risk identification and mitigation	Flood	Mineral County, City of Creede	Floodplain adminstrator	1-5 years	Little to no cost	Medium	New in 2023; flood hazard mapping project in process by the CWCB
M.12	Goals: 2	Enhance power grid resiliency through coordination with local utility providers and partnerships on mitigation where possible.	Earthquake flooding, hailstorm, high winds and tornadoes, lightning, severe winter storm, wildland fires, cyber attack	Mineral County, City of Creede	OEM, Utility providers	2023-2028	More than $100,000; FEMA HMA Grant, BRIC	High	New in 2022

D.9. Plan Implementation and Maintenance

Moving forward the Mineral County HMPC will use the mitigation action table in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 6 of the base plan.

D.9.1. Incorporation into Existing Planning Mechanisms

As described in the capability assessment, the County already implements policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. Where applicable, these existing mechanisms could include:

- Mineral County Comprehensive Plan
- Mineral County Emergency Operations Plan (2018)
- Mineral County CWPP (2009)
- 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 process for incorporation of the Regional Hazard Mitigation Plan into other planning mechanisms can be as simple as cross-referencing the Hazard Mitigation Plan where applicable. Integrated planning is a key to building community resiliency.

Annex E Rio Grande County

Annex E. Rio Grande County

E.1. Mitigation Planning and County Planning Team

Rio Grande County updated this annex during the development of the 2023-2028 San Luis Valley Regional Hazard Mitigation Plan. This County Annex builds upon previous version of the Rio Grande County Hazard Mitigation Plan completed in 2018. As part of the regional planning process the County established a County Planning Team (CPT) to develop the mitigation plan and identify potential mitigation projects. The following jurisdictions participated in the DMA planning process for the County.

- Rio Grande County
- City of Monte Vista
- Town of Del Norte
- Town of South Fork

More details on the planning process followed and how the counties, municipalities and stakeholders participated can be referenced in Chapter 3 of the base plan. Details on which local government departments participated and who represented them are listed in the following table.

Table E-1 Rio Grande County List of Participants

Name	Jurisdiction	Title
Art Wittner	Rio Grande County	Emergency Management Coordinator
Dixie Diltz	Rio Grande County	Land Use Administrator
Dr. Kolawole Bankole	Rio Grande County	Director
Ida White	Rio Grande County	Public Health
Kaleigh White	Rio Grande County	Operations Manager
DJ Enderle	City of Monte Vista	City Planner
Gigi Dennis	City of Monte Vista	City Manager
Stephanie Ruybal	City of Monte Vista	Ski Hi Complex Manager
Deb Yarbrough	Monte Vista COOP	Administrator
Eric Hinton	Monte Vista COOP	President/CEO
Aaron Horrocks	Upper Rio Grande School District	Administrator
Jim Clare	San Luis Valley Regional Solid Waste Authority	Manager (retired)
Ron Rivale	San Luis Valley Regional Solid Waste Authority	Manager
Bernadette Martinez	Town of Del Norte	Administrator
Hank Weber	Town of South Fork	Administrator

E.2. Geography and Climate

Rio Grande County is situated in the middle of the San Luis Valley planning area. It is bordered by Saguache on the north, Alamosa on the west, Conejos on the south, and Mineral on the east. The County spans 913 square miles and gets its name from the Rio Grande River which traverses its borders. While the eastern portion of the county is largely flat and used for agriculture, the western County begins the climb into the San Juan Mountains and contains several 13,000-foot peaks. The Monte Vista National Wildlife Refuge is contained within the County, and the Rio Grande Wilderness intersects with the west side of the county.

The climate of Rio Grande County can vary based on location and elevation. On average, the County receives 10 inches of rain and 33 inches of snow annually. Most of the rainfall occurs in Autumn, while significant snowfall occurs during eight months of the year, generally from October to May. July is the hottest month of the year, with highs averaging 79°F, while January is the coldest, with lows averaging -1°F. Rio Grande County gets precipitation an average of 67 days per year, while experiencing sunshine 285 days annually.

E.3. Population Trends

With a 3.8% population decrease between 2015 and 2020, Rio Grande County has experienced the largest population loss of all counties in the San Luis Valley planning area, both in total numbers and in percentage points. Unincorporated Rio Grande County accounts for roughly 45% of the county's total population, a trend that has been increasing. While all incorporated jurisdictions in the county lost residents between 2015 and 2020, unincorporated Rio Grande County experienced an 11.3% population increase.

Table E-2 provides a summary of the population change in the County and its municipalities from 2015 to 2020.

Table E-2 Population Estimates for Communities 2015-2020

	2015	2016	2017	2018	2019	2020
Rio Grande County total	11,745	11,623	11,430	11,351	11,305	11,300
City of Monte Vista	4,366	4,315	4,236	4,169	4,157	4,072
Town of Del Norte	1,984	1,894	1,621	1,539	1,567	1,509
Town of South Fork	589	490	474	332	335	369
Unincorporated Rio Grande County	4,806	4,924	5,099	5,311	5,246	5,350

Source: ACS 5-Year Estimates

Select Census demographic and social characteristics for Rio Grande County are shown in Table E-3. The table indicates the proportion of the population that may have special needs, such as elderly or children under 5 years of age.

Table E-3 Rio Grande County Demographic Profile

Characteristic	% of Total Population
Gender/ Age	
Male	50.2%
Female	49.8%
Under 5 Years	5.7%
65 Years and Over	20.2%
Race/Ethnicity	
White	51.7%

Characteristic	% of Total Population
American Indian/Alaska Native	1.7%
Asian	0.1%
Black or African American	0.1%
More Than One Race	1.8%
Hispanic or Latino of Any Race[1]	44.4%
Education (25+ Years)	
High School Graduate or Higher	87.6%
Bachelor's Degree or Higher	26.0%

Source: U.S. Census Bureau, 2020 5-Year American Community Survey

1 The U.S. Census Bureau considers the Hispanic/Latino designation an ethnicity, not a race. The population self-identified as "Hispanic/Latino" is also represented within the categories in the "Race" demographic.

E.4. Development Trends

Growth in Rio Grande County has occurred exclusively in unincorporated areas. Additionally, according to the 2020 ACS 5-Year Estimates, Rio Grande County has the largest portion of households without access to vehicles (8.7%) and without internet access (33.6%) of all counties in the San Luis Valley planning area. The remote nature of residents in unincorporated areas and a lack of internet access make it harder for residents to receive crucial messages leading up to and during a hazard event. Additionally, it is much more difficult for those without access to a vehicle to prepare for or exit from hazardous situations.

E.5. Economy

Table E-4 below provides a brief overview of some economic characteristics of Rio Grande County. The following information is provided by the U.S. Census Bureau American Community Survey (ACS) 5-years estimates from 2016-2020.

Table E-4 Rio Grande County Economic Profile

	Rio Grande County
Families Below Poverty Level	7.5%
Individuals Below Poverty Level	15.5%
Median Home Value	$186,700
Median Household Income	$43,570
Per Capita Income	$27,300
Population > 16 Years Old in Labor Force	56.8%
Population Employed	51.5%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

Table E-5 shows the breakdown of employment in Rio Grande County by the industry sector. According to the ACS, the leading employment sectors in the county are the educational services, and health care and social assistance, agriculture, forestry, fishing and hunting, and mining sectors, retail trade, and construction sectors.

Table E-5 Rio Grande County Occupations and Industries

Industry	Number Employed	Percent of Labor Force
Educational services, and health care and social assistance	1,118	23.8%
Agriculture, forestry, fishing and hunting, and mining	536	11.4%

Industry	Number Employed	Percent of Labor Force
Retail trade	515	11.0%
Construction	409	8.7%
Professional, scientific, and management, and administrative and waste management services	403	8.6%
Arts, entertainment, and recreation, and accommodation and food services	388	8.3%
Transportation and warehousing, and utilities	266	5.7%
Manufacturing	258	5.5%
Other services, except public administration	203	4.3%
Public administration	200	4.3%
Wholesale trade	197	4.2%
Finance and insurance, and real estate and rental and leasing	151	3.2%
Information	47	1.0%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

E.6. Hazard Identification and Risk Assessment

E.6.1. Identified Hazards

The CPT reviewed significant hazards for inclusion in the hazard mitigation plan. For the sake of consistency, the list of hazards for consideration began with the list of hazards found in San Luis Valley's Hazard Mitigation Plan, updated in 2018. In the 2022 update the CPT decided to add the following hazards: cyber-attack, hazardous materials, and pandemic/epidemic. Rio Grande County's Table Overall Hazard Significance* Summary Table provides a summary of the overall hazard significance for the hazards evaluated in this plan, showing variability by jurisdiction in Table E-6 below.

Table E-6 Rio Grande County Overall Hazard Significance* Summary Table

Hazard	Rio Grande County	Del Norte	Monte Vista	South Fork
Avalanche	Low	Low	Low	Low
Cyber Attack	Medium	Medium	Medium	Medium
Dam Failure	Medium	Low	Low	Medium
Drought	Medium	Medium	Medium	Medium
Earthquake	Medium	Medium	Medium	Medium
Flood (Flash Flood & Levee Failure)	Medium	Medium	Medium	Medium
Hazmat	High	High	High	High
Hailstorm	Medium	Medium	Medium	Medium
Landslide	Medium	Medium	Medium	Medium
Lightning	Low	Low	Low	Low
Pandemic	Medium	Medium	Medium	Medium
Severe Winter Storm	High	High	High	High
Tornado/High Winds	Medium	Medium	Medium	Medium
Wildland Fires	Medium	Low	Low	High

*Significance based on a combination of Geographic Extent, Potential Magnitude/Severity and Probability as defined below.

Geographic Extent Negligible: Less than 10 percent of planning area or isolated single-point occurrences Limited: 10 to 25 percent of the planning area or limited single-point occurrences Significant: 25 to 75 percent of planning area or frequent single-point occurrences Extensive: 75 to 100 percent of planning area or consistent single-point occurrences Potential Magnitude/Severity Negligible: Less than 10 percent of property is severely damaged, facilities and services are unavailable for less than 24 hours, injuries and illnesses are treatable with first aid or within the response capability of the jurisdiction. Limited: 10 to 25 percent of property is severely damaged, facilities and services are unavailable between 1 and 7 days, injuries and illnesses require sophisticated medical support that does not strain the response capability of the jurisdiction, or results in very few permanent disabilities. Critical: 25 to 50 percent of property is severely damaged, facilities and services are unavailable or severely hindered for 1 to 2 weeks, injuries and illnesses overwhelm medical support for a brief period of time or result in many permanent disabilities and a few deaths. Overwhelmed for an extended period of time or many deaths occur. Catastrophic: More than 50 percent of property is severely damaged, facilities and services are unavailable or hindered for more than 2 weeks, the medical response system is overwhelmed for an extended period of time, or many deaths occur.	Probability of Future Occurrences Unlikely: Less than 1 percent probability of occurrence in the next year or has a recurrence interval of greater than every 100 years. Occasional: Between a 1 and 10 percent probability of occurrence in the next year or has a recurrence interval of 11 to 100 years. Likely: Between 10 and 90 percent probability of occurrence in the next year, or has a recurrence interval of 1 to 10 years Highly Likely: Between 90 and 100 percent probability of occurrence in the next year or has a recurrence interval of less than 1 year. **Overall Significance** Low: Two or more of the criteria fall in the lower classifications or the event has a minimal impact on the planning area. This rating is also sometimes used for hazards with a minimal or unknown record of occurrences/impacts or for hazards with minimal mitigation potential. Medium: The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is also sometimes utilized for hazards with a high impact rating but an extremely low occurrence rating. High: The criteria consistently fall along the high ranges of the classification and the event exerts significant and frequent impacts on the planning area. This rating is also sometimes utilized for hazards with a high psychological impact or for hazards that the jurisdiction identifies as particularly relevant.

E.6.2. Building Inventory and Assets

Critical Facilities, Infrastructure, and Other Important Community Assets

A critical facility is defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA organizes critical facilities into seven lifeline categories as shown in Figure A-1 FEMA Lifeline Categories and Table E-7 for Rio Grande County below.

Table E-7 Rio Grande County Critical Facilities by Jurisdiction

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Total
Center	-	-	-	-	-	1	-	**1**
Del Norte	2	1	-	1	3	12	2	**21**
Monte Vista	11	-	1	3	6	10	-	**31**
South Fork	1	2	-	-	-	2	5	**10**
Unincorporated	42	13	2	11	1	6	69	**144**
Total	**56**	**16**	**3**	**15**	**10**	**31**	**76**	**207**

Source: CDPHE, CEPC, HIFLD, NBI, WSP GIS Analysis

Historic and Cultural Assets

National and state historic inventories were reviewed to identify historic and cultural assets in Rio Grande 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 E-8 lists the properties in Rio Grande 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 E-8 Historic Properties and Districts on State and National Registers

Property Name	Location	Date Listed
Keck Homestead*	Del Norte	5-8-1988
St. Francis of Assisi Mission Church	Del Norte	3-13-2002
Sutherland Bridge*	Del Norte	2-4-1985
Wheeler Bridge*	Del Norte	2-4-1985
Windsor Hotel	Del Norte	4-13-1994
Aldrich House	Monte Vista	6-11-2003
Carnegie Library	Monte Vista	3-8-1995
Central School Auditorium and Gymnasium*	Monte Vista	3-14-1996
El Monte Hotel (Monte Villa Inn)*	Monte Vista	6-7-1990
Fassett Department Store	Monte Vista	8-11-1993
Monte Vista United Methodist Church	Monte Vista	6-11-2003
Monte Vista Cemetery Chapel	Monte Vista	8-11-1999
Monte Vista Downtown Historic District*	Monte Vista	11-1-1991
Monte Vista Library*	Monte Vista	6-30-1995
Monte Vista Post Office and Federal Building*	Monte Vista	1-22-1986
Sargent Consolidated School District	Monte Vista	12-13-2000
State Soldiers' and Sailors' Home	Monte Vista	9-13-1995
Creede Branch, Denver and Rio Grande Western RR*	South Fork	11-27-2002

Property Name	Location	Date Listed
Denver & Rio Grande RR South Fork Water Tank	South Fork	3-13-2002
Denver & Rio Grande Western RR Engine No. 40	South Fork	8-14-2002

Asterisk indicates properties on both the State and National Registers

Source: Directory of Colorado State Register Properties

According to the National Historic Preservation Act (NHPA), 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 NHPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

E.6.3. Vulnerability to Specific Hazards

This section details vulnerability to specific hazards, where quantifiable, only where it differs from that of the Region as a whole. The results of detailed GIS analyses used to estimate potential for future losses are presented here, in addition to maps of hazard areas and details by jurisdiction and building type. For a discussion of the methodology used to develop the loss estimates refer to Chapter 4 of the base plan. In many cases Chapter 4 contains information that differentiates the risk by county thus the information is not duplicated here. For most of the weather-related hazards the risk does not vary significantly enough from the rest of the Region and thus the reader should refer to Chapter 4. Only unique issues or vulnerabilities are discussed, where applicable.

- Avalanche
- Dam Incident
- Drought
- Earthquake
- Flood
- Hailstorm
- Severe Winter Weather
- Wildland Fires
- High Winds and Tornadoes
- Cyber Attack
- Hazardous Materials Incidents
- Pandemic

Avalanche

The avalanche risk is rated low for Rio Grande County due to some hazards along the Highway 160 corridor and backcountry areas of the San Juan Mountains.

Dam Incident

There are several high hazard dams located in Rio Grande County, as well as dams upstream, which create a considerable risk to lives and properties in Rio Grande County in the event of a significant dam incident. Table E-9 details the high and significant hazard dams located within Rio Grande County.

Table E-9 High and Significant Hazard Dams in Rio Grande County

Dam Name	Owner	River	Hazard Class	Nearest Downstream Community	Distance to Nearest Downstream Community (Miles)	EAP
Beaver Park	Colorado Parks and Wildlife	Beaver Creek	High	South Fork	6	Y
Fuchs	Fuchs Ranches, Inc.	E Fork Pinos Creek	High	Del Norte	16	Y
Mill Creek	U.S. Forest Service Rio Grande Natl. Forest	Mill Creek	High	South Fork	4	Y

Source: National Inventory of Dams

The High and significant hazard dams listed above, as well as some located upstream of Rio Grande County present some risk for property damage, injury, or loss of life in a significant dam incident. Table E-10 below shows the number of structures exposed to dam inundation from each upstream dam, and Figure E-1 illustrates the locations of high and significant hazard dams in the county.

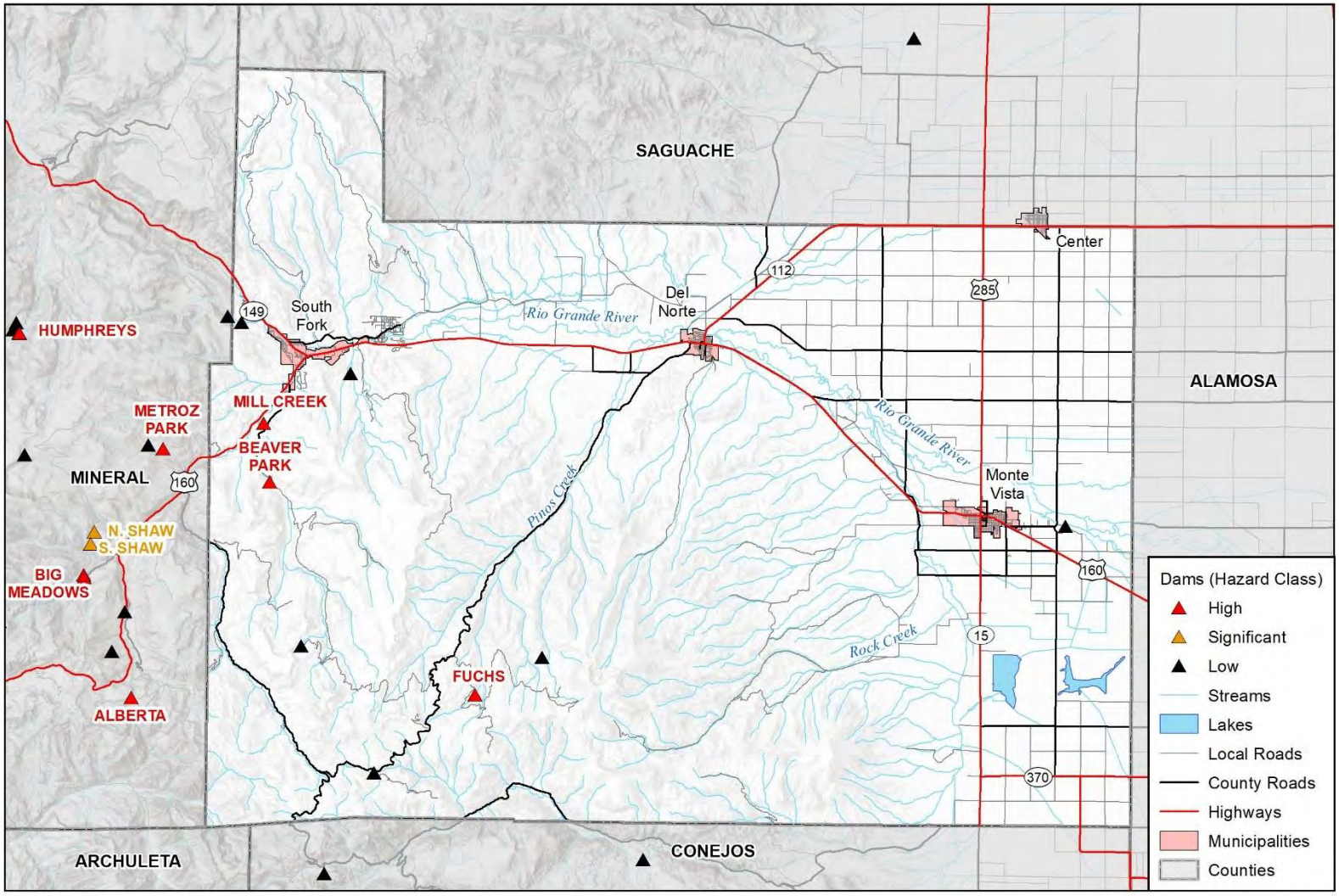
Table E-10 Structures at Risk to Dam Inundation by Jurisdiction

Dam Name (Hazard Class)	Jurisdiction	Structure Count
Alberta Park (High)	Rio Grande	5
	Total	**5**
Beaver Park (High)	Del Norte	242
	Monte Vista	4
	South Fork	218
	Rio Grande County	722
	Total	**1,186**
Big Meadows – Main Dam (High)	South Fork	31
	Rio Grande County	18
	Total	**49**
Big Meadows – North Dike (High)	South Fork	98
	Rio Grande County	168
	Total	**266**
Continental (High)	Del Norte	486
	Monte Vista	53
	South Fork	233
	Rio Grande County	1,058
	Total	**1,830**
Fuchs (High)	Del Norte	21
	Rio Grande County	119
	Total	**140**
Humphreys – Main Dam (High)	South Fork	22
	Rio Grande County	16
	Total	**38**
Metroz Park Lower (High)	South Fork	9
	Rio Grande County	9
	Total	**18**
Mill Creek (High)	South Fork	5

Dam Name (Hazard Class)	Jurisdiction	Structure Count
	Rio Grande County	31
	Total	**36**
Rio Grande (Significant)	Del Norte	769
	Monte Vista	281
	South Fork	272
	Rio Grande County	1,274
	Total	**2,596**
Santa Maria (High)	Del Norte	549
	Monte Vista	53
	South Fork	251
	Rio Grande County	1,118
	Total	**1,971**

Source: Microsoft Footprints 2021, DWR Dam Safety Program, WSP GIS Analysis

Figure E-1 Rio Grande County Dams



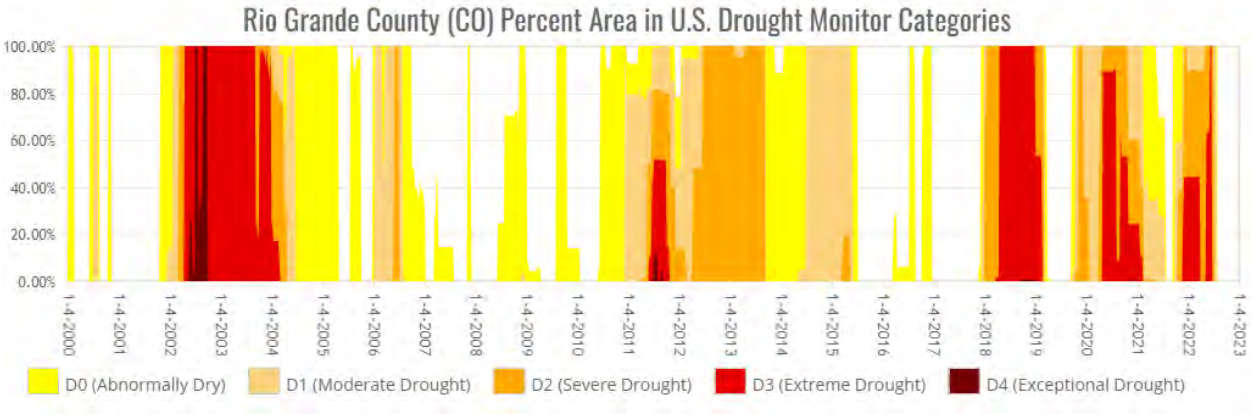
Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, DWR Dam Safety

Drought

Drought was rated as a hazard of high concern in all counties in the planning area. Between 2012 and 2021, Rio Grande County experienced 10 USDA emergency drought declarations. Rio Grande County did not record any RMA indemnity payments for drought between 2007 and 2021.

The U.S. Drought Monitor (USDM) is a national data set released weekly, showing the severity of drought in locations across the nation. A timeseries showing the severity of drought in Rio Grande County between 2000 and 2022 is shown below.

Figure E-2 USDM Drought Timeseries for Rio Grande County



Source: USDM; www.drought.gov

The National Drought Mitigation Center developed the Drought Impact Reporter in response to the need for a national drought impact database for the United States. Information comes from the public who visit the website and submit a drought-related impact for their region, members of the media, and members of relevant government agencies. Rio Grande County had 58 reported impacts between 2013-2022.

Earthquake

There are several known fault systems throughout the San Luis Valley, and the likelihood for seismic activity is fairly uniform throughout the region's counties. However, the potential severity of shaking and impacts to casualties and damage is not uniform. Rio Grande County has been the recorded location of several moderate past earthquakes. However, Rio Grande County also has the lowest expected peak ground acceleration in the region. Despite this, Rio Grande County could still experience significant impacts in a future earthquake. According to a Hazus analysis conducted, a 2,500-year probabilistic earthquake ground shaking could result in $166.6 million in total economic losses in the county, an estimated total of 1,199 buildings with at least moderate damage, and 33 projected casualties, including 1 fatality, in this event scenario. This model suggests that Rio Grande County has the second highest level of vulnerability to earthquake out of the San Luis Valley Region, after Alamosa County.

Refer to Chapter 4 for a discussion of the earthquake risk relative to Rio Grande County and the wider Region.

Flood

A flood, as defined by the National Flood Insurance Program (NFIP), is a general and temporary condition of partial or complete inundation of two or more acres of normally dry

land area or of two or more properties from overflow of waters, unusual and rapid accumulation, or runoff of surface waters from any source, or a mudflow. Floods can be slow or fast rising, but generally develop over a period of many hours or days. Flooding events occurring within the San Luis Valley are generally attributed to three factors (1) winter thaws and spring break up within the project areas watersheds (sometimes with associated ice jams), (2) rapid snow melt and or heavy rains in higher elevations, and (3) spring or summer deluges that result in flash flooding. Figure E-3 Rio Grande County Flood Hazards

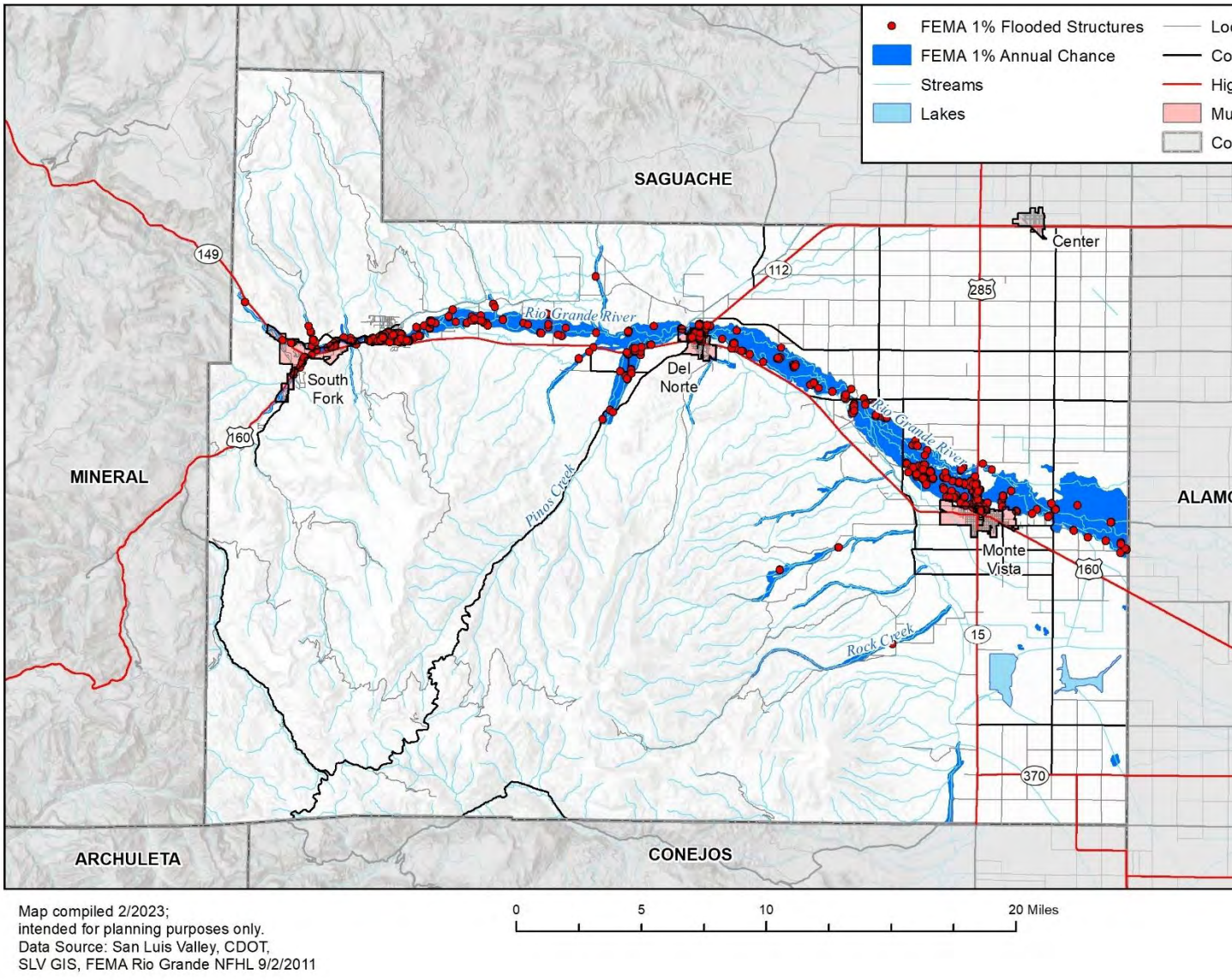
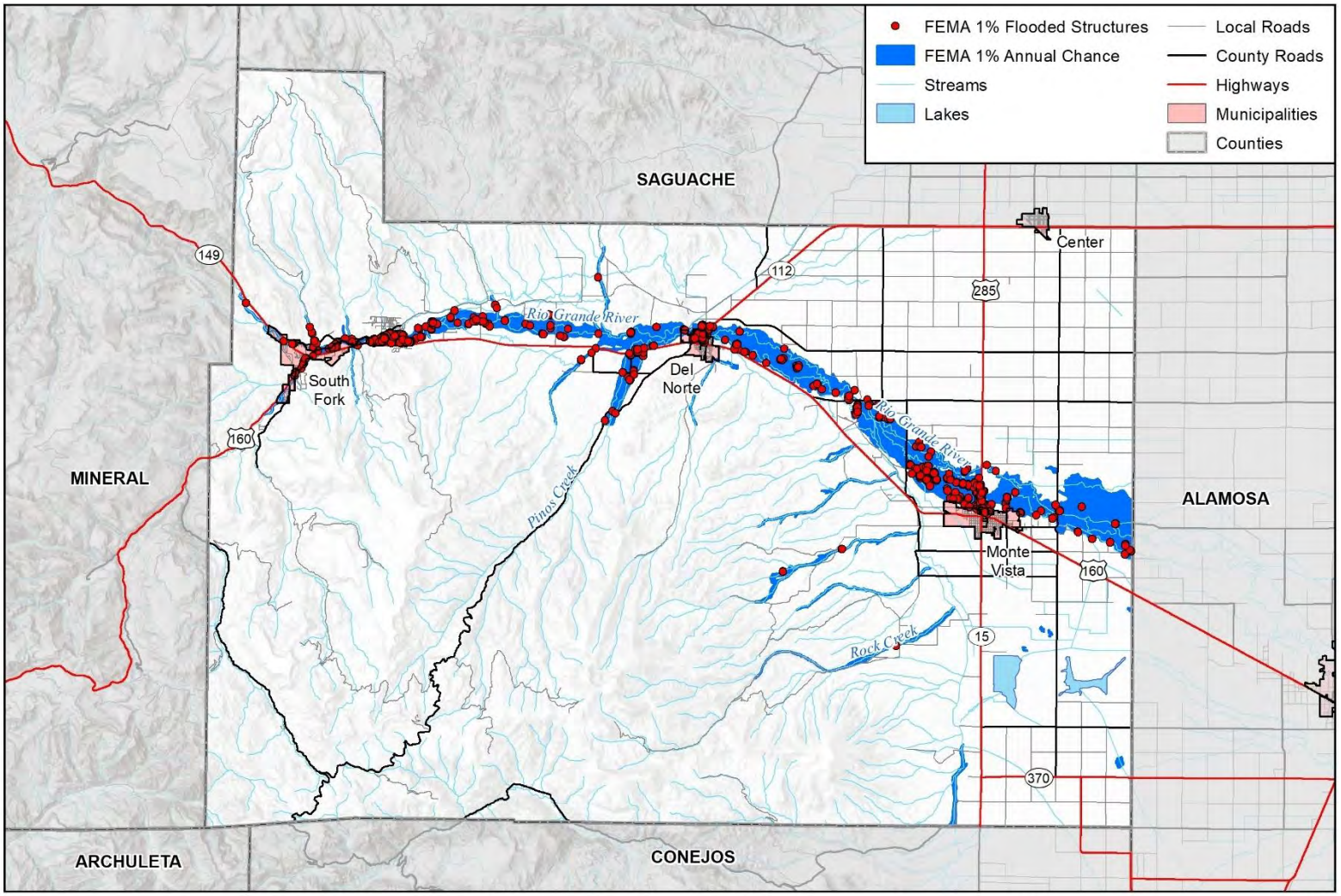


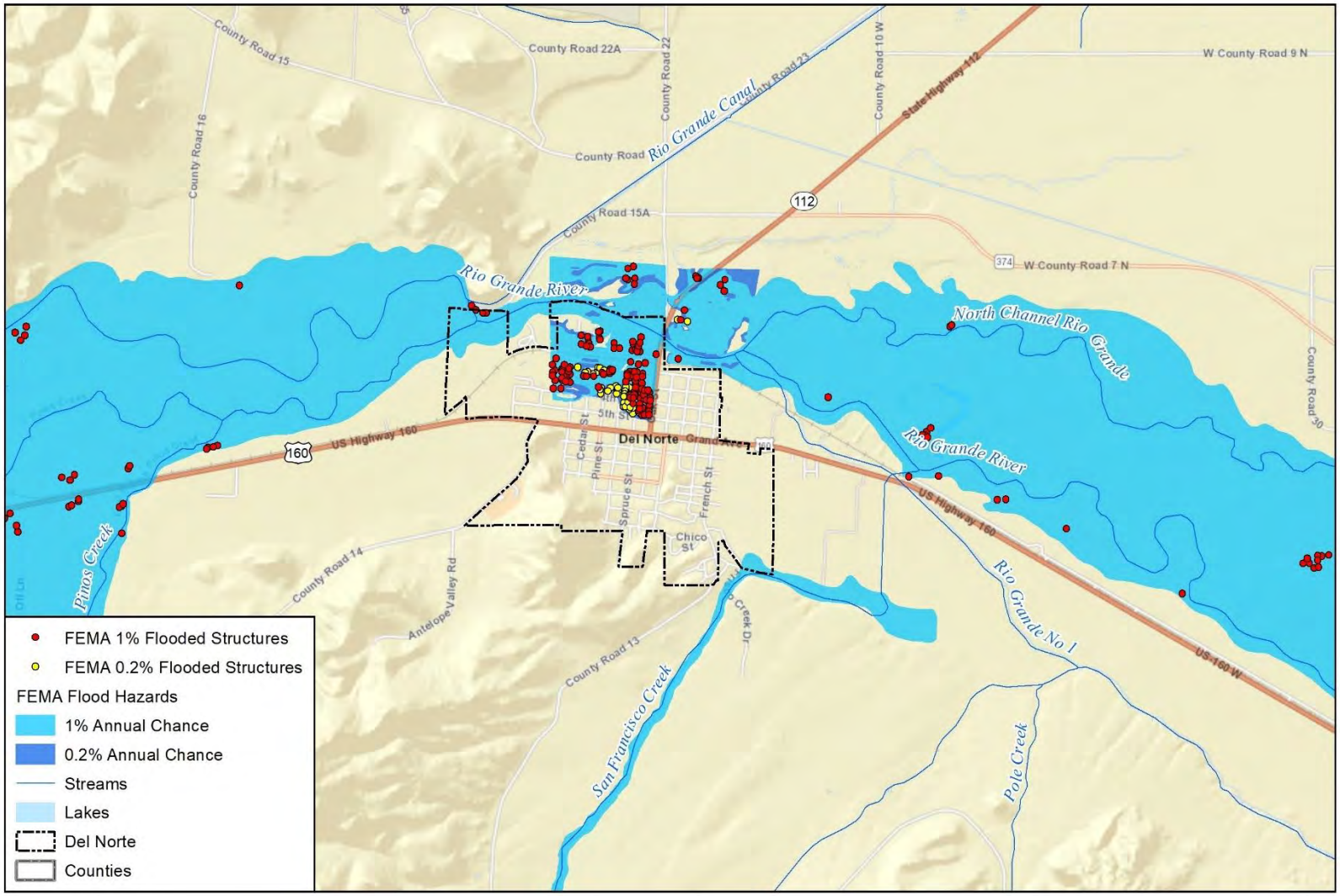
Figure E-4, Figure E-5, and Figure E-6 shows the extent of the 1% annual chance floodplains throughout Rio Grande County.

Figure E-3 Rio Grande County Flood Hazards



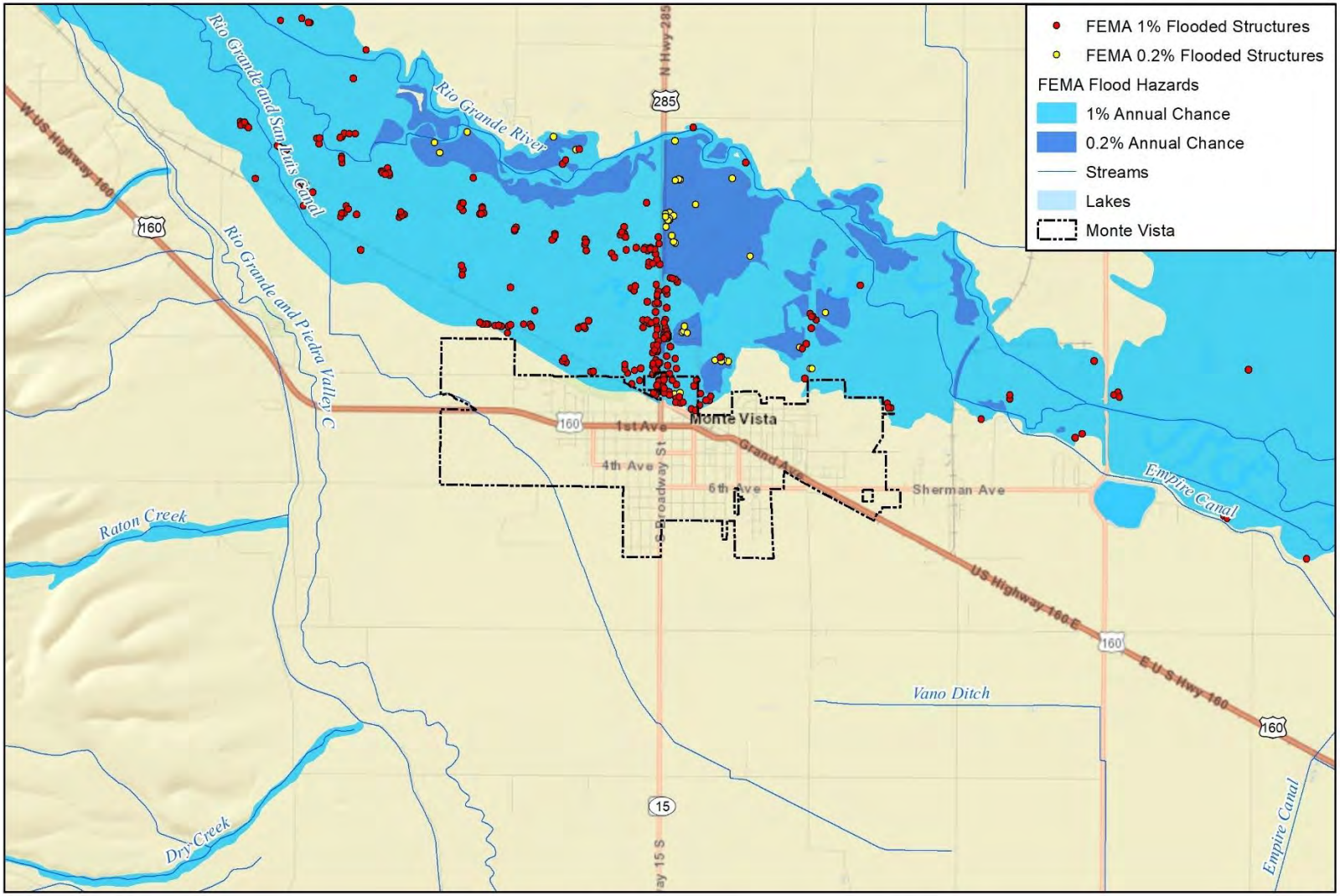
Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, FEMA Rio Grande NFHL 9/2/2011

Figure E-4 Del Norte Flood Hazards and Structures



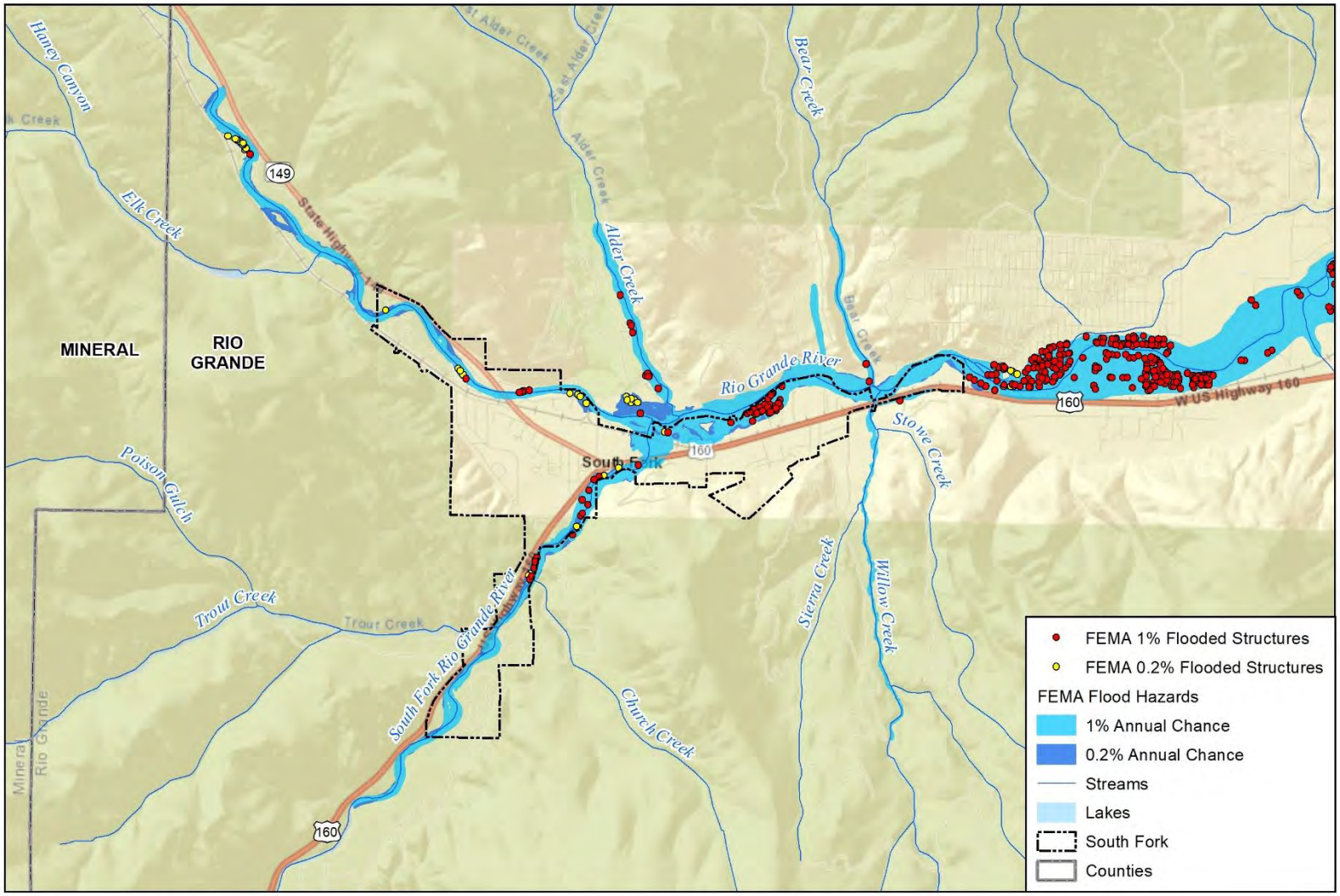
Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Rio Grande FEMA NFHL Effective Data 9/2/2011

Figure E-5 Monte Vista Flood Hazards and Structures



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Rio Grande FEMA NFHL Effective Data 9/2/2011

Figure E-6 South Fork Flood Hazards and Structures



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Rio Grande FEMA NFHL Effective Data 9/2/2011

Structure Vulnerability Analyses and National Flood Insurance Program Statistics

An analysis of structures in the floodplain and NFIP claims data for the County and its municipalities can be found in the Base Plan under the Flooding Hazard Profile under the vulnerability assessment, people and property subsections.

Repetitive Loss Structures

There are no reported Repetitive Loss properties as of 2022 within the San Luis Valley.

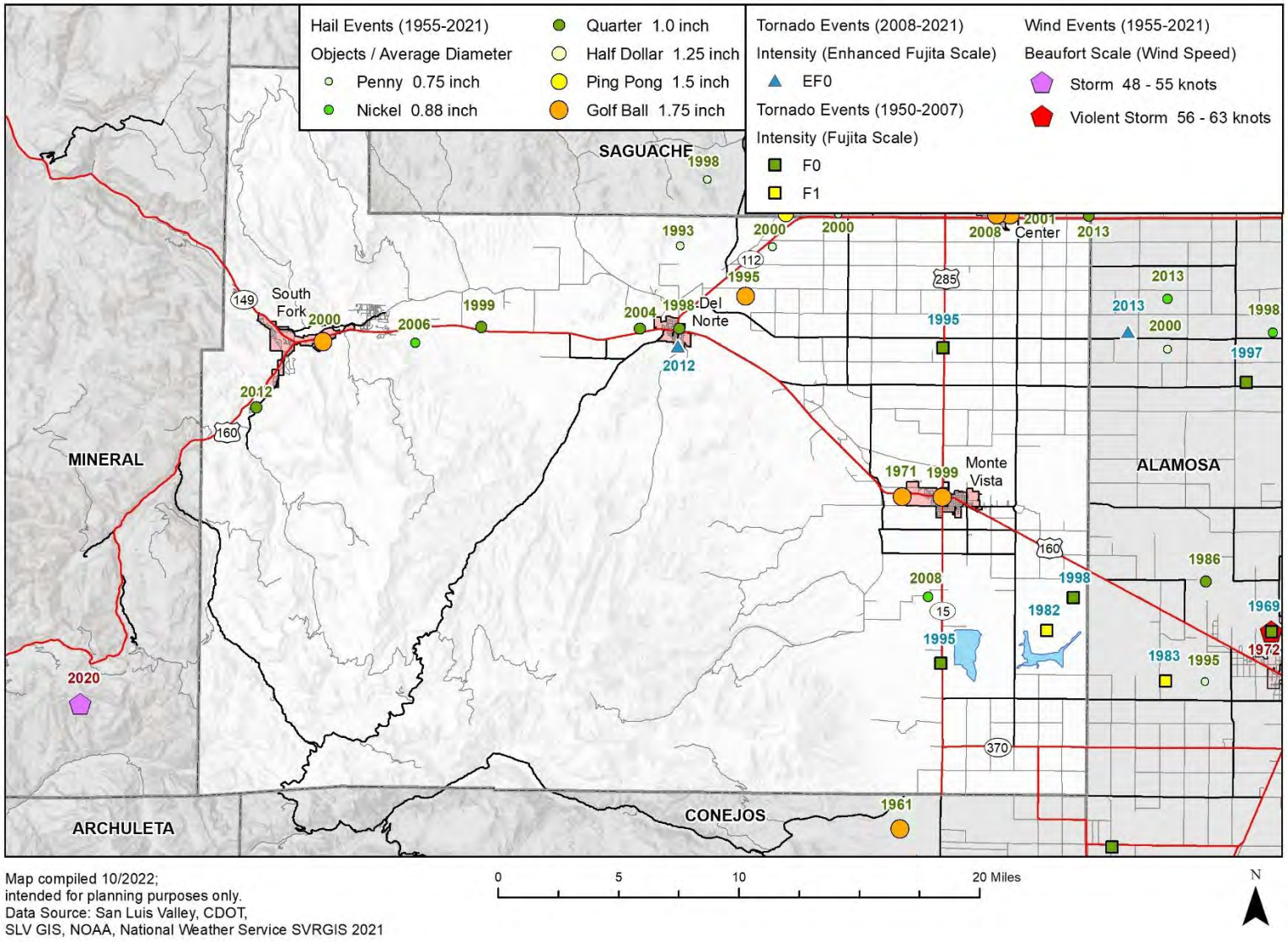
Hail

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 67 years, from 1955-2022, there have been 19 hail events, none of which resulted in injuries or casualties, in Rio Grande County. Most of the events took place in the Town of Del Norte (5) followed by the Towns of South Fork (4) and Monte Vista (2). The largest hailstone recorded in Rio Grande County was 1.75 inches and was recorded on 5 separate occasions in the County.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 26,350.38 acres were lost to hail and $8,745,434.15 indemnity payments made to farmers in Rio Grande County.

The figure below displays historic hail events in Rio Grande County. Vulnerability to hail is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of hail risk related to Rio Grande County and the Region.

Figure E-7 Rio Grande County Historic Hail and Weather Events (1955-2022)



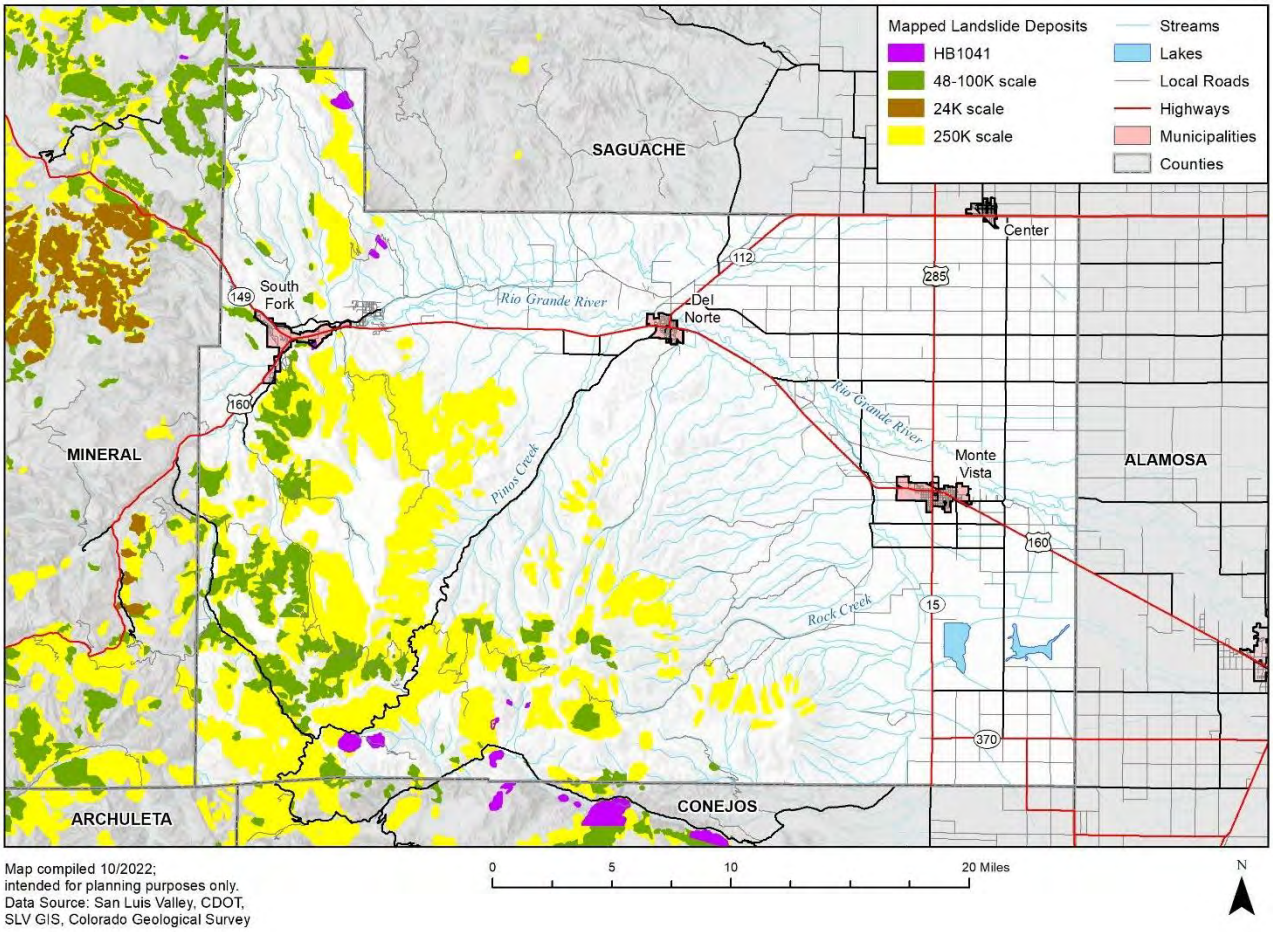
Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, NOAA, National Weather Service SVRGIS 2021

Landslide/Debris Flow/Rockfall

Rio Grande County is almost completely comprised of more mountainous terrain, specifically in the western two-thirds of the county, with steep slopes susceptible to landslides and rockfall. There is a great deal of rural development potentially at risk to landslides. According to GIS analysis conducted for this plan update, there are a total of 379 structures throughout the county potentially at risk to landslide, with a combined value of $94.2 million. There are also an estimated 903 residents potentially at risk to landslide, the highest vulnerable population in the San Luis Valley region by far.

Many roads and highways in the county are along slopes susceptible to landslide where travelers or recreationists may be involved in an incident. According to data from Colorado Geological Survey, previous landslides have also encroached significantly on the town of South Fork. Figure E-8 below illustrates the extent of mapped landslide deposits in the county. Rio Grande County has the second greatest extent of mapped landslide deposits out of all counties in the region.

Figure E-8 Mapped Landslide Deposits in Rio Grande County



Lightning

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there have been no damaging lightning events in Rio Grande County. However, damaging lightning events are still possible in the future.

Despite no documented historic lightning events, all exterior infrastructure and property are equally vulnerable to damages from lightning across the region. Vulnerability to lightning is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of lightning risk related to Rio Grande County and the Region.

Severe Winter Weather

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there have been a total of 734 winter weather related events in Rio Grande County. Table E-11 summarizes these events. It is important to note that all winter weather related events are recorded on a zonal scale and therefore do not include information on nearest impacted city. Additionally, due to the nature of the zonal nature of these events, it is possible that some events and losses were duplicated in the datasets.

In total, $470,000 in property losses were recorded in the County due to blizzard and winter storm events. Additionally, two fatalities were documented in the County, but no injuries. The most destructive blizzard event occurred on October 24th, 1997, when a blizzard caused $200,000 in damages in the County. Specific details on the damages were not provided in the NCEI dataset.

No injuries were reported in the County, but two deaths were recorded due to winter storms and heavy snow. One death occurred on April 2nd, 1998, when heavy snow caused a traffic-related death.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 5070.84 acres were lost to cold weather-related events and $1,596,509 indemnity payments made to farmers in Rio Grande County.

Vulnerability to severe winter weather is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of severe winter weather related to Rio Grande County and the Region.

Table E-11 Summary of Winter Weather Events in Rio Grande County

	Total Events	Days with Events	Property	Injury	Fatality
Blizzard	9	4	$200,000	0	0
Heavy Snow	235	127	$0	0	1
Winter Storm	468	204	$270,000	0	1
Winter Weather	22	18	$0	0	0
Total	**734**	**353**	**$470,000**	**0**	**2**

Data Source: NCEI

Wildland Fires

The most comprehensive fire data was available from the United States Department of Agriculture (USDA) Research Data Archive from 1992 to 2018. The dataset reported 170 fires of any size over the 26-year period in Rio Grande County for a total of 9,588.56 acres burned.

The dataset provides information on fire size based on wildfire classes. The table below summarizes the number of wildfire events in the County based on class size. In Rio Grande County, the most frequently occurring type of wildfire is a class A (one-fourth acre or less).

Table E-12 Rio Grande County Wildfires by Class

Class	# of Events
Class A - one-fourth acre or less;	127
Class B - more than one-fourth acre, but less than 10 acres;	38
Class C - 10 acres or more, but less than 100 acres;	3
Class D - 100 acres or more, but less than 300 acres;	1
Class E - 300 acres or more, but less than 1,000 acres;	0
Class F - 1,000 acres or more, but less than 5,000 acres;	0
Class G - 5,000 acres or more.	1

Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

The figure below displays the frequency of wildfire events in the County by year. Rio Grande County experienced the greatest frequency of wildfire events in 2003 (36 events) and 2005 (36 events).

Figure E-9 Rio Grande County Wildfires by Year

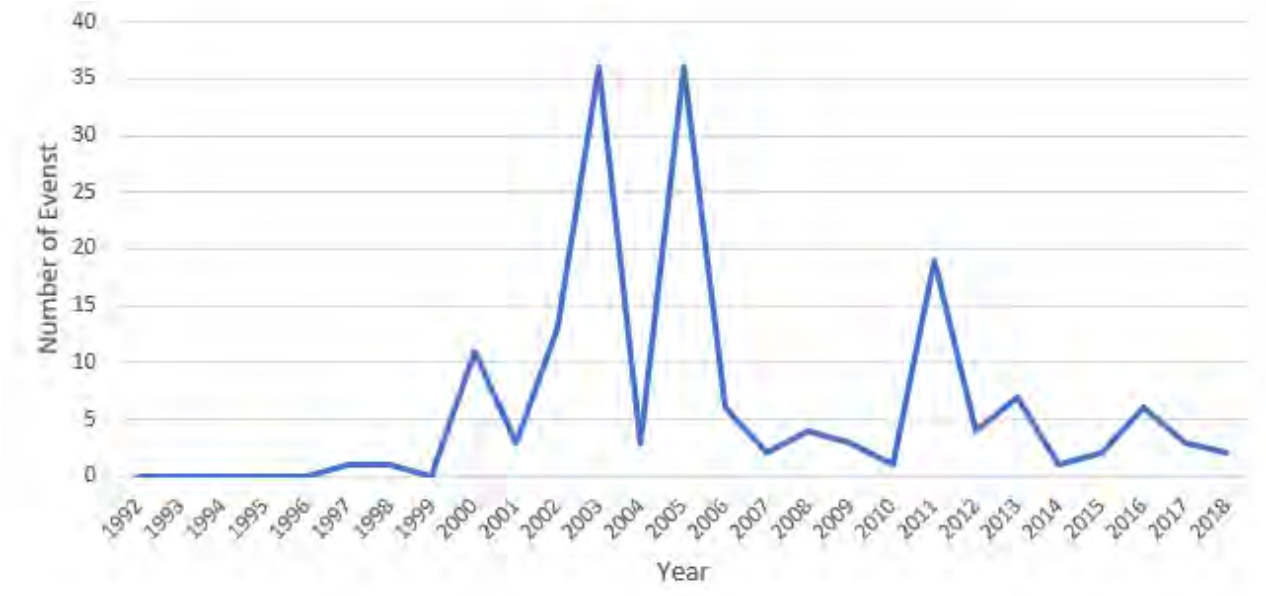


Figure by WSP, Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

Most of the wildfires that have occurred in Rio Grande County do not have information on the cause of ignition (50.3%). However, for the fires that do have a confirmed cause, most were reported to be ignited naturally (31.52%).

Figure E-10 Rio Grande County Wildfire Cause of Ignition

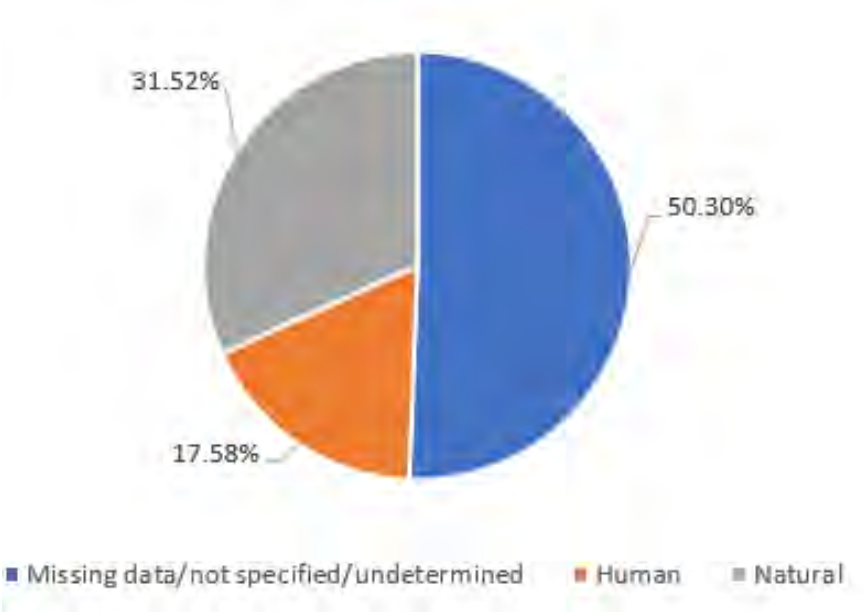


Figure by WSP, Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

Rio Grande County has two disaster declaration due to wildfires. The first disaster declaration was declared in 2002 for the entire State of Colorado. The second was declared in 2013 due to the West Fork Fire Complex.

Rio Grande County has experienced several significant wildfires. The first, named the Million Fire, occurred in 2002 and burned 9,346 acres and 11 structures. The second, the West Fork Fire Complex, was the most damaging wildfire to occur in Rio Grande County and burned 110,405 acres between Rio Grande County and Mineral County, and cost $31,433,000 to contain.

According to the 2019 Rio Grande South Area CWPP, there are 3 WUI areas in the southern county all with an extreme wildfire hazard rating. These WUI areas are Jasper, Rim Rock – West, and Rock Creek. The 2022 South Fork Fire Protection District CWPP lists and ranks numerous WUI communities with a detailed wildfire risk assessment. These communities are shown in Figure E-11 below. The City of Monte Vista and Town of Del Norte each have their own CWPP, both drafted in 2009, detailing the risk in their respective areas.

Figure E-11 South Fork Fire Protection District WUI Area Risk Ratings

Low Hazard	Moderate Hazard	High Hazard	Extreme Hazard
Log Haven	Beaver Mountain Estates	Loch Haven Meadows	Agua Ramon
Mill Creek	Dakota Park & Grandview	Riverside Mesa	Alamo Park
VDR	El Dorado	Trout Creek	Alpine
	Foothills Estates	Wolf Creek Ranch	Bear Creek
	HIdden Springs Estates		Elk Creek Ranches
	Indian Trails		Fun Valley
	Masonic Park		La Lomita
	Ponderosa & Deer Park		Moon Valley
	Riviere Estates		Riverbend Resort
	River's Edge RV Resort		South Fork Ranches
	River Island Ranch		Willow Park
	Rio Vista Estates		
	Riverfront		
	Sawmills (Jackson Heights)		
	South Fork - Commercial		
	South Fork – Rio Grande Riverfront		

Figure E-12 below displays the history of wildfires in Rio Grande County. Figure E-13 displays wildfire risk in the County. Most of the county experiences some risk to wildfire, with spots of highest vulnerability in the southwest and northwest corners of the County and south of the Town of Del Norte. Figure E-14 and Figure E-15 display the wildland urban interface (WUI) and the WUI risk, which indicates the most vulnerable areas for human infrastructure to wildfire are in the Cities of South Fork, Del Norte, and Monte Vista.

Figure E-12 Rio Grande County Wildfire History Map (1950-2022)

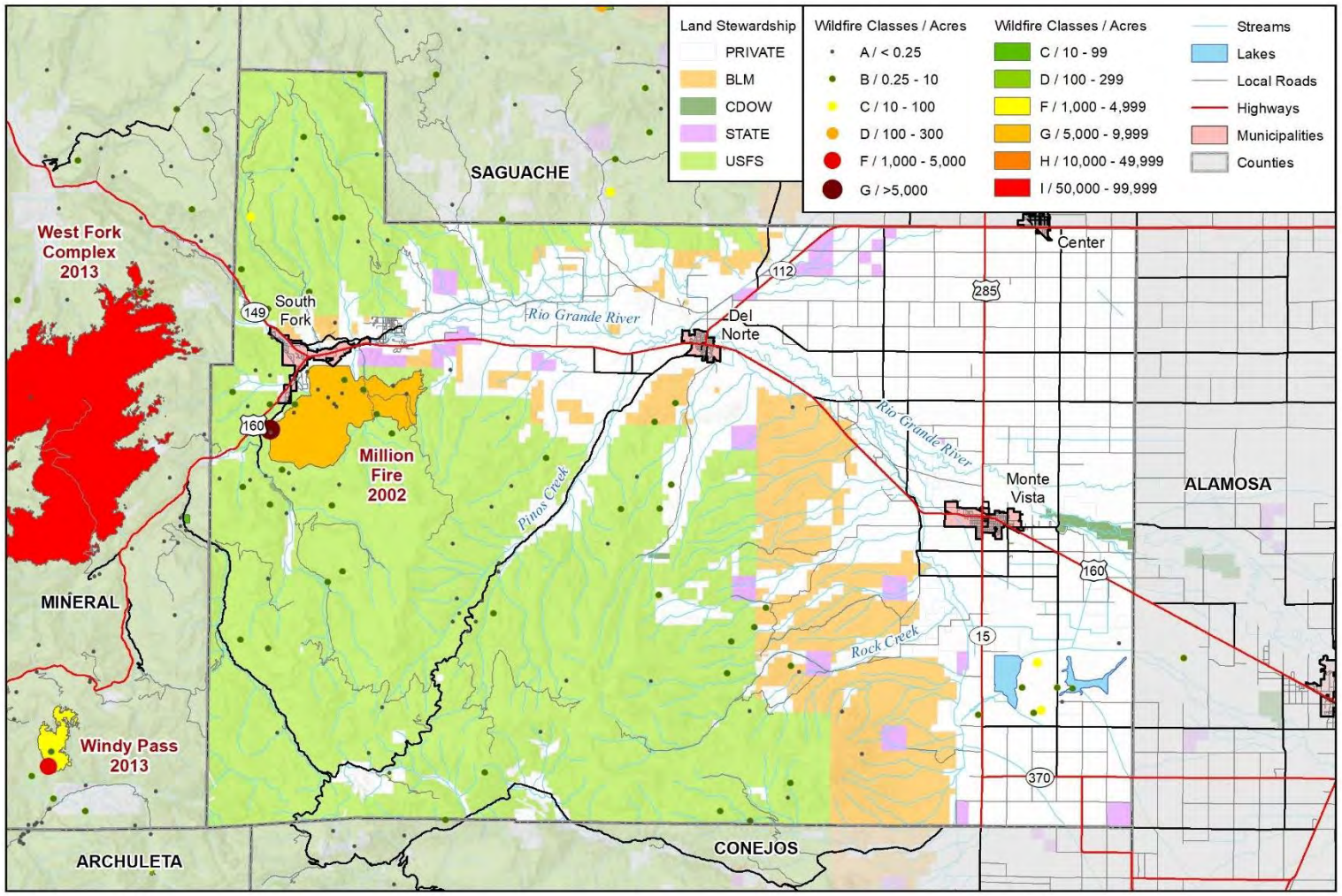


Figure E-13 Rio Grande County Wildfire Risk Map

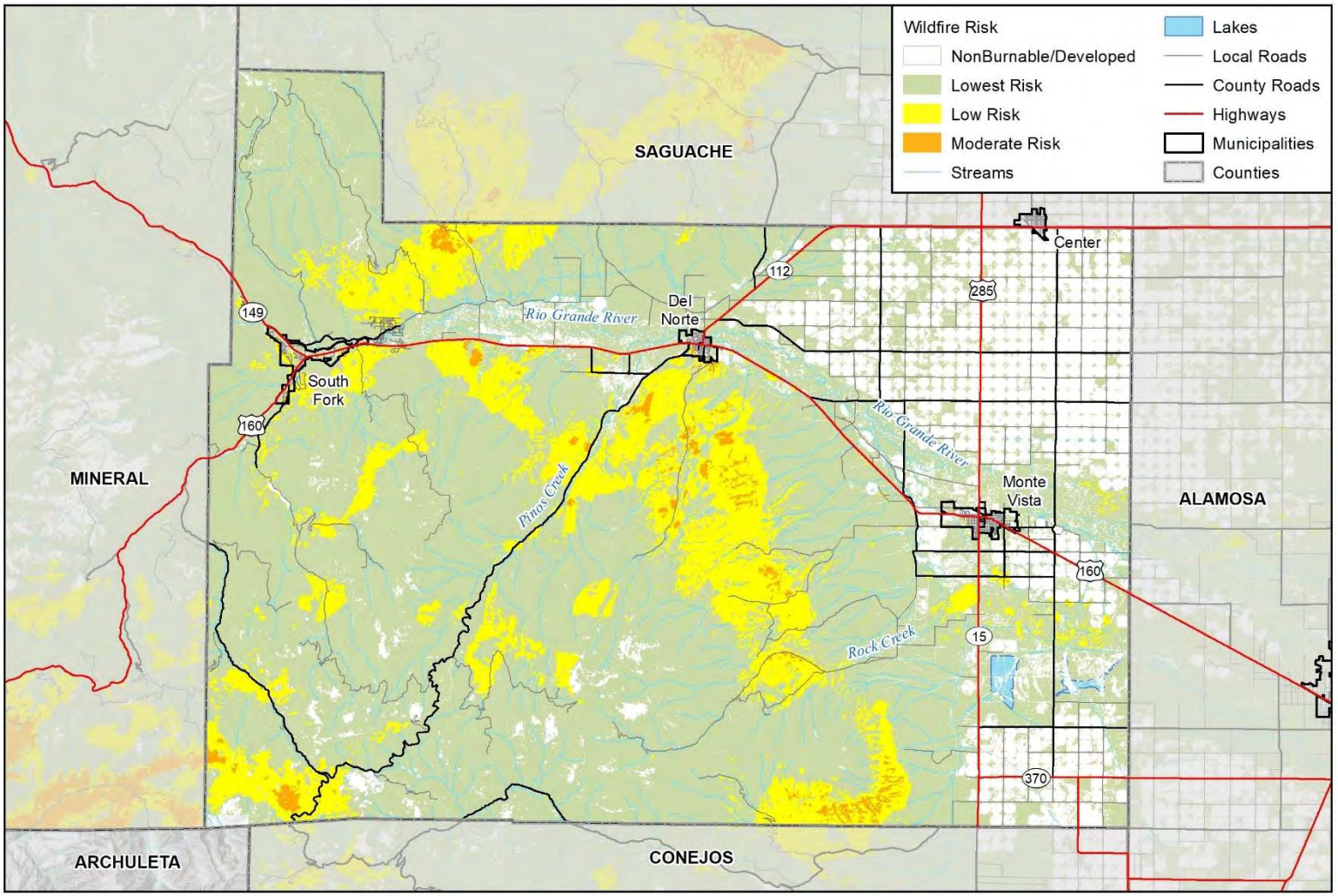
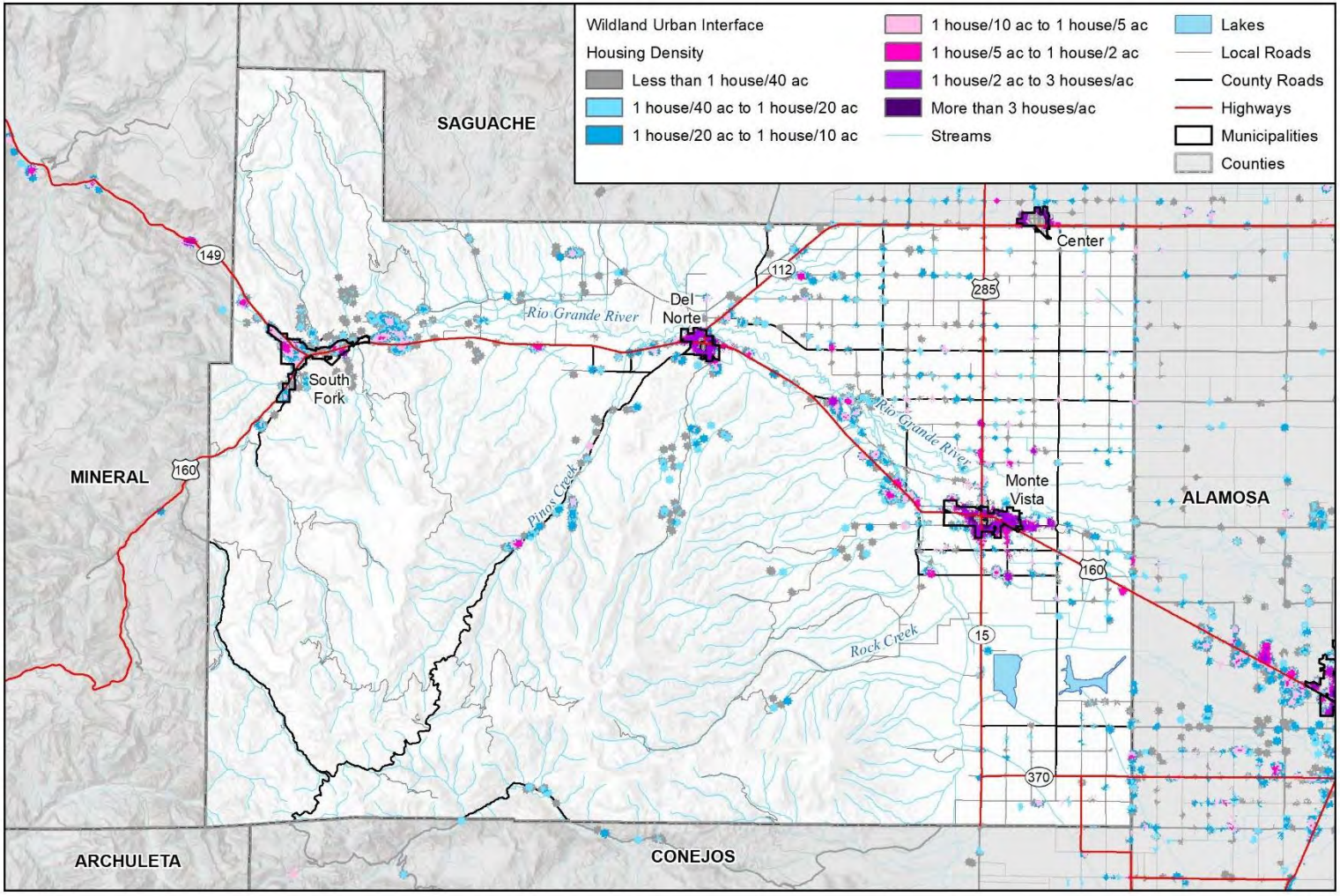
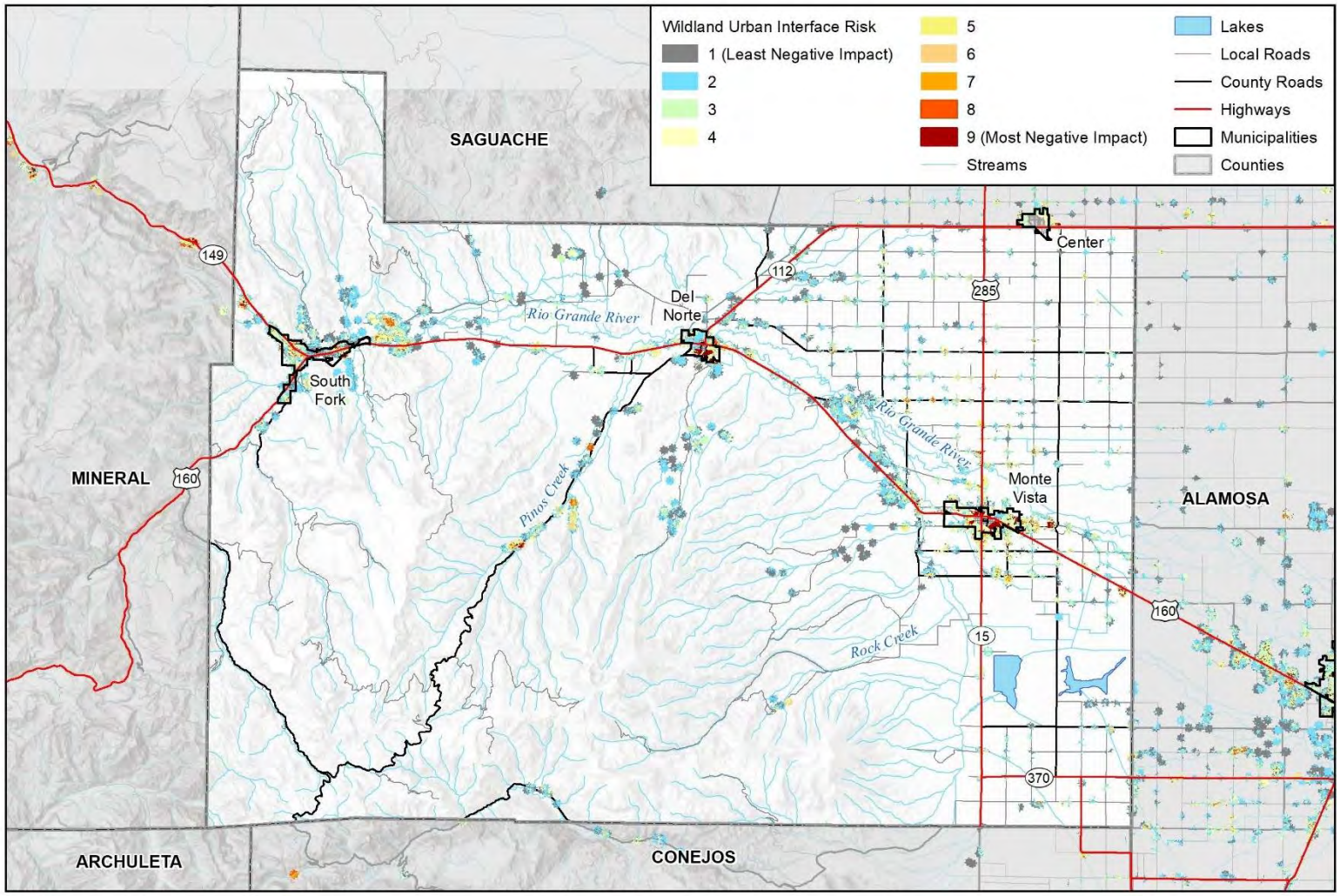


Figure E-14 Rio Grande County Wildland Urban Interface



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

Figure E-15 Rio Grande County Wildland Urban Interface Risk



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

High Winds and Tornadoes

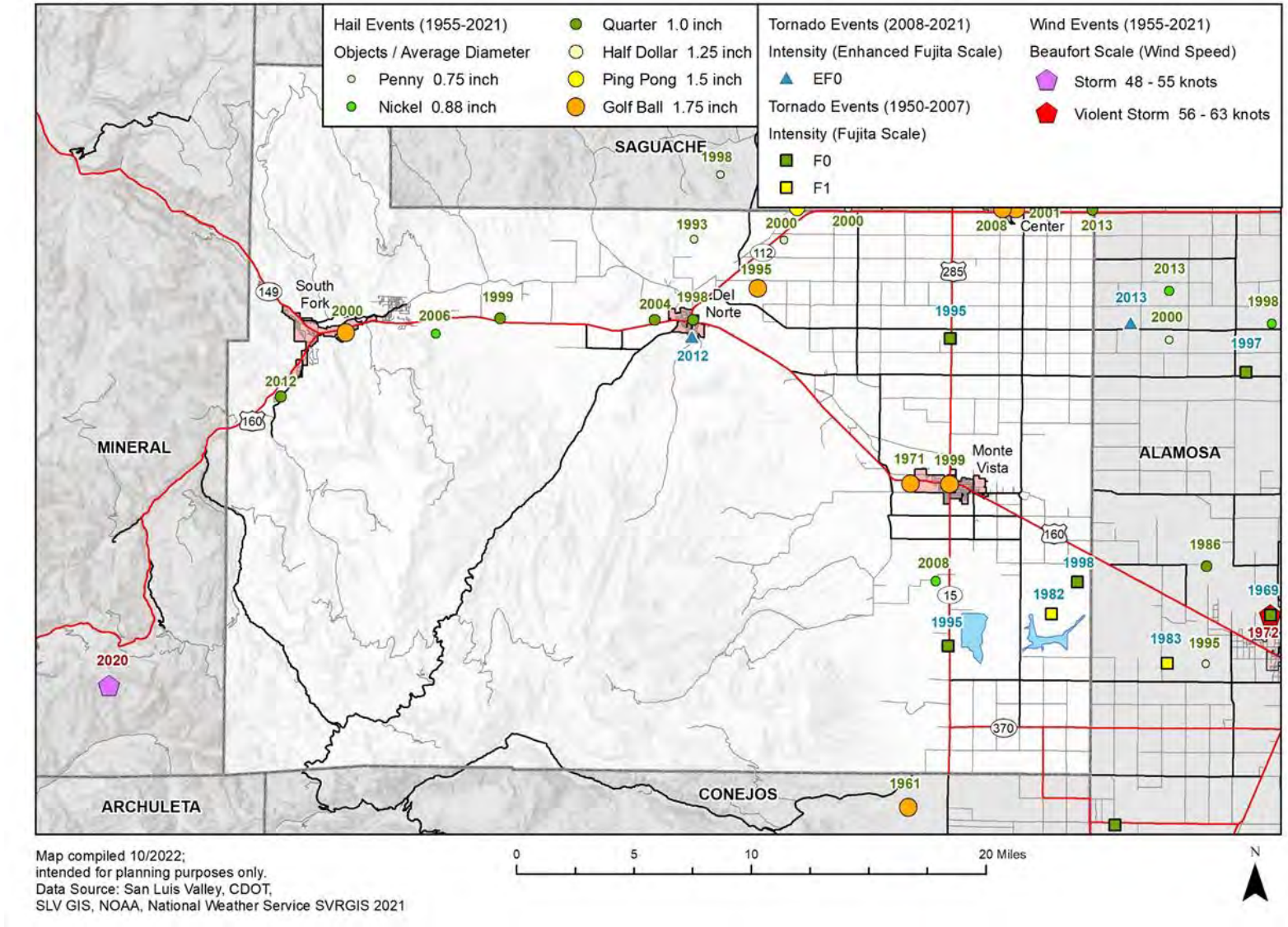
According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 72 years, from 1950-2022, there have been 133 high wind events, 3 thunderstorm wind events, and 2 tornado events in Rio Grande County. While high wind events are recorded on a zonal scale and therefore do not include information on nearest impacted city, some thunderstorm and tornado events do. The NCEI did not record nearest city information for the three thunderstorm wind events in the County but did record tornado events occurring in the Towns of Monte Vista (1) and Del Norte (1). No injuries or fatalities were recorded in the County due to wind or tornado events.

The highest windspeed recorded in Rio Grande County reached 104 mph and the strongest tornado was an F0, which occurred on June 29th, 1995. In total, $152,000 in property damages were recorded in the County, $144,000 from high wind and $8,000 from two tornado events. It is difficult to determine the exact location that high wind damage occurred in the County due to the zonal nature of the data. One tornado on June 29th, 1995, caused $3,000 when the tornado moved a haying machine and knocked over a towed camper on Highway 15. Another tornado, on September 25th, 2012, caused $5,000 when several properties received minor damage and one received damage to a camper and structural damage.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 6,089.92 acres were lost to high winds and tornadoes and $987,179 indemnity payments made to farmers in Rio Grande County.

The figure below displays the historic wind and tornado events in Rio Grande County. Vulnerability to winds and tornadoes is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of wind risk related to Rio Grande County and the Region.

Figure E-16 Rio Grande County Historic High Wind and Tornado Events (1950-2021)



Cyber Attack

All servers, networks, and users are vulnerable to cyber-attacks in the San Luis Valley Region. The Privacy Rights Clearinghouse lists 172 data breaches against systems located in Colorado, totaling over 5,812,743 impacted records; however, it is difficult to know how many of those affected residents in Rio Grande County. Many small cyber-crimes also go unreported, so the true number of impacted residents in the community is likely much larger than the database estimates.

The database did not report any events that impacted Rio Grande County specifically. However, the San Luis Valley HMPC also noted that hospitals and elder populations have been popular targets for cyber-attacks across the region.

Vulnerability to cyber-attacks is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of cyber-attack risk related to Rio Grande County and the Region.

Hazardous Materials Incidents

Hazardous materials vulnerability is significant within the San Luis Valley for transportation accidents due to the highways and railroad that passes through the County and all municipalities. Both Risk Management Plan and Tier II facilities are listed in the San Luis Valley's Multi Hazard Mitigation Plan in Table 4-75 and Table 4-74. According to San Luis Valley's Multi HMP, there have been 137 hazardous materials incidents in the project area from 1990 to 2021 with 32 of them taking place in Rio Grande County. There are also multiple pipelines transporting hazardous materials across the counties in the study area as well.

Pandemic

Vulnerability for pandemic does not vary from that in the Region.

E.7. Mitigation Capabilities Assessment

As part of the regional plan development, the Region and participating jurisdictions developed a mitigation capability assessment. Capabilities are those plans, policies and procedures that are currently in place that contribute to reducing hazard losses. Combining the risk assessment with the mitigation capability assessment results in "net vulnerability" to disasters and more accurately focuses the goals, objectives, and proposed actions of this plan. The CPT used a two-step approach to conduct this assessment. First, an inventory of common mitigation activities was made through the use of a matrix. The purpose of this effort was to identify policies and programs that were either in place or could be undertaken, if appropriate. Second, the CPT conducted an inventory and review of existing policies, regulations, plans, projects, and programs to determine if they contribute to reducing hazard related losses.

E.7.1. Rio Grande County Regulatory Mitigation Capabilities

Table E-13 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the San Luis Valley and each participating jurisdiction. Excerpts from applicable policies, regulations, plans, and programs descriptions follow to provide more detail on existing mitigation capabilities.

Rio Grande County, as well as the City of Monte Vista and towns of Del Norte and South Fork, have adopted building codes as specified in Table E-13 without modifications. The county and communities will be evaluating codes in 2023 through a process being led by Colorado Counties Inc.

Table E-13 Rio Grande County and Jurisdictions Regulatory Mitigation Capabilities

Planning & Regulatory Tools (ordinances, codes, plans)	Rio Grande County	City of Monte Vista	Town of Del Norte	Town of South Fork
Comprehensive, Master, or General Plan	Yes (2004)	Yes (2004)	Yes (2004)	No
Emergency Operations Plan	No	No	No	No
Economic Development Plan	No	No	No	No
Capital Improvement Program or Plan (CIP)	No	Yes	No	No
Community Wildfire Protection Plan (CWPP)	Yes (2019)	Yes (2009)	Yes (2009)	Yes (2022)
Building Code	Yes	Yes	Yes	Yes
Building Code Year	2006	2003	2006	2012
Floodplain Ordinance	Yes	Yes	Yes	Yes
Zoning Ordinance	Yes	Yes	Yes	Yes
Subdivision Ordinance	Yes	Yes	Yes	Yes
Stormwater Ordinance	Yes	Yes	No	No
Site Plan Review Requirements	Yes	Yes	Yes	Yes
National Flood Insurance Program (NFIP) Participant	Yes	Yes	Yes	Yes
Community Rating System (CRS) Participant	Yes	No	No	No
Growth Management Ordinance	No	No	No	No
Floodplain Management Plan	No	No	No	No
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	No	No	No	No
BCEGS Rating	-	-	-	-
Erosion/Sediment Control Program	Yes	No	No	No
Flood Insurance Study	Yes	Yes	Yes	Yes
Floodplain Elevation Certificates	Yes	Yes	Yes	Yes
Other Hazard-Specific Ordinance or Plan (Steep Slope, Etc.)	-	-	-	-

E.7.2. Rio Grande County Administrative and Technical Mitigation Capabilities

Table E-14 identifies the County and Town personnel responsible for activities related to mitigation and loss prevention in Rio Grande County.

Table E-14 Rio Grande County Jurisdictions Administrative/Technical Mitigation Capabilities

Administrative/Technical Resources	Rio Grande County	City of Monte Vista	Town of Del Norte	Town of South Fork
Planner/Engineer (with knowledge of development practices)	Yes	Yes	No	No
Engineer/Professional (trained in construction practices)	Yes	Yes	No	No

Administrative/Technical Resources	Rio Grande County	City of Monte Vista	Town of Del Norte	Town of South Fork
Planner/Engineer/Scientist (with understanding of natural hazards)	Yes	Yes	No	No
GIS Capability	No	No	No	No
Full-Time Building Official	Yes	Yes	Yes	Yes
Floodplain Administrator	Yes	Yes	Yes	Yes
Emergency Manager	Yes	No	Yes	No
Grant Writing	Yes	No	No	No
Warning Systems / Services (general)	Yes	Yes	Yes	Yes
- Sirens	No	No	No	No
- Reverse 911	No	No	No	No
- IPAWS/Wireless Emergency Alerts	Yes	Yes	Yes	Yes
- Opt-In Notifications (CodeRed, Everbridge, etc.)	No	No	No	No
- Other warning systems	Social Media	Social Media	Social Media	Social Media
Transportation Planner	No	No	No	No
Resiliency Planner	No	No	No	No
Other?	-	-	-	-

E.7.3. Rio Grande County Financial Capabilities

Table E-15 identifies the County and Town financial tools or resources that the jurisdictions have access or are eligible to use and could potentially be used to help fund mitigation activities.

Table E-15 Rio Grande County Jurisdictions Financial Capabilities

Financial Resources	Rio Grande County	City of Monte Vista	Town of Del Norte	Town of South Fork
Levy for Specific Purposes with Voter Approval	Yes	Yes	No	No
Utilities Fees (Water, Sewer, Gas, or Electric Services)	Yes	Yes	No	No
Impact Fees for New System Development	No	No	No	No
Incur Debt through General Obligation Bonds	Yes	Yes	No	No
Incur Debt through Special Tax Bonds	Yes	Yes	No	No
Withhold Spending in Hazard-Prone Areas	Yes	Yes	No	No
Stormwater Service Fees	Yes	Yes	No	No
Capital Improvement Project Funding	Yes	Yes	No	No
Community Development Block Grants (CDBG)	Yes	No	No	No
Other?	-	-		

E.7.4. Rio Grande County Education and Outreach Capabilities

Table E-16 shows the mitigation education and outreach capabilities the County and jurisdictions have in place now.

Table E-16 Rio Grande County Education and Outreach Capabilities

Education & Outreach	Rio Grande County	City of Monte Vista	Town of Del Norte	Town of South Fork
Public Education /Outreach Program	Yes	Yes	No	No
Local Citizen Groups That Communicate Hazard Risks	No	No	No	No
Firewise	No	No	No	No
StormReady	No	No	No	No
Other?	-	-	-	-

E.7.5. Opportunities for Enhancement

Based on the capabilities assessment, Rio Grande County has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the County to expand or improve on their policies, programs and fiscal capabilities and further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Additional training opportunities will help to inform County and Town staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train staff on mitigation and the hazards that pose a risk to the Rio Grande County will lead to more informed staff members who can better communicate this information to the public.

Other opportunities include improved cross-jurisdictional communication on evacuation and awareness to mitigate life safety impacts during dam incidents, floods, or wildfires including the development of brochures and using existing communication capabilities through social media such as Facebook. Other specific opportunities for improvement include:

- Promotion of flood risk and flood insurance
- Update of CWPPs

E.8. Mitigation Strategy

This section describes the mitigation strategy and mitigation action plan for Rio Grande County. See Chapter 5 of the base plan for more details on the process used to develop the mitigation strategy.

A.1.1 Goals

During the creation of the 2022 Regional Plan, the Rio Grande County planning team decided to revise their goals slightly from their previous iteration. The adopted goals are as follows:

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

E.8.1. Progress of 2018 Actions

During the 2022/2023 planning process the Rio Grande County Planning Team reviewed all the mitigation actions from the 2018 plan. Of their 24 mitigation actions from 2018, all of the actions are continuing or are implemented annually, demonstrating ongoing progress in building the community's resiliency to disasters.

Completed and Deleted Actions

2018 ID	Mitigation Action	Hazards Mitigated	Jurisdiction	Priority	Status/Implementation Notes
Rio Grande - 2	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.	Hail, Lightning, Flood, Severe Winter Weather, High Winds and Tornadoes, Hazardous Materials Incidents	Rio Grande County	High	Completed.

E.8.2. Mitigation Action Plan

As a part of the 2022 regional planning process, the CPT reviewed the list hazard mitigation actions or projects specific to Rio Grande County and its jurisdictions from the previous HMP and brainstormed ideas for new actions. The process used to identify, develop, and prioritize these actions is described in Chapter 5 of the base plan.

The County Planning Team identified and prioritized the following mitigation actions based on risk assessments, goals, and objectives. Background information as well as information on how the action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and timeline also are described. Per the DMA requirement, actions have been identified that address reducing losses to existing development as well as future development. Those that reduce losses to future development are indicated by an asterisk (*) in the Action Identification (ID) column in Table E-17.

Table E-17 Rio Grande County Mitigation Action Plan

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
RG.1	Goals: 2, 3	Work with FEMA and the Colorado Water Conservation Board to update flood insurance studies, develop more accurate base flood elevations, and create DFIRMs.	Flood	Rio Grande County	Land Use Administrator	2023-2028	Little to no funding; staff time, existing budget	Medium	Continue – In Progress
RG.2	Goals: 1, 2	Continue to review and update building permit requirements to incorporate measures for reducing the risks to natural hazards.	Hail, Lightning, Flood, Severe Winter Weather, High Winds and Tornadoes	Rio Grande County	Building Inspector	2023-2028	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.3	Goals: 2, 3	Review and, as needed, make modifications to floodplain ordinance to improve regulation of floodplain uses in unincorporated areas of the County.	Flood	Rio Grande County	Land Use Administrator	2023-2028	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.4	Goals: 1	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,	Dam Incident, Drought, Earthquake, Hail, Lightning, Landslide/debris flow/rockfall, Flood, Severe Winter Weather, High Winds	Rio Grande County, City of Monte Vista, Town of South Fork and	Emergency Management, Public Health, Social Services, Single Entry	Annual Implementation	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		identify and equip public shelters, and identify/support the needs of people with disabilities and other vulnerable population groups.	and Tornadoes, Cyber Attack, Hazardous Materials Incidents, Pandemic	Town of Del Norte	Point, administration for City of Monte Vista, Town of South Fork and Town of Del Norte				
RG.5	Goals: 2	Improve preparedness for long-term power outages and increase awareness of alternative energy sources.	Hail, Lightning, Flood, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Rio Grande County	Emergency Management	2023-2028	Little to no funding; staff time, existing budget	Medium	Continue - Not Started.
RG.6	Goals: 2	Wire public safety and shelter facilities for modern technology (e.g., Wi-Fi) to build redundancy and improve communications capacity.	Dam Incident, Flood, Hail, Landslide/Debris Flow Rockfall, Lightning, Severe Winter Weather, Wildland Fires, High Winds and Tornadoes, Hazardous Materials Incidents	Rio Grande County	Sheriff, Emergency Management	2023-2028	> $10,000; Existing budget, grant funding	Medium	Continue - Not Started.
RG.7	Goals: 1, 2, 3	Evaluate benefits of participating in Colorado Certified Burner Program endorsed by Colorado Division of Fire Prevention and Control	Wildland Fires	Rio Grande County	Sheriff, Emergency Management, Fire	Annual Implementation	Little to no funding; staff time,	Medium	Continue - Not Started.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		to improve compliance with Red Flag warnings.			Service Agencies		existing budget		
RG.8	Goals: 1, 2, 3	Increase public awareness regarding drought and establish/maintain a water conservation process for protecting aquifer levels.	Drought	Rio Grande County	Land Use Administrator, Emergency Management, Local Water Conservancy Districts	Annual Implementation	Little to no funding; staff time, existing budget	Medium	Continue - Not Started.
RG.9	Goals: 2, 3	Attend State-sponsored National Flood Insurance Program (NFIP) training.	Flood	City of Monte Vista	Floodplain Administrator	Annual Implementation	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.10	Goals: 2, 3	Continue to update/develop storm water management plans and regulations.	Flood	City of Monte Vista	Town Manager	2023-2028	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.11	Goals: 2, 3	Continue to review and update building permit requirements to incorporate measures for	Hail, Lightning, Flood, Severe Winter	City of Monte Vista	Building Official	Annual Implementation	Little to no funding; staff	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		reducing the risks to natural hazards.	Weather, High Winds and Tornadoes				time, existing budget		
RG.12	Goals: 1, 2, 3	Review and, as needed, make modifications to floodplain ordinances to improve regulation of floodplain uses.	Flood	City of Monte Vista	Floodplain Administrator	Annual Implementation	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.13	Goals: 2	Continue to monitor areas where wastewater disposal and riparian areas overlap and enforce actions to prevent contamination, especially during flooding.	Flood	City of Monte Vista	Town Manager	2023-2028	Little to no funding; staff time, existing budget	Medium	Continue - Not Started.
RG.14	Goals: 2, 3	Attend State-sponsored National Flood Insurance Program (NFIP) training.	Flood	Town of Del Norte	Floodplain Administrator	Annual Implementation	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.15	Goals: 2, 3	Continue to update/develop storm water management plans and regulations.	Flood	Town of Del Norte	Town Manager	2023-2028	Little to no funding; staff time,	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
							existing budget		
RG.16	Goals: 2, 3	Continue to review and update building permit requirements to incorporate measures for reducing the risks to natural hazards.	Hail, Lightning, Flood, Severe Winter Weather, High Winds and Tornadoes	Town of Del Norte	Building Official	Annual Implementation	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.17	Goals: 1, 2, 3	Review and, as needed, make modifications to floodplain ordinances to improve regulation of floodplain uses.	Flood	Town of Del Norte	Floodplain Administrator	Annual Implementation	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.18	Goals: 2	Continue to monitor areas where wastewater disposal and riparian areas overlap and enforce actions to prevent contamination, especially during flooding.	Flood	Town of Del Norte	Town Manager	2023-2028	Little to no funding; staff time, existing budget	Medium	Continue - Not Started.
RG.19	Goals: 2, 3	Attend State-sponsored National Flood Insurance Program (NFIP) training.	Flood	Town of South Fork	Floodplain Administrator	Annual Implementation	Little to no funding; staff time,	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
							existing budget		
RG.20	Goals: 2, 3	Continue to update/develop storm water management plans and regulations.	Flood	Town of South Fork	Town Manager	2023-2028	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.21 *	Goals: 2, 3	Continue to review and update building permit requirements to incorporate measures for reducing the risks to natural hazards.	Hail, Lightning, Flood, Severe Winter Weather, High Winds and Tornadoes	Town of South Fork	Building Official	Annual Implementation	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.22 *	Goals: 1, 2, 3	Review and, as needed, make modifications to floodplain ordinances to improve regulation of floodplain uses.	Flood	Town of South Fork	Floodplain Administrator	Annual Implementation	Little to no funding; staff time, existing budget	Medium	Continue – In Progress.
RG.23	Goals: 2	Continue to monitor areas where wastewater disposal and riparian areas overlap and enforce actions to prevent	Flood, Hazardous Materials	Town of South Fork	Town Manager	2023-2028	Little to no funding; staff time,	Medium	Continue - Not Started.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		contamination, especially during flooding.					existing budget		
RG.25	Goals: 2, 4	Enhance power grid resiliency through coordination with local utility providers and partnerships on mitigation where possible.	Earthquake, flooding, hailstorm, high winds and tornadoes, lightning, severe winter storm, wildland fires, cyber attack	Rio Grande County, City of Monte Vista, Town of South Fork and Town of Del Norte	OEM, Utility providers	2023-2028	More than $100,000; FEMA HMA, BRIC	High	New in 2022
RG.26	Goals: 2, 5	Stormwater/Wastewater/ Discharge/Debris Control. Stormwater management sizing to enhance resiliency of stormwater management system and reduce flooding potential	Flood	City of Monte Vista	City Manager	2023-2028	>$100,000; Grant funding, DOLA	High	New in 2022

E.9. Plan Implementation and Maintenance

Moving forward the Rio Grande County HMPC will use the mitigation action table in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 6 of the base plan.

E.9.1. Incorporation into Existing Planning Mechanisms

As described in the capability assessment, the County already implements policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. Where applicable, these existing mechanisms could include:

- Rio Grande County South Area CWPP (2019)
- Del Norte FPD CWPP (2009)
- Monte Vista FPD CWPP (2009)
- South Fork Fire Protection District CWPP (2022)
- 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 process for incorporation of the Regional Hazard Mitigation Plan into other planning mechanisms can be as simple as cross-referencing the Hazard Mitigation Plan where applicable. Integrated planning is a key to building community resiliency.

Annex F Saguache County

Annex F. Saguache County

F.1. Mitigation Planning and County Planning Team

Saguache County updated this annex during the development of the 2022-2027 San Luis Valley Regional Hazard Mitigation Plan. This County Annex builds upon the previous version of the Saguache County Hazard Mitigation Plan completed in 2018. As part of the regional planning process the County established a County Planning Team (CPT) to develop the mitigation plan and identify potential mitigation projects. The following jurisdictions participated in the DMA planning process for the County.

- Saguache County
- Town of Center
- Town of Crestone
- Town of Moffat
- Town of Saguache

The four participating towns are the only incorporated municipalities in Saguache County other than the Town of Bonanza (pop. 17), which did not participate. The unincorporated communities of La Garita, Sargents and Villa Grove are also located in Saguache County. More details on the planning process followed and how the counties, municipalities and stakeholders participated can be referenced in Chapter 3 of the base plan. Details on which local government departments participated and who represented them are listed in the following table.

Table F-1 Saguache County List of Participants

Name	Jurisdiction	Title
Wendi Maez	Saguache County	County Administrator
Brad Crowell	Saguache County	County Attorney
Bobby Woelz	Saguache County	Emergency Manager / Public Information Officer (PIO)
David Frees	Saguache County	Deputy Emergency Manager
Carrie Zimmerman Steve Martinez	Town of Center	School District
Russell Brown	Town of Center	Fire & EMS
David S. Mehaffie	Town of Center	Building Inspector / Code Enforcement Officer
Aimee Blackmon	Town of Center	Fire & EMS
Brian Lujan	Town of Center	Town Manager
Scott Ehresman	Town of Crestone	Deputy Clerk
Nina Magee	Town of Moffat	Town Clerk
Ken Skoglund	Town of Moffat	Trustee
Iris Garcia	Town of Saguache	Town Clerk

F.2. Geography and Climate

Saguache County is the northernmost county in the planning area, as well as the largest by size at 3,170 square miles. Saguache County includes multiple federal land agency jurisdictions, such as the Great Sand Dunes Park & Preserve, Bureau of Land Management, and Gunnison and Rio Grand National Forests.

Portions of the La Garita Wilderness Area and Sangre de Cristo Wilderness Areas are also within Saguache County. The County has four incorporated towns, several unincorporated communities, and many ghost towns remaining from the mining boom.

Saguache County contains a diverse terrain of rugged mountains and pristine farmland. While much of the County's economy is reliant upon agriculture and livestock- Saguache is the second largest producer of vegetables and barley, as well as third largest producer of potatoes, in Colorado- it is also supported by tourism, boasting several peaks over 14,000 feet, world class rock climbing, and natural hot springs near the base of the Sangre de Cristo Mountains.

Saguache County has moderate summers and cool winters, with summer highs averaging 78°F and winter lows dipping to 4°F. Saguache experiences about 210 days annually where nighttime lows dip below freezing, and 28 days annually where nighttime lows dip below 0°F, making it colder than most places in Colorado. On average, the County receives about 11 inches of rain, and 57 inches of snow annually.

F.3. Population Trends

Saguache County gained more residents than any other county in the San Luis Valley planning area between 2015 and 2020. This increase was due to gains in the Town of Center, which experienced a 13.0% population increase, and in unincorporated Saguache County, which experienced an 11.5% population increase. The remaining jurisdictions – the Towns of Crestone, Moffat, and Saguache – each saw a decrease in population during the same time frame. As a whole, Saguache County has a very high number of access and functional needs populations, including those who are elderly, disabled, low-income, under-served, or with limited English proficiency. This makes early alerts and public education difficult. Concern also exists regarding the failure of the power grid and of natural gas delivery in the valley. High risk is posed during sub-zero weather in the winter, and to those who are electricity dependent and may lack access to transportation. The county continues to seek answers and solutions to these problems. Unincorporated Saguache County consistently represents about 55% of the county's total population.

Table F-2 provides a summary of the population change in the County and its municipalities from 2015 to 2020.

Table F-2 Population Estimates for Communities 2015-2020

	2015	2016	2017	2018	2019	2020
Saguache County total	6,238	6,255	6,338	6,468	6,592	6,730
Town of Center*	2,105	2,052	2,033	2,188	2,207	2,379
Town of Crestone	107	70	55	89	86	44
Town of Moffat	131	143	127	135	105	104
Town of Saguache	536	491	473	526	455	464
Unincorporated Saguache County	3,351	3,492	3,639	3,528	3,736	3,736

Source: ACS 5-Year Estimates

* According to the Decennial Census, about 2% of Center's population resides in Rio Grande County. For planning purposes, the total population of Center was counted in Saguache County.

Select Census demographic and social characteristics for Saguache County are shown in Table F-3. The table indicates the proportion of the population that may have special needs, such as elderly or children under 5 years of age.

Table F-3 Saguache County Demographic Profile

Characteristic	% of Total Population
Gender/ Age	
Male	49.9%
Female	50.1%
Under 5 Years	5.3%
65 Years and Over	23.3%
Race/Ethnicity	
White	58.9%
American Indian/Alaska Native	1.1%
Asian	0.1%
Black or African American	1.1%
More Than One Race	2.8%
Hispanic or Latino of Any Race[1]	35.9%
Education (25+ Years)	
High School Graduate or Higher	85.8%
Bachelor's Degree or Higher	22.4%

Source: U.S. Census Bureau, 2020 5-Year American Community Survey

1 The U.S. Census Bureau considers the Hispanic/Latino designation an ethnicity, not a race. The population self-identified as "Hispanic/Latino" is also represented within the categories in the "Race" demographic.

F.4. Development Trends

Saguache County has experienced a gradual increase in population. However, this trend is not universal to its municipalities. The population hub of the County, the Town of Center, has experienced a net population growth. This growth may be the result of the annexation of an additional 90 acres into the town, which will need to be incorporated into the town's emergency plan. The Towns of Crestone and Moffat have both experienced population losses. There has, however, been considerable growth in the Baca Grande Subdivision, near the Town of Crestone. Additionally, "Area 420," near the Town of Moffat, has grown considerably due to growth in the marijuana industry.

While growth in unincorporated Saguache has been sporadic, it has experienced a net positive population increase. Population growth in unincorporated areas can often lead to an increase in wildfire risk. The Saguache OEM is encouraging a WUI building code, specifically designed to mitigate the risk posed to life and property by wildfire.

F.5. Economy

Table F-4 below provides a brief overview of some economic characteristics of Saguache County. The following information is provided by the U.S. Census Bureau American Community Survey (ACS) 5-years estimates from 2016-2020.

Table F-4 Saguache County Economic Profile

	Saguache County
Families Below Poverty Level	11.7%
Individuals Below Poverty Level	16.2%
Median Home Value	$152,400

	Saguache County
Median Household Income	$45,231
Per Capita Income	$22,921
Population > 16 Years Old in Labor Force	59.6%
Population Employed	53.6%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

Table F-5 shows the breakdown of employment in Saguache County by the industry sector. According to the ACS, the leading employment sectors in the county are the educational services, and health care and social assistance, agriculture, forestry, fishing and hunting, and mining sectors, construction, and retail trade sectors.

Table F-5 Saguache County Occupations and Industries

Industry	Number Employed	Percent of Labor Force
Educational services, and health care and social assistance	522	18.0%
Agriculture, forestry, fishing and hunting, and mining	486	16.8%
Construction	378	13.0%
Retail trade	341	11.8%
Arts, entertainment, and recreation, and accommodation and food services	273	9.4%
Public administration	264	9.1%
Manufacturing	165	5.7%
Transportation and warehousing, and utilities	129	4.4%
Professional, scientific, and management, and administrative and waste management services	123	4.2%
Wholesale trade	73	2.5%
Other services, except public administration	71	2.4%
Finance and insurance, and real estate and rental and leasing	65	2.2%
Information	10	0.3%

Source: U.S. Census Bureau ACS 5-year estimates, 2016-2020

F.6. Hazard Identification and Risk Assessment

F.6.1. Identified Hazards

The CPT reviewed significant hazards for inclusion in the hazard mitigation plan. For the sake of consistency, the list of hazards for consideration began with the list of hazards found in San Luis Valley's Hazard Mitigation Plan, updated in 2018. In the 2022 update the CPT decided to add the following hazards: cyber-attack, hazardous materials, and pandemic/epidemic. Saguache County's Table Overall Hazard Significance* Summary Table provides a summary of the overall hazard significance for the hazards evaluated in this plan, showing variability by jurisdiction in Table F-6 below

Table F-6 Saguache County Overall Hazard Significance* Summary Table

Hazard	Saguache County	Bonanza**	Center	Crestone	Moffat	Saguache
Avalanche	Medium	Medium	Low	Medium	Low	Low
Cyber Attack	Medium	Medium	Medium	Medium	Medium	Medium
Dam Failure	Medium	Medium	Low	Low	Low	Low

Hazard	Saguache County	Bonanza**	Center	Crestone	Moffat	Saguache
Drought	High	High	High	High	High	High
Earthquake	Low	Low	Low	Low	Low	Low
Flood (Flash Flood & Levee Failure)	High	Medium	High	Medium	High	High
Hazmat	Medium	Medium	Medium	Medium	Medium	Medium
Hailstorm	Medium	Medium	Medium	Medium	Medium	Medium
Landslide	Low	Low	Low	Low	Low	Low
Lightning	Low	Low	Low	Low	Low	Low
Pandemic	Medium	Medium	Medium	Medium	Medium	Medium
Severe Winter Storm	High	High	High	High	High	High
Tornado/High Winds	Medium	Medium	Medium	Medium	Medium	Medium
Wildland Fires	Medium	Medium	High	Medium	Low	Medium

*Significance based on a combination of Geographic Extent, Potential Magnitude/Severity and Probability as defined below. ** Note: Not adopting plan; population 17.

Geographic Extent
Negligible: Less than 10 percent of planning area or isolated single-point occurrences
Limited: 10 to 25 percent of the planning area or limited single-point occurrences
Significant: 25 to 75 percent of planning area or frequent single-point occurrences
Extensive: 75 to 100 percent of planning area or consistent single-point occurrences

Potential Magnitude/Severity
Negligible: Less than 10 percent of property is severely damaged, facilities and services are unavailable for less than 24 hours, injuries and illnesses are treatable with first aid or within the response capability of the jurisdiction.
Limited: 10 to 25 percent of property is severely damaged, facilities and services are unavailable between 1 and 7 days, injuries and illnesses require sophisticated medical support that does not strain the response capability of the jurisdiction, or results in very few permanent disabilities.
Critical: 25 to 50 percent of property is severely damaged, facilities and services are unavailable or severely hindered for 1 to 2 weeks, injuries and illnesses overwhelm medical support for a brief period of time or result in many

Probability of Future Occurrences
Unlikely: Less than 1 percent probability of occurrence in the next year or has a recurrence interval of greater than every 100 years.
Occasional: Between a 1 and 10 percent probability of occurrence in the next year or has a recurrence interval of 11 to 100 years.
Likely: Between 10 and 90 percent probability of occurrence in the next year, or has a recurrence interval of 1 to 10 years
Highly Likely: Between 90 and 100 percent probability of occurrence in the next year or has a recurrence interval of less than 1 year.

Overall Significance
Low: Two or more of the criteria fall in the lower classifications or the event has a minimal impact on the planning area. This rating is also sometimes used for hazards with a minimal or unknown record of occurrences/impacts or for hazards with minimal mitigation potential.
Medium: The criteria fall mostly in the middle ranges of classifications and the event's impacts on the planning area are noticeable but not devastating. This rating is also sometimes utilized for hazards with a high impact rating but an extremely low occurrence rating.
High: The criteria consistently fall along the high ranges of the classification and the event exerts significant and frequent impacts on the planning area. This rating is also sometimes utilized for hazards with a high psychological impact or for hazards that the jurisdiction identifies as particularly relevant.

permanent disabilities and a few deaths. overwhelmed for an extended period of time or many deaths occur. Catastrophic: More than 50 percent of property is severely damaged, facilities and services are unavailable or hindered for more than 2 weeks, the medical response system is overwhelmed for an extended period of time, or many deaths occur.	

F.6.2. Building Inventory and Assets

Critical Facilities, Infrastructure, and Other Important Community Assets

A critical facility is defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. FEMA organizes critical facilities into seven lifeline categories as shown in Figure A-1 FEMA Lifeline Categories and Table F-7 for Saguache County below.

Table F-7 Saguache County Critical Facilities by Jurisdiction

Jurisdiction	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health and Medical	Safety and Security	Transportation	Total
Bonanza	-	-	-	-	-	1	1	**2**
Center	4	2	-	5	1	9	2	**23**
Crestone	-	-	-	-	-	1	1	**2**
Moffat	4	-	-	1	1	3	-	**9**
Saguache	-	-	-	-	2	7	-	**9**
Unincorporated	35	10	-	3	-	5	43	**96**
Total	**43**	**12**	**0**	**9**	**4**	**26**	**47**	**141**

Source: CDPHE, CEPC, HIFLD, NBI, WSP GIS Analysis

Historic and Cultural Assets

National and state historic inventories were reviewed to identify historic and cultural assets in Saguache 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 F-8 lists the properties in Saguache 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 F-8 Historic Properties and Districts on State and National Registers

Property Name	Location	Date Listed
Crestone School	Cottonwood St. and Carbonate Ave.	1-9-1986

Property Name	Location	Date Listed
Capilla de San Juan Bautista	Northwest of La Garita	2-8-1980
Carnero Creek Pictographs	La Garita	6-5-1975
First Baptist Church of Moffat	401 Lincoln Ave., Moffat	7-24-2008
Dunn's Block/Means & Ashley Mercantile Building	317-325 4th St., Saguache	8-31-2006
Saguache County Courthouse	504 4th St., Saguache	8-11-1993
Saguache Elementary School	605 Christy Ave., Saguache	8-11-1993
Saguache Flour Mill*	County Road 57	9-18-1978
Saguache School and Jail Buildings*	US 285 and San Juan Ave., Saguache	5-2-1975
St. Agnes Mission Church	505 Gunnison St., Saguache	9-10-2003
Sargents Schoolhouse	346 Hicks Ave., Sargents	12-13-1995

Asterisk indicates properties on both the State and National Registers

Source: Directory of Colorado State Register Properties

According to the National Historic Preservation Act (NHPA), 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 NHPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

F.6.3. Vulnerability to Specific Hazards

This section details vulnerability to specific hazards, where quantifiable, only where it differs from that of the Region as a whole. The results of detailed GIS analyses used to estimate potential for future losses are presented here, in addition to maps of hazard areas and details by jurisdiction and building type. For a discussion of the methodology used to develop the loss estimates refer to Chapter 4 of the base plan. In many cases Chapter 4 contains information that differentiates the risk by county thus the information is not duplicated here. For most of the weather-related hazards the risk does not vary significantly enough from the rest of the Region and thus the reader should refer to Chapter 4. Only unique issues or vulnerabilities are discussed, where applicable.

- Avalanche
- Dam Incident
- Drought
- Earthquake
- Flood
- Hailstorm
- Severe Winter Weather
- Wildland Fires
- High Winds and Tornadoes
- Cyber Attack
- Hazardous Materials Incidents
- Pandemic

Avalanche

The avalanche risk is rated Medium for Saguache County due to hazards near Bonanza and backcountry areas of the San Juan Mountains.

Dam Incident

There is one high hazard dam located in Saguache County which may present a risk to lives and properties in the event of a significant dam incident. Table F-9 provides details on this high hazard dam. There are no additional high or significant hazard dams upstream of Saguache County. Overall, the vulnerability and exposure to dam incidents in Saguache County is the lowest of all counties in the San Luis Valley region.

Table F-9 High and Significant Hazard Dams in Saguache County

Dam Name	Owner	River	Hazard Class	Nearest Downstream Community	Distance to Nearest Downstream Community (Miles)	EAP
Vouga	Vouga Reservoir Association	Razor Creek	High	Gunnison	24	Y

Source: National Inventory of Dams

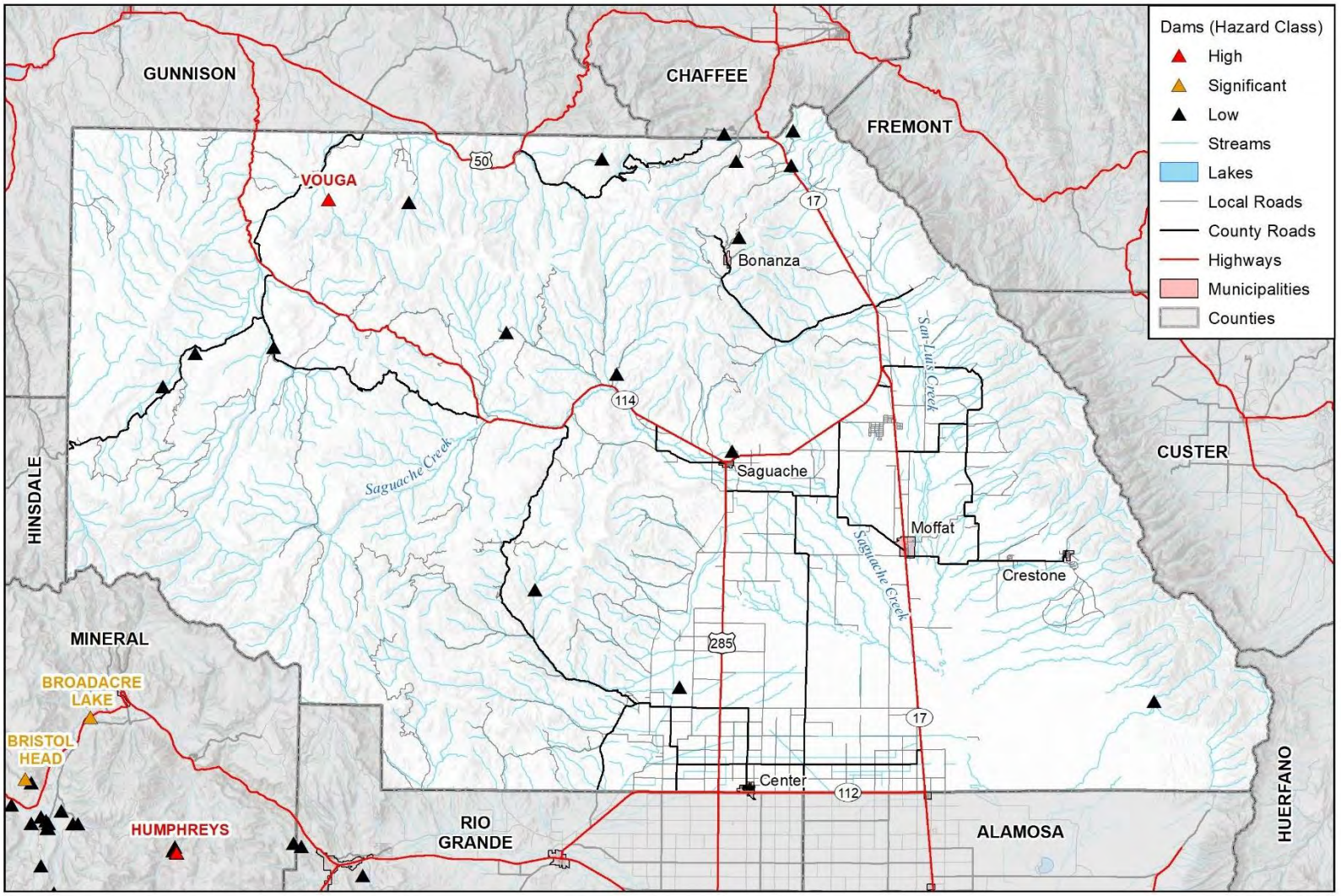
The dam listed above does present some risk for property damage, injury, or loss of life in a significant dam incident. Table F-10 below shows the number of structures exposed to dam inundation from each upstream dam, and Figure F-1 illustrates the location of the Vouga dam.

Table F-10 Structures at Risk to Dam Inundation by Jurisdiction

Dam Name (Hazard Class)	Jurisdiction	Structure Count
Vouga (High)	Saguache County	2
	Total	2

Source: Microsoft Footprints 2021, DWR Dam Safety Program, WSP GIS Analysis

Figure F-1 Saguache County Dams



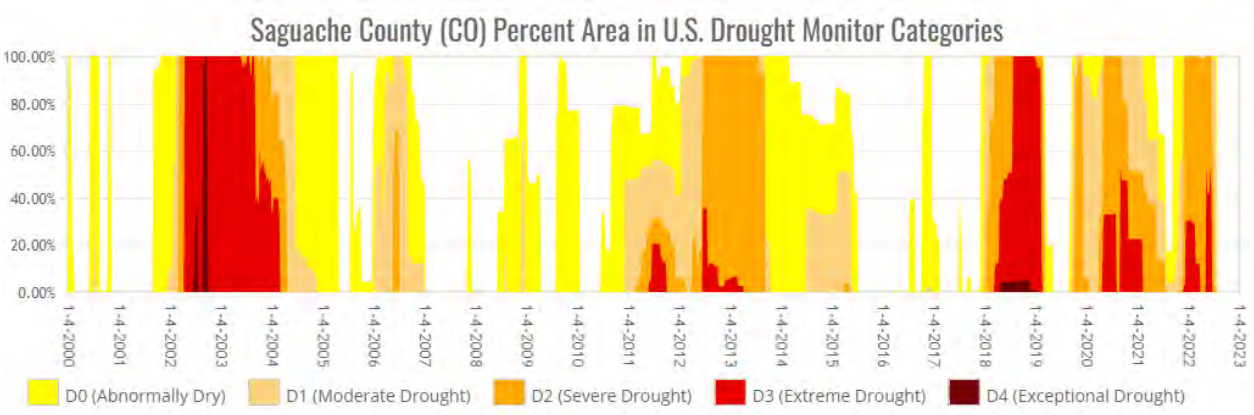
Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT, SLV GIS, DWR Dam Safety

Drought

Drought was rated as a hazard of high concern in all counties in the planning area. Between 2012 and 2021, Saguache County experienced 16 USDA emergency drought declarations, three of which were unique to the region. Saguache County recorded $16,321 in RMA indemnity payments in 2018 due to drought induced wheat loss.

The U.S. Drought Monitor (USDM) is a national data set released weekly, showing the severity of drought in locations across the nation. A time series showing the severity of drought in Saguache County between 2000 and 2022 is shown below.

Figure F-2 USDM Drought Timeseries for Saguache County



Source: USDM; www.drought.gov

The National Drought Mitigation Center developed the Drought Impact Reporter in response to the need for a national drought impact database for the United States. Information comes from the public who visit the website and submit a drought-related impact for their region, members of the media, and members of relevant government agencies. Saguache County had 41 reported impacts between 2013-2022.

Earthquake

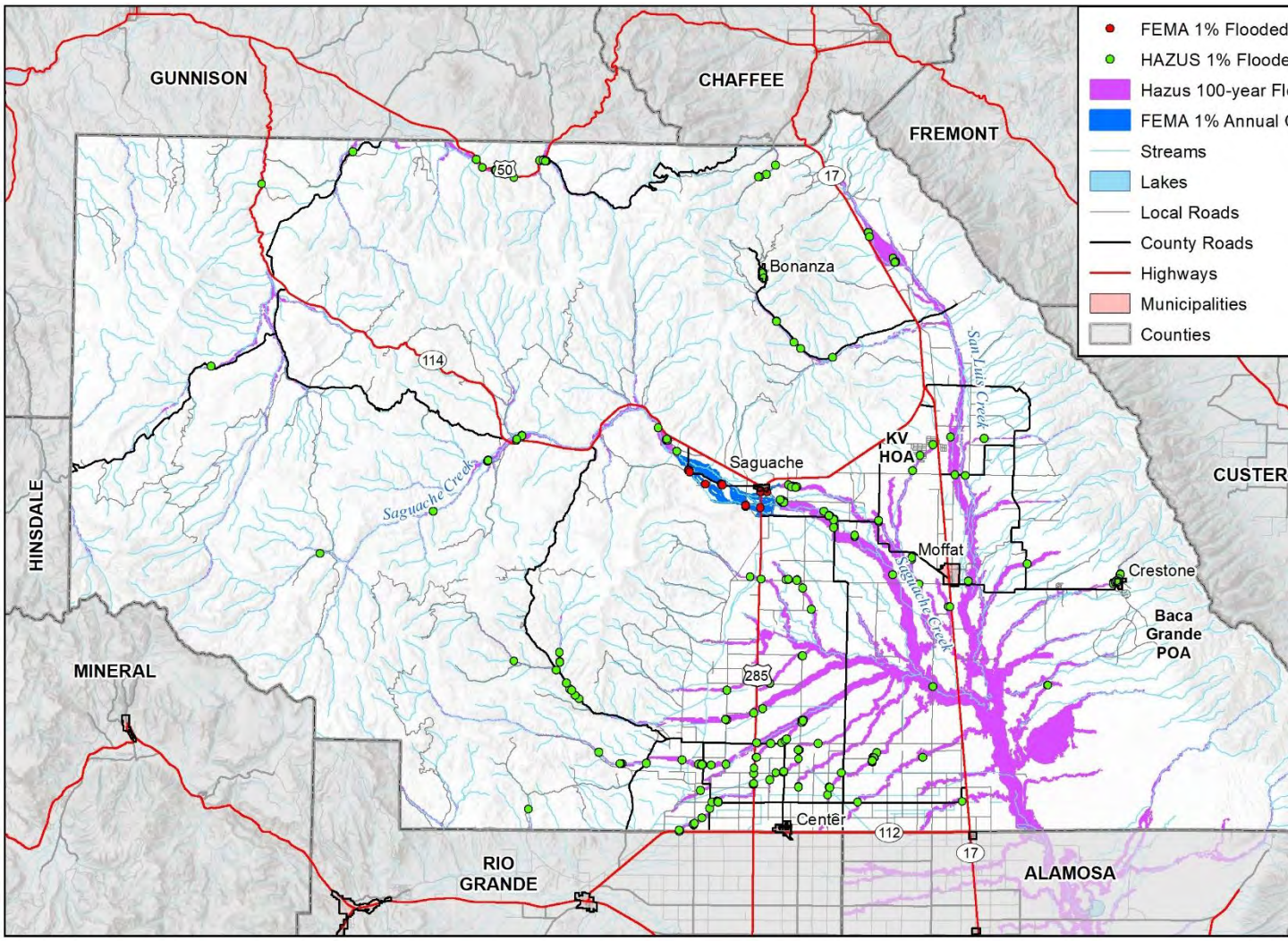
There are several known fault systems throughout the San Luis Valley, and the likelihood for seismic activity is fairly uniform throughout the region's counties. However, the potential severity of shaking and impacts to casualties and damage is not uniform. Saguache County has a significant stretch of the Sangre de Cristo fault within its boundaries, extending in a roughly north/south direction along the eastern edge of the county. Saguache County could experience moderate impacts in a future earthquake. According to a Hazus analysis conducted, a 2,500-year probabilistic earthquake ground shaking could result in $85.8 million in total economic losses in the county, an estimated total of 644 buildings with at least moderate damage, and 11 projected injuries in this event scenario.

Refer to Chapter 4 for a discussion of the earthquake risk relative to Saguache County and the wider Region.

Flood

A flood, as defined by the National Flood Insurance Program (NFIP), is a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of waters, unusual and rapid accumulation, or runoff of surface waters from any source, or a mudflow. Floods can be slow or fast rising, but generally develop over a period of many hours or

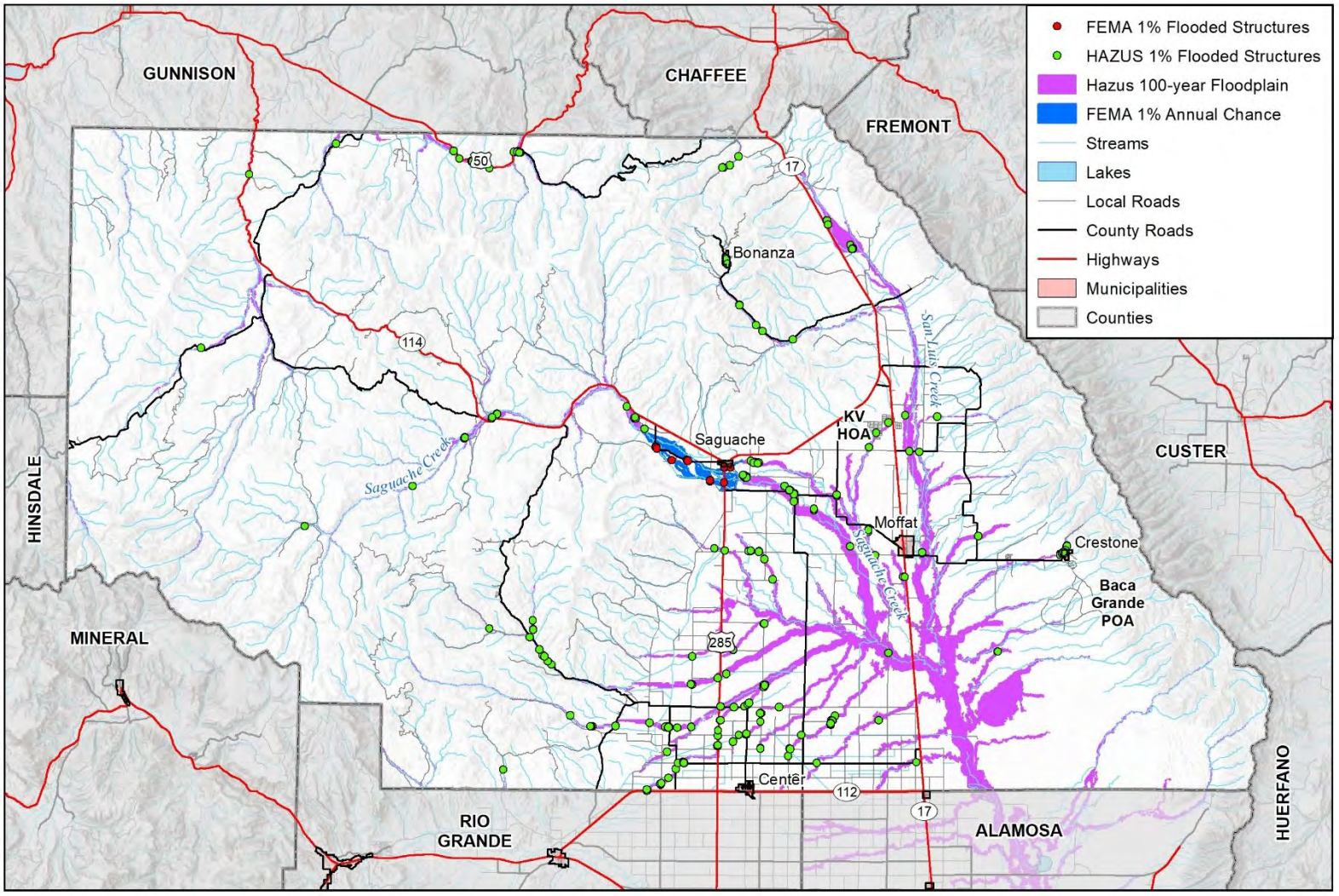
days. Flooding events occurring within the San Luis Valley are generally attributed to three factors (1) winter thaws and spring break up within the project areas watersheds (sometimes with associated ice jams), (2) rapid snow melt and or heavy rains in higher elevations, and (3) spring or summer deluges that result in flash flooding. Figure F-3 Saguache County Flood Hazards



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Draft FEMA Flood Hazards for Saguache County, Hazus 5.1

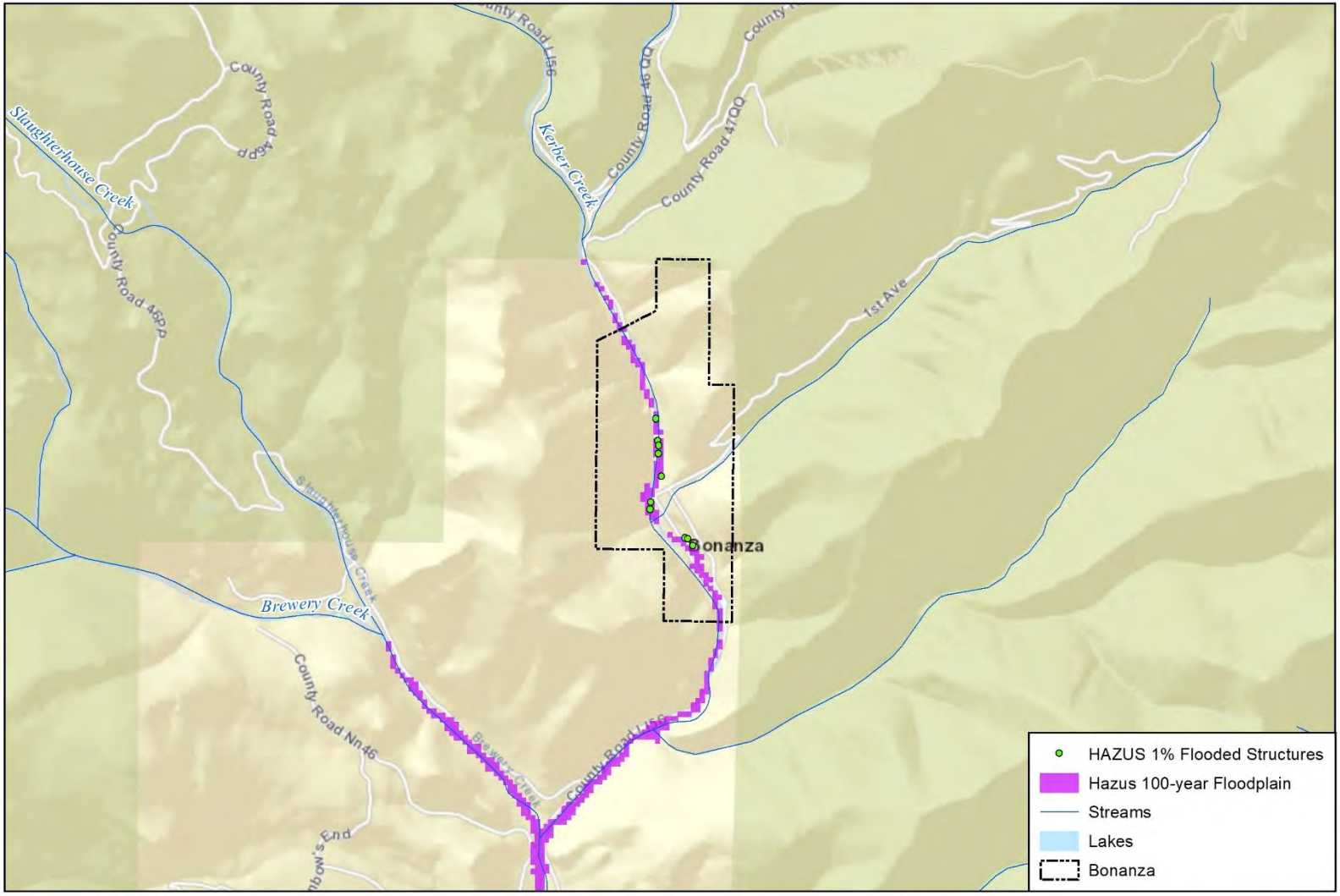
Figure F-4 through Figure F-8 show the extent of the 1% annual chance floodplains throughout Saguache County.

Figure F-3 Saguache County Flood Hazards



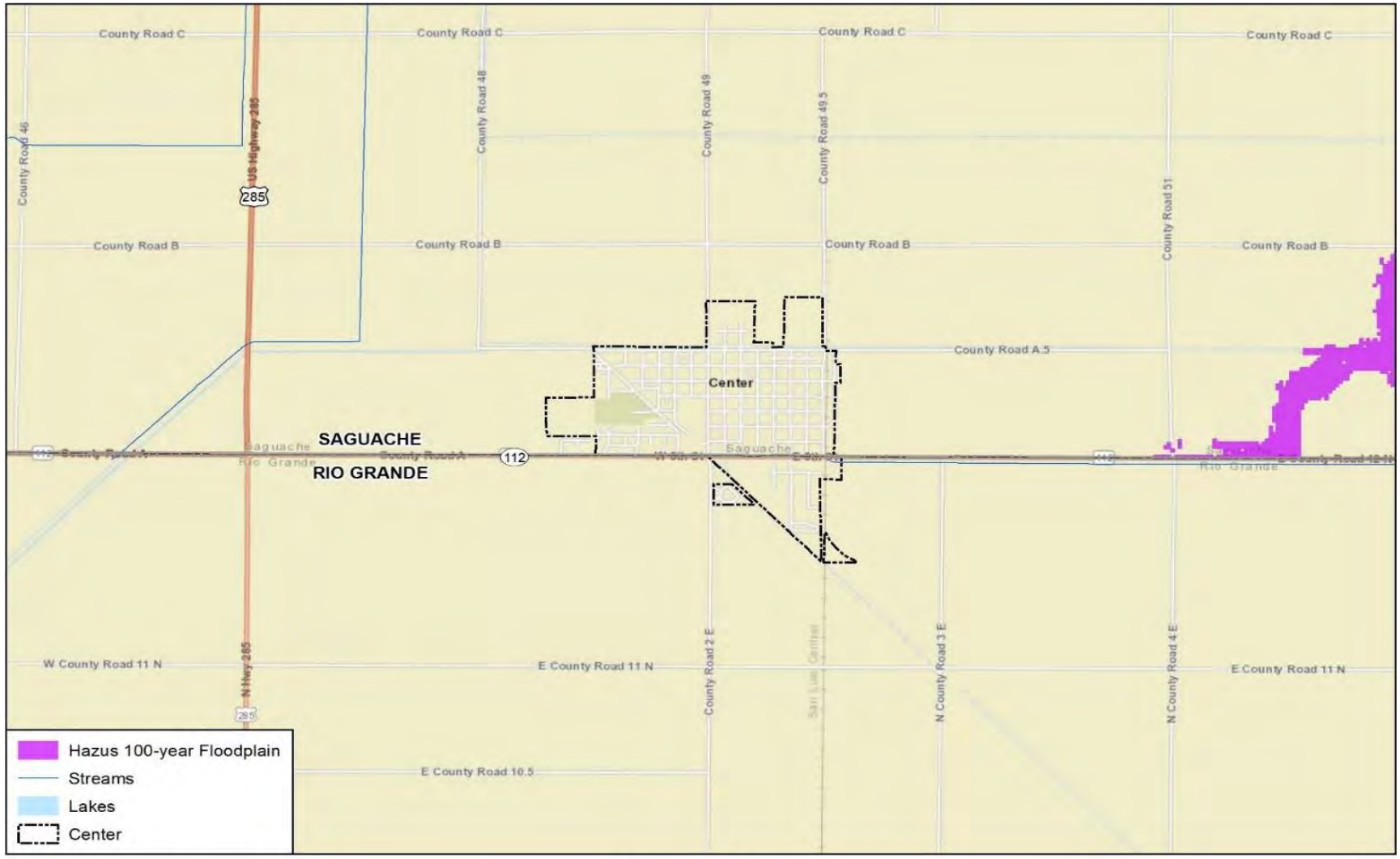
Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Draft FEMA Flood Hazards for Saguache County, Hazus 5.1

Figure F-4 Bonanza Flood Hazards



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Hazus 5.1

Figure F-5 Center Flood Hazards and Structures



Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Hazus 5.1

Figure F-6 Crestone Flood Hazards and Structures

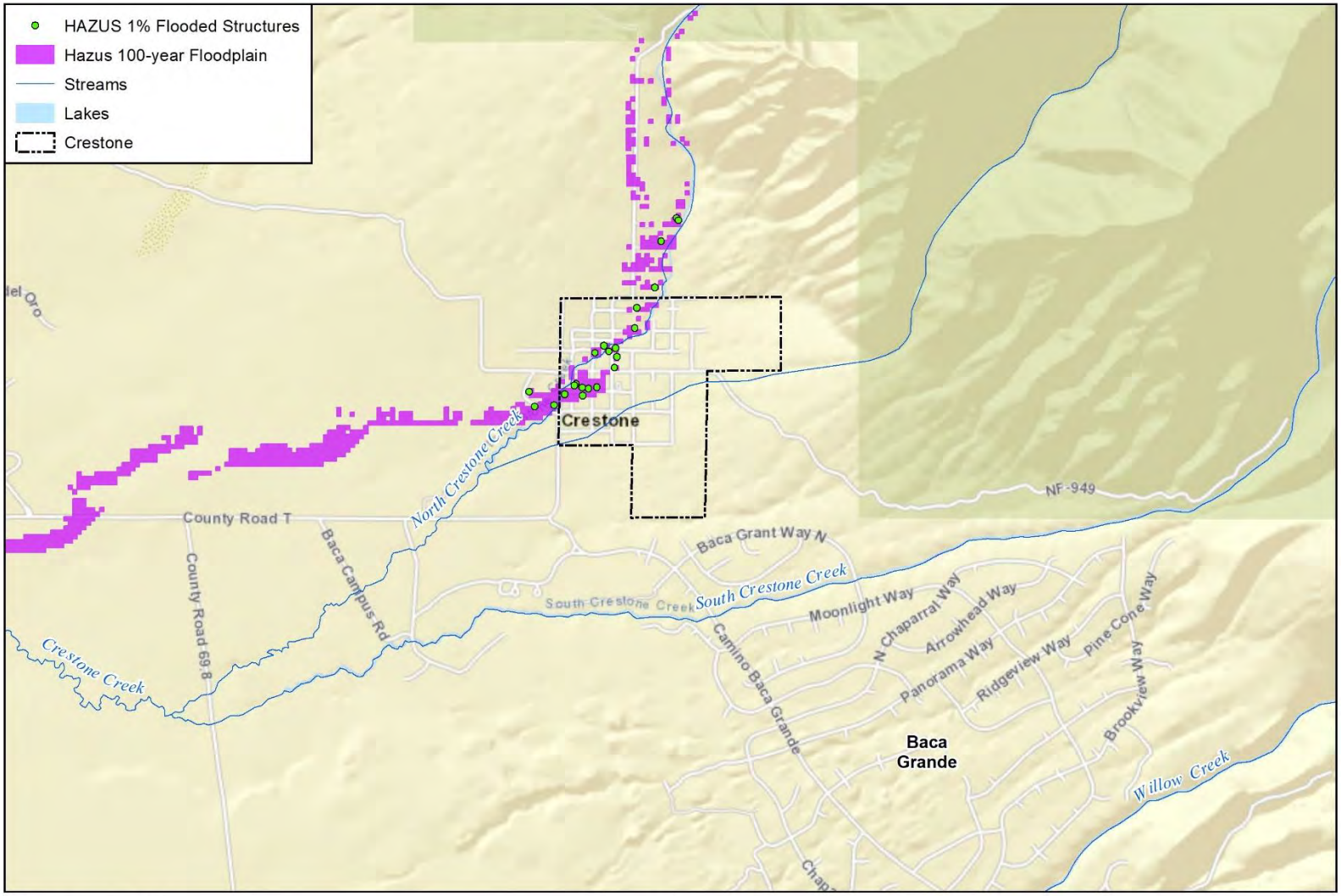
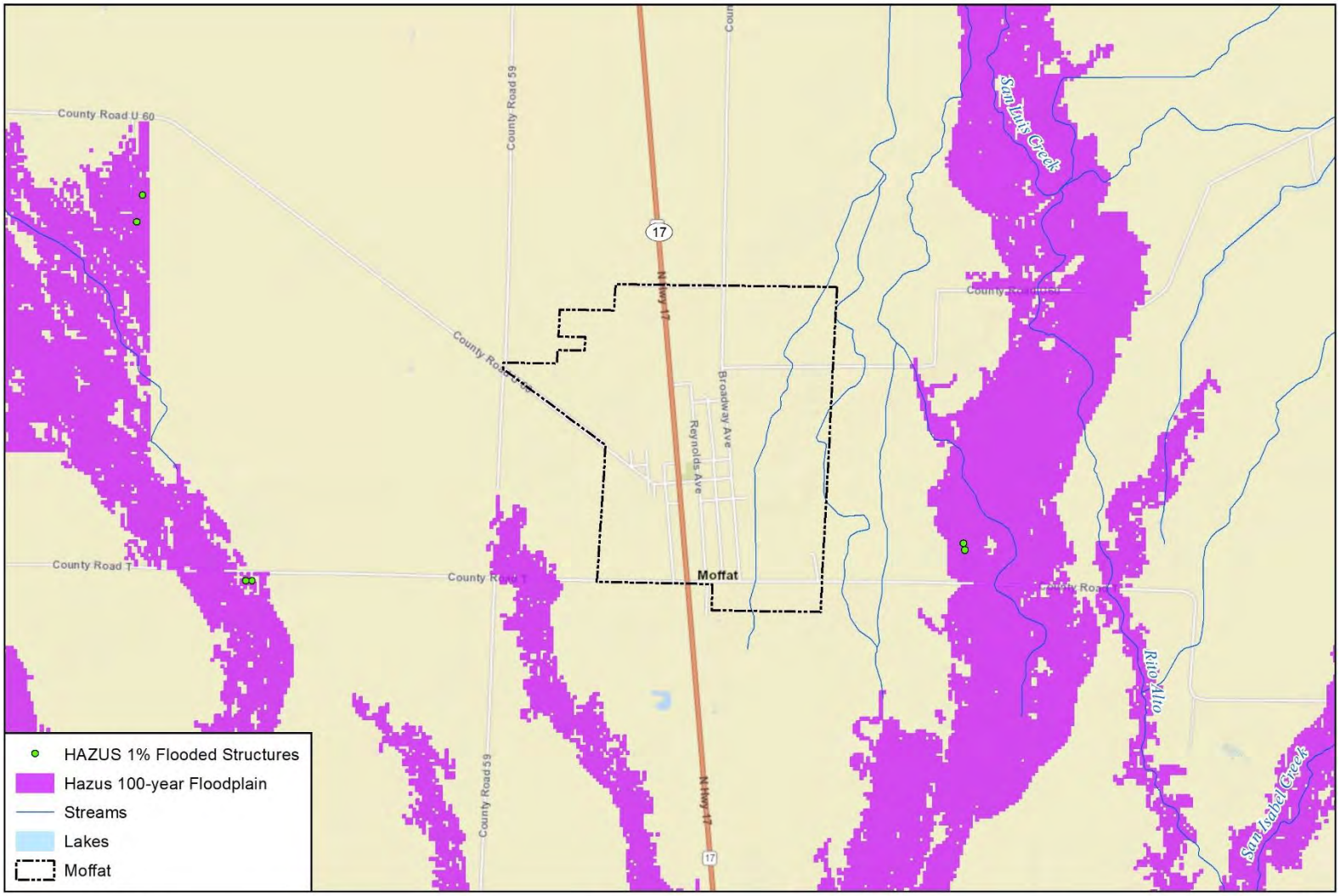
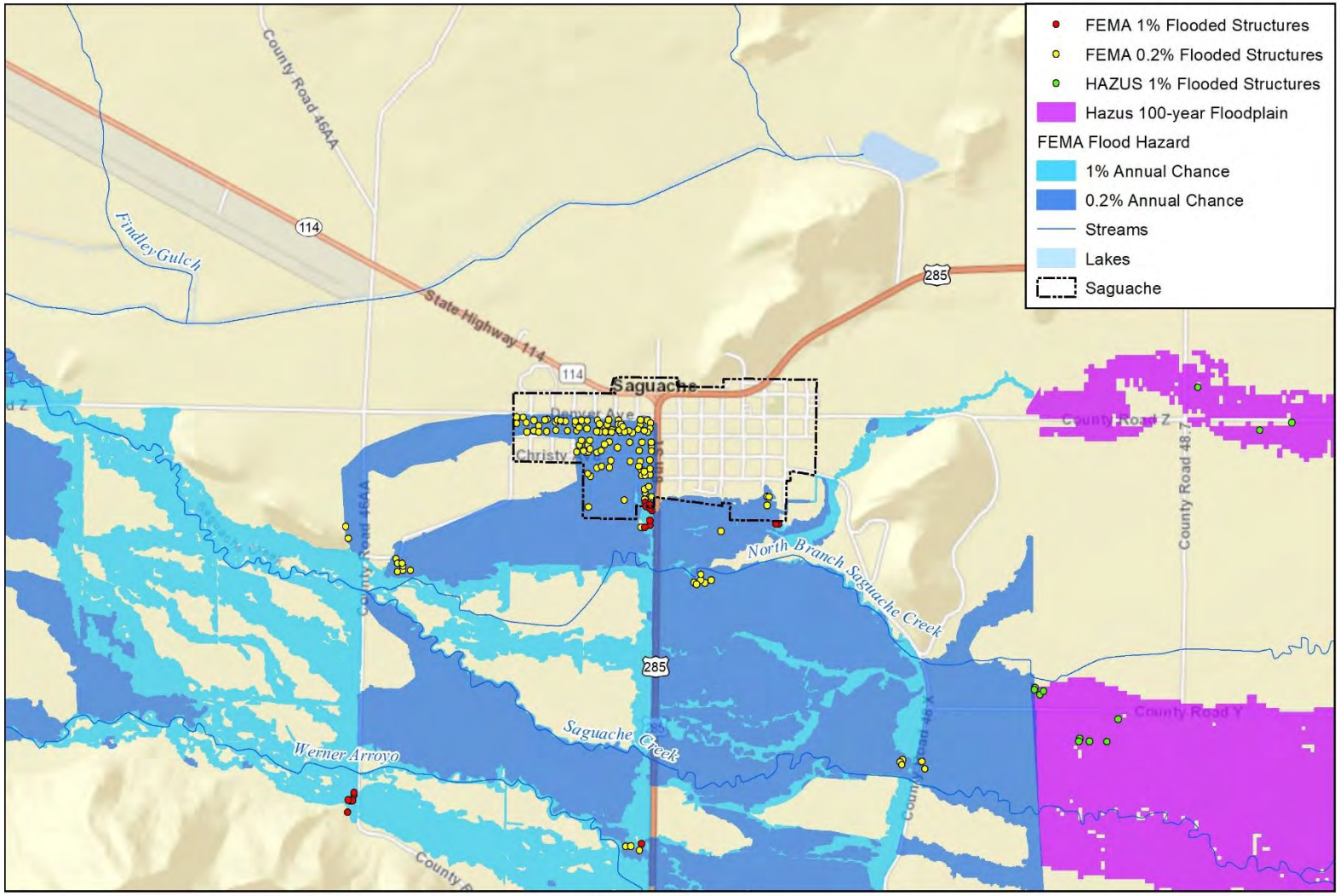


Figure F-7 Moffat Flood Hazards and Structures



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Hazus 5.1

Figure F-8 Saguache City Flood Hazard and Structures



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Draft FEMA Flood Hazards for Saguache County, Hazus 5.1

Structure Vulnerability Analyses and National Flood Insurance Program Statistics

An analysis of structures in the floodplain and NFIP claims data for the County and its municipalities can be found in the Base Plan under the Flooding Hazard Profile under the vulnerability assessment, people and property subsections.

Repetitive Loss Structures

There are no reported Repetitive Loss properties as of 2022 within the San Luis Valley.

Hail

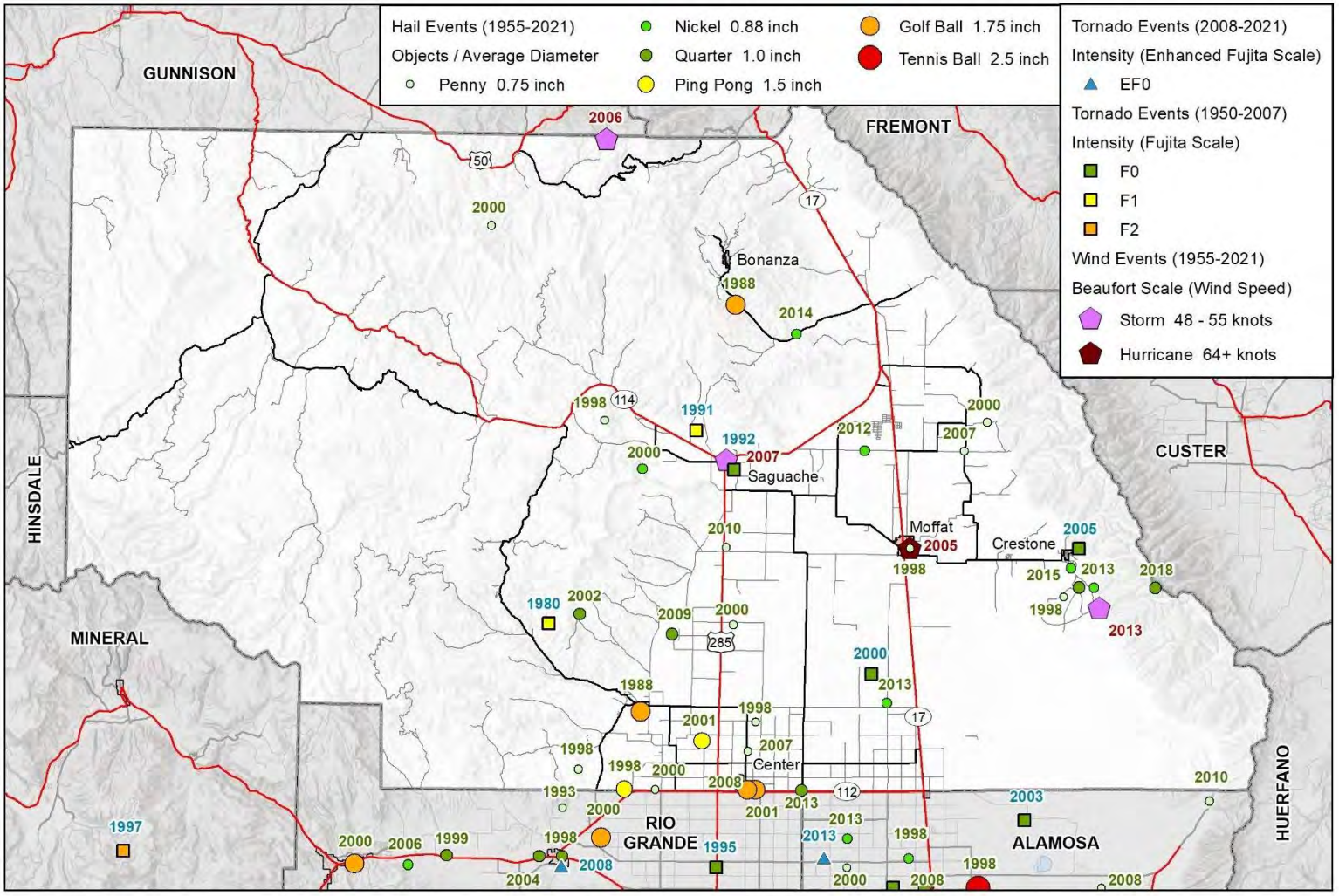
According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 67 years, from 1955-2022, there have been 40 hail events, one of which resulted in an injury, in Saguache County. The Towns of Center and Saguache have the greatest number of recorded hail events (9), followed by the Town of Crestone (7) and the Towns of La Garita and Villa Grove (3). The Town of Moffat (2) and Mineral Hot Springs (1) also had recorded hail events.

The largest hailstone recorded in Saguache County was as large as 1.75 inches in diameter, recorded twice in the year 1988, and once in 1989 and 2008. The NCEI recorded $5,000 in property damages and $250,000 in crop damages in the County. The property damage and $50,000 in crop damages occurred on August 22nd, 1993, when marble-size hail caused major crop damage as well as damaging vehicles and buildings north of Center. The most damaging hail event in Saguache County occurred on September 2, 1994, near the Town of Center, when a hailstorm ripped through a large broccoli and cabbage patch, killing an estimated 90% to 100% of the season's crop and costing an estimated $200,000 in damages.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 39,423.72 acres were lost to hail and $12,801,670 indemnity payments made to farmers in Saguache County.

The figure below displays historical hail events in the County. Vulnerability to hail is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of hail risk related to Saguache County and the Region.

Figure F-9 Saguache County Historic Hail and Weather Events (1950-2021)



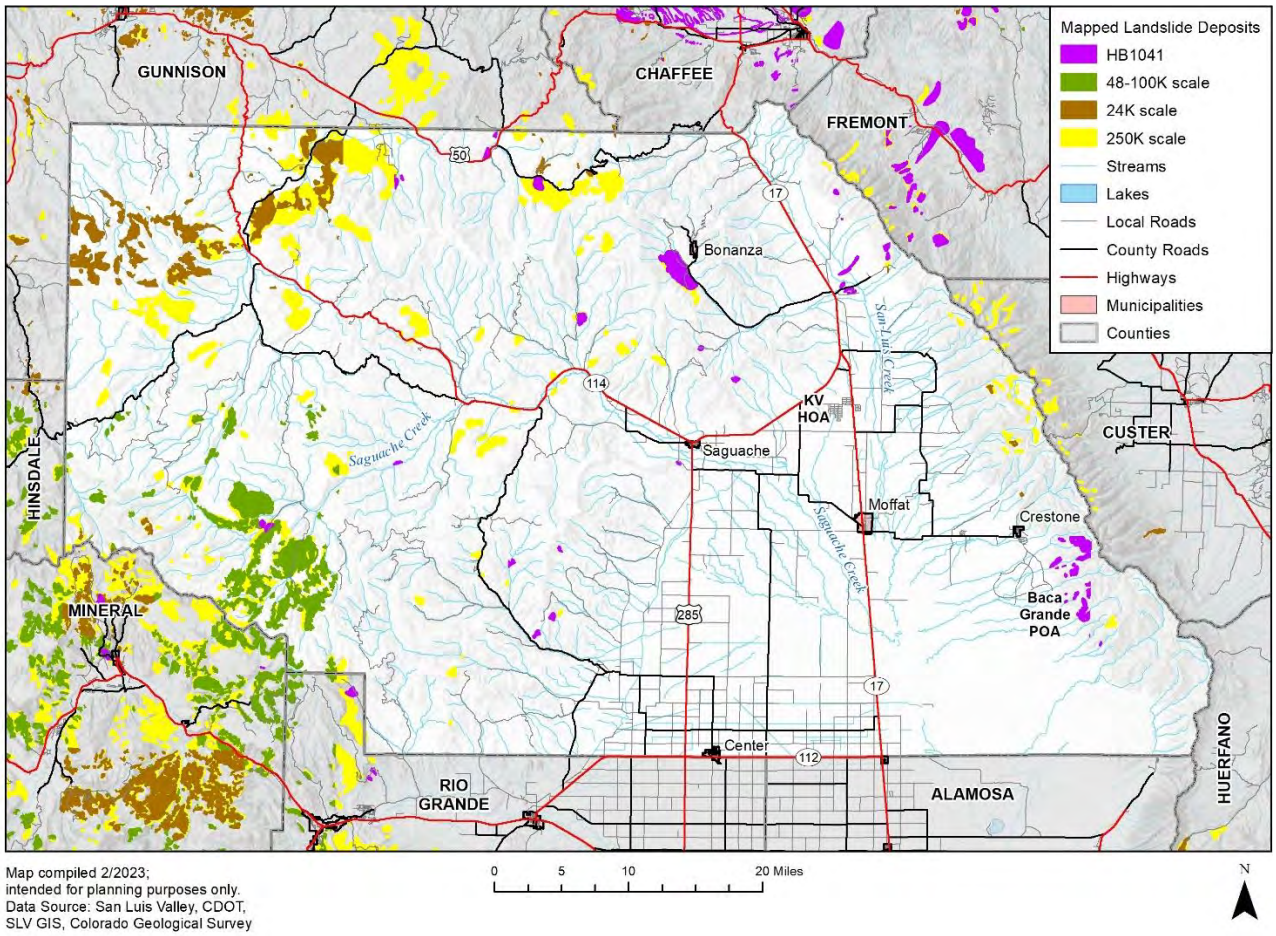
Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, NOAA, National Weather Service SVRGIS 2021

Landslide/Debris Flow/Rockfall

Saguache County is almost completely comprised of more mountainous terrain, with steep slopes susceptible to landslides and rockfall. There are many roads and highways in the county along slopes or through narrow mountain passes which are susceptible to landslides where travelers may be involved in an incident. According to GIS analysis conducted for this plan update, there are a total of 65 structures throughout the county potentially at risk of landslide, with a combined value of approximately $13 million. There are also an estimated 145 residents potentially at risk of landslides.

According to data from Colorado Geological Survey, most previous landslides have not significantly encroached on the incorporated jurisdictions of Saguache County. Figure F-10 below illustrates the extent of mapped landslide deposits in the county.

Figure F-10 Mapped Landslide Deposits in Saguache County



Lightning

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there has been 1 damaging lightning event in Saguache County. No monetary losses were recorded in the County, but one death and one injury were recorded.

On July 27th, 2003, a 25-year-old female was struck and killed by lightning on Willow Creek Trail. Her husband was injured by the lightning strike.

Vulnerability to lightning is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of lightning risk related to Saguache County and the Region.

Severe Winter Weather

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 26 years, from 1996-2022, there have been a total of 774 winter weather related events in Saguache County. Table F-11 summarizes these events. It is important to note that all winter weather related events are recorded on a zonal scale and therefore do not include information on the nearest impacted city. Additionally, due to the zonal nature of these events, it is possible that some events and losses were duplicated in the datasets.

In total, $4,700,000 in property losses were recorded in the County due to blizzard and winter storm events. Additionally, two fatalities were documented in the County, but no injuries. The most destructive blizzard events occurred on October 24th, 1997, when a blizzard caused $500,000 in damages, as well as one fatality. The second most destructive blizzard event occurred on April 11th, 2001, when a blizzard destroyed several hundred power poles and left people without electricity for days, as well as caused a major car accident along the highway, resulting in an estimated $4,000,000 in damages. Another death occurred due to heavy snow on December 24th, 1997. Two damaging winter storm events occurred in the County, one on April 2nd, 2001, and one on May 3rd, 2001. Both resulted in $100,000 in property damages to radio towers, roofs, and to cars along U.S. Highway 50.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year except for 2021 (records were searched between 2007 and 2021). In total, 10,150.52 acres were lost to cold weather-related events and $3,443,895 indemnity payments made to farmers in Saguache County.

Vulnerability to severe winter weather is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of severe winter weather related to Saguache County and the Region.

Table F-11 Summary of Winter Weather Events in Saguache County

	Total Events	Days with Events	Property	Injury	Fatality
Blizzard	12	6	$4,500,000	0	1
Heavy Snow	198	118	$0	0	1
Winter Storm	535	257	$200,000	0	0
Winter Weather	29	19	$0	0	0
Total	**774**	**400**	**$4,700,000**	**0**	**2**

Source: NCEI

Wildland Fires

The most comprehensive fire data was available from the United States Department of Agriculture (USDA) Research Data Archive from 1992 to 2018. The dataset reported 310 fires of any size over the 26-year period in Saguache County for a total of 2,551.89 acres burned.

The dataset provides information on fire size based on wildfire classes. The table below summarizes the number of wildfire events in the County based on class size. In Saguache County, the most frequently occurring type of wildfire is a class A (one-fourth acre or less).

Table F-12 Saguache County Wildfires by Class

Class	# of Events
Class A - one-fourth acre or less;	233
Class B - more than one-fourth acre, but less than 10 acres;	52
Class C - 10 acres or more, but less than 100 acres;	8
Class D - 100 acres or more, but less than 300 acres;	6
Class E - 300 acres or more, but less than 1,000 acres;	0
Class F - 1,000 acres or more, but less than 5,000 acres;	1
Class G - 5,000 acres or more.	0

Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

The figure below displays the frequency of wildfire events in the County by year. Saguache County experienced the greatest frequency of wildfire events in 2016 (119 events) and 2002 (24 events).

Figure F-11 Saguache County Wildfires by Year

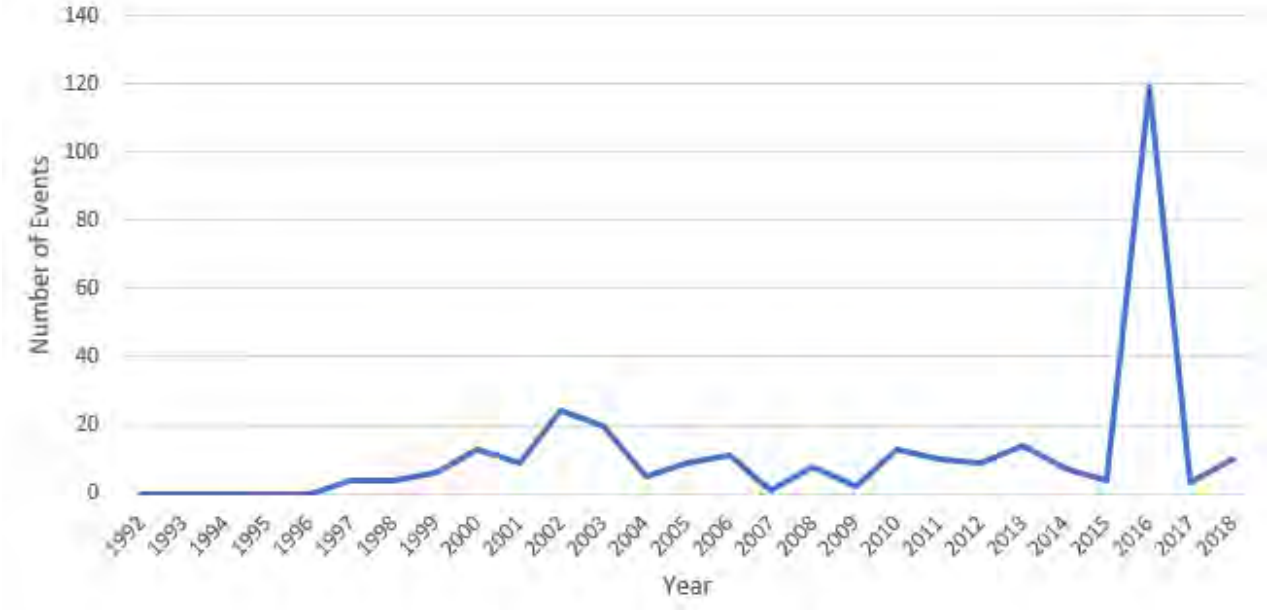


Figure by WSP, Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

Most of the wildfires that have occurred in Saguache County have been ignited by human causes (51.8%) followed by natural causes (43.61%), displayed in the figure below.

Figure F-12 Saguache County Wildfire Cause of Ignition

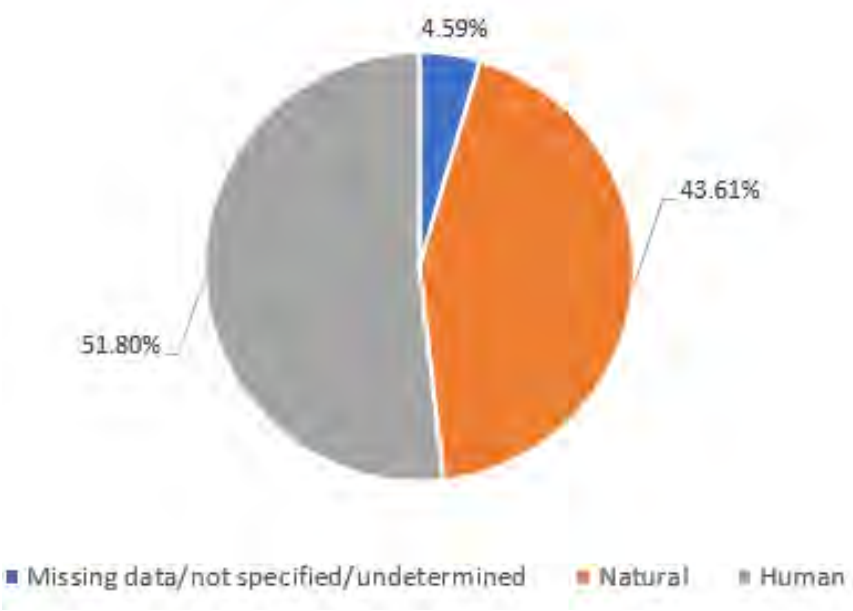


Figure by WSP, Data Source: USDA Forest Service Research Data Archive; https://www.fs.usda.gov/rds/archive/Catalog/RDS-2013-0009.5

Saguache County has one disaster declaration due to wildfires. This disaster declaration was declared in 2002 for the entire State of Colorado. The County has experienced several significant wildfires. The first, named the Merry-Go-Round Fire, occurred in 1997 and burned 400 acres. The second, the Sand Dunes Fire, occurred in 2000 and burned over 8,500 acres between Saguache, Alamosa, and Costilla Counties. In 2002, the Vulcan Fire burned 220 acres in Saguache County. In 2005, the Buck Park #2 Fire burned 112 acres and later that same year, the Four Mile Fire burned 100 acres in the County. In 2006, the Coolbroth Fire burned 250 acres and the Hell's Gates Fire, which also occurred in 2006, burned another 250 acres. Finally, in 2013, the Ox Cart Fire burned 1,152 acres in Saguache County.

The HMPC also noted the Decker Fire, which began on September 8th, 2019, and burned 8,959 acres between Saguache, Fremont, and Chaffee Counties. NASA reported that the fire was ignited by lightning and continued to burn for over a month due to dry climate conditions and steady wind. The HMPC reported that The Decker Fire caused significant problems for broadcasting towers on Methodist Mountain during an extended power outage, which affected both DTR Radio & Cellular Communications in Saguache County.

Saguache County is covered by numerous CWPPs. The Northern Saguache Fire Protection District CWPP (2007) identifies the following WUI areas and their respective risk ratings:

Figure F-13 Northern Saguache FPD CWPP WUI Area Risk Ratings

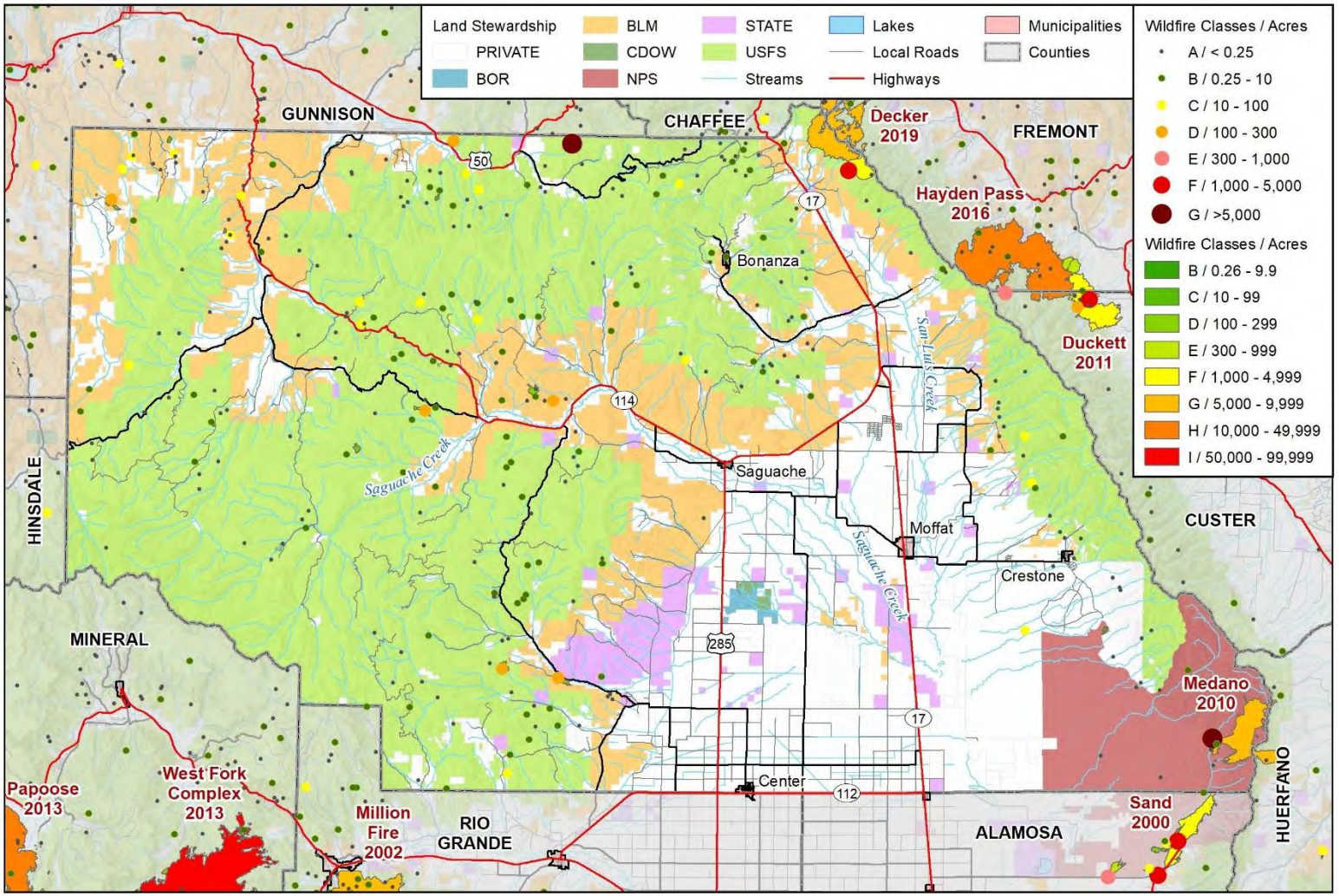
Low Hazard	Moderate Hazard	High Hazard
Moffat	Bonanza	Crestone
Swede Corner	Carnero Creek	Jacks Creek
	Kelly Creek	Kerber Creek
	Lazy KV Corridor	Little Kerber Creek
	Lime Creek	Noland Gulch
	Mishak Lakes	Valley View
	North Tracy Canyon	
	Schecter Gulch	
	*Silver Creek Lakes**	

** Silver Creek Lakes is outside the NSFPD but is within Saguache County.*

The Western Saguache Fire Protection District CWPP (2008) identifies a further four WUI areas in Saguache County: Sargents with a hazard rating of low, Gold Basin and Vulcan both with a moderate hazard rating, and Deer Haven with a high hazard rating. Gold Basin has its own CWPP drafted in 2008, as do the Center FPD (2008), Crestone Mountain (2018), and Baca Property Owners Association (2019).

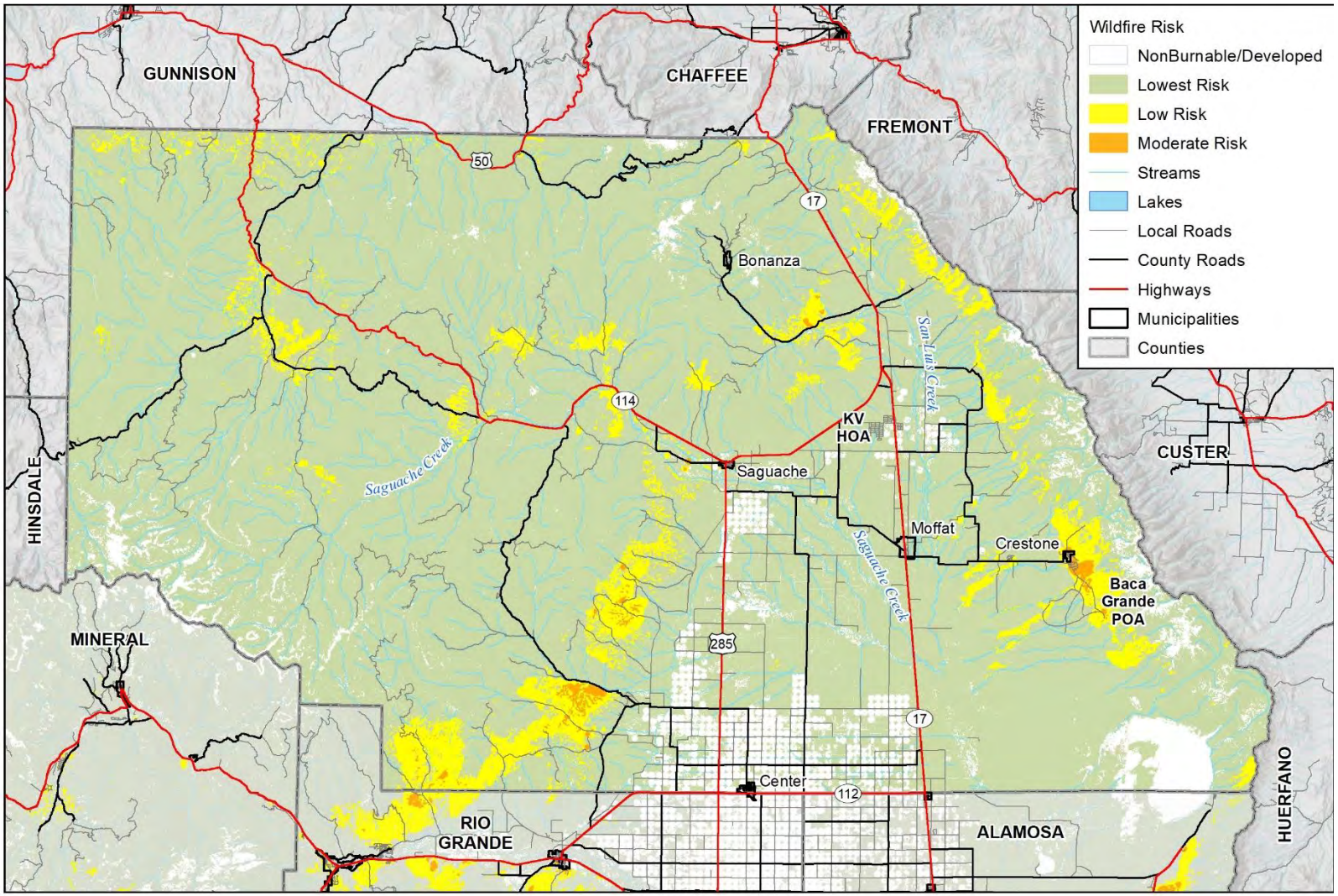
Figure F-14 below displays the history of wildfires in Saguache County. Figure F-15 displays wildfire risk in the County. Most of the county experiences some risk of wildfire, with spots of highest vulnerability in the southwest corner of the County and near the City of Crestone. Figure F-16 and Figure F-17 display the wildland urban interface (WUI) and the WUI risk, which indicates the most vulnerable areas for human infrastructure to wildfire is in the Town of Crestone.

Figure F-14 Saguache County Wildfire History Map (1950-2022)



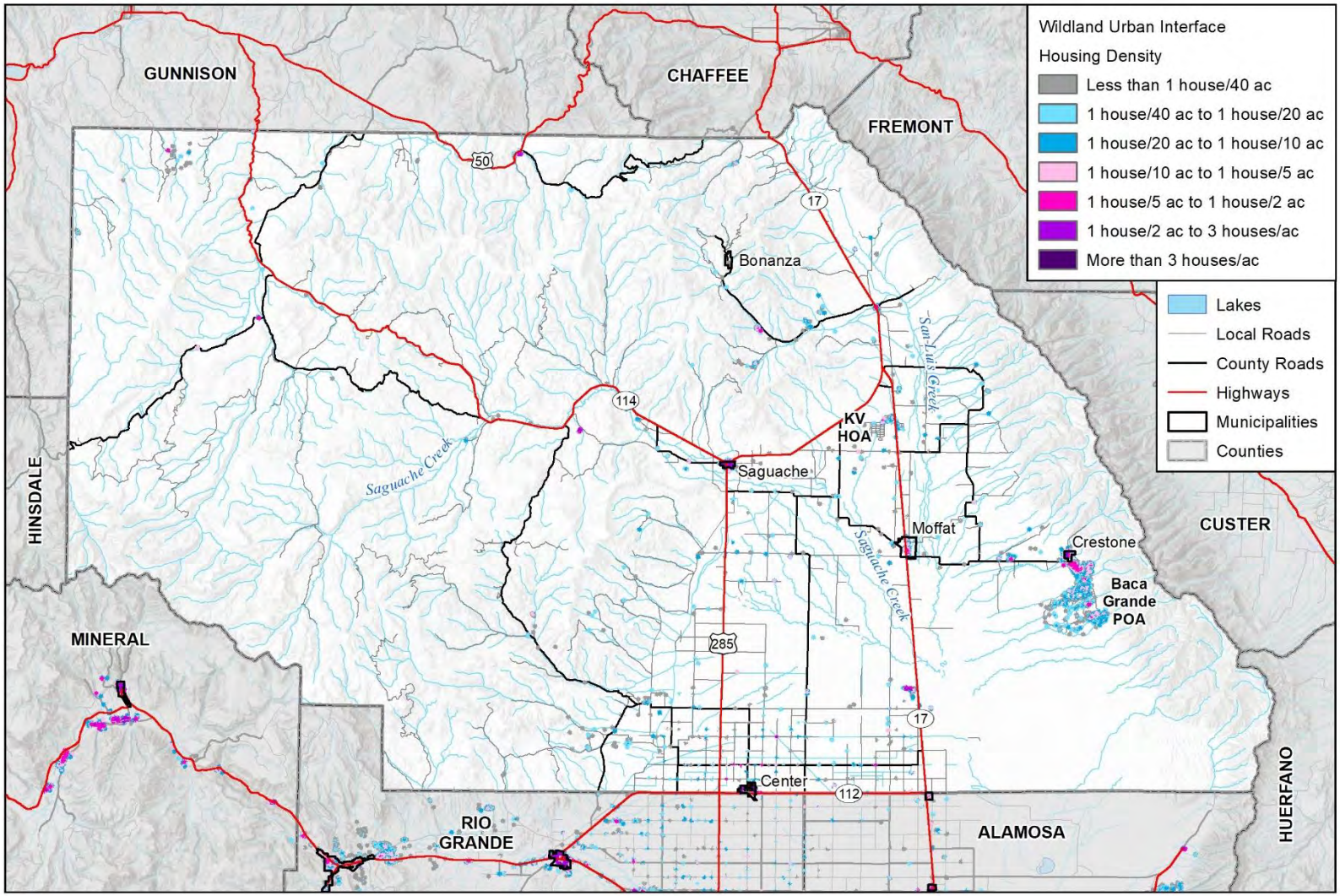
Map compiled 10/2022;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, National Interagency Fire Center (NIFC),
USGS: BLM, FS, FWS, NPS

Figure F-15 Saguache County Wildfire Risk Map



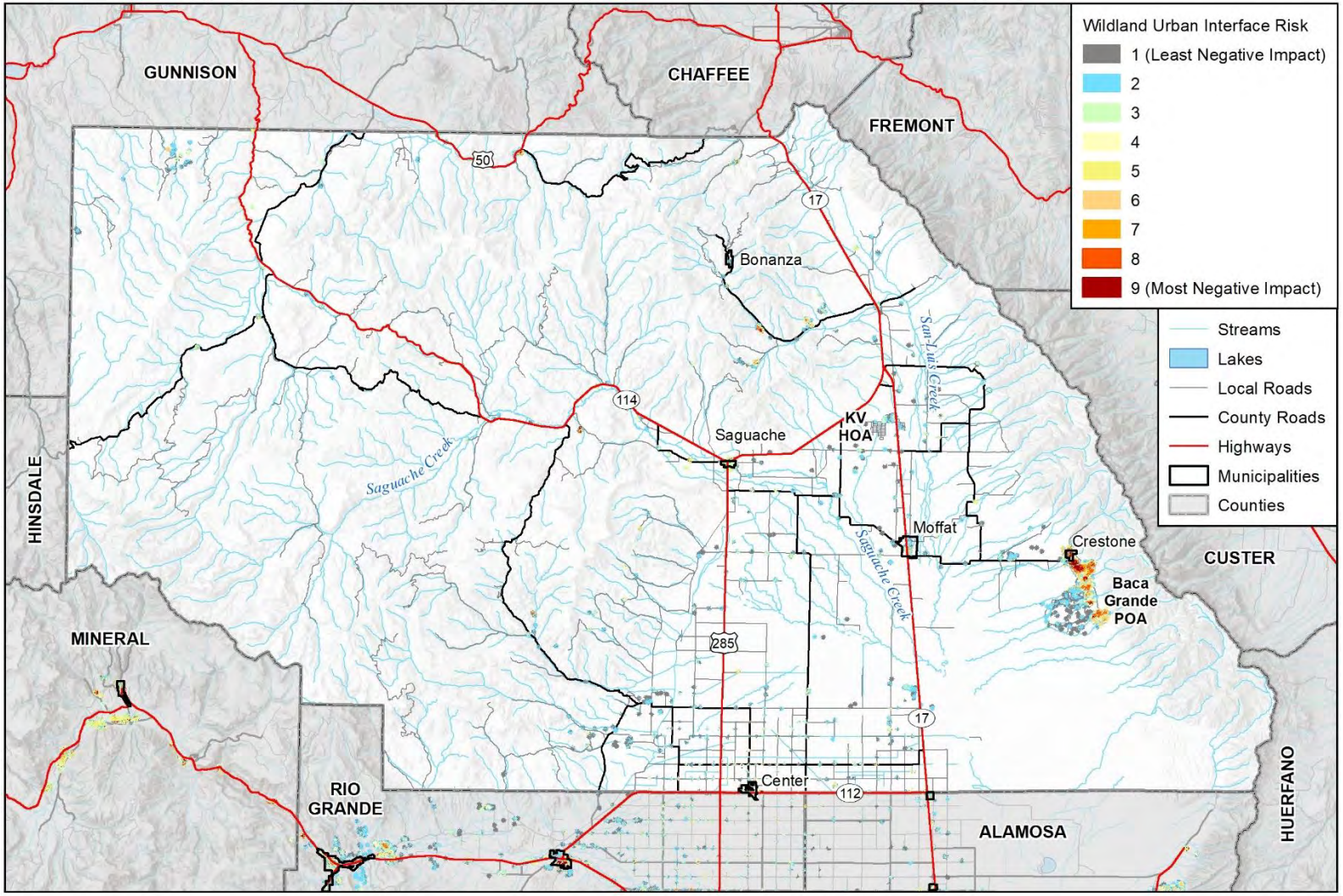
Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

Figure F-16 Saguache County Wildland Urban Interface



Map compiled 2/2023;
intended for planning purposes only.
Data Source: San Luis Valley, CDOT,
SLV GIS, Colorado Forest Atlas - Colorado State Forest Service

Figure F-17 Saguache County Wildland Urban Interface Risk



High Winds and Tornadoes

According to records from the National Center for Environmental Information (NCEI) Storm Events Database, in the past 72 years, from 1950-2022, there have been 109 high wind events, 6 thunderstorm wind events, and 5 tornado events in Saguache County. While high wind events are recorded on a zonal scale and therefore do not include information on the nearest impacted city, some thunderstorm and tornado events do. The most impacted towns by thunderstorm wind events are the Towns of Moffat (1), Saguache (1) and Crestone (1). Tornadoes were recorded to have impacted the Towns of Center (1) and Crestone (1) in Rio Grande County.

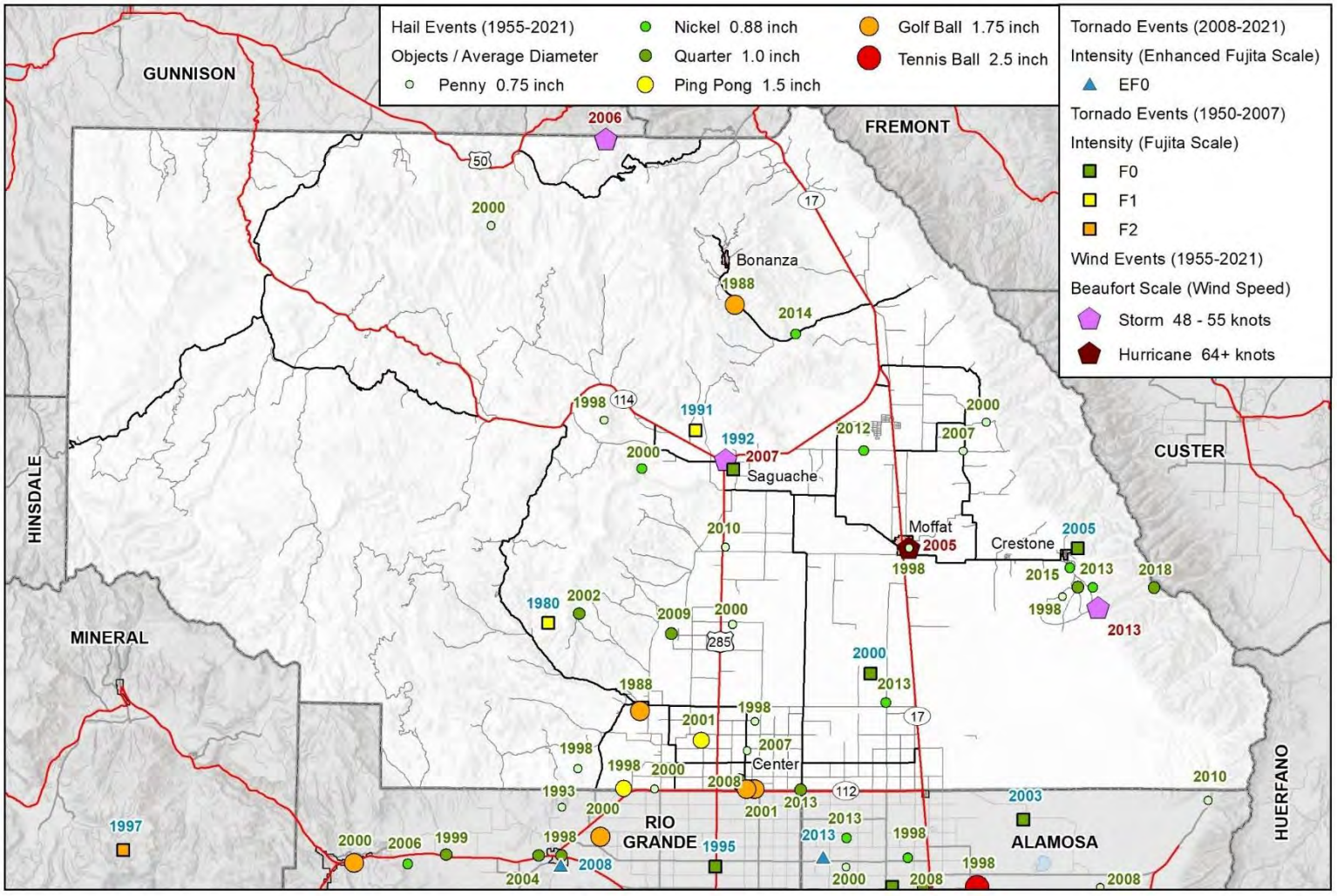
In total, six injuries were documented in the County, all due to high wind. Due to high winds being recorded on a zonal scale, it is uncertain if these injuries all occurred within the boundaries of Saguache County, as they might have occurred in a nearby city outside of the County. No fatalities were recorded.

The highest wind speed recorded in Saguache County reached 149 mph and the strongest tornado was an F1, which occurred on June 10th, 1980, and June 16th, 1991. In total, $616,500 in property damages were recorded in the County, $364,000 from high wind and $252,500 from two tornado events. It is difficult to determine the exact location that high wind damage occurred in the County due to the zonal nature of the data. The most damaging tornado event in the County occurred on June 16th, 1991, when an F1 tornado caused $250,000 in damages.

In terms of insured crop losses, according to the U.S. Department of Agriculture (USDA) Risk Management Agency (RMA) there have been insured crop losses every year (records were searched between 2007 and 2021). In total, 13,289.48 acres were lost to high winds and tornadoes and $1,325,511 indemnity payments made to farmers in Saguache County.

The figure below displays historic wind and tornado events in the County. Vulnerability to winds and tornadoes is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of wind risk related to Saguache County and the Region.

Figure F-18 Saguache County Historic High Wind and Tornado Events (1950-2021)



Cyber Attack

All servers, networks, and users are vulnerable to cyber-attacks in the San Luis Valley Region. The Privacy Rights Clearinghouse lists 172 data breaches against systems located in Colorado, totaling over 5,812,743 impacted records; however, it is difficult to know how many of those affected residents in Saguache County. Many small cyber-crimes also go unreported, so the true number of impacted residents in the community is likely much larger than the database estimates.

The database did not report any events that impacted Saguache County specifically. However, the San Luis Valley HMPC also noted that hospitals and elder populations have been popular targets for cyber-attacks across the region.

Vulnerability to cyber-attacks is not noticeably different from the rest of the region. Refer to Chapter 4 for a discussion of cyber-attack risk related to Saguache County and the Region.

Hazardous Materials Incidents

Hazardous materials vulnerability is significant within the San Luis Valley for transportation accidents due to the highways and railroad that passes through the County and all municipalities. Both Risk Management Plan and Tier II facilities are listed in the San Luis Valley's Multi Hazard Mitigation Plan in Table 4-75 and Table 4-74. According to San Luis Valley's Multi HMP, there have been 137 hazardous materials incidents in the project area from 1990 to 2021 with 13 of them taking place in Saguache County. There are also multiple pipelines transporting hazardous materials across the counties in the study area as well.

Pandemic

Vulnerability for pandemic does not vary from that in the Region.

F.7. Mitigation Capabilities Assessment

As part of the regional plan development, the Region and participating jurisdictions developed a mitigation capability assessment. Capabilities are those plans, policies and procedures that are currently in place that contribute to reducing hazard losses. Combining the risk assessment with the mitigation capability assessment results in "net vulnerability" to disasters and more accurately focuses the goals, objectives, and proposed actions of this plan. The CPT used a two-step approach to conduct this assessment. First, an inventory of common mitigation activities was made through the use of a matrix. The purpose of this effort was to identify policies and programs that were either in place or could be undertaken, if appropriate. Second, the CPT conducted an inventory and review of existing policies, regulations, plans, projects, and programs to determine if they contribute to reducing hazard related losses.

F.7.1. Saguache County Regulatory Mitigation Capabilities

Table F-13 lists planning and land management tools typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the San Luis Valley and each participating jurisdiction. Excerpts from applicable policies, regulations, plans, and programs descriptions follow to provide more detail on existing mitigation capabilities.

Saguache County and its communities, except for the Town of Center, do not have any adopted building codes as specified in Table F-13. The Town of Center has adopted building codes without modifications. The county and communities will be evaluating codes in 2023 through a process being led by Colorado Counties Inc.

Table F-13 Saguache County and Jurisdictions Regulatory Mitigation Capabilities

Planning & Regulatory Tools (ordinances, codes, plans)	Saguache County	Town of Center	Town of Crestone	Town of Moffat	Town of Saguache
Comprehensive, Master, or General Plan	Yes	No	Yes	No	Yes
Emergency Operations Plan	Yes (2019)	No	No	No	No
Economic Development Plan	No	No	No	No	No
Capital Improvement Program or Plan (CIP)	No	No	No	No	No
Community Wildfire Protection Plan (CWPP)	Yes	Yes	Yes	Yes	Yes
Building Code	No	Yes	NA	NA	NA
Building Code Year	NA	2006	NA	NA	NA
Floodplain Ordinance	Yes	No-NA	Yes	No-NA	Yes
Zoning Ordinance	Yes	Yes	Yes	No	NA
Subdivision Ordinance	Yes	No	Yes	No	NA
Stormwater Ordinance	No	No	No	No	No
Site Plan Review Requirements	No	Yes	No	No	No
National Flood Insurance Program (NFIP) Participant	Yes	NA	Yes	NA	Yes
Community Rating System (CRS) Participant	No	NA	No	No	No
Growth Management Ordinance	No	No	Yes	No	No
Floodplain Management Plan	No	No	No	No	No
Hazard-Specific Ordinance or Plan (Floodplain, Steep Slope, Wildfire)	No	No	No	No	No
BCEGS Rating	-	-	-	No	No
Erosion/Sediment Control Program	No	No	No	No	No
Flood Insurance Study	Yes	No	No	No	No
Floodplain Elevation Certificates	Yes	No	No	No	No
Other Hazard-Specific Ordinance or Plan (Steep Slope, Etc.)	Land Use Development Code, Septic Tank Regulations	No	No	No	No

F.7.2. Saguache County Administrative and Technical Mitigation Capabilities

Table F-14 identifies the County and Town personnel responsible for activities related to mitigation and loss prevention in Saguache County.

Table F-14 Saguache County Jurisdictions Administrative/Technical Mitigation Capabilities

Administrative/Technical Resources	Saguache County	Town of Center	Town of Crestone	Town of Moffat	Town of Saguache
Planner/Engineer (with knowledge of development practices)	Yes	No	No	No	No
Engineer/Professional (trained in construction practices)	Yes	No	No	No	No
Planner/Engineer/Scientist (with understanding of natural hazards)	Yes	No	No	No	No
GIS Capability	Yes - Contracted	No	No	No	No
Full-Time Building Official	No	Yes	No	No	No
Floodplain Administrator	Yes	No	Yes	No	Yes
Emergency Manager	Yes	No	No	No	No
Grant Writing	Yes	No	No	No	No
Warning Systems / Services (general)	Yes	Yes	Yes	Yes	Yes
- Sirens	No	No	No	No	No
- Reverse 911	Yes	Yes	Yes	Yes	Yes
- IPAWS/Wireless Emergency Alerts	Yes	Yes	Yes	Yes	Yes
- Opt-In Notifications (CodeRed, Everbridge, etc.)	Yes	Yes	Yes	Yes	Yes
- Other warning systems	Social Media	Social Media	Social Media	Social Media	Social Media
Transportation Planner	No	No	No	No	No
Resiliency Planner	No	No	No	No	No
Other?	-	-	-	-	-

F.7.3. Saguache County Financial Capabilities

Table F-15 identifies the County and Town financial tools or resources that the jurisdictions have access or are eligible to use and could potentially be used to help fund mitigation activities. The Town of Crestone has pursued and secured multiple Pre-Disaster Mitigation Grants.

Table F-15 Saguache County Jurisdictions Financial Capabilities

Financial Resources	Saguache County	Town of Center	Town of Crestone	Town of Moffat	Town of Saguache
Levy for Specific Purposes with Voter Approval	Yes	No	No	No	No

Financial Resources	Saguache County	Town of Center	Town of Crestone	Town of Moffat	Town of Saguache
Utilities Fees (Water, Sewer, Gas, or Electric Services)	Yes	No	No	No	No
Impact Fees for New System Development	No	No	No	No	No
Incur Debt through General Obligation Bonds	Yes	No	No	No	No
Incur Debt through Special Tax Bonds	Yes	No	No	No	No
Withhold Spending in Hazard-Prone Areas	Yes	No	No	No	No
Stormwater Service Fees	Yes	No	No	No	No
Capital Improvement Project Funding	Yes	No	No	No	No
Community Development Block Grants (CDBG)	Yes	No	No	No	No
Other?	-	-	Yes – FEMA PDM	-	-

F.7.4. Saguache County Education and Outreach Capabilities

Table F-16 shows the mitigation education and outreach capabilities the County and jurisdictions have in place now.

Table F-16 Saguache County Education and Outreach Capabilities

Education & Outreach	Saguache County	Town of Center	Town of Crestone	Town of Moffat	Town of Saguache
Public Education /Outreach Program	Yes - Website Social Media Press Releases Town Hall Meetings / Speaking Events	No	Yes -	No	No

Education & Outreach	Saguache County	Town of Center	Town of Crestone	Town of Moffat	Town of Saguache
Local Citizen Groups That Communicate Hazard Risks	No	Yes – Neighborhood watch, Community Health Workers (Promotors)	Yes – Peace Patrol & Baca Resiliency	No	No
Firewise	Yes	No	Yes	No	No
StormReady	No	No	No	No	No
Other?	-	-	-	-	-

F.7.5. Opportunities for Enhancement

Based on the capabilities assessment, Saguache County has several existing mechanisms in place that already help to mitigate hazards. There are also opportunities for the County to expand or improve on their policies, programs and fiscal capabilities and further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and DHSEM. Additional training opportunities will help to inform County and Town staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train staff on mitigation and the hazards that pose a risk to Saguache County will lead to more informed staff members who can better communicate this information to the public.

Other opportunities include improved cross-jurisdictional communication on evacuation and awareness to mitigate life safety impacts during dam incidents, floods, or wildfires including the development of brochures and using existing communication capabilities through social media such as Facebook. Other specific opportunities for improvement include:

- Update of CWPPs
- Partnering with schools on education and outreach regarding hazards
- Become StormReady

F.8. Mitigation Strategy

This section describes the mitigation strategy and mitigation action plan for Saguache County. See Chapter 5 of the base plan for more details on the process used to develop the mitigation strategy.

F.8.1. Goals

During the creation of the 2022 Regional Plan, the Saguache County planning team decided to revise their goals slightly from their previous iteration. The adopted goals are as follows:

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

F.8.2. Progress of 2018 Actions

During the 2022 planning process the Saguache County Planning Team reviewed all the mitigation actions from the 2018 plan. Of their 28 mitigation actions from 2018, 24 of the actions are continuing or are

implemented annually, demonstrating ongoing progress in building the community's resilience to disasters. Four actions were noted as being completed since 2018, detailed in Table F-17 below.

Table F-17 Completed and Deleted Actions

2018 ID	Mitigation Action	Hazards Mitigated	Jurisdiction	Priority	Status/Implementation Notes
Saguache -10	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.	Severe Weather Hazards	Saguache County	High	Completed. Doppler radar installed in Alamosa.
Center - 13	Assess the structural integrity of historic structures to withstand a potential earthquake, including the water tower.	Earthquake	Town of Center	Medium	Completed. The town has constructed a new water tower and removed the old water tower.
Moffat – 22	Assess the structural integrity of historic structures to withstand a potential earthquake.	Earthquake	Town of Moffat	Medium	Completed.
Crestone – 16	Seek funding, technical assistance and other resources to support efforts to become a Firewise Community.	Wildland Fires	Town of Crestone	High	Completed. The Town of Crestone is now a Firewise Community.

In addition to the complete actions listed above, the CPT noted the following mitigation success stories: Saguache County emergency sales tax grants supported upgrading the Crestone Charter School's exterior doors with panic bars and the installation of a variable message board at the Villa Grove Fire Department. Saguache County also provided financial support for numerous hazardous fuel reduction projects throughout the county in alignment with the current Community Wildfire Protection Plans.

F.8.3. Mitigation Action Plan

As a part of the 2022 regional planning process, the CPT reviewed the list of hazard mitigation actions or projects specific to Saguache County and its jurisdictions from the previous HMP and brainstormed ideas for new actions. The process used to identify, develop, and prioritize these actions is described in Chapter 5 of the base plan.

The County Planning Team identified and prioritized the following mitigation actions based on risk assessments, goals, and objectives. Background information as well as information on how the action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and timeline also are described. Per the DMA requirement, actions have been identified that address reducing losses to existing development as well as future development. Those that reduce losses to future development are indicated by an asterisk (*) in the Action Identification (ID) column in Table F-18.

Table F-18 Saguache County Mitigation Action Plan

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
S.1	Goals: 2, 3	Attend NFIP training program offered by the State.	Flood	Saguache County	Saguache County OEM	2024	Little to no cost; staff time, existing budget	Medium	Continue – In Progress.
S.2	Goals: 2, 3	Develop backup power sources for emergency services, including all fire stations.	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Saguache County	Saguache County OEM	2023-2028	$10,000 - $100,000; FEMA HMA, BRIC	High	Continue – In Progress.
S.3	Goals: 1, 2, 3	Implement actions identified in the Community Wildfire Protection Plans, with a priority on actions related to fuels treatment along evacuation zones and in high risk WUI communities. Update plans that are greater than 10 years old. Specific plans include:	Wildland Fires	Saguache County	Saguache County OEM, FPDs, Towns	Annual Implementation	$10,000 - $100,000; Existing budget, Forest Restoration & Wildfire Risk Mitigation grants (CSFS)	High	Annual Implementation

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		Northern Saguache County FPD CWPP (2007) Western Saguache County FPD CWPP (2008) Baca Grande Property Owners Association (2019) Center FPD CWPP (2008) Crestone Mountain (2018) Gold Basin CWPP (2008)							
S.4	Goals: 1, 2	Improve/develop warning systems throughout the county.	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Saguache County	Saguache County OEM	2023-2028	Little to no cost; Staff time, existing budget	Medium	Continue – In Progress.
S.5	Goals: 1, 2	Upgrade communication systems and build redundancy to serve in prolonged outages caused by severe winter	Winter Storm	Saguache County	Saguache County OEM	2023-2028	$10,000 - $100,000; FEMA HMA, BRIC	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		storms/solar flares.							
S.6	Goals: 2, 3	Seek updated FEMA digital floodplain maps (DFIRMs).	Flood	Saguache County	Saguache County OEM	2023-2025	$100,000-$1,000,000; CWCB and FEMA RiskMAP	High	Continue – In Progress.
S.7	Goals: 1, 2	Increase public awareness of the importance of emergency preparedness kits.	All Hazards	Saguache County	Saguache County OEM	Annual Implementation	Little to no cost; staff time, existing budget	Medium	Annual Implementation
S.8	Goals: 2, 3	Conduct a Phase I drainage study and implement actions to prevent damage due to stormwater flooding.	Flood	Saguache County	Saguache County OEM	2023-2028	$10,000-$100,000; FEMA, CWCB, grant funding	Medium	Continue – In Progress.
S.9	Goals: 1, 2, 3	Assess the structural integrity of historic structures to withstand a potential earthquake, including the Saguache County Courthouse.	Earthquake	Saguache County	Saguache County OEM	2023-2028	$10,000-$100,000; FEMA Historic Preservation Grants	Medium	Continue – In Progress.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
S.10	Goals: 2	Develop backup power sources for emergency services, including fire stations and facilities designated for public shelter/mass care; evaluate facilities that can be pre-wired to accept portable generators.	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Town of Crestone	Town of Crestone, Saguache County OEM	1-5 years	$10,000 - $100,000; FEMA HMA, BRIC	High	Continue – In Progress.
S.11	Goals: 2, 3	Replace diversion infrastructure on North Crestone Creek and investigate installation of culvert trash grates.	Flood	Town of Crestone	Town of Crestone, USFS, Division of Water Resources	<1 Year	$10,000 - $100,000; FEMA HMA Grant, CWCB	High	Continue – In Progress. SGM have looked at it, we are awaiting input so we can move forward.
S.12	Goals: 2, 3	Conduct a Phase I drainage study and implement actions to prevent damage due to	Flood	Town of Crestone	Town of Crestone	<1 Year	$10,000- $100,000; FEMA, HMA Grant Funding	High	Continue – In Progress. Engineers have all materials, just waiting on SGM to complete

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		stormwater flooding.							study. FEMA grant application in progress.
S.13	Goals: 1, 2, 3	Assess the structural integrity of historic structures to withstand a potential earthquake.	Earthquake	Town of Crestone	Town of Crestone	<1 Year	$100,000-$1,000,000; FEMA Historic Preservation Grants	High	Continue – In Progress. Assessment of Town Hall is in progress.
S.14	Goals: 1, 2	Initiate steps to recommission the old Center Municipal Power Plant as an alternate source of power for critical facilities and designated shelters.	Severe Weather Hazards	Town of Center	Town of Center, Saguache County OEM	1-5 years	$10,000 - $100,000; feasibility study, local funds, grant funding, DOLA	High	Continue – In Progress. Consulted with entities to see feasibility to convert existing power plant to modern generator to power entire town. Funding is huge. The Town has discovered through the last few power outages out of our control we are at the mercy of Xcel and when they can

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
									get things fixed. 6-10 hours @ 15 below zero is unacceptable
S.15	Goals: 2, 3	Conduct a Phase I drainage study and implement actions to prevent damage due to stormwater flooding.	Flood	Town of Center	Town of Center	Annual Implementation	$10,000-$100,000; FEMA, Grant Funding	Medium	Continue – In Progress. We have implemented lowering the elevation of the alleys, so the storm water no longer runs into buildings, starting with the business district.
S.16	Goals: 1, 2, 3	Implement the five-step process for receiving Firewise USA recognition status from the National Fire Protection Association (NFPA), including completion of a wildfire risk assessment and development of an action plan for	Wildland Fires	Town of Moffat	Town of Moffat	1-5 years	$10,000-$100,000; CSFS grant funding	High	Continue – Not Started. Lack of funding to date.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		reducing local hazards.							
S.17	Goals: 1, 2	Develop backup power sources for emergency services, including all fire stations, and identify shelter/mass care facilities and pre-wire to accept portable generator.	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Town of Moffat	Town of Moffat, Saguache County OEM	5+ years	$100,000-$1,000,000; FEMA HMA, BRIC	High	Continue – Not Started. Lack of funding to date.
S.18	Goals: 2, 3	Conduct a Phase I drainage study and implement actions to prevent damage due to stormwater flooding.	Flood	Town of Moffat	Town of Moffat	1-5 years	$10,000-$100,000; FEMA, Grant Funding	Medium	Continue – Not Started. Lack of funding to date.
S.19	Goals: 2, 3	Develop a flood protection plan that includes annual inspections, streambank cleaning, continued drainage	Flood	Town of Saguache	Town of Saguache	1-5 years	$25,000; FEMA, Grant Funding	High	Continue – In Progress. The Town currently performs annual maintenance on the headgates to gotthelf ditch which is used for irrigation.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		improvements, and maintenance of infrastructure on Saguache Creek.							Needs to develop a written plan for consistent implementation of annual maintenance.
S.20	Goals: 2, 3	Attend NFIP training program offered by the State and adopt new floodplain maps when completed.	Flood	Town of Saguache	Town of Saguache	Annual Implementation	Little to no cost	Medium	Continue – Not Started; CWCB has initiated a flood mapping study in 2023-2023
S.21	Goals: 2, 3	Develop backup power sources for emergency services, including all fire stations.	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Town of Saguache	Town of Saguache, Saguache County OEM	Less than 1 year	$65,000; Existing Budgets, FEMA HMA Grants	High	Continue – In Progress. Water well #1 and #2 have been wired to receive generator power as backup generator has been purchased. Solar power needs to be purchased and installed at the water tower and in the town shop to operate water

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
									system radios. The Community building need power conversion and generator is also needed.
S.22	Goals: 1, 2, 3	Conduct a Phase I drainage study and implement actions to prevent damage due to stormwater flooding.	Flood	Town of Saguache	Town of Saguache	1-5 years	$75,000; FEMA and CWCB grant funding	High	Continue – Not Started. Storm water drains located on 4th street need to be redesigned and/or repaired. In addition, our subwater drains need a written maintenance plan and design study.
S.23	Goals: 1, 2, 3	Assess the structural integrity of historic structures to withstand a potential earthquake.	Earthquake	Town of Saguache	Town of Saguache	1-5 years	$100,000-$1,000,000; FEMA Historic Preservation Grants	Medium	Continue – Not Started.

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
S.24	Goals: 2, 3	Seek updated FEMA digital floodplain maps (DFIRMs).	Flood	Town of Saguache	Town of Saguache, Saguache County OEM	Less than 1 year	$150,000; FEMA RiskMAP, CWCB	High	Continue – Not Started. The town has older flood plain maps that need to be reassessed and updated.
S.25	Goals: 1, 2, 3	Develop a wildland urban interface code	Wildland Fires	Saguache County	County Land Use & Planning Commission	1-5 years	Little to no cost; Staff time, existing budget	High	New in 2022
S.26	Goals: 1, 2, 3	Require Fire-Resistant Construction	Wildland Fires	Saguache County	County Land Use & Planning Commission	1-5 years	Little to no cost; Staff time, existing budget	Medium	New in 2022
S.27	Goals: 2, 3	Back up Powerline into San Luis Valley	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Saguache County	PUC & Utility Providers	5+ Years	>$10M; BRIC	High	New in 2022

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
S.28	Goals: 1	Develop backup power for schools and shelters	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Saguache County	School Districts	1-5 Years	$100,000; FEMA HMA, BRIC	Medium	New in 2022
S.29	Goals: 1	Increase wildfire risk awareness through education and public outreach	Wildland Fires	Saguache County	Saguache County Firewise, OEM, & FPDs.	Annual Implementation	$10,000; Staff time, existing budget	Medium	New in 2022
S.30	Goals: 2, 3	Expand local GIS capabilities to map and assess community risk	Avalanche, Dam Incident, Earthquake, Flood, Landslide/Debris Flow Rockfall	Saguache County	Saguache County Assessor a& Land Use	1-5 Years	$10,000; Staff time, existing budget	Low	New in 2022
S.31	Goal: 3	Complete stormwater drainage study for known problem areas in KV Estates	Flood	Saguache County	KV Estates HOA & Saguache County Road & Bridge	1-5 Years	$50,000; FEMA, Grant Funding	Low	New in 2022
S.31	Goal: 3	Complete stormwater drainage study for known problem areas in the Baca	Flood	Saguache County	Baca Grande HOA & Saguache County Road & Bridge	1-5 Years	$500,000; FEMA, Grant Funding	Low	New in 2022

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		Grande subdivision							
S.32	Goals: 2, 3	Enhance water supplies in the Baca Grande subdivision to build drought resilience and enhance supplies for wildfire mitigation and response. Install wells and holding tanks exclusive for the fire department, either redrilling one or two wells in the Baca Grande POA and/or drilling three new ones.	Drought, Wildland Fires	Saguache County	Baca Grande POA & Saguache County Road & Bridge	1-5 Years	Approximately $250k-500k; FEMA HMA	Medium	New in 2022
S.33	Goals: 2, 3	Support related drought and stream restoration projects identified in the 2021 Rio Grande Basin Implementation Plan (BIP) including:	Drought, Flood	Saguache County, Town of Center, Town of Crestone, Town of Moffat, Town of Saguache	County Land Use & Planning Commission, municipal administration Rio Grande Basin Roundtable	1-5 years	$885,000 for all four projects identified. Specific costs identified in the BIP. State Water Plan, NRCS, CWCB	Low	New in 2022

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		Baca NWR-Crestone Creek Riparian Restorations Baca NWR-Crestone Creek Wet Meadow Restorations Northern SLV Water Table Study on Conserved Lands Russell Lakes State Wildlife Area – Wetlands and Water Restoration			Colorado Parks and Wildlife, Ducks Unlimited				
S.34	Goals: 1	Install an additional NOAA radio tower to expand all-hazards radio coverage for enhanced alert and warning capabilities.	Severe Weather	Saguache County OEM	NOAA	1-5 Years	>$1M; NOAA	Low	New in 2022

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
S.35	Goals: 2, 3	Replace Cottonwood and Galena Bridges. Both bridges are subject to significant flood impacts. Currently posted a 3-ton limit to cut down on the risk of damage due to heavy vehicles crossing it. Fire trucks are unable to use the bridges.	Flood, Wildfire	Town of Crestone	Crestone Public Works, CDOT	2024	~$2.2 million to complete both bridges; BRIC, CDOT grant funding	High	New in 2022
S.36	Goals: 1, 2, 3	Generating abilities to provide power to the entire town during a power outage. Installing enough generating ability to power the entire town in the event of an extended power outage at any time of year. Several power outages in the recent past have proven to	Earthquake, Flood, Hail, Lightning, Severe Winter Weather, High Winds and Tornadoes, Wildland Fires	Town of Center	Town of Center, Xcel Energy	1-5 years	$1 million; FEMA HMA, BRIC	High	New in 2022

ID	Goal(s)	Action Description	Hazard(s) Mitigated	Jurisdiction	Lead Agency and Partners	Timeline	Cost Estimate and Potential Funding	Priority	Status/ Implementation Notes
		the Town that it is on its own under those circumstances. This has become extremely important because the town has elderly residents who are electricity dependent.							
S.36	Goals: 2	Install a well exclusive for the fire department, either redrilling one or two wells in town or drilling a new one. The Town of Moffat fire department does not have enough water coming from its wells if there is a fire in town the department has to wait for water to be trucked in from other areas.	Fire	Town of Moffat	Water Works, Fire Department	2025	$20,000; FEMA HMA grants	High	New in 2022

F.9. Plan Implementation and Maintenance

Moving forward the Saguache County HMPC will use the mitigation action table in the previous section to track progress on implementation of each project. Implementation of the plan overall is discussed in Chapter 6 of the base plan.

F.9.1. Incorporation into Existing Planning Mechanisms

As described in the capability assessment, the County already implements policies and programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through these other program mechanisms. Where applicable, these existing mechanisms could include:

- Saguache County Emergency Operations Plan (2020)
- Saguache County Annual Operating Plan (2019)
- Northern Saguache County FPD CWPP (2007)
- Western Saguache County FPD CWPP (2008)
- Baca Property Owners Association (2019)
- Center FPD CWPP (2008)
- Crestone Mountain (2018)
- Gold Basin CWPP (2008)
- 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 process for incorporation of the Regional Hazard Mitigation Plan into other planning mechanisms can be as simple as cross-referencing the Hazard Mitigation Plan where applicable. Integrated planning is a key to building community resilience.